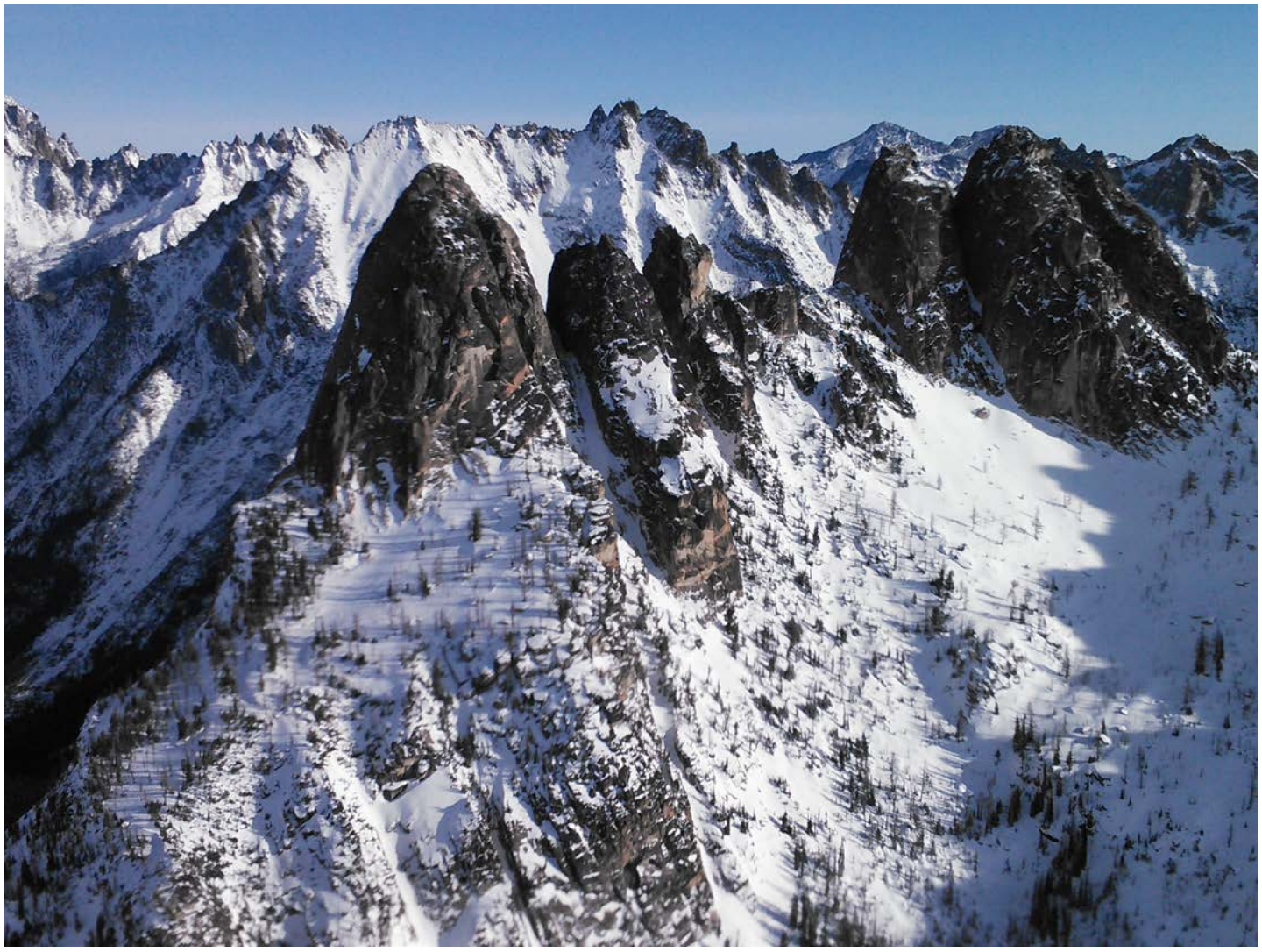
United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
January 1, 2014



December 28, 2013, Liberty Bell Peaks at Washington Pass, North Cascade Range, Washington. One of the most avalanche prone areas along highway 20 and one of the main reasons this highway permanently closes in winter shows it bones due to a serious lack of snow. Photo by Keith Kingslien, Elite Productions, Helicopter pilot Doug Uttecht, Northwest Helicopters.

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 2014

General Outlook

What a difference a year makes. At this time last year we were swimming in snow and now we are high and dry like a beached whale. As of January 1 over 20% of our long term (more than 10 years) SNOTEL network set new record low snow water content levels and with every passing day without significant snowfall that trend continues. So far 2014 is tracking very close to recent low water supply years of 1990, 2001 and 2005. Mountain recreationists should be joyous for the short term weather forecasts calling for a significant disturbance which should bring good mountain snow, if only for a short time. A return to high pressure and dry weather for the rest of the month is the current call. Long term forecasts seem to be changing weekly as the indicators continue to dance the dance but currently Climate Prediction Center is forecasting for below normal temperatures and an equal chance for above, below or normal precipitation.

Snowpack

The January 1 statewide SNOTEL readings were 45% but vary across the state. So far we have should have received about 50% of our annual total snowfall however we fall well short of that at only about 18%. The Green River data reported the lowest readings at 16% of average followed closely by the Lewis River with 19%. Readings from the Pend Orielle, including Idaho and Montana data, reported the highest at 102% of normal. Westside medians from SNOTEL, and January 1 snow surveys, included the North Puget Sound river basins with 56% of normal, the Central and South Puget river basins with 46%, and the Lewis-Cowlitz basins with 34% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 42% and the Wenatchee area with 55%. Snowpack in the Spokane River Basin was at 74% and the Walla Walla River Basin had 59% of the long term median.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	80	74
Newman Lake	73	72
Pend Oreille	105	102
Okanogan	50	75
Methow	44	59
Conconully Lake	20	38
Central Columbia	53	55
Upper Yakima	30	40
Lower Yakima	30	45
Ahtanum Creek	30	55
Walla Walla	66	59
Lower Snake	97	78
Cowlitz	10	19
Lewis	31	50
White	31	64
Green	22	16
Puyallup	32	59
Cedar	21	29
Snoqualmie	32	44
Skykomish	44	58
Skagit	37	44
Nooksack	42	69
Olympic Peninsula	11	24

Precipitation

The first three months of the water-year 2014 delivered dryer than normal conditions throughout Washington river basins. The highest percent of average was reported in the Walla Walla Basin with a December total of 115% however water-year average remained below normal at 84%. The Olympic Peninsula suffered the worst with only 31% for the water-year. The wettest spot in the state was reported at Alpine Meadows SNOTEL in the Tolt River Basin with a water-year accumulation of 45.6 inches, almost 15 inches below normal or 76% of average. Wenatchee reported only 0.19 inches of rain for December and 0.80 inches for the water-year.

RIVER BASIN	DECEMBER PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	61	65
Pend Oreille	50	63
Upper Columbia	31	48
Central Columbia	46	51
Upper Yakima	73	66
Lower Yakima	56	53
Walla Walla	115	84
Lower Snake	86	74
Lower Columbia	54	55
South Puget Sound	92	72
Central Puget Sound	86	73
North Puget Sound	52	53
Olympic Peninsula	25	31

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 2014 ended decent reservoir surplus. In fact several had to be drawn down in anticipation for winter runoff and flood control storage. Reservoir storage in the Yakima Basin was 411,000-acre feet, 119% of average for the Upper Reaches and 145,000-acre feet or 140% of average for Rimrock and Bumping Lakes. The power generation reservoirs included the following: Coeur d'Alene Lake, 50,000 acre feet, 54% of average and 21% of capacity; and the Skagit River reservoirs at 96% of average and 66% of capacity. Recent climate impacts and management procedures may affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	21	54
Pend Oreille	34	76
Upper Columbia		
Central Columbia		
Upper Yakima	49	119
Lower Yakima	63	140
Lower Snake	66	96
North Puget Sound	48	59

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

Streamflow

Forecasts vary from 51% of average for the Methow near Pateros to 101% of average for the Pend Oreille. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 86%; White River, 91%; and Skagit River, 76%. Some Eastern Washington streams include the Yakima River near Parker, 65%: Wenatchee River at Plain, 70%; and Spokane River near Post Falls, 81%. 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.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	57-84
Pend Oreille	73-101
Upper Columbia	51-109
Central Columbia	52-92
Upper Yakima	59-72
Lower Yakima	62-78
Walla Walla	85-91
Lower Snake	77-91
Lower Columbia	66-93
South Puget Sound	79-91
Central Puget Sound	81-87
North Puget Sound	74-88
Olympic Peninsula	70-73

STREAM	PERCENT OF AVERAGE DECEMBER STREAMFLOWS
Pend Oreille at Albeni Fall Dam	69
Kettle at Laurier	102
Columbia at Birchbank	79
Spokane at Spokane	70
Similkameen at Nighthawk	117
Okanogan at Tonasket	110
Methow at Pateros	120
Chelan at Chelan	49
Wenatchee at Pashastin	82
Cle Elum near Roslyn	102
Yakima at Parker	113
Naches at Naches	116
Grande Ronde at Troy	109
Snake below Lower Granite Dam	77
Columbia River at The Dalles	80
Cowlitz below Mayfield Dam	91
Skagit at Concrete	61
Dungeness near Sequim	34

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. Light fall precipitation created drier than optimal soils moisture conditions coming into winter. No good news with the current state of mountain snowpack. Much more snow will be needed to make up for any soil moisture deficits.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	52
Pend Oreille	65
Upper Columbia	25
Central Columbia	64
Upper Yakima	62
Lower Yakima	68
Walla Walla	68
Lower Snake	68
Lower Columbia	71
South Puget Sound	75
Central Puget Sound	N/A
North Puget Sound	68
Olympic Peninsula	34

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 2014

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ALPINE MEADOWS SNTL	3500	1/01/14	22	12.2	29.3	19.8
ASHLEY DIVIDE	4820	12/30/13	14	3.4	--	2.6
BADGER PASS SNOTEL	6900	1/01/14	49	13.9	13.0	12.5
BARKER LAKES SNOTEL	8250	1/01/14	32	7.9	6.8	5.9
BASIN CREEK SNOTEL	7180	1/01/14	24	6.0	2.7	3.6
BEAVER CREEK TRAIL	2200	12/29/13	2	.3	9.1	4.2
BEAVER PASS	3680	12/29/13	11	1.7	17.4	10.5
BEAVER PASS SNOTEL	3630	1/01/14	22	5.9	27.5	15.5
BLACK PINE SNOTEL	7100	1/01/14	19	4.2	4.1	4.2
BLACKWALL PILL CAN.	6370	1/01/14	42	12.0	19.4	15.4
BLEWETT PASS#2SNOTEL	4240	1/01/14	6	2.4	8.5	6.6
BROWN TOP AM	6000	12/29/13	49	7.7	31.0	26.2
BUCKINGHORSE SNOTEL	4870	1/01/14	8	4.2	43.5	--
BUMPING LAKE (NEW)	3400	1/02/14	0	.0	10.6	6.6
BUMPING RIDGE SNOTEL	4610	1/01/14	12	4.0	13.7	10.4
BUNCHGRASS MDWSNOTEL	5000	1/01/14	40	9.3	13.2	11.6
BURNT MOUNTAIN PIL	4170	1/01/14	4	1.9	11.1	4.5
CALAMITY SNOTEL	2500	1/01/14	0	.0	5.1	--
CAYUSE PASS SNOTEL	5240	1/01/14	24	7.5	35.2	--
CHESSMAN RESERVOIR	6200	12/29/13	7	1.2	--	1.4
COMBINATION SNOTEL	5600	1/01/14	6	1.3	1.9	2.0
COPPER BOTTOM SNOTEL	5200	1/01/14	9	2.8	2.4	--
CORRAL PASS SNOTEL	5800	1/01/14	28	10.1	18.4	14.8
COUGAR MTN. SNOTEL	3200	1/01/14	0	.0	10.3	6.6
COYOTE HILL	4200	12/27/13	17	4.1	2.3	3.2
DALY CREEK SNOTEL	5780	1/01/14	18	4.2	4.6	4.5
DEVILS PARK	5900	12/30/13	45	13.9	19.6	--
DISCOVERY BASIN	7050	12/31/13	15	3.2	3.9	3.8
DIX HILL	6400	1/01/14	13	2.4	3.4	3.9
DOMMERIE FLATS	2200	12/31/13	0	.0	3.9	4.1
DUNGENESS SNOTEL	4010	1/01/14	1	.4	9.3	3.2
ELBOW LAKE SNOTEL	3200	1/01/14	13	4.9	21.4	13.9
EMERY CREEK SNOTEL	4350	1/01/14	33	8.7	6.3	5.9
FARRON CAN.	4000	12/31/13	20	4.6	5.6	6.1
FISH CREEK	8000	1/02/14	31	8.2	4.0	3.6
FISH LAKE	3370	12/30/13	21	7.8	16.8	12.0
FISH LAKE SNOTEL	3430	1/01/14	17	5.3	13.9	13.0
FLATTOP MTN SNOTEL	6300	1/01/14	74	19.4	22.6	18.5
FOURTH OF JULY SUM	3200	12/31/13	8	1.9	4.7	3.0
FROHNER MDWS SNOTEL	6480	1/01/14	16	3.3	3.5	3.1
GRAVE CRK SNOTEL	4300	1/01/14	35	8.9	5.2	6.6
GREEN LAKE SNOTEL	5920	1/01/14	20	6.7	16.4	9.4
GREYBACK RES CAN.	4700	12/29/13	25	6.5	--	4.3
GROUSE CAMP SNOTEL	5390	1/01/14	13	5.0	13.5	8.6
HAND CREEK SNOTEL	5030	1/01/14	26	5.5	4.1	4.2
HARTS PASS SNOTEL	6490	1/01/14	38	12.6	25.2	17.7
HARTS PASS	6500	12/28/13	39	11.5	24.4	--
HELL ROARING DIVIDE	5770	12/31/13	52	14.7	16.0	11.0
HIGH RIDGE SNOTEL	4920	1/01/14	19	6.0	8.4	11.0
HOLBROOK	4530	1/01/14	12	2.8	2.1	3.2
HOODOO BASIN SNOTEL	6050	1/01/14	50	13.3	17.2	16.6
HUCKLEBERRY SNOTEL	2250	1/01/14	0	.0	3.0	.9
HUMBOLDT GLCH SNOTEL	4250	1/01/14	22	5.1	4.4	5.7
INDIAN ROCK SNOTEL	5360	1/01/14	4	2.5	21.0	--
ISINTOK LAKE CAN.	5100	1/02/14	16	2.3	3.3	3.4
JUNE LAKE SNOTEL	3440	1/01/14	6	2.4	29.8	16.6
KELLOGG PEAK	5560	12/31/13	20	4.7	8.1	11.8
KLESILKWA CAN.	3450	1/04/14	4	.9	7.2	4.6
KRAFT CREEK SNOTEL	4750	1/01/14	36	7.8	3.3	--
LOLO PASS SNOTEL	5240	1/01/14	41	9.9	8.6	11.0
LONE PINE SNOTEL	3930	1/01/14	5	1.8	31.5	15.3
LOOKOUT SNOTEL	5140	1/01/14	32	7.7	9.7	11.9
LOST HORSE SNOTEL	5120	1/01/14	8	2.2	13.4	6.8
LOST LAKE SNOTEL	6110	1/01/14	62	19.8	17.7	22.5
LUBRECHT FOREST NO 3	5450	12/31/13	11	1.9	1.3	2.2
LUBRECHT FOREST NO 4	4650	12/31/13	3	.6	.8	1.2
LUBRECHT FOREST NO 6	4040	12/31/13	4	1.0	1.2	1.3
LUBRECHT HYDROPLOT	4200	12/31/13	7	1.5	1.2	2.0
LUBRECHT SNOTEL	4680	1/01/14	6	1.6	1.6	2.4
LYMAN LAKE SNOTEL	5980	1/01/14	51	12.7	32.2	26.4
LYNN LAKE SNOTEL	3900	1/01/14	7	3.1	13.5	--
MARIAS PASS	5250	12/30/13	28	6.9	--	5.8
MARTEN RIDGE SNOTEL	3520	1/01/14	28	8.3	33.1	--
MEADOWS CABIN	1900	12/28/13	2	.4	3.1	--
MEADOWS PASS SNOTEL	3230	1/01/14	8	3.3	13.6	9.3
M F NOOKSACK SNOTEL	4970	1/01/14	43	17.5	26.9	16.6
MICA CREEK SNOTEL	4510	1/01/14	29	8.9	8.7	11.0
MISSION CREEK CAN.	5840	1/01/14	37	11.2	9.4	9.3
MONASHEE PASS CAN.	4500	1/04/14	33	9.0	4.1	6.6
MORSE LAKE SNOTEL	5410	1/01/14	25	9.5	33.8	22.0
MOSES MTN SNOTEL	5010	1/01/14	10	2.6	14.4	6.3
MOSQUITO RDG SNOTEL	5200	1/01/14	43	13.0	16.4	13.0
MOULTON RESERVOIR	6850	1/02/14	14	2.7	2.4	2.8
MOUNT CRAG SNOTEL	3960	1/01/14	3	1.8	26.8	11.3
MT. KOBAU CAN.	5500	12/28/13	14	2.6	--	5.4
MOWICH SNOTEL	3160	1/01/14	0	.0	4.8	.0
MOUNT GARDNER SNOTEL	2920	1/01/14	0	.0	8.6	6.3
N.F. ELK CR SNOTEL	6250	1/01/14	22	5.1	4.1	4.5
NEVADA RIDGE SNOTEL	7020	1/01/14	25	5.7	5.9	5.6
NEW HOZOMEEN LAKE	2800	12/30/13	4	.6	5.4	--
NEZ PERCE CMP SNOTEL	5650	1/01/14	23	5.8	5.0	5.8
NOISY BASIN SNOTEL	6040	1/01/14	74	21.2	18.0	16.1
OLALLIE MDWS SNOTEL	4030	1/01/14	32	9.8	26.7	19.5
OPHIR PARK	7150	1/01/14	21	5.0	5.3	5.7
PARADISE SNOTEL	5130	1/01/14	42	15.7	34.9	29.0
PARK CK RIDGE SNOTEL	4600	1/01/14	20	7.8	25.8	19.2
PEPPER CREEK SNOTEL	2140	1/01/14	0	.0	6.3	--
PETERSON MDW SNOTEL	7200	1/01/14	20	4.8	4.1	4.0
PIGTAIL PEAK SNOTEL	5800	1/01/14	47	15.9	24.4	21.0
PIKE CREEK SNOTEL	5930	1/01/14	17	3.7	4.6	9.7
POPE RIDGE SNOTEL	3590	1/01/14	5	2.2	10.6	8.8
POTATO HILL SNOTEL	4510	1/01/14	17	6.7	16.6	11.5
QUARTZ PEAK SNOTEL	4700	1/01/14	25	7.0	9.6	9.7
RAGGED MOUNTAIN	4200	1/01/14	23	6.6	13.8	9.8
RAGGED MTN SNOTEL	4210	1/01/14	23	6.9	10.3	12.5
RAINY PASS SNOTEL	4890	1/01/14	27	8.0	17.8	15.7
RAINY PASS	4780	12/28/13	34	8.6	20.0	--
REX RIVER SNOTEL	3810	1/01/14	10	4.6	17.7	12.9
ROCKER PEAK SNOTEL	8000	1/01/14	31	7.3	4.7	6.0
SADDLE MTN SNOTEL	7900	1/01/14	50	13.0	10.7	10.5
SALMON MDWS SNOTEL	4460	1/01/14	6	1.8	9.1	4.7
SASSE RIDGE SNOTEL	4340	1/01/14	21	5.5	16.3	11.7
SATUS PASS	3960	1/01/14	3	1.8	6.6	--
SAVAGE PASS SNOTEL	6170	1/01/14	39	8.9	10.8	10.3
SAWMILL RIDGE SNOTEL	4640	1/01/14	14	5.8	19.7	--
SENTINEL BT SNOTEL	4680	1/01/14	15	3.7	6.0	3.7
SHEEP CANYON SNOTEL	3990	1/01/14	8	3.4	26.4	15.1
SHERWIN SNOTEL	3200	1/01/14	---	2.8	3.2	4.5
SKALKAHO SNOTEL	7260	1/01/14	35	7.9	9.3	8.7
SKOOKUM CREEK SNOTEL	3310	1/01/14	12	3.4	20.6	9.6
SOURDOUGH GUL SNOTEL	4000	1/01/14	1	.5	1.1	.6
SPENCER MDW SNOTEL	3400	1/01/14	4	2.0	18.8	12.4
SPIRIT LAKE SNOTEL	3520	1/01/14	0	.0	15.7	3.1
SPOTTED BEAR MTN.	7000	12/29/13	22	5.3	5.1	5.3
SPRUCE SPGS SNOTEL	5700	1/01/14	17	3.6	3.9	7.1
STAHL PEAK SNOTEL	6030	1/01/14	55	15.4	13.6	15.1
STAMPEDE PASS SNOTEL	3850	1/01/14	10	3.9	14.6	17.4
STEVENS PASS SNOTEL	3950	1/01/14	32	9.3	20.0	17.0
STORM LAKE	7780	12/31/13	23	5.6	5.4	5.1
SUMMERLAND RES CAN.	4200	1/02/14	22	4.8	3.8	4.5
SUNSET SNOTEL	5540	1/01/14	27	6.9	7.0	7.5
SURPRISE LKS SNOTEL	4290	1/01/14	14	5.2	28.0	19.9
SWAMP CREEK SNOTEL	3930	1/01/14	21	6.6	8.9	5.8
SWIFT CREEK SNOTEL	4440	1/01/14	11	5.2	39.6	23.4
TEN MILE LOWER	6600	12/26/13	16	4.2	--	2.7
TEN MILE MIDDLE	6800	12/26/13	23	5.8	--	4.3
THUNDER BASIN SNOTEL	4320	1/01/14	17	5.8	17.9	14.2
TINKHAM CREEK SNOTEL	2990	1/01/14	8	3.2	12.5	9.8
TOUCHET SNOTEL	5530	1/01/14	22	8.2	13.2	12.9
TRINKUS LAKE	6100	1/02/14	68	19.7	19.1	16.9
TROUGH #2 SNOTEL	5480	1/01/14	12	4.6	7.6	5.2
TRUMAN CREEK	4060	12/30/13	7	1.0	--	1.9
TUNNEL AVENUE	2450	12/31/13	0	.0	6.1	6.3
TWELVEMILE SNOTEL	5600	1/01/14	22	4.8	5.8	6.6
TWIN LAKES SNOTEL	6400	1/01/14	51	11.9	13.0	16.1
TWIN SPIRIT DIVIDE	3480	1/01/14	5	1.8	3.6	6.2
UPPER HOLLAND LAKE	6200	1/02/14	56	14.8	11.2	13.0
UPPER WHEELER SNOTEL	4330	1/01/14	4	2.3	6.3	5.0
WARM SPRINGS SNOTEL	7800	1/01/14	40	9.2	7.9	8.6
WATERHOLE SNOTEL	5010	1/01/14	13	5.5	30.5	17.0
WEASEL DIVIDE	5450	12/30/13	47	13.6	14.2	12.6
WELLS CREEK SNOTEL	4030	1/01/14	20	7.1	21.2	12.5
WHITE PASS ES SNOTEL	4440	1/01/14	8	2.9	12.2	9.0

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Snow, Water and Climate Services

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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

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

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

USDA-NRCS Agency Homepages

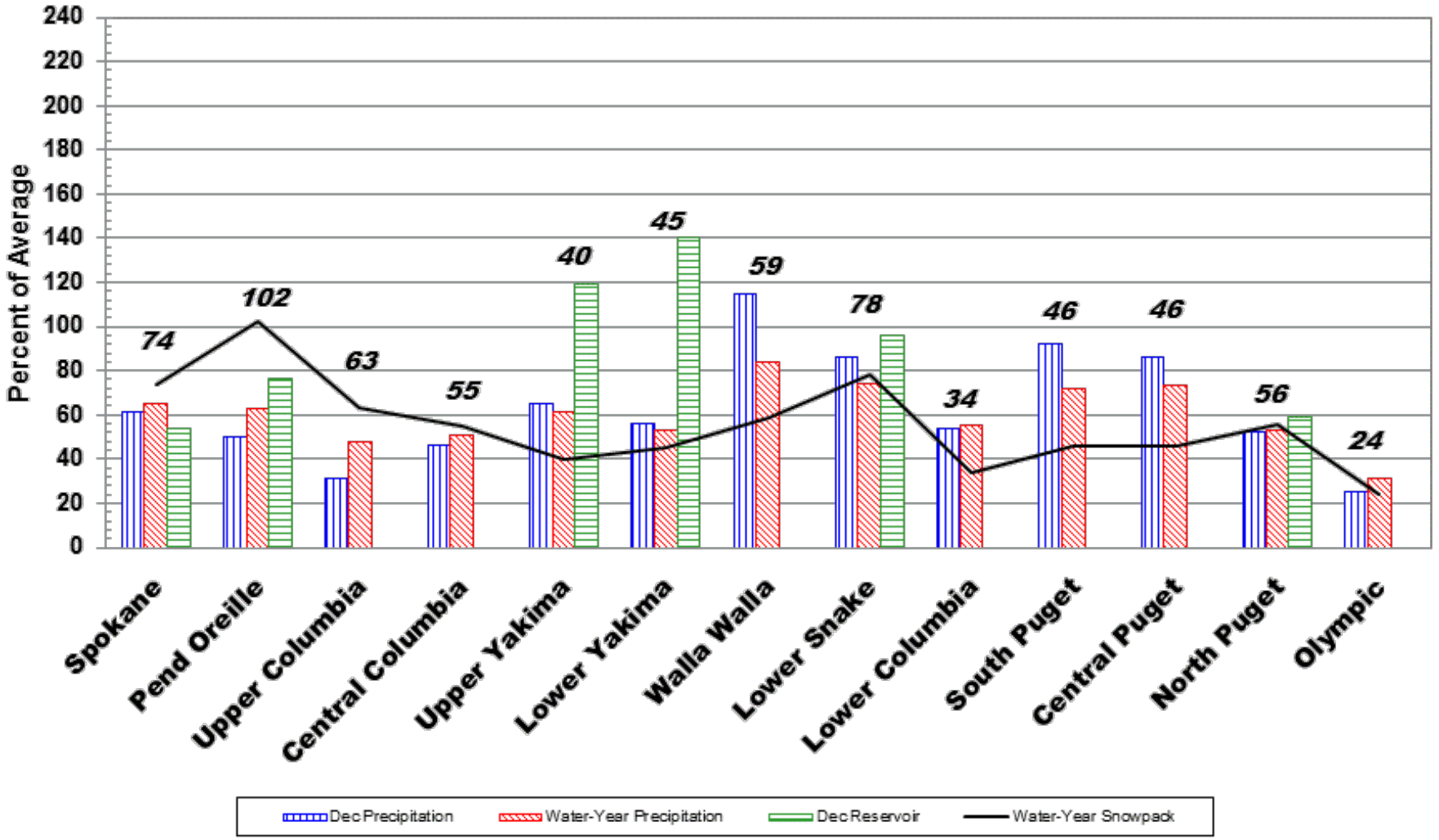
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

January 1, 2014 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2013 - 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 South Continental Area Committee is making plans for the 82nd Annual Western Snow Conference in 2014.

Mark your calendar and start thinking about submitting a paper to attend the 2014 Western Snow Conference:

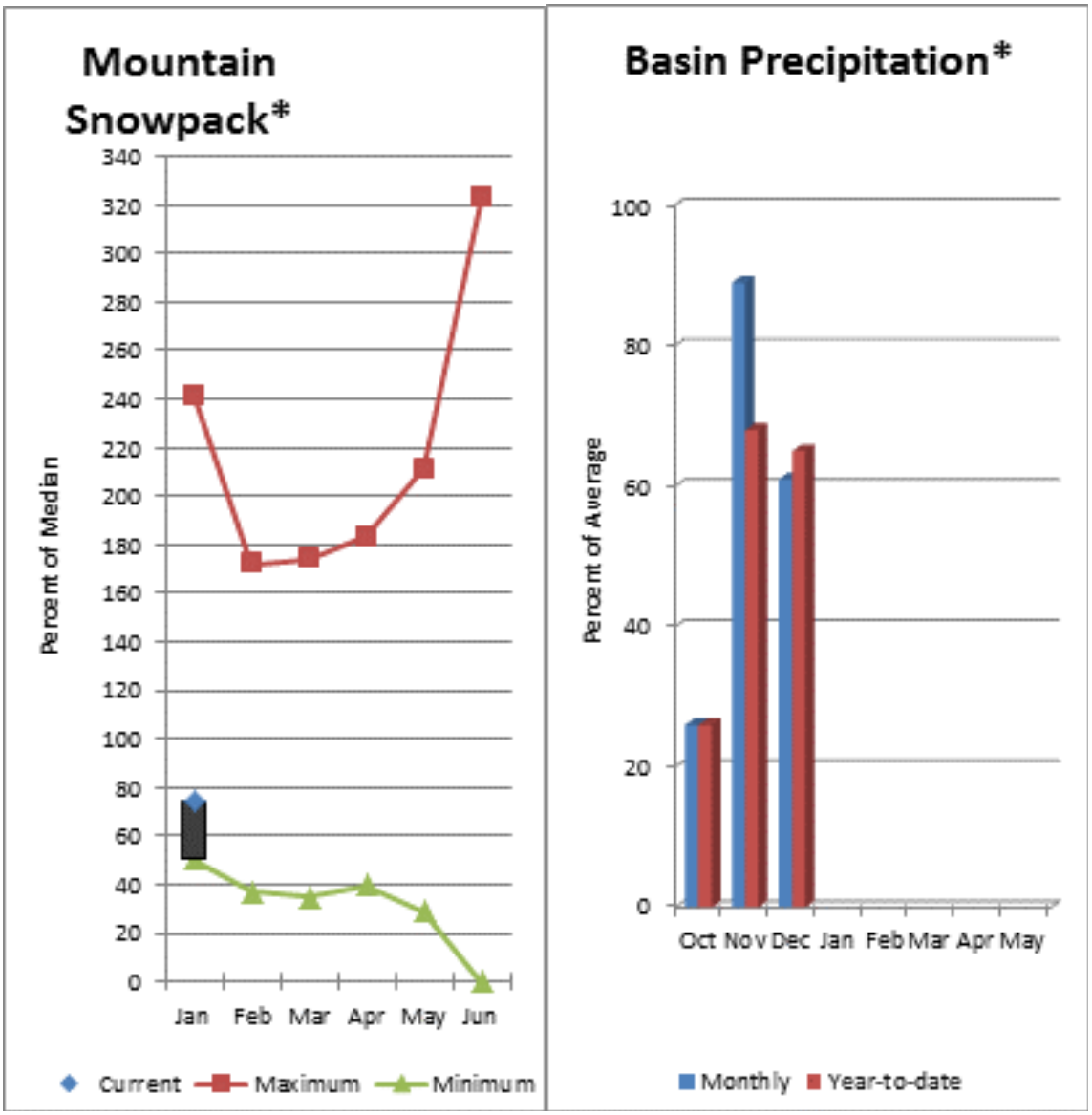
Dates: April 14-17, 2014
Location: Durango, Colorado

The Technical Tour is scheduled for Thursday, April 17th, to explore current research activities in the Durango/Silverton area led by personnel of the Center for Snow and Avalanche Studies in Silverton. One of their projects is the issue of dust on snow, changes in albedo, accelerated melt, and the subsequent impact on stream flow.

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 81% of average near Post Falls and 84% at Long Lake. The Chamokane River near Long Lake forecasted to have 57% of average flows for the May-August period. The forecast is based on a basin snowpack that is 74% of normal and precipitation that is 65% of average for the water year. Precipitation for December was above normal at 61% of average. Streamflow on the Spokane River at Spokane was 71% of average for December. January 1 storage in Coeur d'Alene Lake was 50,000 acre feet, 54% of average and 21% of capacity. Snowpack at Quartz Peak SNOTEL site was 72% of average with 7 inches of water content. Average temperatures in the Spokane basin were 1-2 degrees above normal for December and 1-2 degrees below normal for the water year.

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

Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>					30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Spokane R nr Post Falls (2)	APR-JUL	1050	1580	1950	82	2320	2850	2390
	APR-SEP	1100	1650	2020	81	2390	2940	2480
Spokane R at Long Lake (2)	APR-JUL	1190	1800	2210	84	2620	3230	2620
	APR-SEP	1340	1970	2400	84	2830	3460	2850
Chamokane Ck nr Long Lake	MAY-AUG	1.93	3.9	5.3	57	6.7	8.7	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	50.4	72.9	93.7

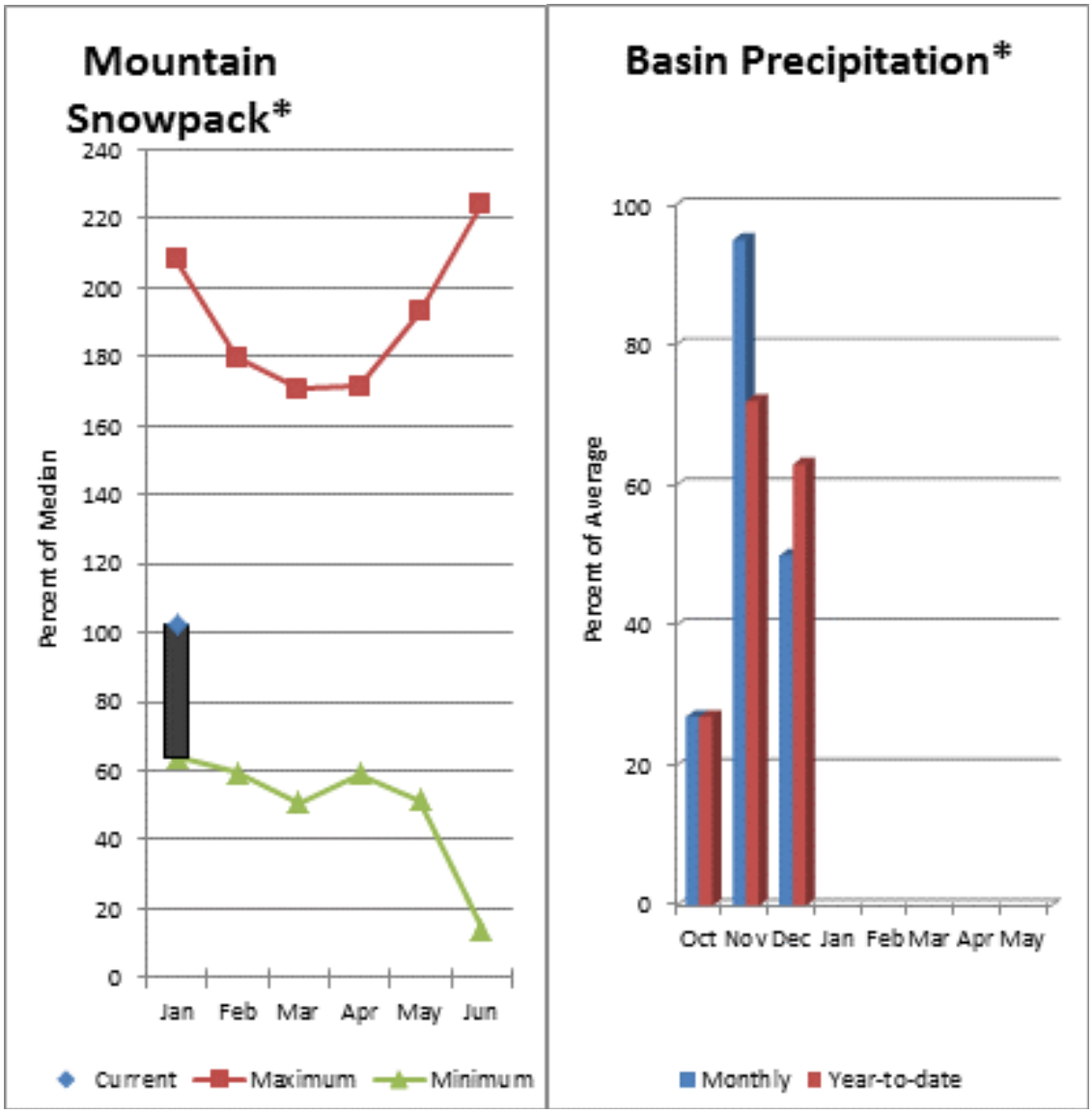
SPOKANE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
SPOKANE RIVER	13	79	72
NEWMAN LAKE	1	73	72

* 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.



*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 73% and the Pend Orielle below Box Canyon is 101%. December streamflow was 69% of average on the Pend Oreille River and 79% on the Columbia Birchbank. January 1 snow cover was 102% of normal in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 9.3 inches of snow water on the snow pillow. Normally Bunchgrass would have 11.6 inches on January 1. Precipitation during December was 50% of average, keeping the year-to-date precipitation at 63% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 76% of normal. Average temperatures were 1-2 degrees above normal for December and 1-2 degrees below normal for the water year.

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

Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>					30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Pend Oreille Lake Inflow (2)	APR-JUL	8960	1070	11800	100	12900	14600	11800
	APR-SEP	9950	1170	12900	101	14100	15900	12800
Priest R nr Priest River (1,2)	APR-JUL	215	425	570	73	615	825	780
	APR-SEP	230	455	605	73	655	880	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	9110	1080	12000	101	13200	14900	11900
	APR-SEP	10100	1190	13100	101	14300	16100	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.	522.6	900.3	708.2
Priest Lake	119.3	54.9	64.1	56.5

PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
COLVILLE RIVER	0		
PEND OREILLE RIVER	49	104	103
KETTLE RIVER	1	62	100

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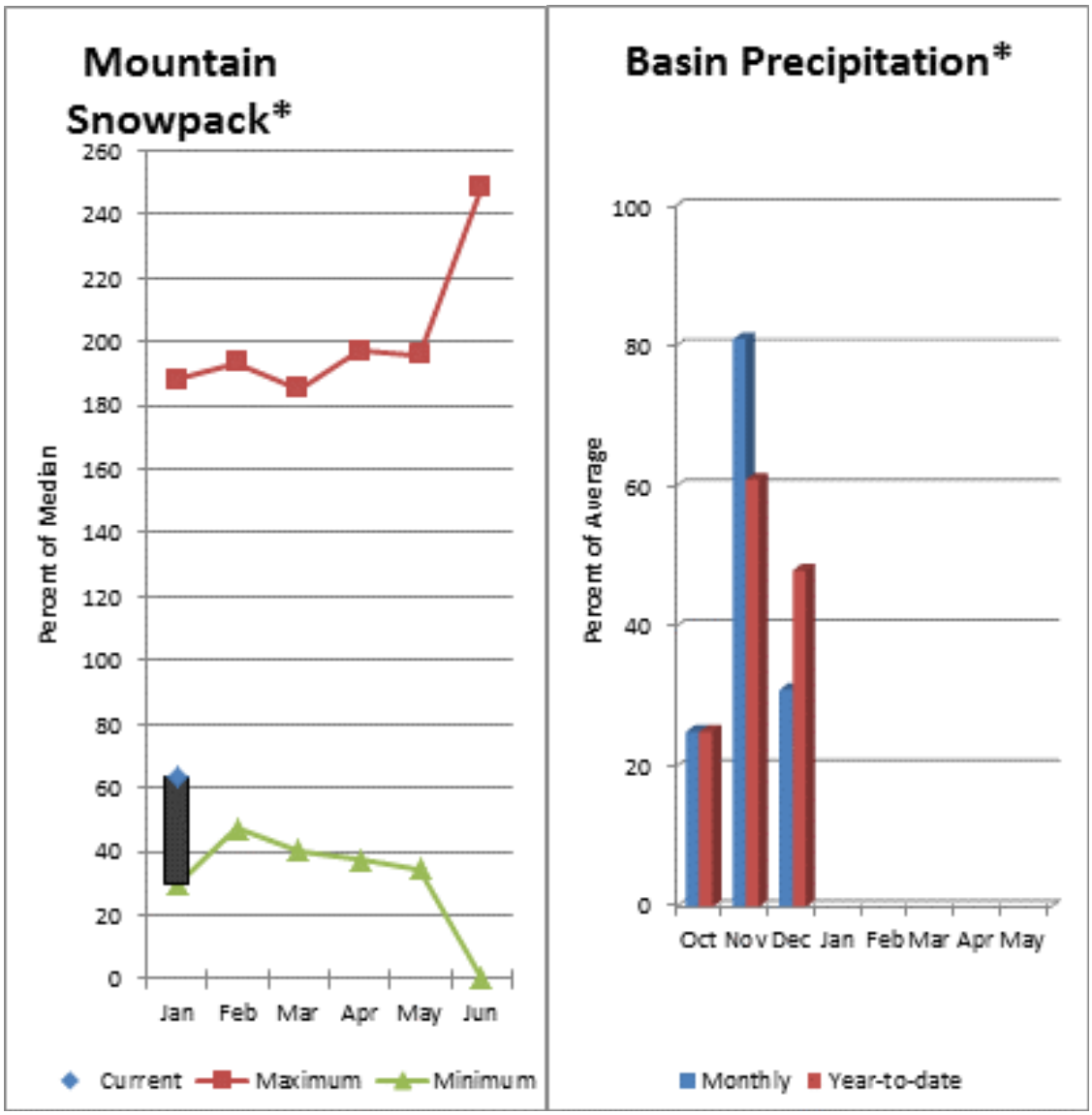

*Based on selected stations

Summer runoff average forecast for the Okanogan River is 109%, Similkameen River is 80%, Kettle River 91% and Methow River is 51%. January 1 snow cover on the Okanogan was 77% of normal, Omak Creek was 41% and the Methow was 59%. December precipitation in the Upper Columbia was 31% of average, with precipitation for the water year at 48% of average. December streamflow for the Methow River was 120% of average, 110% for the Okanogan River and 117% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 1.8 inches. Average for this site is 4.7 inches on January 1. Combined storage in the Conconully Reservoirs was not available at this time. Temperatures were 1-2 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, 2014

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	9.5	42	72	61	102	146	119
	APR-SEP	13.1	47	80	61	113	161	131
Kettle R nr Laurier	APR-JUL	1110	1430	1640	91	1850	2170	1800
	APR-SEP	1150	1480	1710	91	1940	2270	1880
Columbia R at Birchbank (1,2)	APR-JUL	22200	27900	30500	90	33100	38800	33840
	APR-SEP	27600	34800	38000	91	41200	48400	41750
Columbia R at Grand Coulee (2)	APR-JUL	30700	41100	45900	90	50700	61100	51015
	APR-SEP	37100	49600	55300	92	61000	73500	60110
Similkameen R nr Nighthawk (1)	APR-JUL	510	820	960	80	1100	1410	1200
	APR-SEP	535	870	1020	80	1170	1500	1280
Okanogan R nr Tonasket (1)	APR-JUL	805	1320	1550	105	1780	2300	1480
	APR-SEP	870	1450	1720	104	1990	2570	1650
Okanogan R at Malott (1)	APR-JUL	820	1360	1600	110	1840	2380	1450
	APR-SEP	885	1490	1770	109	2050	2660	1620
Methow R nr Pateros	APR-JUL	155	320	435	52	550	715	835
	APR-SEP	165	340	460	51	580	755	895

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	9.3	8.5	---
CONCONULLY RESERVOIR	13.0	11.3	9.1	---

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OKANOGAN RIVER	2	42	64
OMAK CREEK	1	18	41
SANPOIL RIVER	0		
SIMILKAMEEN RIVER	0		
TOATS COULEE CREEK	0		
CONCONULLY LAKE	1	20	38
METHOW RIVER	3	43	59

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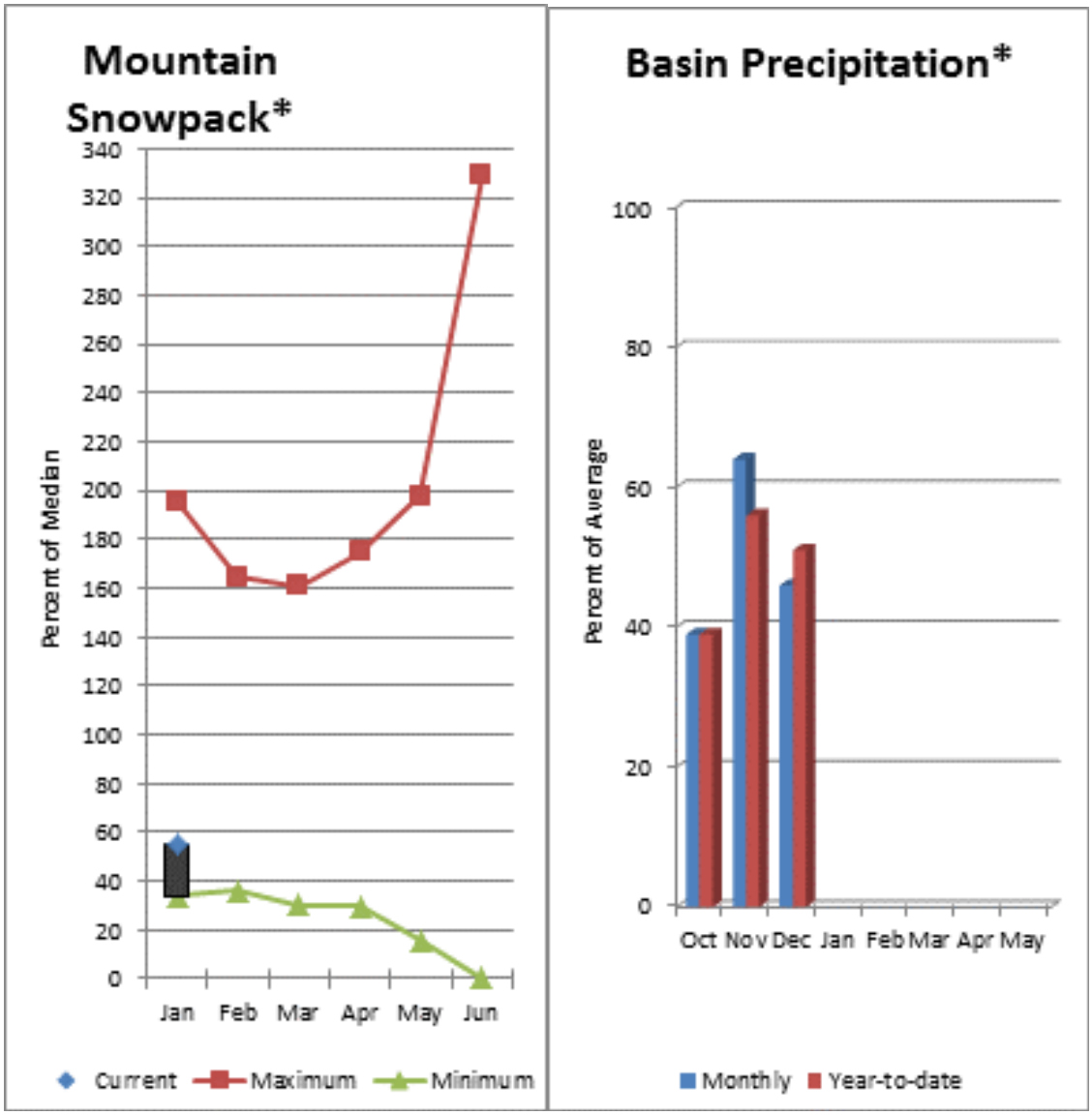

*Based on selected stations

Precipitation during December was 46% of average in the basin and 51% for the year-to-date. Runoff for Entiat River is forecast to be 52% of average for the summer. The April-September average forecast for Chelan River is 66%, Wenatchee River at Plain is 70%, Stehekin River is 74% and Icicle Creek is 73%. December average streamflows on the Chelan River were 48% and on the Wenatchee River 82%. January 1 snowpack in the Wenatchee River Basin was 50% of normal; the Chelan, 46%; the Entiat, 25%; Stemilt Creek, 68% and Colockum Creek, 88%. Reservoir storage in Lake Chelan was not available. Lyman Lake SNOTEL had the most snow water with 12.7inches of water. This site would normally have 26.4 inches on January 1. Temperatures were 3-5 degrees above normal for December and near normal for the water year.

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

Streamflow Forecasts - January 1, 2014

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	365	455	520	76	585	675	680
	APR-SEP	415	515	585	74	655	755	790
Chelan R at Chelan (2)	APR-JUL	480	600	680	68	760	880	1000
	APR-SEP	495	640	735	66	830	975	1120
Entiat R nr Ardenvoir	APR-JUL	52	86	109	55	132	166	200
	APR-SEP	54	90	115	52	140	176	220
Wenatchee R at Plain	APR-JUL	465	615	715	72	815	965	990
	APR-SEP	480	645	755	70	865	1030	1080
Icicle Ck nr Leavenworth	APR-JUL	138	178	205	75	230	270	275
	APR-SEP	150	192	220	73	250	290	300
Wenatchee R at Peshastin	APR-JUL	660	860	995	73	1130	1330	1370
	APR-SEP	675	900	1050	70	1200	1420	1490
Columbia R bl Rock Island Dam (2)	APR-JUL	37500	45400	50800	91	56200	64100	55770
	APR-SEP	44300	53600	60000	92	66400	75700	65200

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Lake Chelan	676.1	---	387.4	411.3

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CHELAN LAKE BASIN	3	38	46
ENTIAT RIVER	1	21	25
WENATCHEE RIVER	7	42	52
STEMILT CREEK	1	37	46
COLOCKUM CREEK	1	61	88

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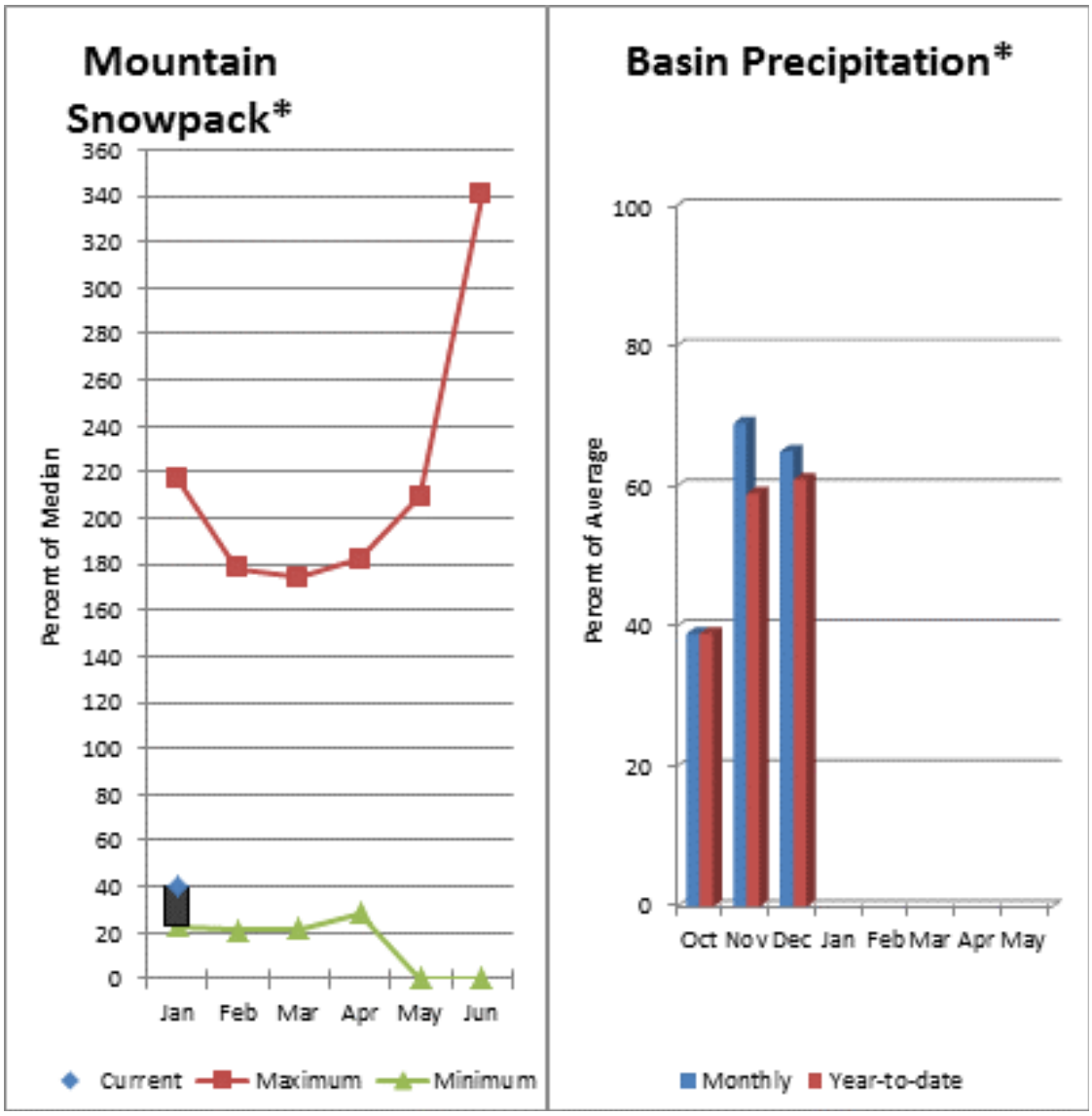

*Based on selected stations

January 1 reservoir storage for the Upper Yakima reservoirs was 411,000-acre feet, 119% of average. Forecasts for the Yakima River at Cle Elum are 68% of average and the Teanaway River near Cle Elum is at 59%. Lake inflows are all forecasted to be below average this summer as well. December streamflows within the basin were Cle Elum River near Roslyn at 110%. January 1 snowpack was 40% based upon 9 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 65% of average for December and 61% 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 - January 1, 2014

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Keechelus Reservoir Inflow (2)	APR-JUL	43	66	81	70	96	119	116
	APR-SEP	49	72	88	70	104	127	126
Kachess Reservoir Inflow (2)	APR-JUL	37	58	73	70	88	109	104
	APR-SEP	42	63	77	68	91	112	113
Cle Elum Lake Inflow (2)	APR-JUL	175	240	285	74	330	395	385
	APR-SEP	183	255	300	72	345	415	415
Yakima R at Cle Elum (2)	APR-JUL	285	425	520	69	615	755	755
	APR-SEP	315	465	565	68	665	815	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	20	54	77	59	100	134	130
	APR-SEP	22	56	79	59	102	136	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	85.9	93.7	68.5
Kachess	239.0	162.3	172.7	113.4
Cle Elum	436.9	163.0	272.6	164.0

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
UPPER YAKIMA RIVER	8	32	38

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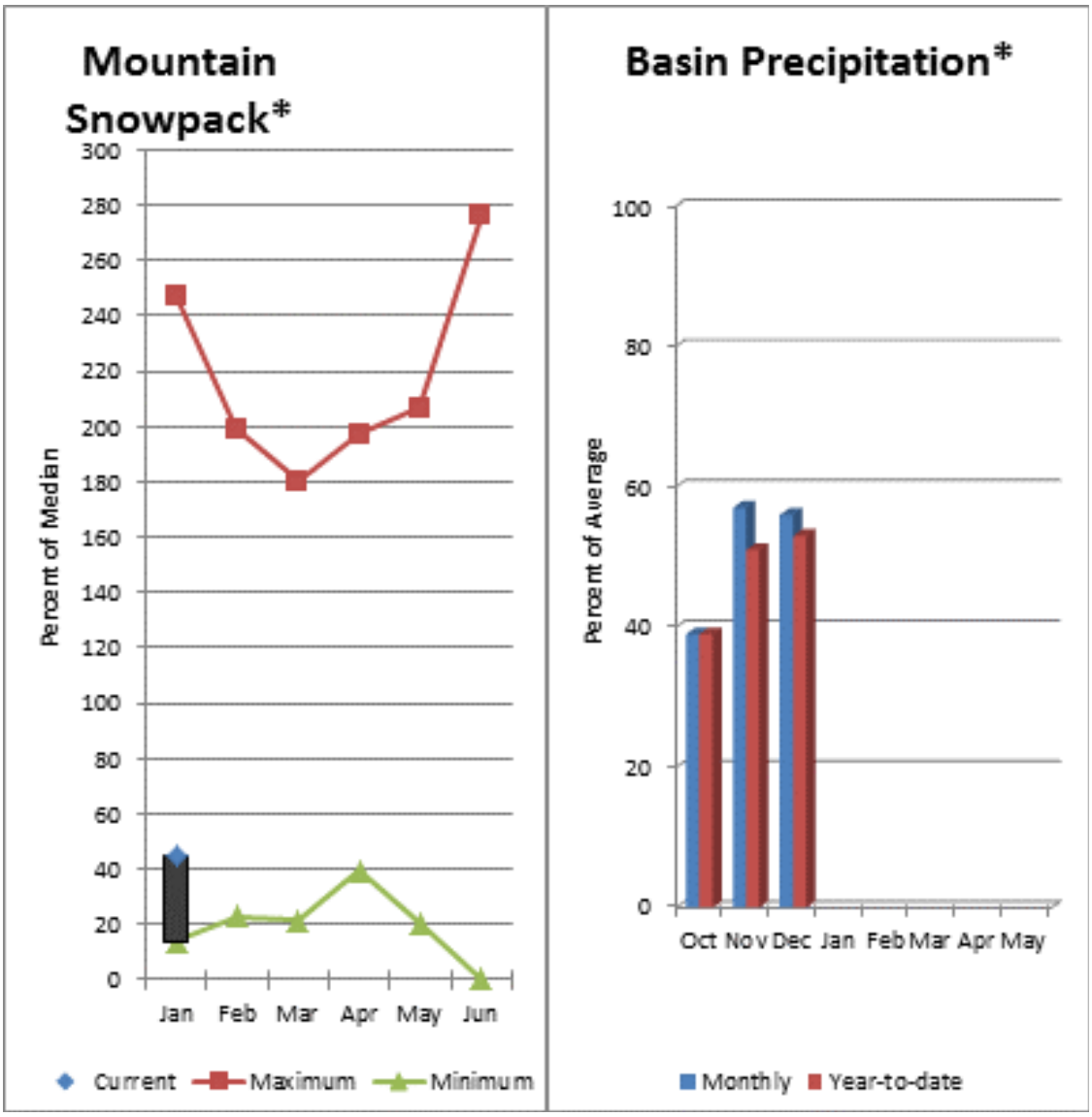

*Based on selected stations

December average streamflows within the basin were: Yakima River near Parker, 108%; Naches River near Naches, 101%; and Yakima River at Kiona, 103%. January 1 reservoir storage for Bumping and Rimrock reservoirs was 145,000-acre feet, 140% of average. Forecast averages for Yakima River near Parker are 65%; American River near Nile, 62%; Ahtanum Creek, 62%; and Klickitat River near Glenwood, 66%. January 1 snowpack was 45% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 55% of normal. Precipitation was 56% of average for December and 53% year-to-date for water. Temperatures were 2-5 degrees above normal for December and for 1-2 degrees below normal for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they January differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Streamflow Forecasts - January 1, 2014

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	54	73	85	75	97	116	114
	APR-SEP	58	78	91	74	104	124	123
American R nr Nile	APR-JUL	38	54	65	64	76	92	102
	APR-SEP	38	56	68	62	80	98	110
Rimrock Lake Inflow (2)	APR-JUL	101	127	145	78	163	189	187
	APR-SEP	120	150	170	77	190	220	220
Naches R nr Naches (2)	APR-JUL	275	390	470	67	550	665	700
	APR-SEP	285	415	500	66	585	715	760
Ahtanum Ck at Union Gap	APR-JUL	0.85	9.9	16.1	60	22	31	27
	APR-SEP	2.4	11.7	18.0	62	24	34	29
Yakima R nr Parker (2)	APR-JUL	580	885	1090	66	1300	1600	1660
	APR-SEP	640	965	1190	65	1410	1740	1820
Klickitat R nr Glenwood	APR-JUL	47	68	83	66	98	119	126
	APR-SEP	53	76	92	66	108	131	139
Klickitat R nr Pitt	APR-JUL	215	280	325	75	370	435	435
	APR-SEP	275	355	405	78	455	535	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	21.3	14.4	11.5
Rimrock	198.0	123.9	121.9	92.4

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER YAKIMA RIVER	7	30	45
AHTANUM CREEK	2	30	55

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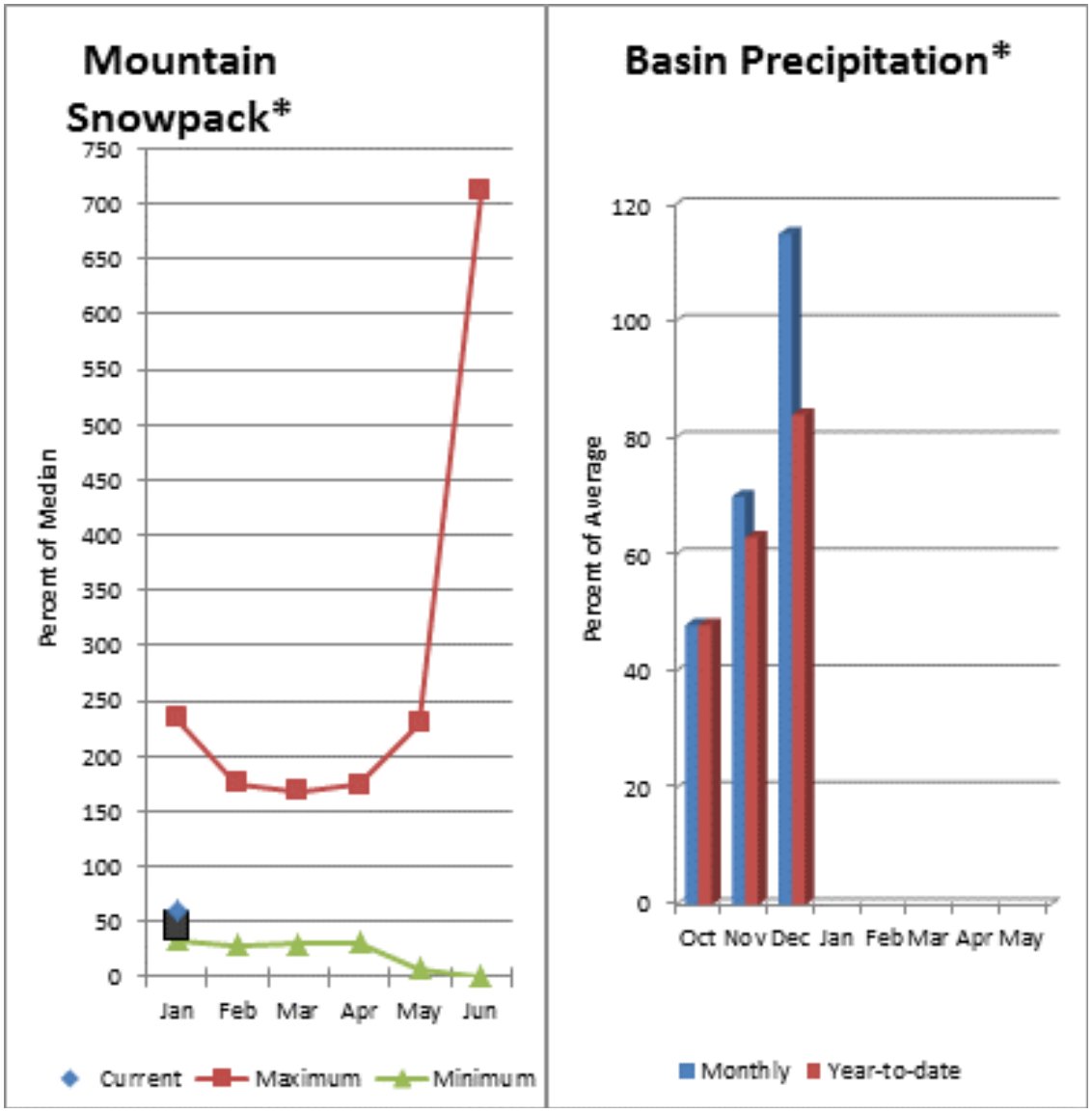

*Based on selected stations

December precipitation was 115% of average, maintaining the year-to-date precipitation at 84% of average. Snowpack in the basin was 59% of normal. Streamflow forecasts are 85% of average for Mill Creek and 91% for the SF Walla Walla near Milton-Freewater. Average temperatures were 2-4 degrees above normal for December and 2-3 degrees below normal for the water year.

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

Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<====== Drier ====== 90% (1000AF)	70% (1000AF)	Future Conditions ======= 50% (1000AF)	50% (% AVG.)	Wetter =====>> 30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SF Walla Walla R nr Milton-Freewater	MAR-SEP	61	69	74	93	79	87	80
	APR-JUL	38	44	48	89	52	58	54
	APR-SEP	49	55	60	91	65	71	66
Mill Ck nr Walla Walla	APR-JUL	13.0	17.0	19.8	83	23	27	24
	APR-SEP	15.8	20	23	85	26	30	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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WALLA WALLA RIVER	2	66	59

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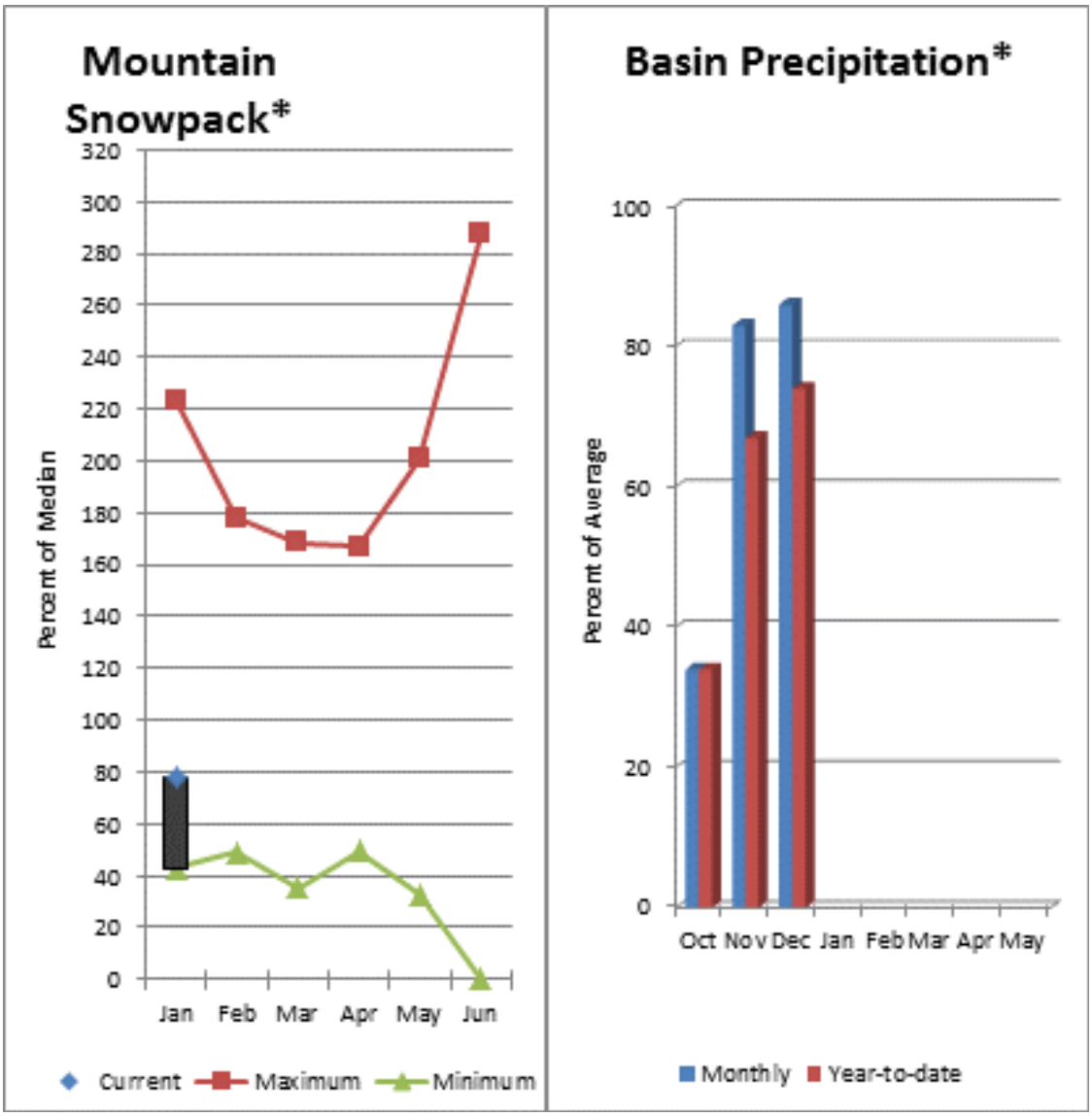

*Based on selected stations

The Grande Ronde River can expect summer flows to be about 83% of normal. The forecast for Asotin Creek at Asotin predicts 77% of average flows for the April – July runoff period. December precipitation was 86% of average, bringing the year-to-date precipitation to 74% of average. January 1 snowpack readings averaged 78% of normal. December streamflow was 77% of average for Snake River below Lower Granite Dam and 130% for Grande Ronde River near Troy. Dworshak Reservoir storage was 96% of average. Average temperatures were 2-3 degrees above normal for December and 2-3 degrees below for the water year.

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Streamflow Forecasts - January 1, 2014

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	730	1100	1270	84	1440	1810	1510
	APR-SEP	575	930	1090	83	1250	1600	1310
Asotin Ck at Asotin	APR-JUL	8.7	19.6	27	77	34	45	35
Clearwater River At Spalding, Id	APR-JUL	3450	5370	6240	91	7110	9030	6890
	APR-SEP	3740	5700	6590	91	7480	9440	7270
Snake R bl Lower Granite Dam	APR-JUL	7730	15200	18600	94	22000	29500	19848
	APR-SEP	9080	17500	21300	96	25100	33500	22280

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.0	2298.8	1565.4	2403.0

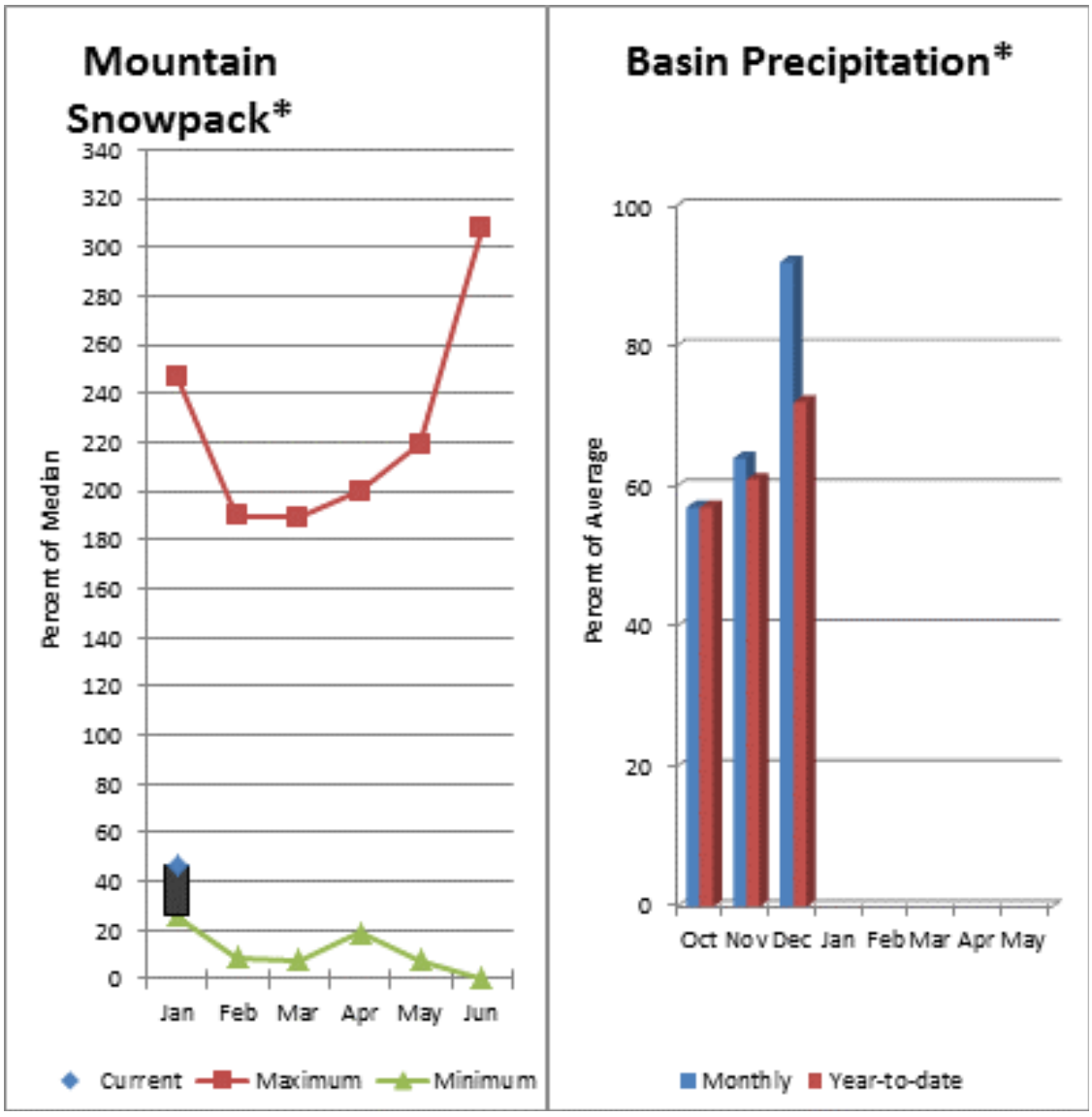
LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
LOWER SNAKE, GRANDE RON	12	104	83

* 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.



*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 80% and Cowlitz River at Castle Rock, 85% of average. The Columbia at The Dalles is forecasted to have 93% of average flows this summer according to the River Forecast Center. December average streamflow for Cowlitz River was 91%. The Columbia River at The Dalles was 79% of average. December precipitation was 54% of average and the water-year average was 55%. January 1 snow cover for Cowlitz River was 50%, and Lewis River was 19% of normal. Cayuse Pass Temperatures were 1-3 degrees below normal during December and for the water year.

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

Streamflow Forecasts - January 1, 2014

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Columbia R at The Dalles (2)	APR-JUL	53100	64800	72700	91	80600	92300	79855
	APR-SEP	63300	76900	86200	93	95500	10900	92704
Klickitat R nr Glenwood	APR-JUL	47	68	83	66	98	119	126
	APR-SEP	53	76	92	66	108	131	139
Klickitat R nr Pitt	APR-JUL	215	280	325	75	370	435	435
	APR-SEP	275	355	405	78	455	535	520
Lewis R at Ariel (2)	APR-JUL	495	670	790	81	910	1080	970
	APR-SEP	585	770	895	80	1020	1200	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	830	1130	1340	83	1550	1850	1620
	APR-SEP	890	1270	1530	83	1790	2170	1840
Cowlitz R at Castle Rock (2)	APR-JUL	1340	1640	1850	83	2060	2360	2230
	APR-SEP	1560	1900	2140	85	2380	2720	2520

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Swift	---	---	689.0	634.1
Yale	---	---	383.1	
Merwin	---	---	404.4	400.1
Mossyrock Dam (riffe Lk)	---	---	1212.0	1203.

LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LEWIS RIVER	4	11	18
COWLITZ RIVER	6	34	50

* 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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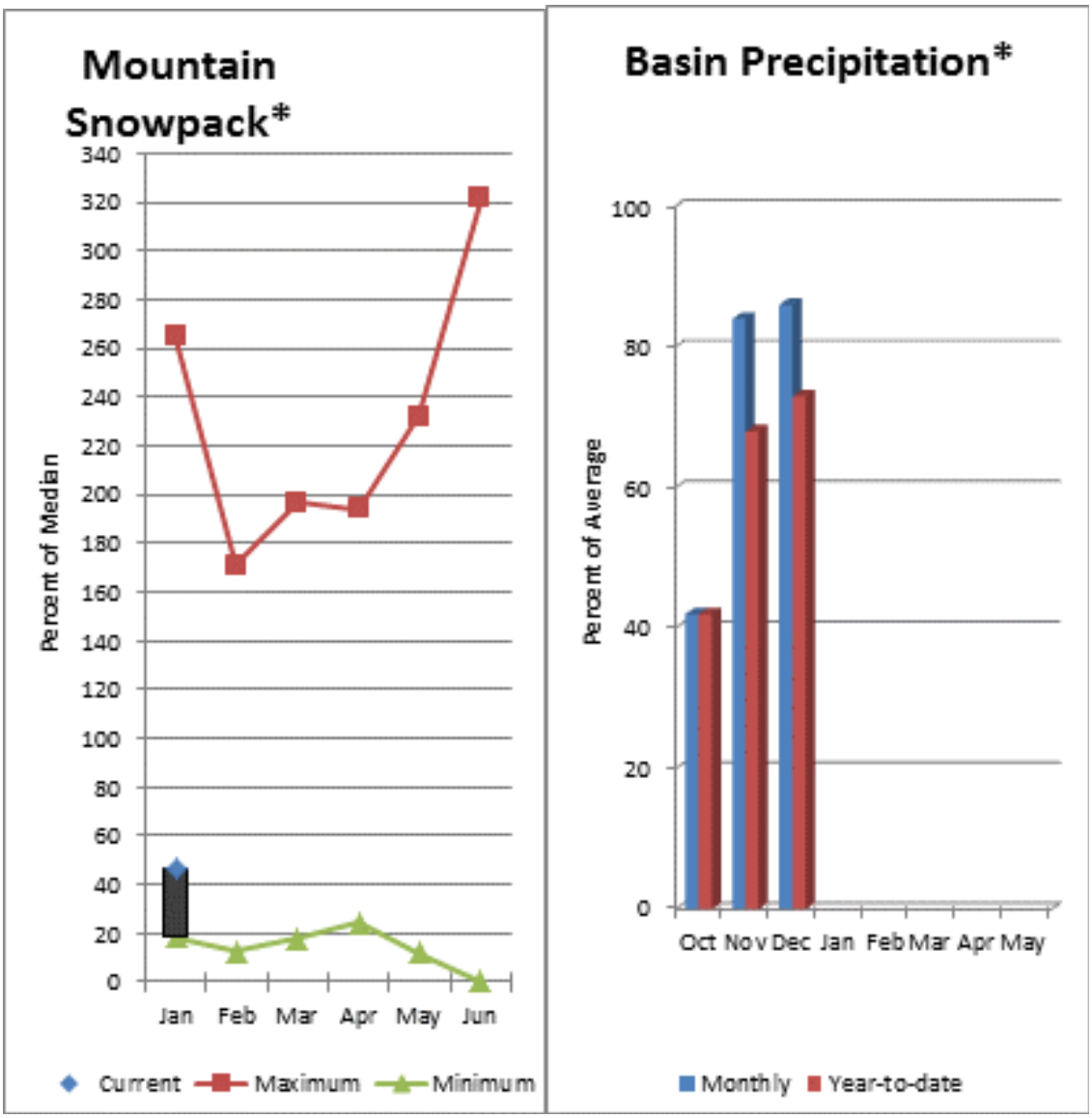

*Based on selected stations

Summer runoff is forecast to be 79% of normal for the Green River below Howard Hanson Dam and 91% for the White River near Buckley. January 1 snowpack was 64% of average for the White River, 59% for Puyallup River and 16% in the Green River Basin. December precipitation was 92% of average, bringing the water year-to-date to 72% 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, 2014

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	275	355	390	91	425	505	430
	APR-SEP	340	430	470	91	510	600	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	99	159	186	79	215	275	235
	APR-SEP	118	178	205	79	230	290	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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WHITE RIVER	3	36	52
GREEN RIVER	2	16	16
PUYALLUP RIVER	4	32	51

* 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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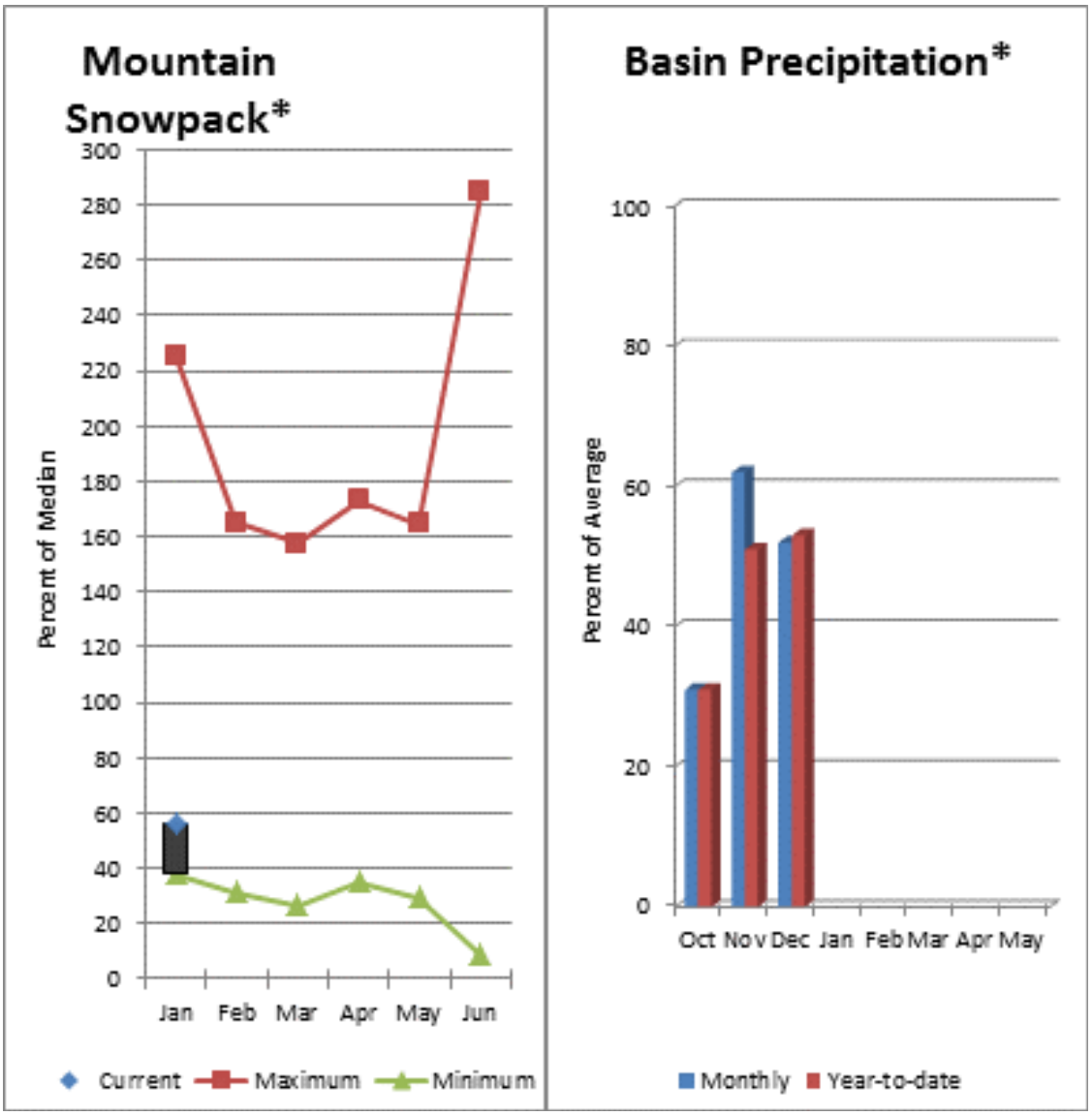

*Based on selected stations

Forecast for spring and summer flows are: 86% for Cedar River near Cedar Falls; 81% for Rex River; 83% for South Fork of the Tolt River; and 88% for Taylor Creek near Selleck. Basin-wide precipitation for December was 86% of average, bringing water-year-to-date to 73% of average. January 1 median snow cover in Cedar River Basin was 29%, Tolt River Basin was 53%, Snoqualmie River Basin was 44%, and Skykomish River Basin was 58%. 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, 2014

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>					30-Yr Avg. (1000AF)
		Chance Of Exceeding *					
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Cedar R nr Cedar Falls	APR-JUL	33	48	58	83	68	83	70
	APR-SEP	40	55	65	86	75	90	76
Rex R nr Cedar Falls	APR-JUL	9.2	15.4	19.6	82	24	30	24
	APR-SEP	11.5	17.8	22	81	26	32	27
Cedar R At Cedar Falls	APR-JUL	8.8	32	48		64	87	
	APR-SEP	11.9	35	50		65	88	
Taylor Creek nr Selleck	APR-JUL	11.6	15.1	17.4	87	19.7	23	20
	APR-SEP	14.9	18.5	21	88	23	27	24
SF Tolt R nr Index	APR-JUL	7.1	9.8	11.7	82	13.6	16.3	14.2
	APR-SEP	8.5	11.4	13.3	83	15.2	18.1	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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
CEDAR RIVER	4	21	29
TOLT RIVER	2	31	53
SNOQUALMIE RIVER	4	32	44
SKYKOMISH RIVER	2	44	58

* 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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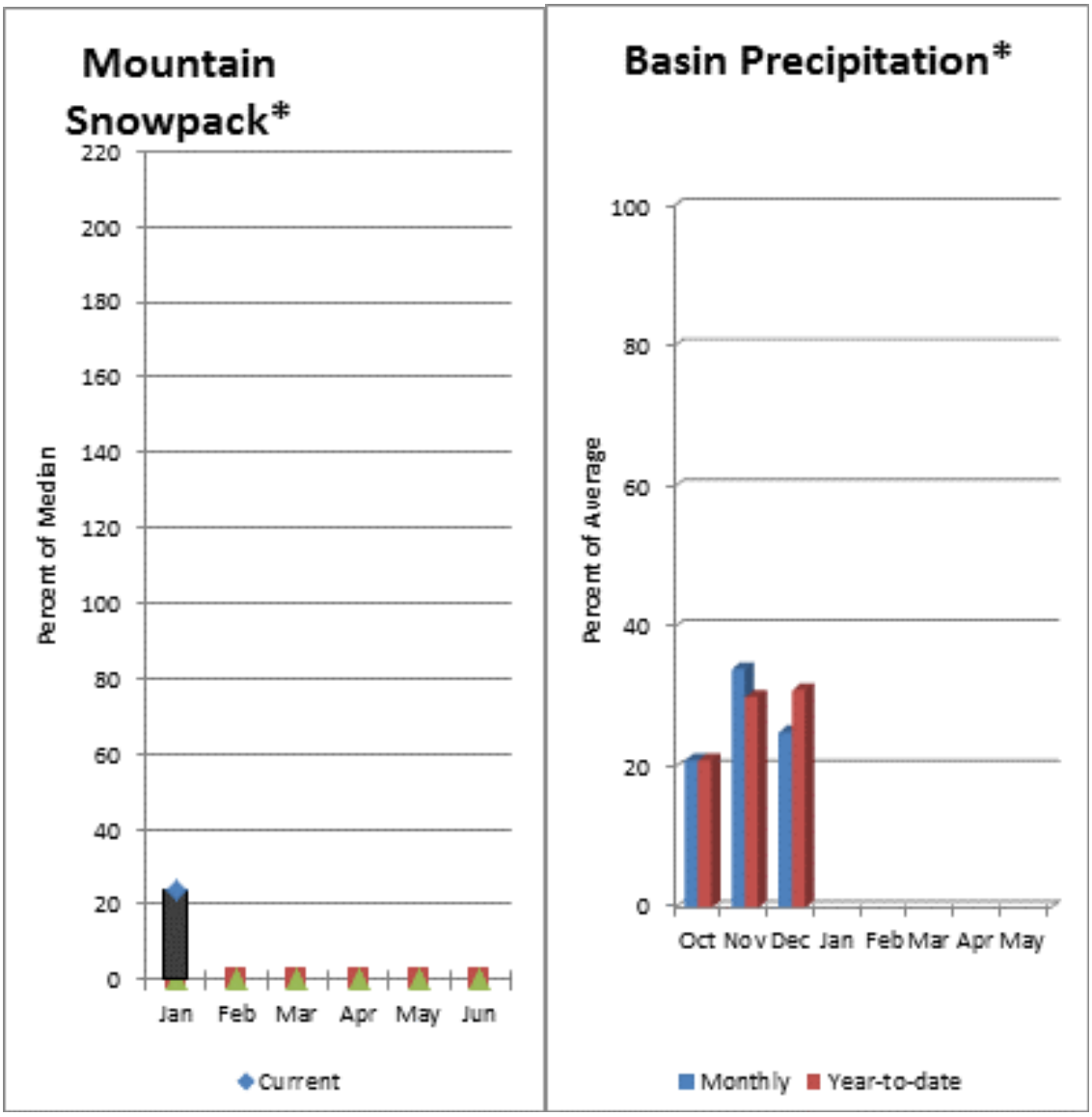

*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 76% of average for the spring and summer period. December streamflow in Skagit River was 61% of average. Other forecast points included Baker River at 74% and Thunder Creek at 88% of average. Basin-wide precipitation for December was 52% of average, bringing water-year-to-date to 53% of average. January 1 average snow cover in Skagit River Basin was 44% and Nooksack River Basin was 69% of normal. Baker River Basin data was not available at this time. January 1 Skagit River reservoir storage was 59% of average and 44% of capacity. Average temperatures were slightly above normal for December and slightly below for the water year.

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

Streamflow Forecasts - January 1, 2014

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	171	191	205	87	220	240	235
	APR-SEP	250	275	290	88	305	330	330
Skagit R at Newhalem	APR-JUL	980	1170	1300	77	1430	1620	1680
	APR-SEP	1180	1400	1550	76	1700	1920	2030
Baker R nr Concrete (2)	APR-JUL	395	500	570	73	640	745	780
	APR-SEP	495	635	730	74	825	965	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.	672.4	1123.	1135.
Diablo Reservoir	90.6	---	85.6	85.8

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SKAGIT RIVER	8	31	44
BAKER RIVER	0		
NOOKSACK RIVER	3	42	69

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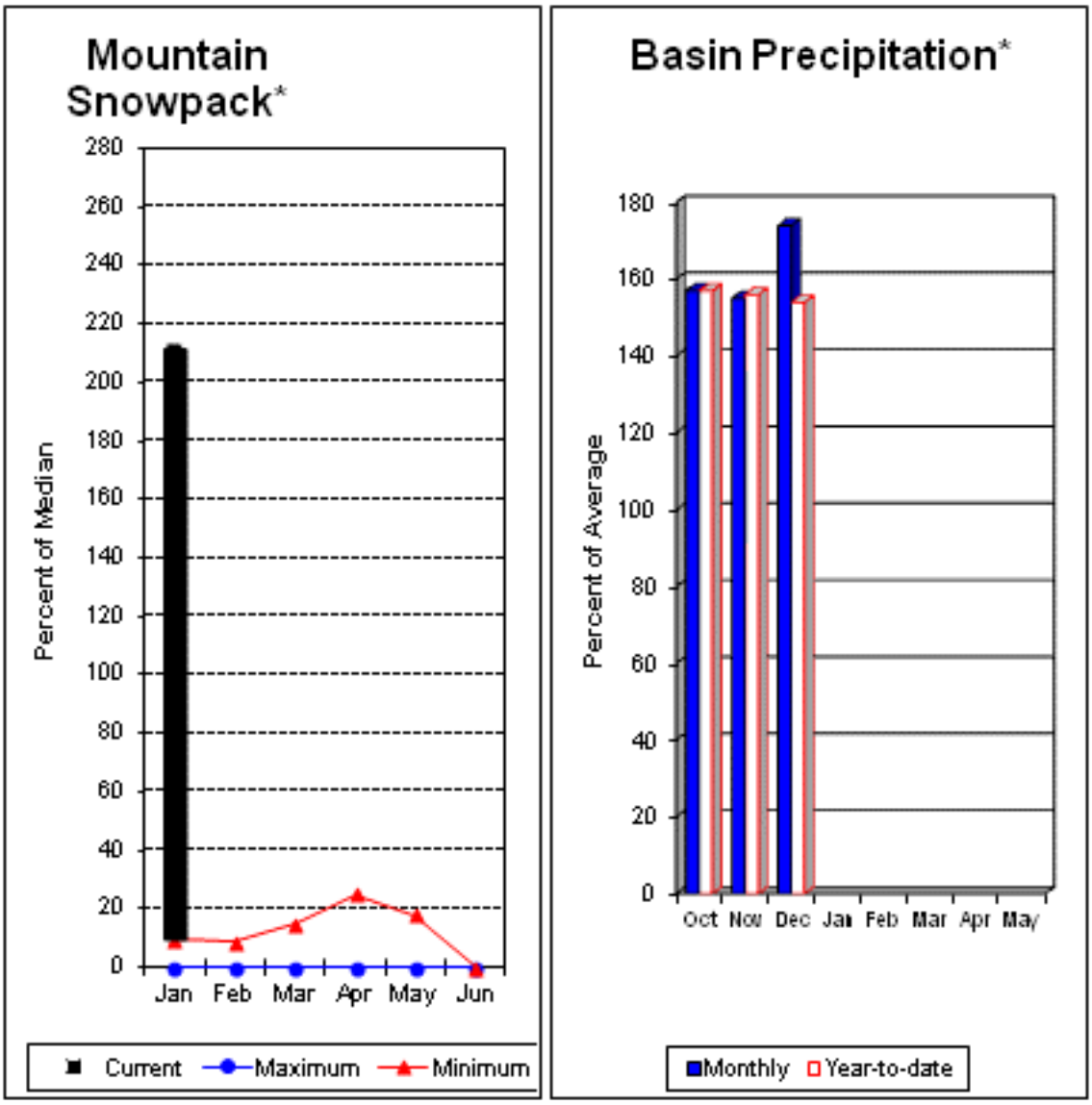

*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 73% and Elwha River is 70%. December runoff in the Dungeness River was 34% of normal. Big Quilcene and Wynoochee rivers may expect below average runoff this summer as well. December precipitation was 25% of average. Precipitation has accumulated at 31% of average for the water year. December precipitation at Quillayute was 6.16 inches. The 1981-2010 average for December is 12.99 inches. Olympic Peninsula snowpack averaged a whopping 24% of normal on January 1, the lowest region in the state. Temperatures were near average for December and close to normal for the water year.

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

Streamflow Forecasts - January 1, 2014

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	64	80	91	76	102	118	120
	APR-SEP	73	93	106	73	119	139	145
Elwha R at Mcdonald Bridge	APR-JUL	195	250	285	71	320	375	400
	APR-SEP	225	290	330	70	370	435	470

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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OLYMPIC PENINSULA	3	12	24

* 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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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

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
February 1, 2014

January 28, 2014, Rocco Clark of the Yakama Nation takes a bulk sample measurement at Toppenish Ridge snow course, 15 miles SW of White Swan, WA. As seen the crew was able to access the site by vehicle instead of the normal snowmobile trip. Photo by Scott Ladd, Yakama Nation.

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

For more water supply and resource management information, contact:

Local Natural Resources Conservation Service Field Office

or

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

or

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

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

Washington
Water Supply Outlook

February 2014

General Outlook

The 12th man helped the Seattle Seahawks bring home the Super Bowl XLVIII championship so maybe now that their job is done for the season we can enlist them to champion a comeback for our mountain snowpack. We're not in overtime yet but we are most certainly deep into the second half. In true "Beast Mode" fashion we would need to see 200% of normal snowfall over the next two months to catch up to normal. It can and has happened in the past but at this point in the game we can't count out either possibility. Today's best advice would be conservation and conservative planning for summer water use. Short term forecasts are promising with cool and stormy weather on the horizon. However the latest long term guidance from the Climate Prediction Center still indicates an un-decisive precipitation and temperature forecast for equal chances of below, above or normal conditions.

Snowpack

The February 1 statewide SNOTEL readings were 55% of normal but vary across the state. So far we should have received about 70% of our annual total snowfall however we fall well short of that at only about 35%. The Olympic Peninsula data reported the lowest readings at 25% of average. Readings from the Pend Orielle, including Idaho and Montana data, reported the highest at 101% of normal. Westside medians from SNOTEL, and February 1 snow surveys, included the North Puget Sound river basins with 72% of normal, the Central and South Puget river basins with 57%, and the Lewis-Cowlitz basins with 54% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima and Wenatchee areas with 54%. Snowpack in the Spokane River Basin stood at 74% and the Walla Walla River Basin had 68% of the long term median.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	92	74
Newman Lake	62	58
Pend Oreille	110	101
Okanogan	73	89
Methow	58	70
Conconully Lake	22	33
Central Columbia	58	54
Upper Yakima	53	52
Lower Yakima	53	57
Ahtanum Creek	47	52
Walla Walla	75	68
Lower Snake	94	80
Cowlitz	52	70
Lewis	25	37
White	46	68
Green	34	30
Puyallup	46	71
Cedar	29	40
Snoqualmie	50	61
Skykomish	50	61
Skagit	54	62
Nooksack	61	72
Olympic Peninsula	18	25

Precipitation

Once again a particularly warm and dry month with valley stations reporting less than 50% of average and SNOTEL reading 75% and below. The highest percent of average was reported in the South Puget Sound basins with a January total of 87% however water-year average remained below normal at 76%. The Olympic Peninsula suffered the worst with only 40% for the water-year. The wettest spot in the state was reported at Alpine Meadows SNOTEL in the Tolt River Basin with a January accumulation of 21.2 inches, or 89% of average. Salmon Meadows SNOTEL near Conconully recorded no rain for January and only 2.60 inches since October 1.

RIVER BASIN	JANUARY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	74	67
Pend Oreille	69	64
Upper Columbia	45	47
Central Columbia	64	55
Upper Yakima	68	63
Lower Yakima	69	58
Walla Walla	76	82
Lower Snake	79	75
Lower Columbia	71	59
South Puget Sound	87	76
Central Puget Sound	82	76
North Puget Sound	84	61
Olympic Peninsula	65	43

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 2013 ended with decent reservoir carryover. Reservoir storage in the Yakima Basin was 462,000-acre feet, 114% of average for the Upper Reaches and 148,000-acre feet or 121% of average for Rimrock and Bumping Lakes. The power generation reservoirs included the following: Coeur d'Alene Lake, 43,000 acre feet, 45% of average and 18% of capacity; and the Skagit River reservoirs at 58% of average and 41% 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	18	45
Pend Oreille	38	78
Upper Columbia	89	109
Central Columbia		
Upper Yakima	55	114
Lower Yakima	64	121
Lower Snake	67	100
North Puget Sound	41	58

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

Streamflow

Forecasts vary from 33% of average for the Methow near Pateros (down 18% from January) to 99% of average for the Pend Oreille. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 72%; White River, 90%; and Skagit River, 76%. Some Eastern Washington streams include the Yakima River near Parker, 58%: Wenatchee River at Plain, 57% and Spokane River near Post Falls, 71%. 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.

BASIN	PERCENT OF AVERAGE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	47-71
Pend Oreille	63-99
Upper Columbia	33-89
Central Columbia	39-85
Upper Yakima	46-65
Lower Yakima	46-75
Walla Walla	78-92
Lower Snake	74-94
Lower Columbia	58-84
South Puget Sound	66-90
Central Puget Sound	71-84
North Puget Sound	74-88
Olympic Peninsula	70

STREAM	PERCENT OF AVERAGE JANUARY RUNOFF
Pend Oreille at Albeni Fall Dam	73
Kettle at Laurier	89
Columbia at Birchbank	86
Spokane at Spokane	62
Similkameen at Nighthawk	112
Okanogan at Tonasket	103
Methow at Pateros	107
Chelan at Chelan	77
Wenatchee at Pashastin	89
Cle Elum near Roslyn	90
Yakima at Parker	78
Naches at Naches	62
Grande Ronde at Troy	82
Snake below Lower Granite Dam	66
Columbia River at The Dalles	77
Cowlitz below Mayfield Dam	87
Skagit at Concrete	99
Dungeness near Sequim	47

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. Light fall precipitation created drier than optimal soil moisture conditions coming into winter. Not good news with the current state of mountain snowpack. Much more snow will be needed to make up for any soil moisture deficits.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	60
Pend Oreille	66
Upper Columbia	25
Central Columbia	64
Upper Yakima	61
Lower Yakima	74
Walla Walla	68
Lower Snake	68
Lower Columbia	76
South Puget Sound	77
Central Puget Sound	N/A
North Puget Sound	74
Olympic Peninsula	35

Issued by

Jason Weller
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Roylene Rides At The Door
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	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, 2014

Olympic National Park volunteers Mandy Holmgren and Jamie Michel ski up the Deer Park Road to measure Deer Park snow course, 2/25/2014. Photo by Bill Baccus, ONP.

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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Mt. Vernon, WA 98273-2873
(360) 428-7684

or

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Natural Resources Conservation Service
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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 2014

General Outlook

Whether it was the 12th man or not we'll never be sure but with 2-3 time's normal snowfall and the passes being closed numerous times last month we have nearly reached normal snowpack in Washington. Well above average precipitation along with cooler than normal temperatures brought much needed relief to not only the mountain snowpack but also soil moisture in the valleys. Forecasts for spring and summer runoff have increased considerably over last month as well. Unfortunately too much of a good thing can also lead to problems such as traffic jams, high avalanche danger, localized flooding and landslides. Short term weather forecasts indicate a higher probability of above normal temperatures and below normal precipitation however there are several storms now approaching the state for the next several days. Long term predictions from the Climate Prediction Center also indicate a chance of above normal temperatures but uncertainty on precipitation.

Snowpack

The March 1 statewide SNOTEL readings were 89% of normal but vary across the state. Moses Mountain within the Omak River drainage reported the lowest levels at 45% of normal Readings from the Pend Orielle, including Idaho and Montana data, reported the highest at 122% of normal. Westside medians from SNOTEL, and March 1 snow surveys, included the North Puget Sound river basins with 103% of normal, the Central and South Puget river basins with 94%, and the Lewis-Cowlitz basins with 84% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima and Wenatchee areas with 92%. Snowpack in the Spokane River Basin stood at 100% and the Walla Walla River Basin had 85% of the long term median.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	113	100
Newman Lake	83	78
Pend Oreille	138	122
Okanogan	82	89
Methow	86	90
Conconully Lake	44	54
Central Columbia	103	92
Upper Yakima	96	97
Lower Yakima	96	88
Ahtanum Creek	89	86
Walla Walla	100	85
Lower Snake	122	100
Cowlitz	77	103
Lewis	48	66
White	76	105
Green	70	75
Puyallup	74	101
Cedar	70	91
Snoqualmie	69	96
Skykomish	65	93
Skagit	101	107
Nooksack	76	99
Olympic Peninsula	52	77

Precipitation

In a complete reversal of the whole water year to date March brought lots of rain to all parts of the state. Basin precipitation amounts were pretty even throughout the state with a low of 124% in the Pend Oreille to a high of 195% in the Central Columbia, however water-year averages remained below normal at 58-95%. The wettest spot in the state was reported at June Lake SNOTEL in the Lewis River Basin with a February accumulation of 23.4 inches, or 134% of average. The highest percent of average was at Sourdough Gulch SNOTEL near Asotin which received 367% of average precipitation. Of course Sourdough Gulch is a rather dry location which would normally only muster .90 inches in February so a few good storms add up fast.

RIVER BASIN	FEBRUARY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	127	77
Pend Oreille	124	73
Upper Columbia	176	71
Central Columbia	195	77
Upper Yakima	192	83
Lower Yakima	173	78
Walla Walla	161	95
Lower Snake	161	90
Lower Columbia	145	74
South Puget Sound	172	90
Central Puget Sound	161	88
North Puget Sound	163	75
Olympic Peninsula	159	58

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 reservoir store remained pretty static from last month. Reservoir storage in the Yakima Basin was 487,000-acre feet, 108% of average for the Upper Reaches and 159,000-acre feet or 116% of average for Rimrock and Bumping Lakes. The power generation reservoirs included the following: Coeur d'Alene Lake, 70,000 acre feet, 53% of average and 29% of capacity; and the Skagit River reservoirs at 54% of average and 32% 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	29	53
Pend Oreille	38	74
Upper Columbia	89	106
Central Columbia		
Upper Yakima	58	108
Lower Yakima	69	116
Lower Snake	68	100
North Puget Sound	32	54

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

Streamflow

Forecasts vary from 65% of average for the Colville River at Kettle Falls to 124% of average for the Okanogan River at Malott. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 99%; White River, 103%; and Skagit River, 104%. Some Eastern Washington streams include the Yakima River near Parker, 94%: Wenatchee River at Plain, 80% and Spokane River near Post Falls, 99%. 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.

BASIN	PERCENT OF AVERAGE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	72-99
Pend Oreille	73-117
Upper Columbia	65-124
Central Columbia	80-100
Upper Yakima	92-98
Lower Yakima	80-100
Walla Walla	93-94
Lower Snake	84-120
Lower Columbia	83-100
South Puget Sound	88-103
Central Puget Sound	96-109
North Puget Sound	97-104
Olympic Peninsula	90-91

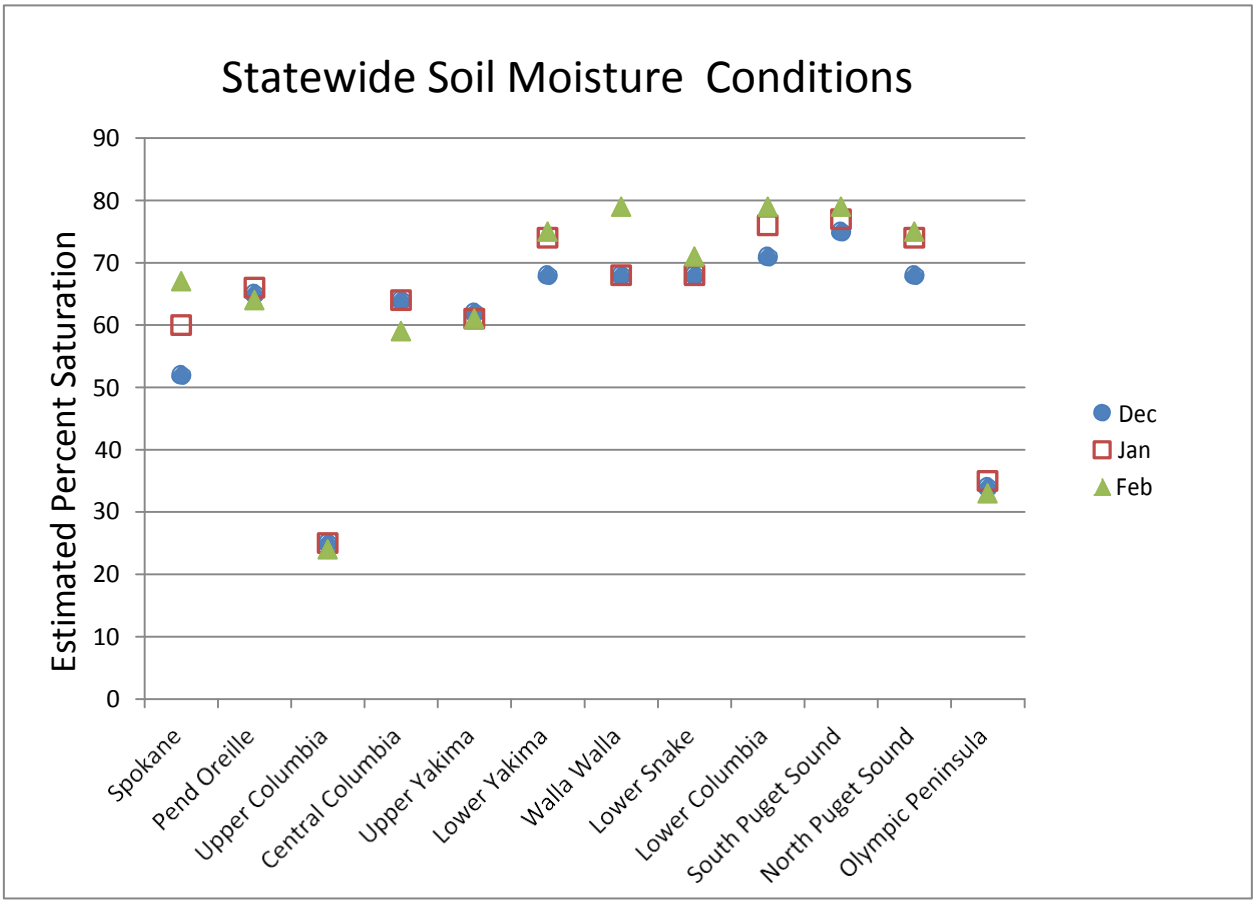
STREAM	PERCENT OF AVERAGE FEBRUARY RUNOFF
Pend Oreille at Albeni Fall Dam	65
Kettle at Laurier	68
Columbia at Birchbank	70
Spokane at Spokane	53
Similkameen at Nighthawk	97
Okanogan at Tonasket	101
Methow at Pateros	88
Chelan at Chelan	74
Wenatchee at Pashastin	62
Cle Elum near Roslyn	59
Yakima at Parker	52
Naches at Naches	49
Grande Ronde at Troy	118
Snake below Lower Granite Dam	72
Columbia River at The Dalles	79
Cowlitz below Mayfield Dam	115
Skagit at Concrete	69
Dungeness near Sequim	65

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. Light fall precipitation created drier than optimal soil moisture conditions coming into winter. Not good news with the current state of mountain snowpack. Much more snow will be needed to make up for any soil moisture deficits.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	67
Pend Oreille	64
Upper Columbia	24
Central Columbia	59
Upper Yakima	61
Lower Yakima	75
Walla Walla	79
Lower Snake	71
Lower Columbia	79
South Puget Sound	79
Central Puget Sound	N/A
North Puget Sound	75
Olympic Peninsula	33



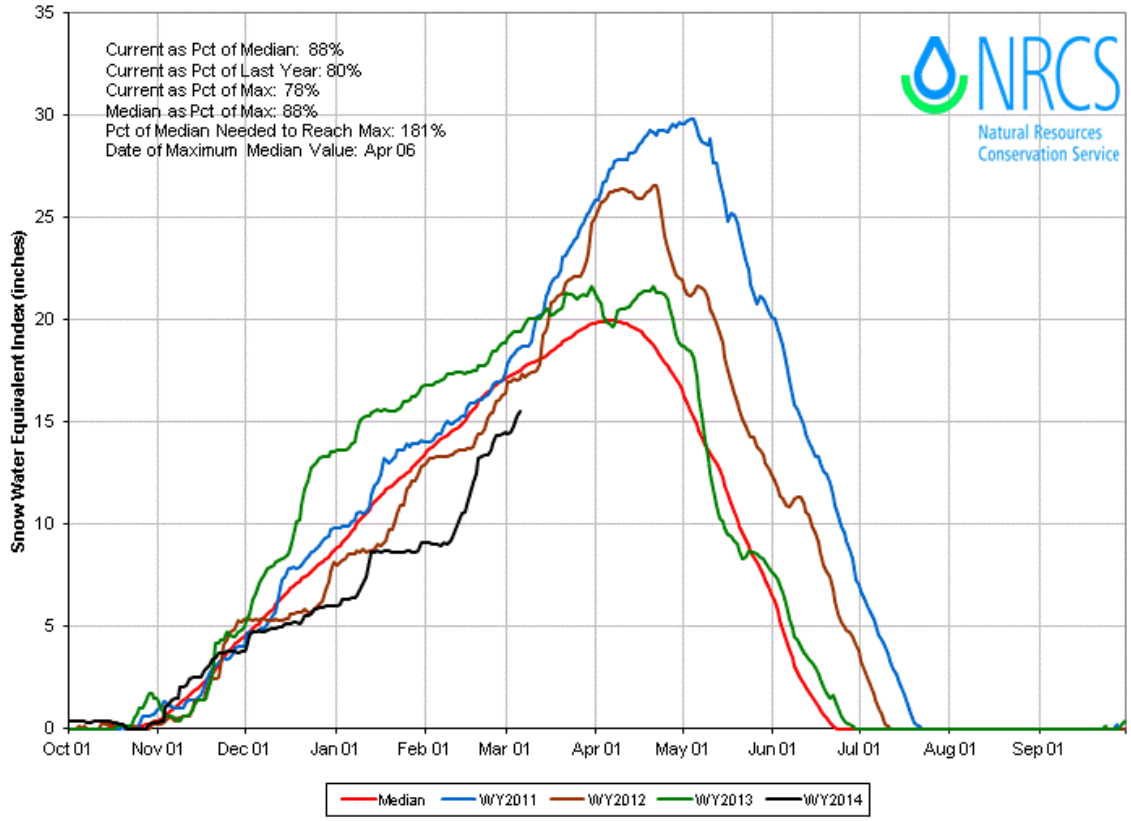
BASIN SUMMARY OF SNOW COURSE DATA

MARCH 2014

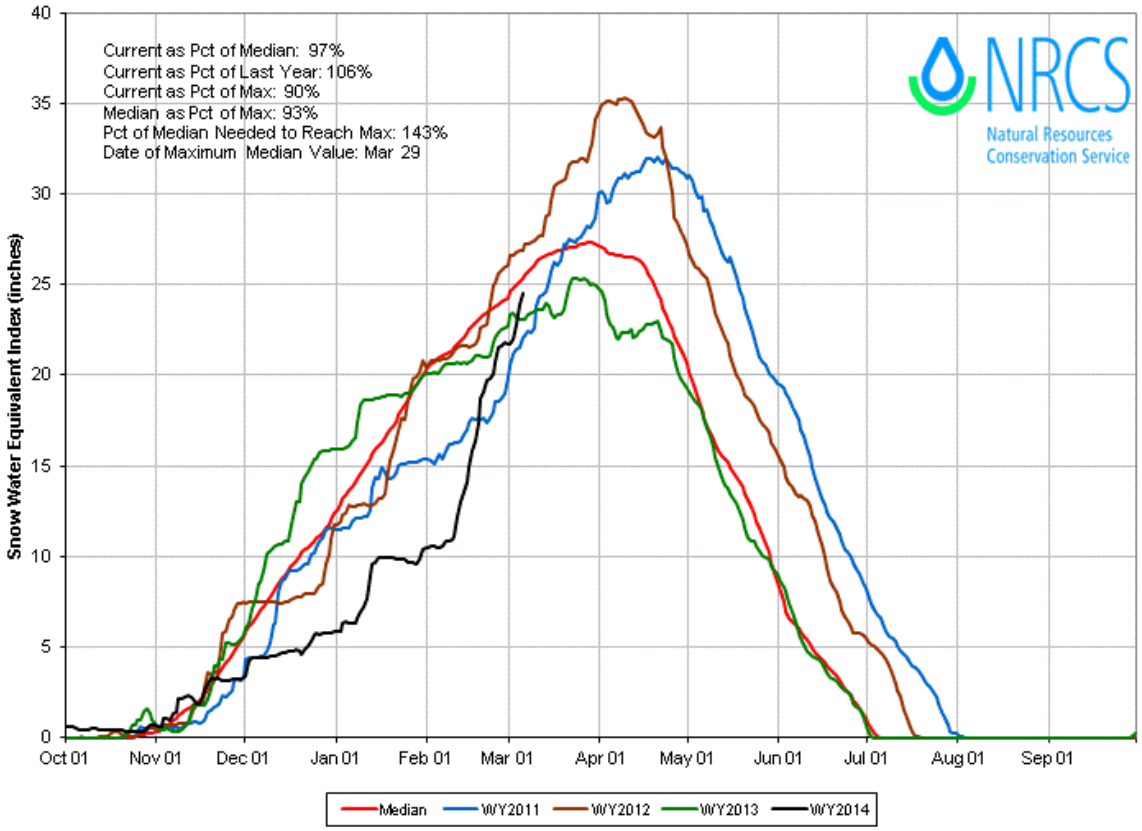
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ABERDEEN LAKE CAN.	4000	2/26/14	28	6.5	5.6	5.7
ALPINE MEADOWS	3500	2/28/14	87	29.0	51.0	31.5
ALPINE MEADOWS SNTL	3500	3/01/14	87	37.5	67.1	40.3
ASHLEY DIVIDE	4820	2/27/14	31	6.7	2.4	5.3
BADGER PASS SNOTEL	6900	3/01/14	89	30.8	26.3	23.7
BAIRD #2	3220	2/27/14	27	4.7	5.2	7.9
BAREE MIDWAY	4600	2/25/14	90	25.6	20.7	23.6
BAREE TRAIL	3800	2/25/14	40	9.0	6.8	7.8
BARKER LAKES SNOTEL	8250	3/01/14	67	15.3	10.3	10.3
BARNES CREEK CAN.	5320	2/25/14	58	16.9	16.5	17.3
BASIN CREEK SNOTEL	7180	3/01/14	44	10.0	5.0	5.5
BEAVER CREEK TRAIL	2200	3/01/14	42	11.4	12.9	11.2
BEAVER PASS	3680	3/01/14	64	20.4	32.0	22.6
BEAVER PASS SNOTEL	3630	3/01/14	97	27.2	39.6	27.8
BIG WHITE MTN CAN.	5510	2/27/14	51	14.5	17.0	16.8
BLACK MOUNTAIN	7750	2/26/14	50	10.9	9.1	11.0
BLACK PINE SNOTEL	7100	3/01/14	55	13.3	7.2	8.2
BLACKWALL PILL CAN.	6370	3/01/14	98	29.7	23.4	30.0
BLEWETT PASS#2SNOTEL	4240	3/01/14	48	13.1	12.2	14.7
BONAUPART SOUTH	4660	2/28/14	16	2.4	5.7	--
BRENDA MINE CAN.	4450	2/27/14	35	9.0	7.9	11.3
BROOKMERE CAN.	3000	2/28/14	25	5.5	6.8	7.6
BROWN TOP AM	6000	2/28/14	137	70.2	43.1	48.8
BROWNS PASS		2/26/14	17	3.9	4.9	--
BRUSH CREEK TIMBER	5000	2/26/14	57	16.4	10.0	6.3
BUCKINGHORSE SNOTEL	4870	3/01/14	83	29.4	59.4	--
BULL MOUNTAIN	6600	2/27/14	28	6.0	5.4	4.8
BUMPING LAKE (NEW)	3400	3/03/14	55	12.6	14.1	14.9
BUMPING RIDGE SNOTEL	4610	3/01/14	78	21.9	21.6	22.7
BUNCHGRASS MDWSNOTEL	5000	3/01/14	72	18.6	20.1	22.5
BURNT MOUNTAIN PIL	4170	3/01/14	39	13.3	21.6	15.1
BUTTERMILK BUTTE	5250	2/26/14	46	10.0	12.6	--
CALAMITY SNOTEL	2500	3/01/14	1	.3	4.5	--
CARMI CAN.	4100	2/26/14	20	3.6	5.2	5.8
CAYUSE PASS SNOTEL	5240	3/01/14	112	34.6	53.6	--
CHESSMAN RESERVOIR	6200	2/26/14	37	7.7	4.9	2.8
CHEWALAH #2	4930	2/26/14	46	11.0	15.5	15.3
CHICKEN CREEK	4060	2/26/14	60	17.1	11.8	12.8
CITY CABIN	2390	2/28/14	33	10.9	13.4	8.8
COLD CREEK STRIP	6020	2/25/14	32	5.8	10.5	7.5
COMBINATION SNOTEL	5600	3/01/14	35	7.0	3.7	4.1
COPPER BOTTOM SNOTEL	5200	3/01/14	40	9.1	3.4	--
COPPER MOUNTAIN	7700	4/24/14	41	9.1	7.8	8.0
CORRAL PASS SNOTEL	5800	3/01/14	85	28.6	28.4	28.7
COUGAR MTN. SNOTEL	3200	3/01/14	32	10.3	23.0	15.2
COX VALLEY	4500	2/24/14	76	20.3	33.0	30.7
DALY CREEK SNOTEL	5780	3/01/14	59	13.5	8.2	8.4
DEER PARK	5200	2/26/14	39	11.7	22.7	11.7
DEVILS PARK	5900	2/28/14	121	36.4	31.1	35.2
DISAUTEL PASS		2/26/14	18	3.8	6.8	--
DISCOVERY BASIN	7050	3/04/14	44	10.5	6.8	7.4
DIX HILL	6400	3/02/14	49	12.0	6.6	8.2
DOMMERIE FLATS	2200	2/27/14	29	9.2	2.9	6.8
DUNCAN RIDGE	5370	2/25/14	23	3.8	7.0	5.4
DUNGENESS SNOTEL	4010	3/01/14	24	8.6	12.6	5.9
EL DORADO MINE	7800	2/23/14	47	11.8	7.2	12.9
ELBOW LAKE SNOTEL	3200	3/01/14	74	27.0	44.5	32.4
EMERY CREEK SNOTEL	4350	3/01/14	49	15.0	12.1	12.5
ENDERBY CAN.	5800	2/28/14	94	32.2	40.9	33.8
ESPERON CK. UP CAN.	5050	2/25/14	38	10.6	14.1	14.6
FARRON CAN.	4000	2/27/14	36	9.2	10.0	11.3
FISH LAKE	3370	2/27/14	100	29.4	24.2	27.6
FISH LAKE SNOTEL	3430	3/01/14	86	25.2	24.3	26.7
FLATTOP MTN SNOTEL	6300	3/01/14	115	36.8	39.1	33.8
FLEECER RIDGE	7500	2/27/14	48	11.1	7.7	7.7
FOURTH OF JULY SUM	3200	3/01/14	---	7.3	9.0	8.5
FREEZEOUT CK. TRAIL	3500	3/01/14	38	10.0E	9.7	10.4
FROHNER MDWS SNOTEL	6480	3/01/14	54	10.8	5.8	5.9
GOAT CREEK	3600	2/27/14	20	3.6	5.5	5.9
GOLD MTN LOOKOUT		2/28/14	33	7.3	14.7	--
GRAVE CRK SNOTEL	4300	3/01/14	57	16.1	12.0	13.5
GREEN LAKE SNOTEL	5920	3/01/14	68	20.4	21.2	18.2
GREYBACK RES CAN.	4700	2/26/14	34	8.6	8.7	7.8
GRIFFIN CR DIVIDE	5150	2/26/14	45	10.7	7.3	8.1
GROUSE CAMP SNOTEL	5390	3/01/14	53	17.3	16.1	17.4
HAMILTON HILL CAN.	4550	2/27/14	45	10.7	8.4	12.7
HAND CREEK SNOTEL	5030	3/01/14	50	11.8	7.0	9.5
HARTS PASS SNOTEL	6490	3/01/14	104	34.5	38.1	33.7
HARTS PASS	6500	2/28/14	113	33.0	36.2	32.6
HELL ROARING DIVIDE	5770	2/26/14	78	25.9	20.6	23.9
HERRIG JUNCTION	4850	2/26/14	72	23.1	15.7	21.2
HIGH RIDGE SNOTEL	4920	3/01/14	55	18.1	18.0	21.4
HOLBROOK	4530	3/02/14	42	10.0	5.2	7.6
HOODOO BASIN SNOTEL	6050	3/01/14	129	37.3	29.9	32.3
HUCKLEBERRY SNOTEL	2250	3/01/14	9	3.0	5.3	1.5
HUMBOLDT GLCH SNOTEL	4250	3/01/14	59	16.2	9.1	9.8
HURRICANE	4500	3/01/14	25	8.0	22.6	12.0
- INDIAN ROCK SNOTEL	5360	3/01/14	51	17.8	26.1	--
IRENE'S CAMP	5530	2/26/14	39	7.2	8.4	7.9
ISINTOK LAKE CAN.	5100	2/27/14	30	5.3	6.0	6.5
JUNE LAKE SNOTEL	3440	3/01/14	59	19.6	50.9	36.3
KELLER RIDGE	3700	2/24/14	14	2.7	4.7	--
KLESILKWA CAN.	3450	2/28/14	40	9.8	10.6	10.5
KRAFT CREEK SNOTEL	4750	3/01/14	68	19.6	9.3	--
LAMB BUTTE		2/27/14	53	13.0	14.8	--
LIGHTNING LAKE CAN.	3700	3/01/14	40	9.7	9.7	10.3
LOGAN CREEK	4300	2/26/14	35	7.9	4.4	5.5
LOLO PASS SNOTEL	5240	3/01/14	102	29.5	18.5	22.9
LONE PINE SNOTEL	3930	3/01/14	60	18.6	47.9	28.1
LOOKOUT SNOTEL	5140	3/01/14	82	23.7	19.1	24.5
LOST HORSE MTN CAN.	6300	2/28/14	40	10.0	8.7	8.0
LOST HORSE SNOTEL	5120	3/01/14	45	10.2	13.3	17.5
LOST LAKE SNOTEL	6110	3/01/14	132	44.9	32.6	43.7
LOST LAKE	4070	2/28/14	21	3.7	6.7	--
LOUP LOUP CAMPGROUND		2/27/14	24	4.4	9.7	--
LOWER SANDS CREEK #2	3120	2/26/14	55	16.2	15.4	16.2
LUBRECHT FOREST NO 3	5450	2/27/14	38	7.9	2.9	4.4
LUBRECHT FOREST NO 4	4650	2/27/14	23	4.3	1.5	2.1
LUBRECHT FOREST NO 6	4040	2/27/14	36	7.3	2.8	2.7
LUBRECHT HYDROPLOT	4200	2/27/14	34	7.3	2.5	4.1
LUBRECHT SNOTEL	4680	3/01/14	39	8.1	3.3	4.7
LYMAN LAKE SNOTEL	5980	3/01/14	138	40.3	47.5	48.6
LYNN LAKE SNOTEL	3900	3/01/14	51	16.9	31.9	--
MARIAS PASS	5250	2/25/14	56	15.5	12.7	13.1
MARTEN RIDGE SNOTEL	3520	3/01/14	105	39.6	66.9	--
MAZAMA		2/27/14	45	9.4	6.1	--
MCCULLOCH CAN.	4200	2/28/14	29	6.2	7.1	6.2
MEADOWS CABIN	1900	2/28/14	28	6.9	5.9	3.4
MEADOWS PASS SNOTEL	3230	3/01/14	82	24.5	30.0	21.6
METEOR		2/25/14	16	3.8	4.9	--
M F NOOKSACK SNOTEL	4970	3/01/14	120	49.7	56.4	45.3
MICA CREEK SNOTEL	4510	3/01/14	69	21.5	17.0	19.8
MISSEZULA MTN CAN.	5080	2/28/14	40	9.9	5.6	8.4
MISSION CREEK CAN.	5840	3/01/14	52	18.1	18.1	17.1
MONASHEE PASS CAN.	4500	2/25/14	44	13.1	11.3	11.8
MORSE LAKE SNOTEL	5410	3/01/14	104	32.3	--	43.4
MOSES MOUNTAIN (2)	4800	2/27/14	26	5.4	18.3	11.6
MOSES MTN SNOTEL	5010	3/01/14	27	6.9	18.2	13.0
MOSES PEAK	6650	2/27/14	28	6.9	27.3	17.6
MOSQUITO RDG SNOTEL	5200	3/01/14	84	27.1	26.3	29.8
MOUNT CRAG SNOTEL	3960	3/01/14	53	15.3	33.5	26.1
MT. KOBAU CAN.	5500	2/28/14	31	6.7	17.7	10.2
MOUNT TOLMAN	2000	2/24/14	5	1.0	2.0	2.4
MOWICH SNOTEL	3160	3/01/14	4	1.4	7.4	.7
MOUNT GARDNER	3300	2/28/14	33	9.3	16.8	12.9
MOUNT GARDNER SNOTEL	2920	3/01/14	33	9.6	18.2	14.5
MUTTON CREEK #1	5700	2/24/14	35	6.6	16.3	12.0
N.F. ELK CR SNOTEL	6250	3/01/14	58	13.3	7.0	8.9
NEVADA RIDGE SNOTEL	7020	3/01/14	67	15.6	9.7	10.9
NEW HOZOMEEN LAKE	2800	3/01/14	40	9.0	4.5	8.0
NEZ PERCE CMP SNOTEL	5650	3/01/14	68	17.7	10.0	10.8
NOISY BASIN SNOTEL	6040	3/01/14	105	34.2	34.0	31.5
OLALLIE MDWS SNOTEL	4030	3/01/14	125	45.0	51.1	42.4
OPHIR PARK	7150	3/02/14	59	15.0	8.4	11.2
OYAMA LAKE CAN.	4100	2/28/14	27	4.9	4.4	6.2
PARADISE SNOTEL	5130	3/01/14	137	57.0	70.6	55.5
PARK CK RIDGE SNOTEL	4600	3/01/14	110	34.1	41.1	38.7
PEPPER CREEK SNOTEL	2140	3/01/14	10	4.3	11.4	--
PETERSON MDW SNOTEL	7200	3/01/14	50	11.3	7.1	7.1
PETTIJOHN CREEK	4300	2/28/14	18	3.2	6.0	--
PIGTAIL PEAK SNOTEL	5800	3/01/14	136	50.0	40.9	41.9
PIKE CREEK SNOTEL	5930	3/01/14	36	7.5	7.5	19.6
PIPESTONE PASS	7200	2/24/14	29	5.6	3.6	3.2
POPE RIDGE SNOTEL	3590	3/01/14	59	15.2	14.3	16.2
POSTILL LAKE CAN.	4200	2/27/14	27	6.8	6.7	7.3
POTATO HILL SNOTEL	4510	3/01/14	80	24.9	27.3	20.8
QUARTZ PEAK SNOTEL	4700	3/01/14	51	15.4	17.6	19.5
RAGGED MTN SNOTEL	4210	3/01/14	55	16.2	19.0	21.4
RAGGED RIDGE	3330	2/28/14	21	5.9	7.8	7.9
RAINY PASS SNOTEL	4890	3/01/14	93	27.9	30.1	31.7
RAINY PASS	4780	3/03/14	112	29.9	28.5	--
REX RIVER SNOTEL	3810	3/01/14	92	27.6	38.6	28.3
ROCKER PEAK SNOTEL	8000	3/01/14	72	16.4	8.8	10.1
ROLAND SUMMIT	5120	2/28/14	107	34.1	26.7	27.0
ROUND TOP MTN	4020	3/02/14	44	11.3	12.3	--
RUSTY CREEK	4000	2/24/14	16	2.2	6.3	6.0
SADDLE MTN SNOTEL	7900	3/01/14	101	29.3	16.7	19.0
SALMON MDWS SNOTEL	4460	3/01/14	24	5.5	10.2	8.7
SASSE RIDGE SNOTEL	4340	3/01/14	95	26.7	26.1	27.3
SATUS PASS	4030	2/27/14	26	7.2	8.6	8.9
SATUS PASS	3960	3/01/14	28	9.0	8.4	--
SAVAGE PASS SNOTEL	6170	3/01/14	98	26.6	18.6	20.5
SAWMILL RIDGE SNOTEL	4640	3/01/14	89	26.5	33.0	--
SENTINEL BT SNOTEL	4680	3/01/14	29	6.6	8.7	8.1

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
SHEEP CANYON SNOTEL	3990	3/01/14	60	22.3	45.1	29.4
SHERWIN SNOTEL	3200	3/01/14	---	9.4	7.9	9.1
SILVER STAR MTN CAN.	5600	3/01/14	64	22.9	29.7	25.0
SKALKAHO SNOTEL	7260	3/01/14	89	23.3	15.1	17.5
SKITWISH RIDGE	5110	2/26/14	79	25.4	25.8	25.0
SKOOKUM CREEK SNOTEL	3310	3/01/14	62	32.4	49.7	29.4
SKOOKUM LAKES	4230	2/27/14	40	9.6	11.5	--
SLIDE ROCK MOUNTAIN	7100	2/23/14	58	14.5	11.2	10.1
SOURDOUGH GUL SNOTEL	4000	3/01/14	3	1.5	2.5	.2
SOUTH BALDY	4920	2/27/14	59	16.4	17.3	--
SPENCER MDW SNOTEL	3400	3/01/14	46	15.9	30.7	28.4
SPIRIT LAKE SNOTEL	3520	3/01/14	10	3.7	19.3	5.2
SPOTTED BEAR MTN.	7000	2/26/14	50	13.5	7.8	10.7
SPRUCE SPGS SNOTEL	5700	3/01/14	41	13.1	8.4	14.7
STARVATION MOUNTAIN	6750	2/28/14	47	11.4	18.0	14.3
STAHL PEAK SNOTEL	6030	3/01/14	85	26.2	25.2	27.5
STAMPEDE PASS SNOTEL	3850	3/01/14	94	27.7	28.5	35.4
STEMPLE PASS	6600	2/24/14	44	9.2	6.4	7.0
STEVENS PASS SNOTEL	3950	3/01/14	121	31.7	32.5	34.1
STORM LAKE	7780	2/28/14	54	11.7	9.4	9.5
STRYKER BASIN	6180	2/26/14	83	29.0	24.6	25.0
SUMMERLAND RES CAN.	4200	2/26/14	38	9.1	7.2	8.4
SUNSET SNOTEL	5540	3/01/14	64	18.4	15.0	19.1
SURPRISE LKS SNOTEL	4290	3/01/14	96	33.6	44.4	39.7
SWAMP CREEK SNOTEL	3930	3/01/14	73	21.5	16.0	15.6
SWIFT CREEK SNOTEL	4440	3/01/14	82	31.7	66.2	48.0
TEN MILE LOWER	6600	2/27/14	46	11.5	6.8	5.4
TEN MILE MIDDLE	6800	2/27/14	56	13.6	7.2	7.5
THUNDER BASIN SNOTEL	4320	3/01/14	82	22.6	27.1	26.7
THOMPSON CREEK	2500	2/28/14	12	3.3	5.3	4.2
THOMPSON RIDGE	4650	2/28/14	43	10.1	10.9	--
TINKHAM CREEK SNOTEL	2990	3/01/14	67	18.5	25.9	23.8
TOATS COULEE	2850	2/26/14	14	2.0	4.0	3.1
TOUCHET SNOTEL	5530	3/01/14	63	22.7	22.8	26.5
TROUGH #2 SNOTEL	5480	3/01/14	26	8.4	7.9	8.6
TROUT CREEK CAN.	5650	2/27/14	35	8.3	7.8	6.7
TUNNEL AVENUE	2450	2/28/14	49	14.1	12.5	15.8
TWELVEMILE SNOTEL	5600	3/01/14	79	22.2	8.7	13.8
TWIN LAKES SNOTEL	6400	3/01/14	126	43.5	25.7	30.2
UPPER HOLLAND LAKE	6200	3/01/14	---	29.7E	24.1	26.0
UPPER WHEELER SNOTEL	4330	3/01/14	33	9.3	7.3	11.1
VASEUX CREEK CAN.	4250	2/23/14	29	5.7	4.5	5.5
WARM SPRINGS SNOTEL	7800	3/01/14	96	22.2	13.0	14.8
WATERHOLE SNOTEL	5010	3/01/14	78	25.8	43.2	30.8
WEASEL DIVIDE	5450	2/26/14	83	24.6	21.7	26.2
WHITE PASS ES SNOTEL	4440	3/01/14	63	19.6	19.3	19.5
WHITE ROCKS MTN CAN.	7200	2/25/14	48	13.5	19.3	19.6

COLUMBIA ABOVE METHOW Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 05, 2014



CHELAN, ENTIAT, WENATCHEE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 05, 2014



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

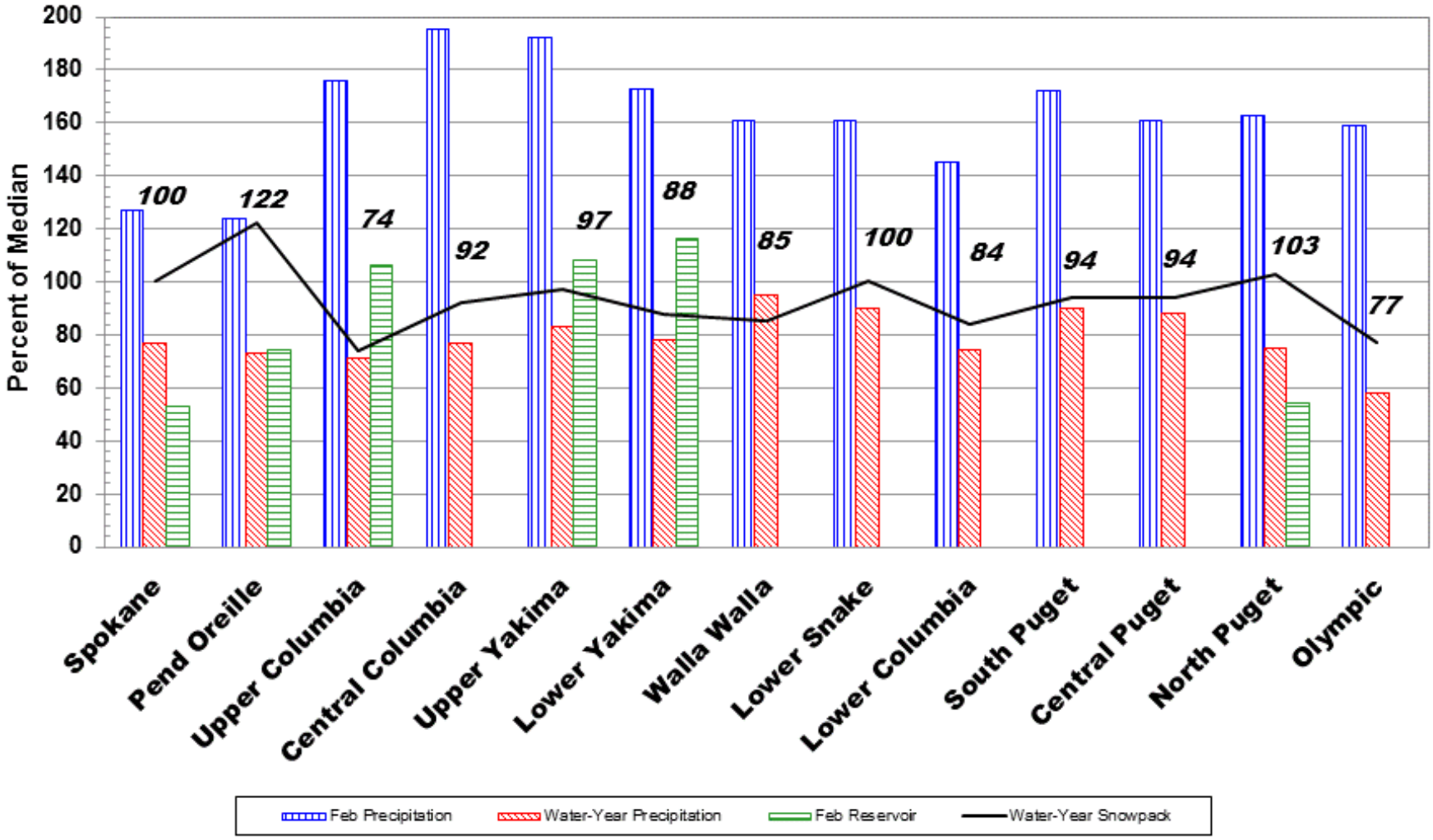
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

March 1, 2014 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2013 - 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 South Continental Area Committee is making plans for the 82nd Annual Western Snow Conference in 2014.

Mark your calendar and start thinking about submitting a paper to attend the 2014 Western Snow Conference:

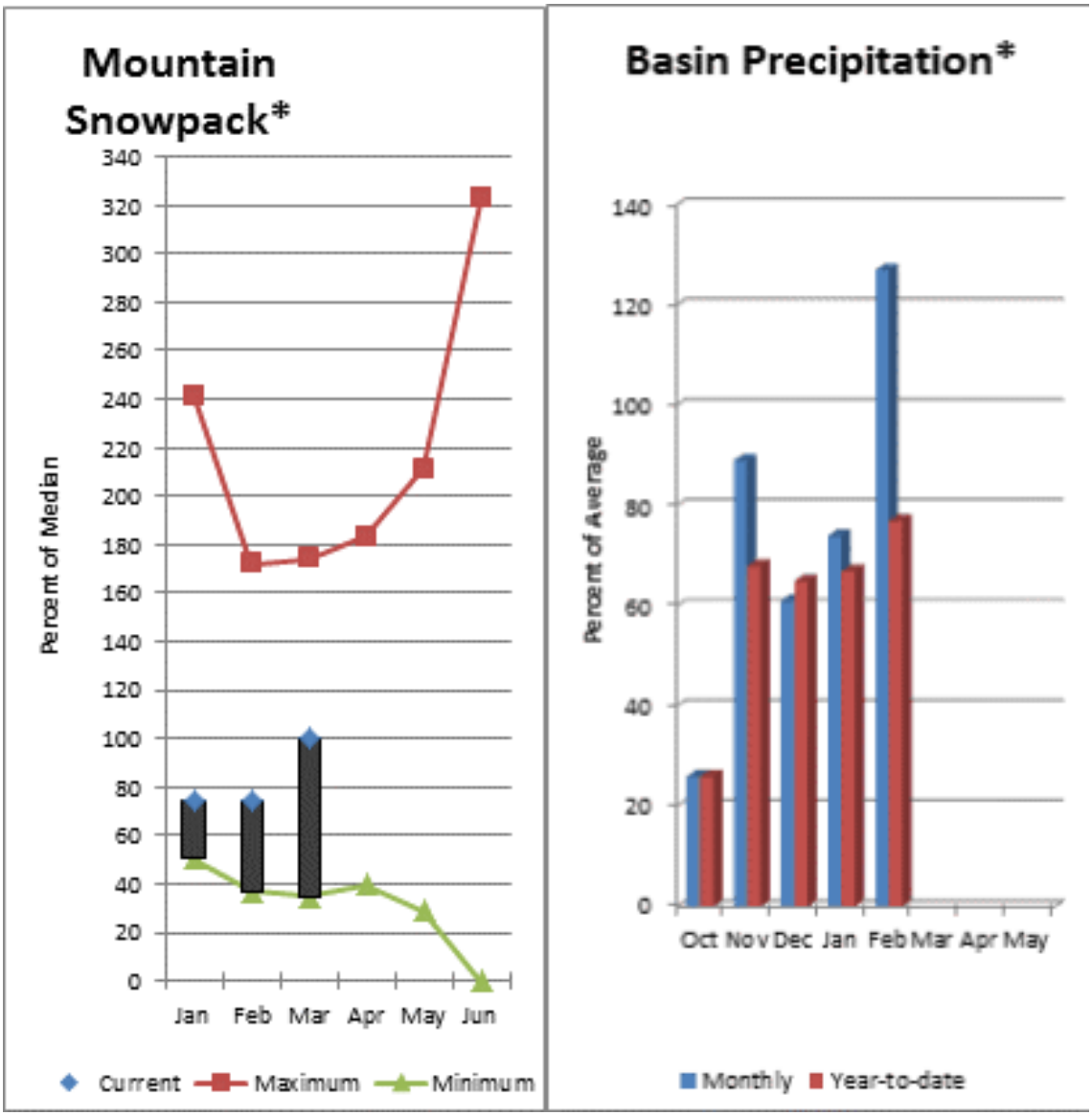
Dates: April 14-17, 2014
Location: Durango, Colorado

The Technical Tour is scheduled for Thursday, April 17th, to explore current research activities in the Durango/Silverton area led by personnel of the Center for Snow and Avalanche Studies in Silverton. One of their projects is the issue of dust on snow, changes in albedo, accelerated melt, and the subsequent impact on stream flow.

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 March 1 forecasts for summer runoff within the Spokane River Basin are 88% of average near Post Falls and 101% at Long Lake. The Chamokane River near Long Lake forecasted to have 72% of average flows for the May-August period. The forecast is based on a basin snowpack that is 100% of normal and precipitation that is 77% of average for the water year. Precipitation for February was above normal at 127% of average. Streamflow on the Spokane River at Spokane was 53% of average for February. March 1 storage in Coeur d'Alene Lake was 70,000 acre feet, 53% of average and 29% of capacity. Snowpack at Quartz Peak SNOTEL site was 79% of average with 15.4 inches of water content. Average temperatures in the Spokane basin were 6-8 degrees below normal for February and 1-3 degrees below for the water year.

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

Streamflow Forecasts - March 1, 2014

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	1660	2080	2360	99	2640	3060	2390
	APR-SEP	1740	2160	2450	99	2740	3160	2480
Spokane R at Long Lake (2)	APR-JUL	1890	2340	2650	101	2960	3410	2620
	APR-SEP	2090	2560	2870	101	3180	3650	2850
Chamokane Ck nr Long Lake	MAY-AUG	1.53	4.6	6.7	72	8.8	11.9	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	70.2	67.2	132.8

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2014

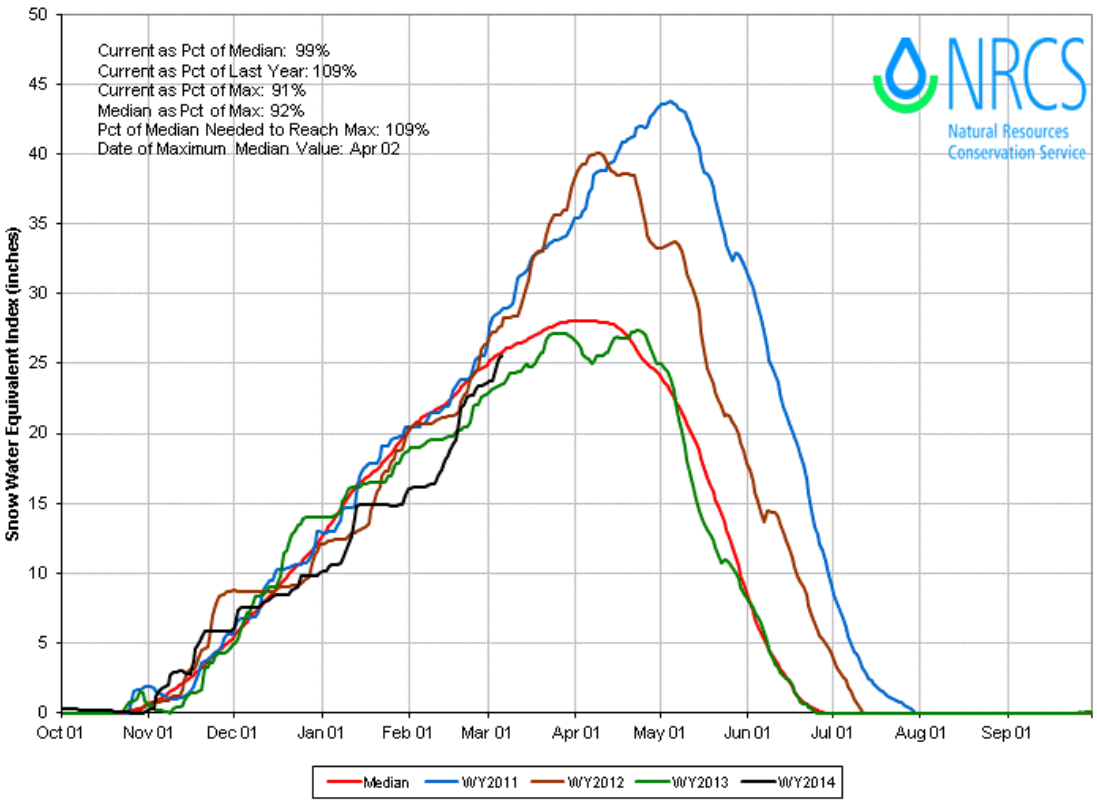
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SPOKANE RIVER	14	113	100
NEWMAN LAKE	3	80	78

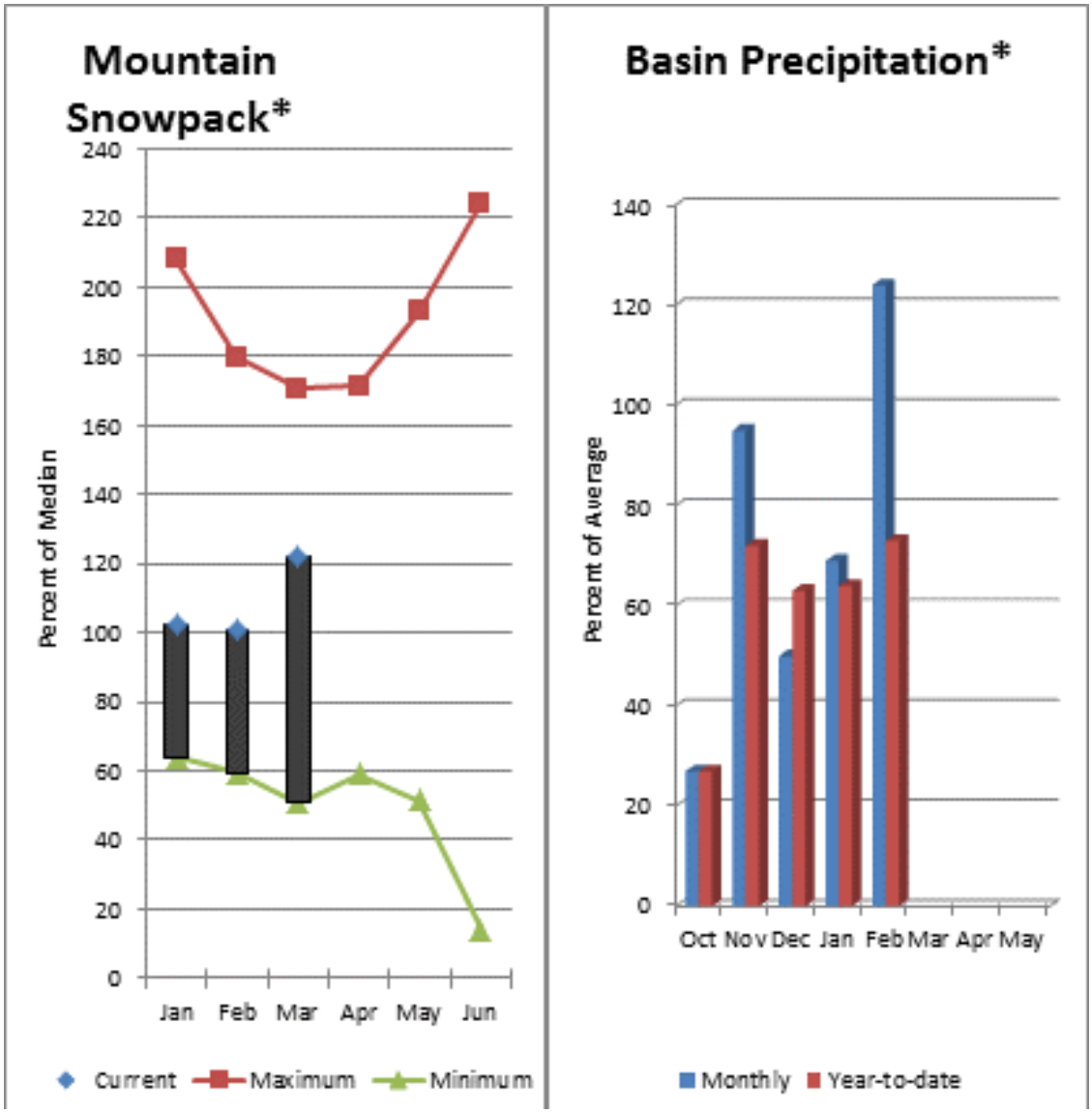
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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 05, 2014





*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 73% and the Pend Orielle below Box Canyon is 117%. February streamflow was 64% of average on the Pend Oreille River and 70% on the Columbia Birchbank. March 1 snow cover was 122% of normal in the Pend Oreille River Basin. Bunchgrass Meadows SNOTEL site had 18.6 inches of snow water on the snow pillow. Normally Bunchgrass would have 22.5 inches on March 1. Precipitation during February was 124% of average, keeping the year-to-date precipitation at 73% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 74% of normal. Average temperatures were 6-8 degrees below normal for February and 13 degrees below normal for the water year.

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

Streamflow Forecasts - March 1, 2014

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	11600	12900	13700	116	14500	15800	11800
	APR-SEP	12800	14100	15000	117	15900	17200	12800
Priest R nr Priest River (1,2)	APR-JUL	380	505	565	72	625	750	780
	APR-SEP	405	540	605	73	670	805	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	11800	13100	13900	117	14700	16000	11900
	APR-SEP	12900	14300	15200	117	16100	17500	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.	571.0	930.0	792.6
Priest Lake Nr Coolin	119.3	60.3	50.2	57.1

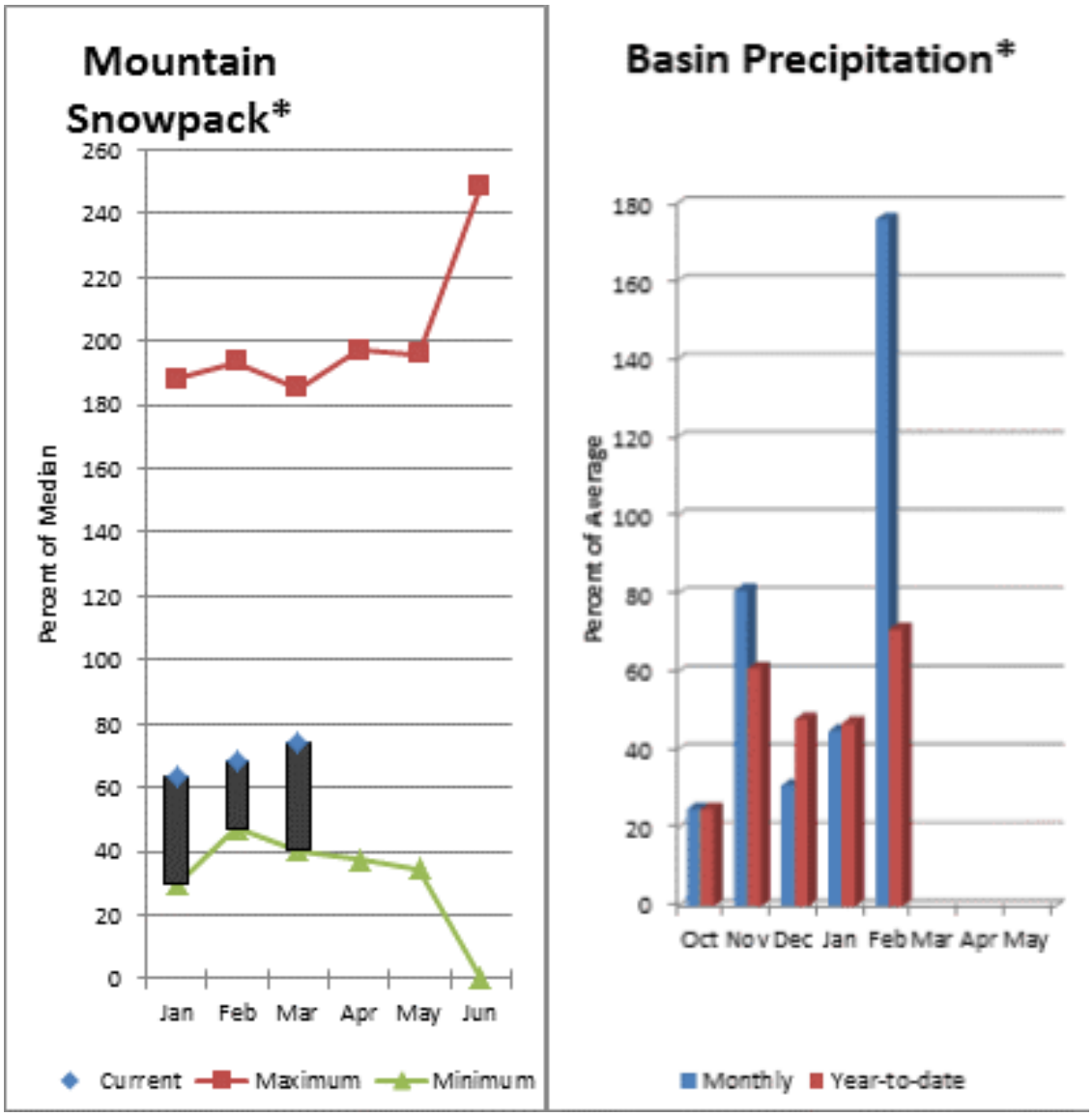
PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
COLVILLE RIVER	2	76	68
PEND OREILLE RIVER	68	139	125
KETTLE RIVER	2	72	73

* 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.



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 124%, Similkameen River is 103%, Kettle River 91% and Methow River is 69%. March 1 snow cover on the Okanogan was 89% of normal, Omak Creek was 45% and the Methow was 90%. February precipitation in the Upper Columbia was 176% of average, with precipitation for the water year at 71% of average. February streamflow for the Methow River was 88% of average, 101% for the Okanogan River and 97% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 5.5 inches. Average for this site is 8.7 inches on March 1. Combined storage in the Conconully Reservoirs was 106% of normal and 89% of capacity. Temperatures were 6-8 degrees below normal for February and 1-3 below for the water year.

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

Streamflow Forecasts - March 1, 2014

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	13.7	51	76	64	101	138	119
	APR-SEP	16.6	57	85	65	113	153	131
Kettle R nr Laurier	APR-JUL	1240	1450	1600	89	1750	1960	1800
	APR-SEP	1280	1520	1680	89	1840	2080	1880
Columbia R at Birchbank (1,2)	APR-JUL	25600	29100	30700	91	32200	35700	33840
	APR-SEP	32400	36800	38700	93	40700	45000	41750
Columbia R at Grand Coulee (2)	APR-JUL	45200	48000	49300	97	50600	53300	51015
	APR-SEP	54200	57700	59300	99	60900	64400	60110
Similkameen R nr Nighthawk (1)	APR-JUL	885	1120	1230	103	1340	1570	1200
	APR-SEP	970	1210	1320	103	1430	1670	1280
Okanogan R nr Tonasket (1)	APR-JUL	1270	1600	1750	118	1900	2230	1480
	APR-SEP	1420	1790	1950	118	2110	2480	1650
Okanogan R at Malott (1)	APR-JUL	1320	1660	1810	125	1960	2300	1450
	APR-SEP	1460	1840	2010	124	2180	2560	1620
Methow R nr Pateros	APR-JUL	415	510	575	69	630	725	835
	APR-SEP	455	550	615	69	680	775	895

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Conconully Lake (salmon Lake Dam)	0.0	9.3	8.7	7.3
Conconully Reservoir	13.0	11.7	10.4	7.4

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - March 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OKANOGAN RIVER	5	73	83
OMAK CREEK	3	30	45
SANPOIL RIVER	1	50	42
SIMILKAMEEN RIVER	0		
TOATS COULEE CREEK	4	63	79
CONCONULLY LAKE	3	44	54
METHOW RIVER	7	78	87

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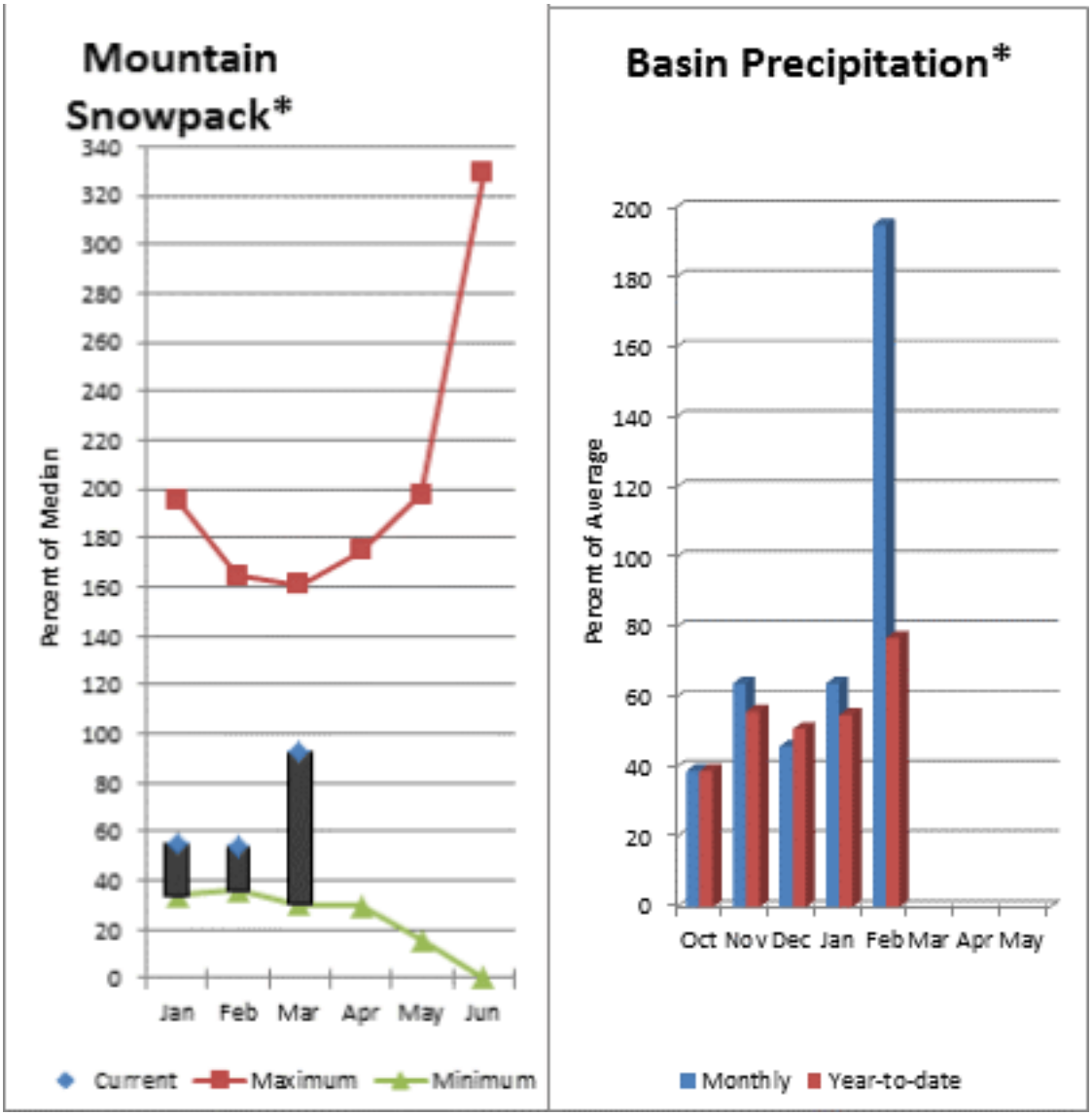
(2) - The value is natural volume - actual volume may be affected by upstream water management.



*Based on selected stations

Precipitation during February was 195% of average in the basin and 75% for the water-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 84%, Wenatchee River at Plain is 94%, Stehekin River is 90% and Icicle Creek is 93%. February average streamflows on the Chelan River were 74% and on the Wenatchee River 62%. March 1 snowpack in the Wenatchee River Basin was 92% of normal; the Chelan, 86%; the Entiat, 94%; Stemilt Creek, 90% and Colockum Creek, 98%. Reservoir storage in Lake Chelan was not available. Lyman Lake SNOTEL had the most snow water with 40.3 inches of water. This site would normally have 48.6 inches on March 1. Temperatures were 4-6 degrees below normal for February and 1-2 degrees below normal for the water year.

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

Streamflow Forecasts - March 1, 2014

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	495	565	615	90	665	735	680
	APR-SEP	585	660	710	90	760	835	790
Chelan R at Chelan (2)	APR-JUL	715	800	855	86	910	995	1000
	APR-SEP	790	880	945	84	1010	1100	1120
Entiat R nr Ardenvoir	APR-JUL	131	151	164	82	177	197	200
	APR-SEP	144	163	177	80	191	210	220
Wenatchee R at Plain	APR-JUL	785	880	940	95	1000	1090	990
	APR-SEP	860	955	1020	94	1090	1180	1080
Icicle Ck nr Leavenworth	APR-JUL	220	245	260	95	275	300	275
	APR-SEP	235	260	280	93	300	325	300
Wenatchee R at Peshastin	APR-JUL	1050	1180	1260	92	1340	1470	1370
	APR-SEP	1150	1280	1370	92	1460	1590	1490
Columbia R bl Rock Island Dam (2)	APR-JUL	46500	51200	54300	97	57400	62100	55770
	APR-SEP	55900	61300	65000	100	68700	74100	65200

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Lake Chelan	676.1	225.6	279.8	

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - March 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CHELAN LAKE BASIN	3	86	86
ENTIAT RIVER	1	106	94
WENATCHEE RIVER	7	101	92
STEMILT CREEK	1	127	84
COLOCKUM CREEK	1	106	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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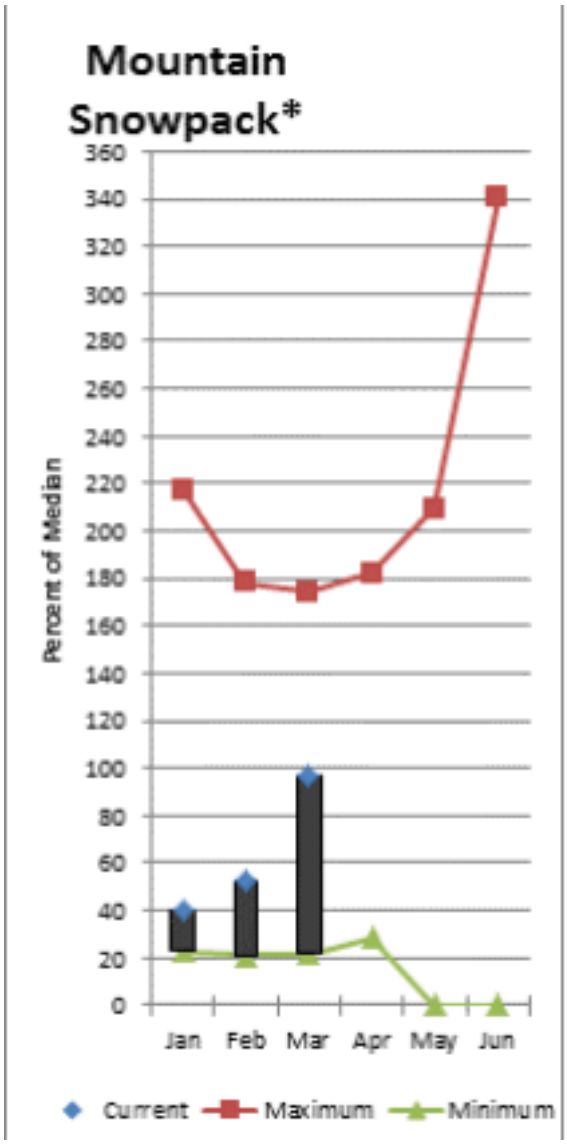
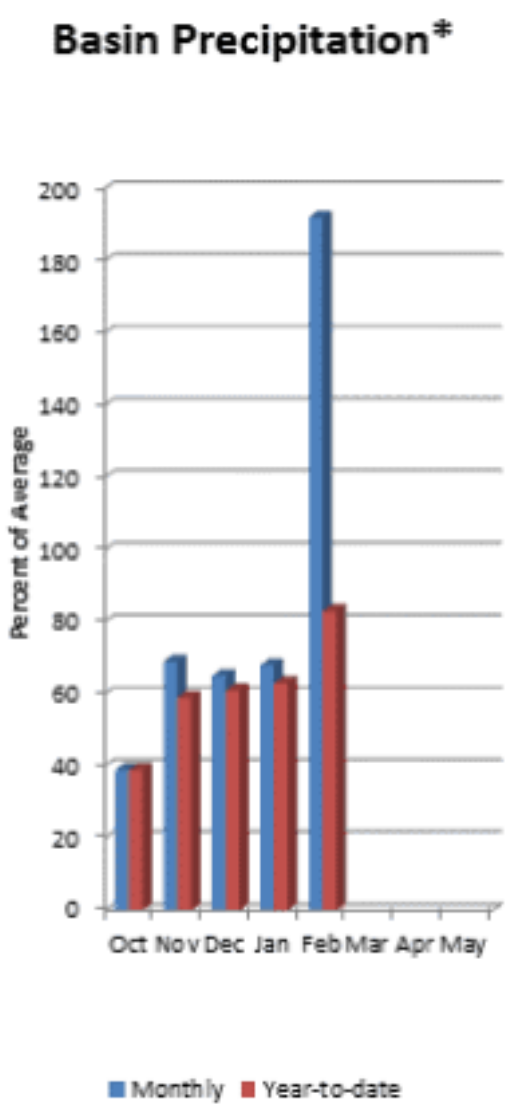
(2) - The value is natural volume - actual volume may be affected by upstream water management.





*Based on selected stations

March 1 reservoir storage for the Upper Yakima reservoirs was 487,000-acre feet, 108% of average. Forecasts for the Yakima River at Cle Elum are 92% of average and the Teanaway River near Cle Elum is at 98%. Lake inflows are all forecasted to be near average this summer as well. February streamflows within the basin were Cle Elum River near Roslyn at 59%. March 1 snowpack was 97% based upon 9 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 192% of average for February and 83% 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, 2014

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	80	97	109	94	121	138	116
	APR-SEP	89	107	119	94	131	149	126
Kachess Reservoir Inflow (2)	APR-JUL	74	88	98	94	108	122	104
	APR-SEP	81	95	105	93	115	129	113
Cle Elum Lake Inflow (2)	APR-JUL	305	340	365	95	390	425	385
	APR-SEP	325	365	390	94	415	455	415
Yakima R at Cle Elum (2)	APR-JUL	515	625	700	93	775	885	755
	APR-SEP	560	680	765	92	850	970	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	97	115	128	98	141	159	130
	APR-SEP	99	117	130	98	143	161	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	106.2	101.6	92.3
Kachess	239.0	187.0	182.6	143.6
Cle Elum	436.9	193.9	279.8	214.4

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - March 1, 2014

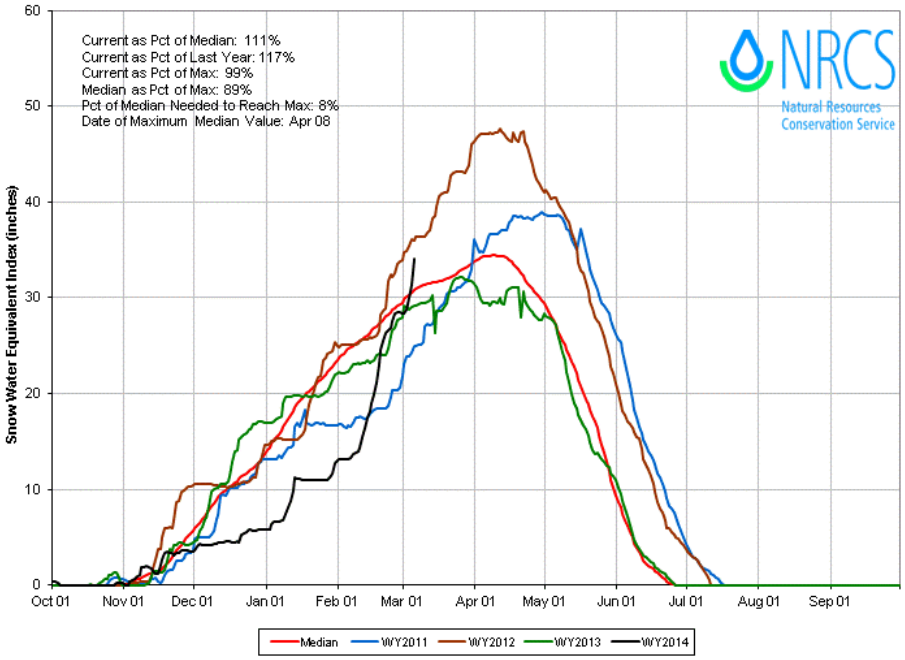
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
UPPER YAKIMA RIVER	8	105	97

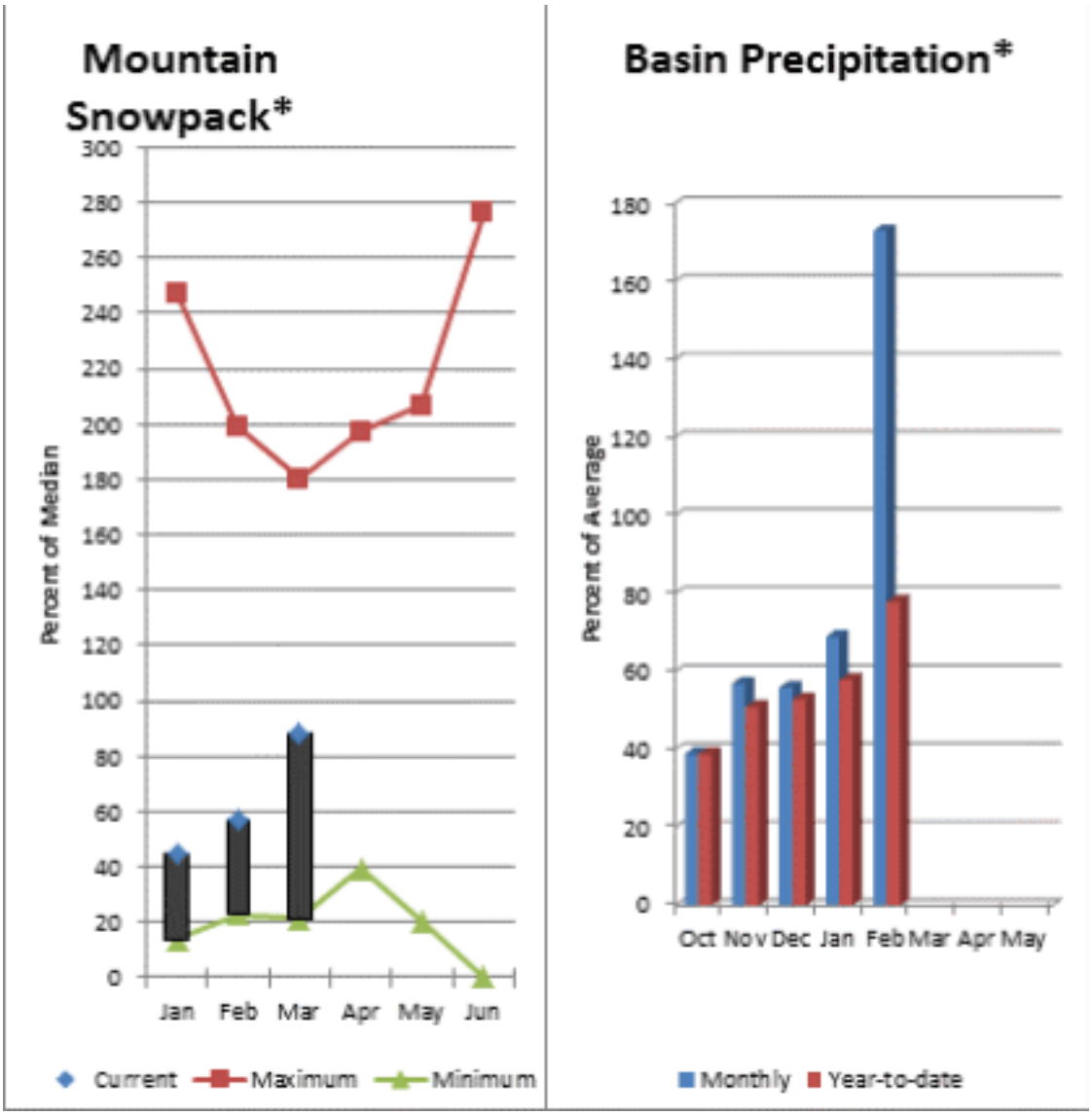
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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.

UPPER YAKIMA Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 05, 2014





*Based on selected stations

February average streamflows within the basin were: Yakima River near Parker, 52%; Naches River near Naches, 49%; and Yakima River at Kiona, 61%. March 1 reservoir storage for Bumping and Rimrock reservoirs was 159,000-acre feet, 116% of average. Forecast averages for Yakima River near Parker are 94%; American River near Nile, 80%; Ahtanum Creek, 97%; and Klickitat River near Glenwood, 92%. March 1 snowpack was 88% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 86% of normal. Precipitation was 173% of average for February and 78% year-to-date for water. Temperatures were 4-6 degrees below normal for February and for 1-2 degrees below normal for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Streamflow Forecasts - March 1, 2014

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	90	104	113	99	122	136	114
	APR-SEP	98	112	122	99	132	146	123
American R nr Nile	APR-JUL	62	74	82	80	90	102	102
	APR-SEP	67	79	88	80	97	109	110
Rimrock Lake Inflow (2)	APR-JUL	157	174	185	99	196	215	187
	APR-SEP	188	205	220	100	235	250	220
Naches R nr Naches (2)	APR-JUL	495	575	630	90	685	765	700
	APR-SEP	530	615	675	89	735	820	760
Ahtanum Ck at Union Gap	APR-JUL	16.4	22	26	96	30	36	27
	APR-SEP	18.3	24	28	97	32	38	29
Yakima R nr Parker (2)	APR-JUL	1220	1430	1570	95	1710	1920	1660
	APR-SEP	1350	1560	1710	94	1860	2070	1820
Klickitat R nr Glenwood	APR-JUL	92	106	116	92	126	140	126
	APR-SEP	102	117	128	92	139	154	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	16.7	10.2	13.3
Rimrock	198.0	142.1	140.3	123.3

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - March 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER YAKIMA RIVER	7	88	88
AHTANUM CREEK	2	89	86

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

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

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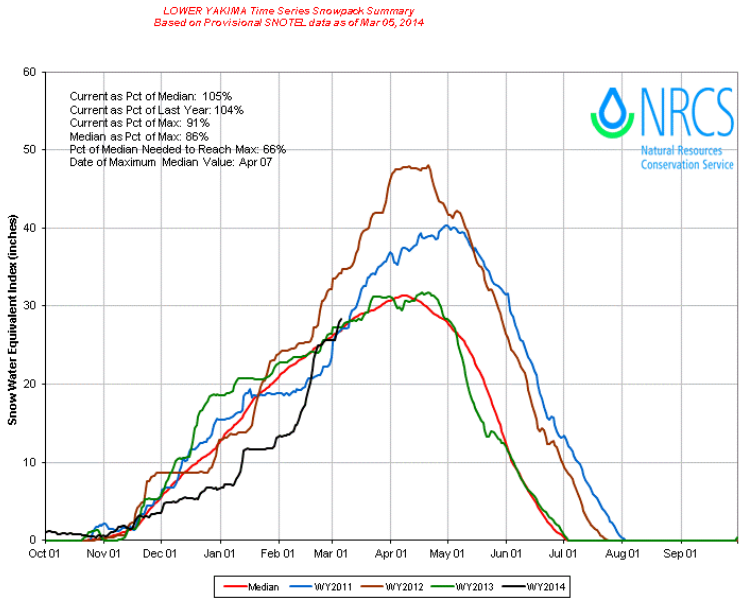
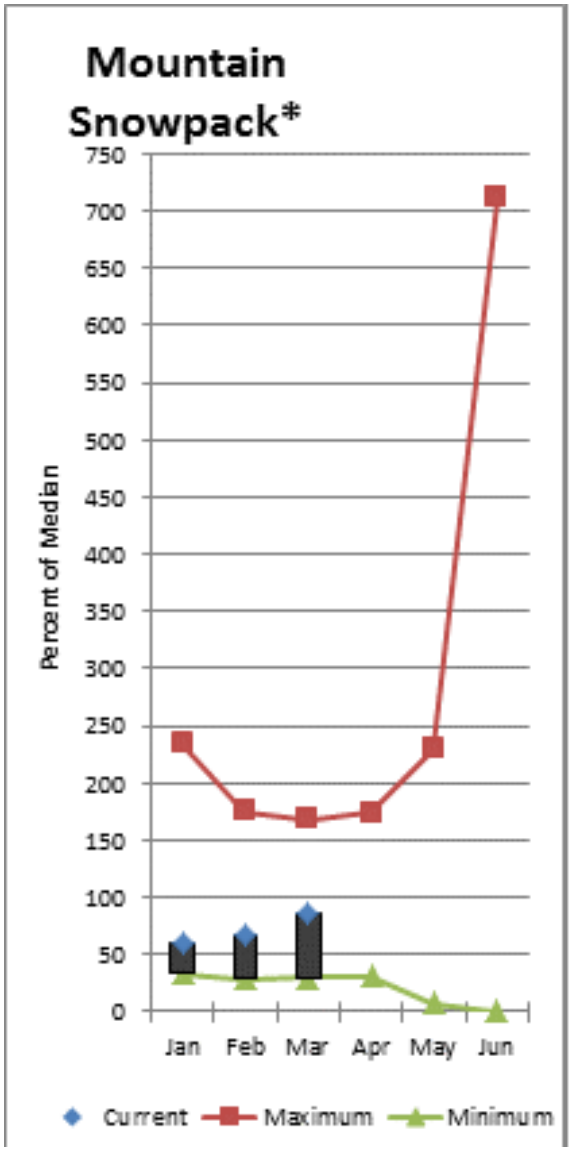
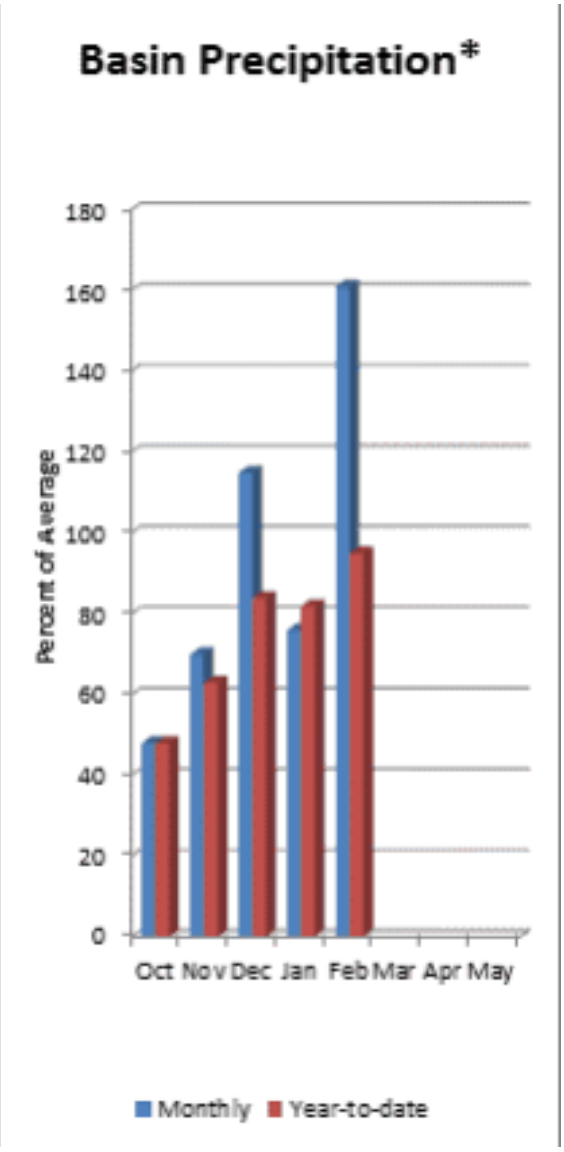
(2) - The value is natural volume - actual volume may be affected by upstream water management.







*Based on selected stations

February precipitation was 161% of average, maintaining the year-to-date precipitation at 95% of average. Snowpack in the basin was 85% of normal. Streamflow forecasts are 93% of average for Mill Creek and 94% for the SF Walla Walla near Milton-Freewater. Average temperatures were 2-6 degrees below normal for February and 1-3 below normal for the water year.

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

Streamflow Forecasts - March 1, 2014

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	51	57	62	94	67	73	66
Mill Ck nr Walla Walla	APR-JUL	14.1	18.2	21	88	24	28	24
	APR-SEP	17.7	22	25	93	28	32	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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WALLA WALLA RIVER	2	100	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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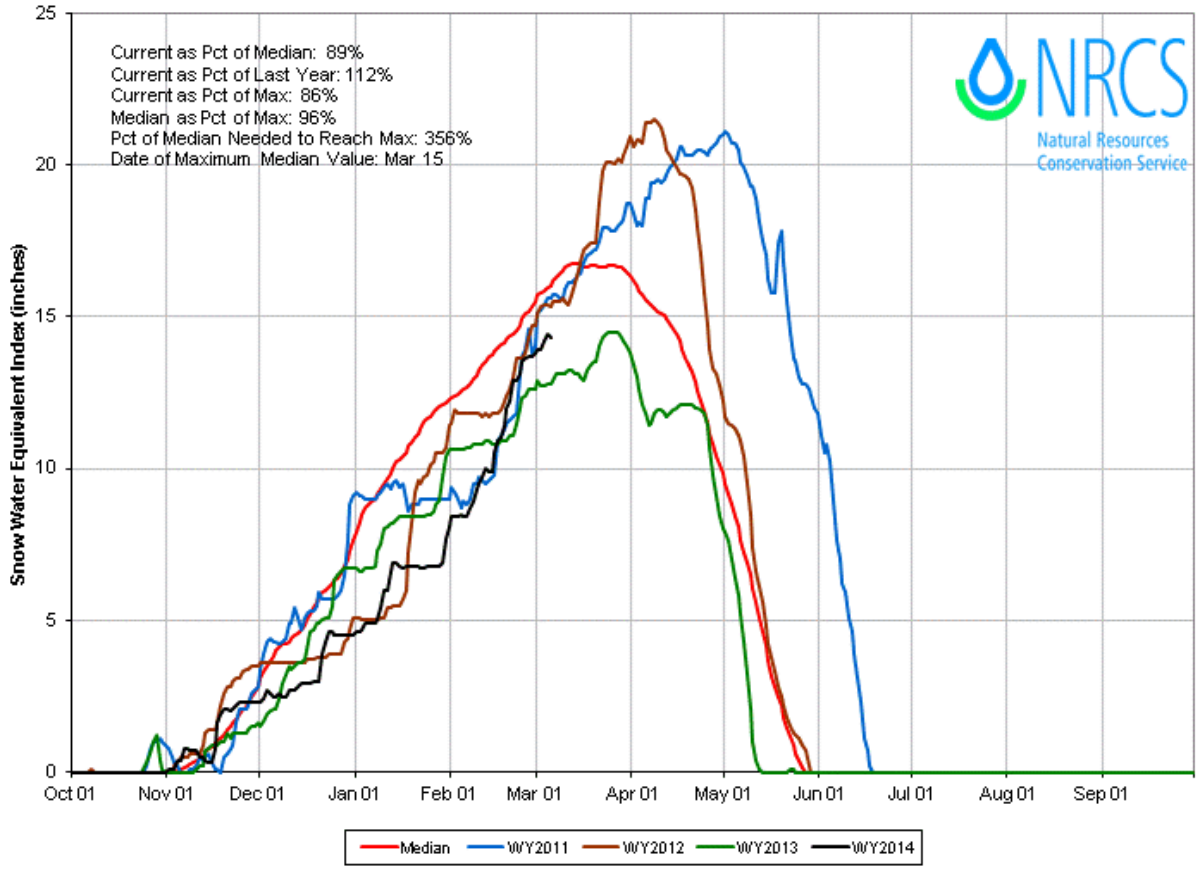
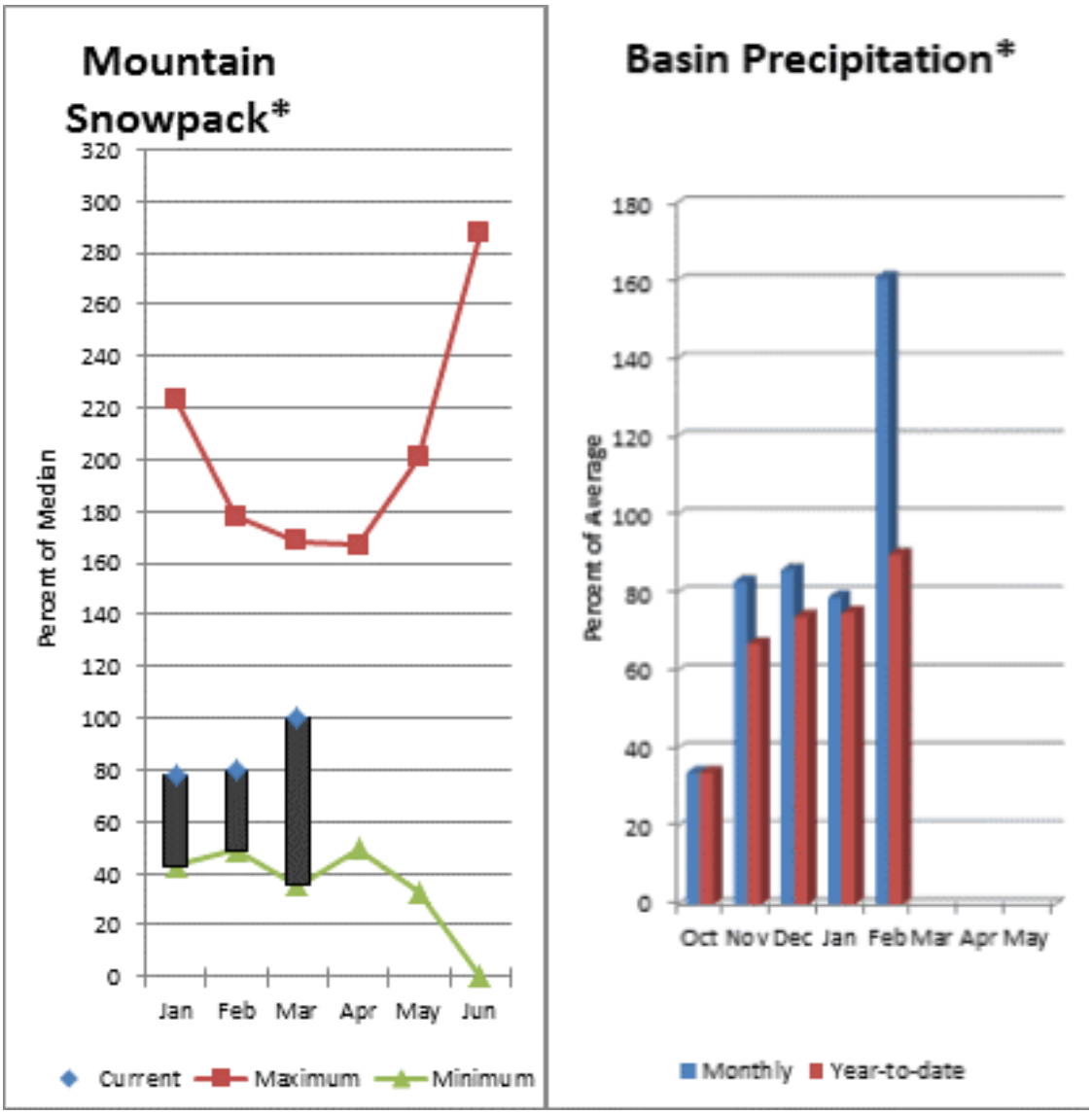
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WALLA WALLA, TOUCHET Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 05, 2014





*Based on selected stations

The Grande Ronde River can expect summer flows to be about 84% of normal. The forecast for Asotin Creek at Asotin predicts 100% of average flows for the April – July runoff period. February precipitation was 161% of average, bringing the year-to-date precipitation to 90% of average. March 1 snowpack readings averaged 100% of normal. February streamflow was 72% of average for Snake River below Lower Granite Dam and 118% for Grande Ronde River near Troy. Dworshak Reservoir storage was 100% of average. Average temperatures were 4-6 degrees below normal for February and 2-3 degrees below for the water year.

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

Streamflow Forecasts - March 1, 2014

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	845	1140	1270	84	1400	1700	1510
	APR-SEP	665	965	1100	84	1240	1530	1310
Asotin Ck at Asotin	APR-JUL	20	29	35	100	41	50	35
Clearwater R at Spalding (1,2)	APR-JUL	6240	7630	8260	120	8890	10300	6890
	APR-SEP	6600	8040	8690	120	9340	10800	7270
Snake R bl Lower Granite Dam (1,2)	APR-JUL	14900	19900	22100	111	24400	29400	19848
	APR-SEP	16600	22200	24800	111	27300	32900	22280

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.	2365.	2581.	2358.

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2014

Watershed	Number of Data Sites	This Year as % of: Last Yr	Median
LOWER SNAKE, GRANDE RON	12	127	106

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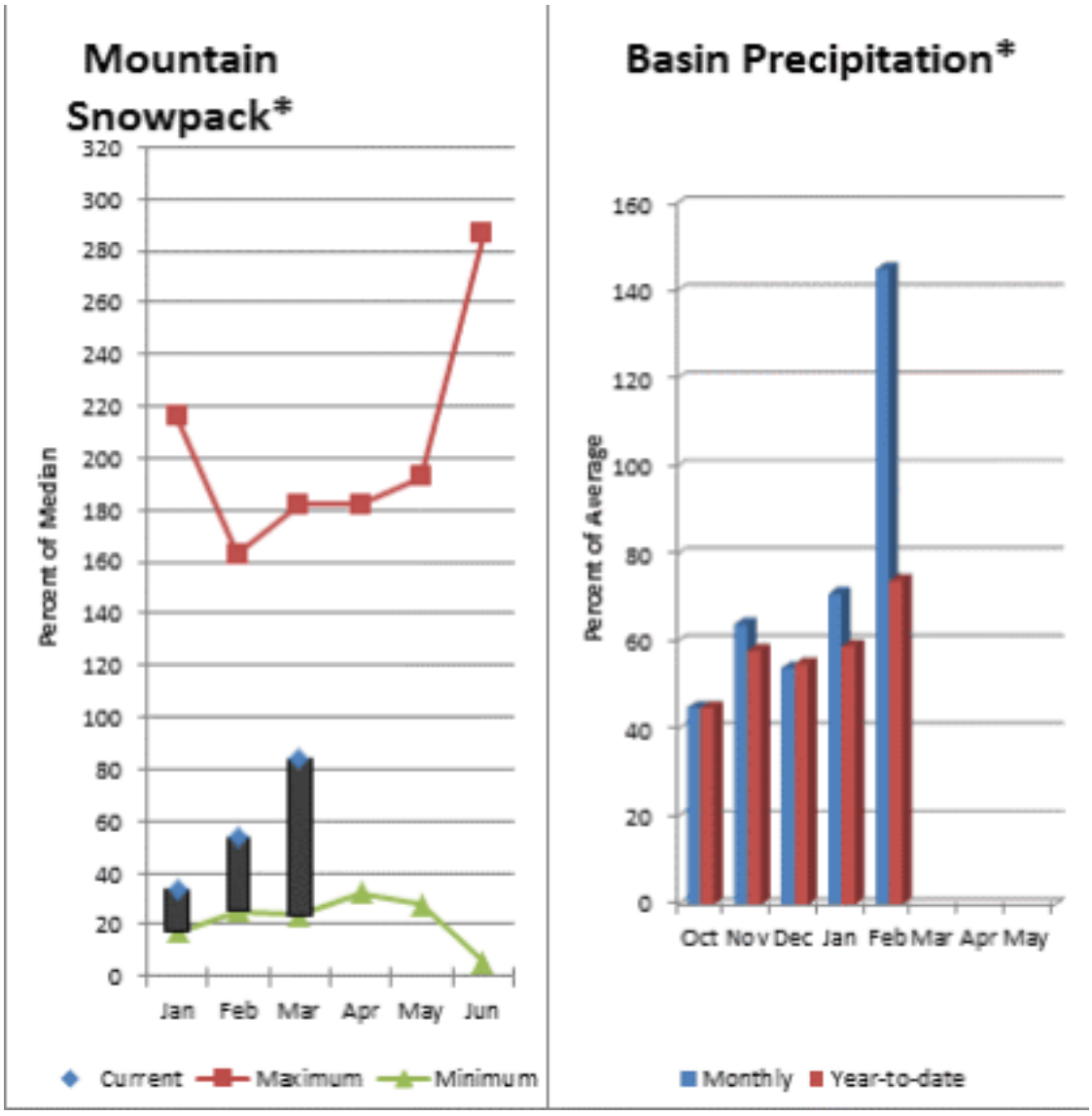
(2) - The value is natural volume - actual volume may be affected by upstream water management.



*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 83% and Cowlitz River at Castle Rock, 96% of average. The Columbia at The Dalles is forecasted to have 100% of average flows this summer according to the River Forecast Center. February average streamflow for Cowlitz River was 115%. The Columbia River at The Dalles was 79% of average. February precipitation was 145% of average and the water-year average was 74%. March 1 snow cover for Cowlitz River was 103%, and Lewis River was 66% of normal. Temperatures were 4-6 degrees below normal during February and 2-4 below normal for the water year.

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

Streamflow Forecasts - March 1, 2014

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	67500	74500	79300	99	84100	91100	79855
	APR-SEP	79200	87400	93000	100	98600	107000	92704
Klickitat R nr Glenwood	APR-JUL	92	106	116	92	126	140	126
	APR-SEP	102	117	128	92	139	154	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	545	710	825	85	940	1100	970
	APR-SEP	640	815	935	83	1050	1230	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1060	1310	1480	91	1650	1900	1620
	APR-SEP	1170	1470	1670	91	1870	2170	1840
Cowlitz R at Castle Rock (2)	APR-JUL	1640	1920	2110	95	2300	2580	2230
	APR-SEP	1990	2290	2390	95	2710	3010	2520

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Swift	0.0			622.5
Yale	0.0			
Merwin	0.0			398.3
Mossyrock Dam (riffe Lk)	0.0			1213.

LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - March 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LEWIS RIVER	4	50	66
COWLITZ RIVER	6	80	103

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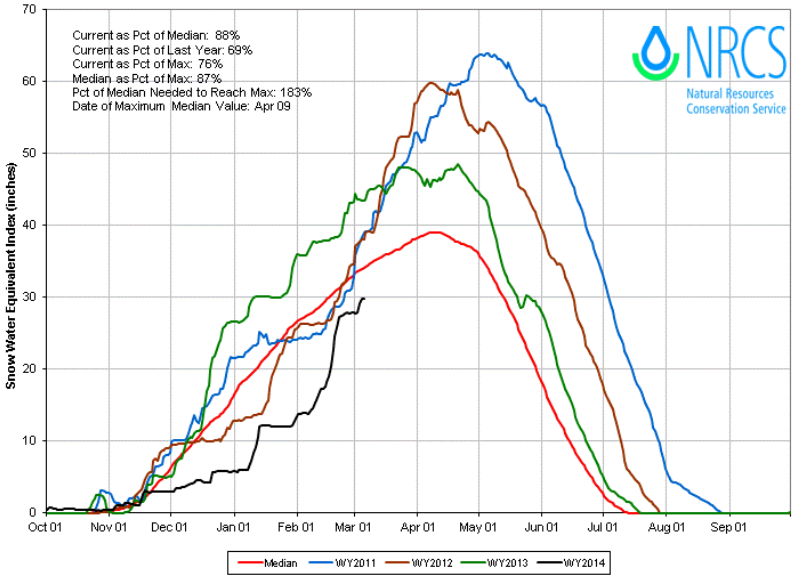
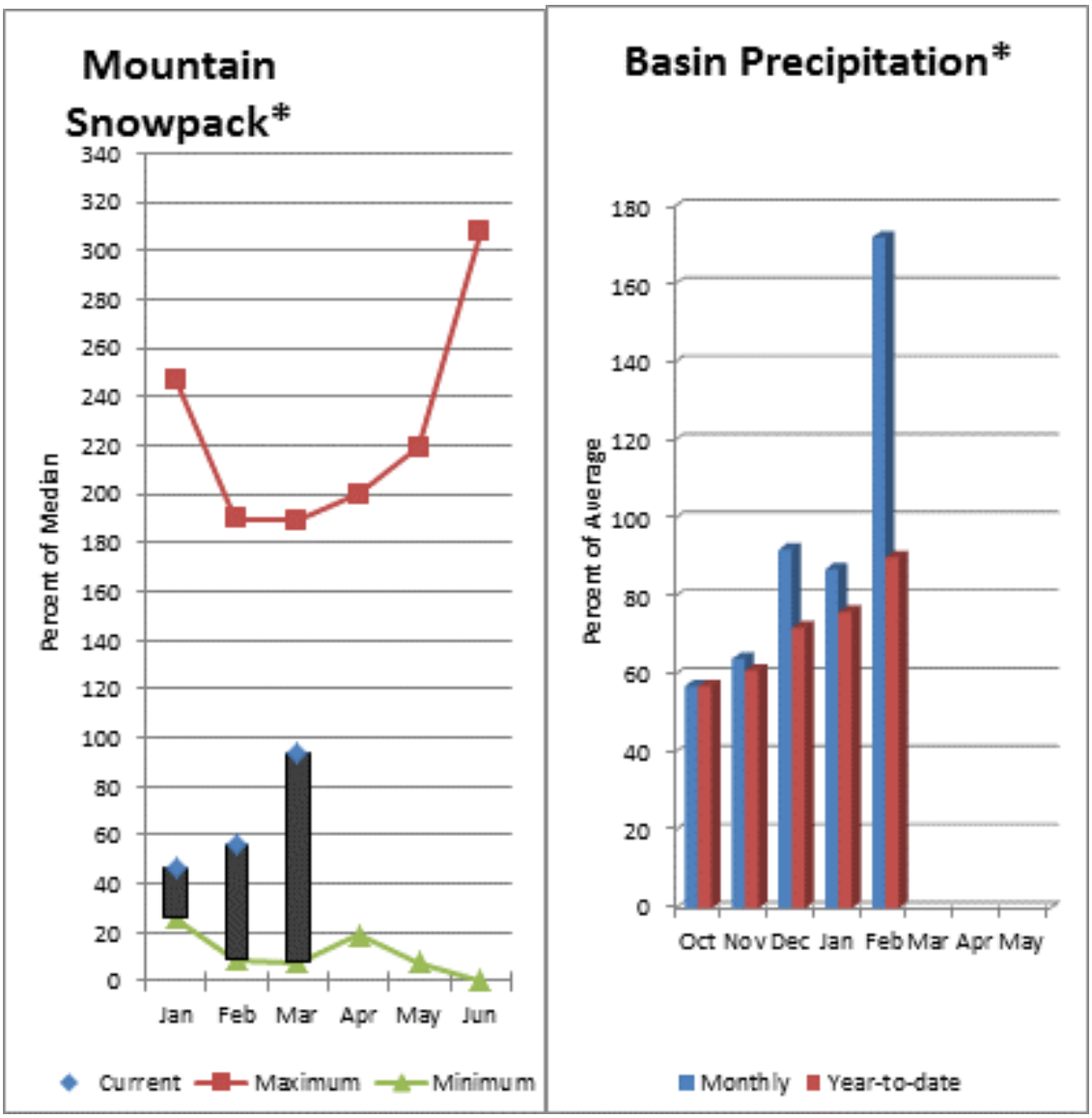
(2) - The value is natural volume - actual volume may be affected by upstream water management.

LEWIS, COWLITZ Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 05, 2014





*Based on selected stations

Summer runoff is forecast to be 88% of normal for the Green River below Howard Hanson Dam and 103% for the White River near Buckley. March 1 snowpack was 105% of average for the White River, 101% for Puyallup River and 75% in the Green River Basin. February precipitation was 172% of average, bringing the water year-to-date to 90% of average for the basins. Average temperatures in the area were 4-6 degrees below normal for February and 2-3 below average for the water-year.

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

Streamflow Forecasts - March 1, 2014

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	330	410	445	103	480	560	430
	APR-SEP	400	490	530	103	570	660	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	107	174	205	87	235	305	235
	APR-SEP	130	199	230	88	260	330	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, 2014

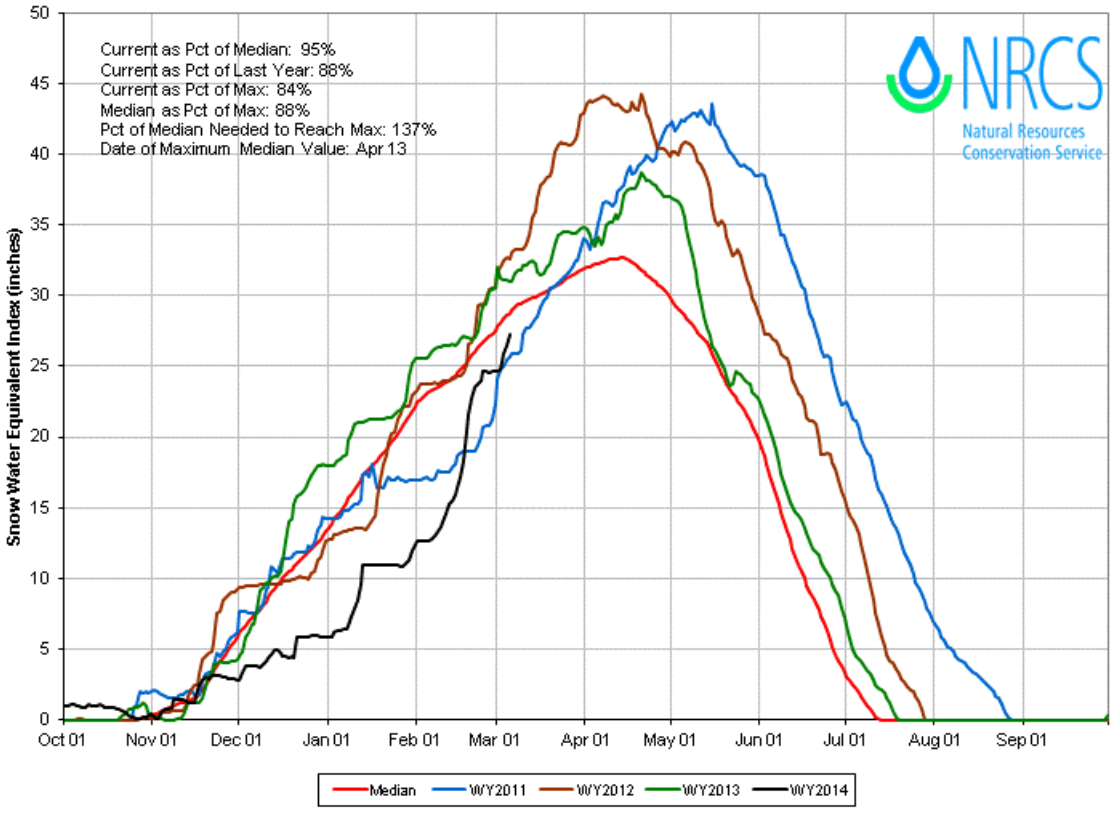
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WHITE RIVER	3	79	87
GREEN RIVER	2	74	75
PUYALLUP RIVER	5	72	88

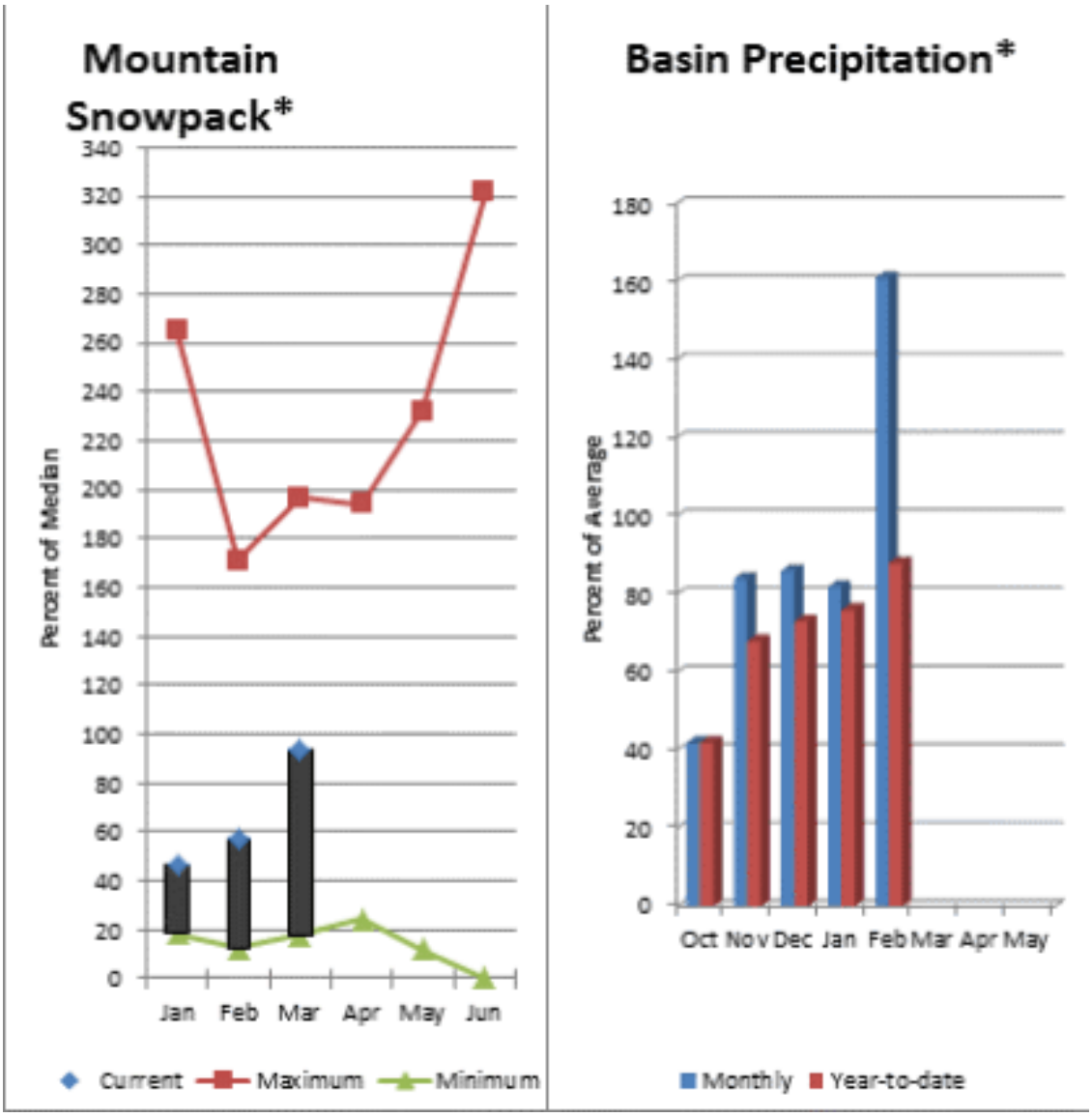
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

(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 Mar 05, 2014





*Based on selected stations

Forecast for spring and summer flows are: 99% for Cedar River near Cedar Falls; 100% for Rex River; 109% for South Fork of the Tolt River; and 96% for Taylor Creek near Selleck. Basin-wide precipitation for February was 161% of average, bringing water-year-to-date to 88% of average. March 1 median snow cover in Cedar River Basin was 91%, Tolt River Basin was 98%, Snoqualmie River Basin was 96%, and Skykomish River Basin was 6931%. Temperatures were 4-6 degrees below normal for February and 2-3 below average for the water-year.

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

Streamflow Forecasts - March 1, 2014

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	51	61	68	97	75	85	70
	APR-SEP	57	68	75	99	82	93	76
Rex R nr Cedar Falls	APR-JUL	15.9	21	24	100	27	32	24
	APR-SEP	18.7	24	27	100	30	35	27
Taylor Creek nr Selleck	APR-JUL	14.2	17.3	19.3	97	21	24	20
	APR-SEP	17.5	21	23	96	25	28	24
SF Tolt R nr Index	APR-JUL	11.4	13.8	15.4	108	17.0	19.4	14.2
	APR-SEP	13.0	15.7	17.5	109	19.3	22	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, 2014

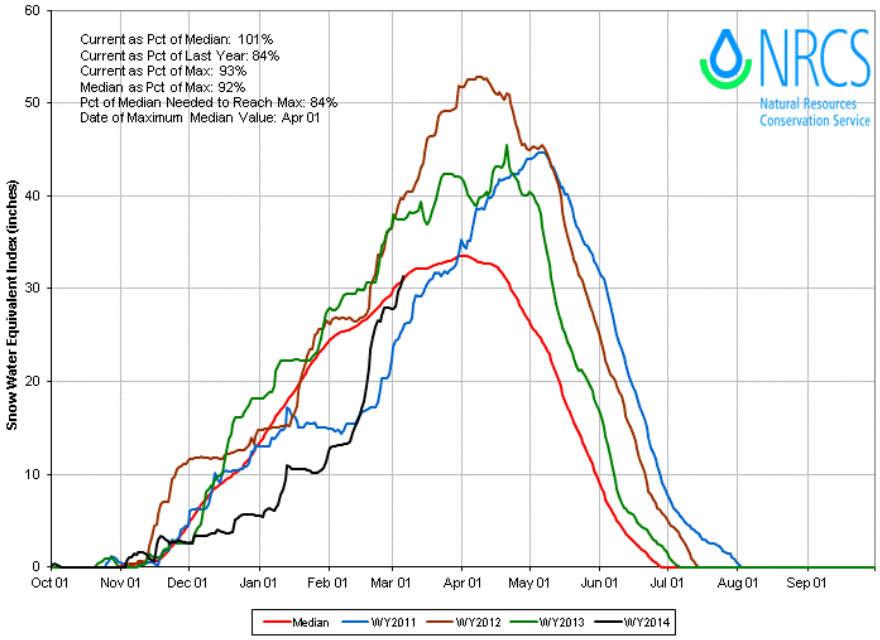
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CEDAR RIVER	6	70	91
TOLT RIVER	3	59	98
SNOQUALMIE RIVER	5	69	96
SKYKOMISH RIVER	3	65	93

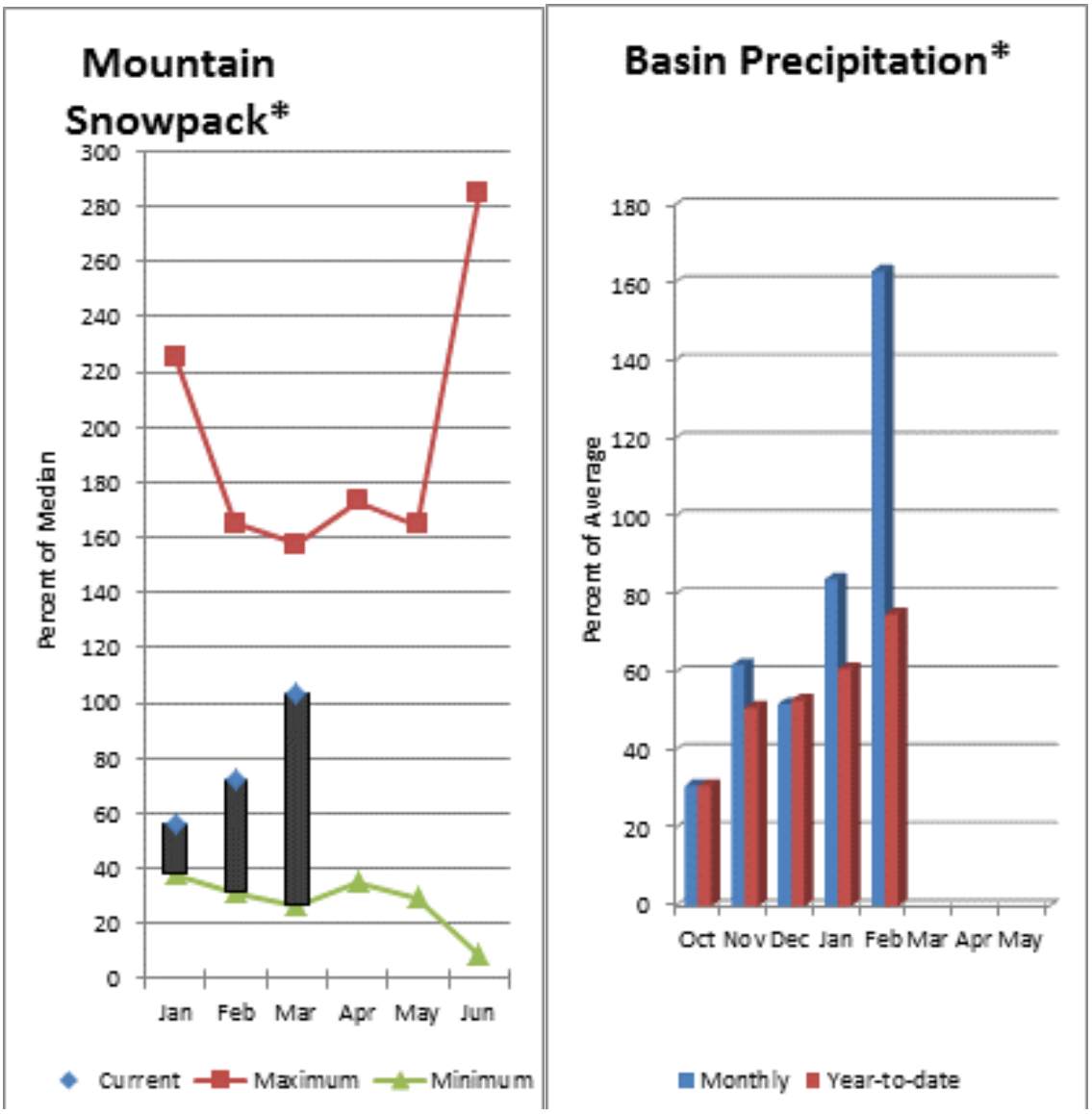
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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.

CEDAR, SNOQUALMIE, SKYKOMISH Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 05, 2014





*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 104% of average for the spring and summer period. February streamflow in Skagit River was 69% of average. Other forecast points included Baker River at 98% and Thunder Creek at 97% of average. Basin-wide precipitation for February was 163% of average, bringing water-year-to-date to 75% of average. March 1 average snow cover in Skagit River Basin was 107%, Nooksack River Basin was 99%. Snow surveys were not available for the Baker River Basin. March 1 Skagit River reservoir storage was 5432% of average and 41% of capacity. Average temperatures were 4-6 degrees below normal for February and 1-2 below for the water year.

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

Streamflow Forecasts - March 1, 2014

Forecast Point	Forecast Period	Drier 90% (1000AF)	Drier 70% (1000AF)	Future Conditions 50% (1000AF)	50% (% AVG.)	Wetter 30% (1000AF)	Wetter 10% (1000AF)	30-Yr Avg. (1000AF)
Thunder Ck nr Newhalem	APR-JUL	197	215	230	98	245	265	235
	APR-SEP	280	305	320	97	335	360	330
Skagit R at Newhalem	APR-JUL	1540	1690	1790	107	1890	2040	1680
	APR-SEP	1840	2010	2120	104	2230	2400	2030
Baker R At Concrete	APR-JUL	595	695	765	98	835	935	780
	APR-SEP	760	880	965	98	1050	1170	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.	451.0	244.5	832.4
Diablo Reservoir	90.6		86.0	86.2

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - March 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
SKAGIT RIVER	13	101	108
BAKER RIVER	0		
NOOKSACK RIVER	2	76	99

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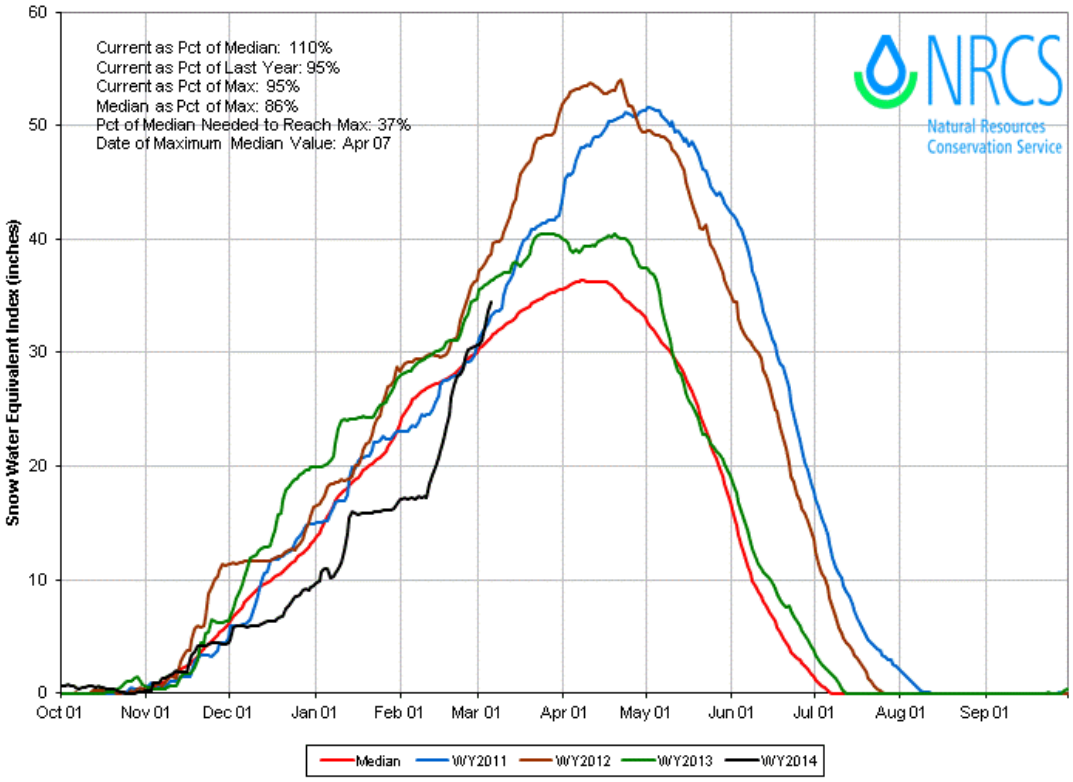
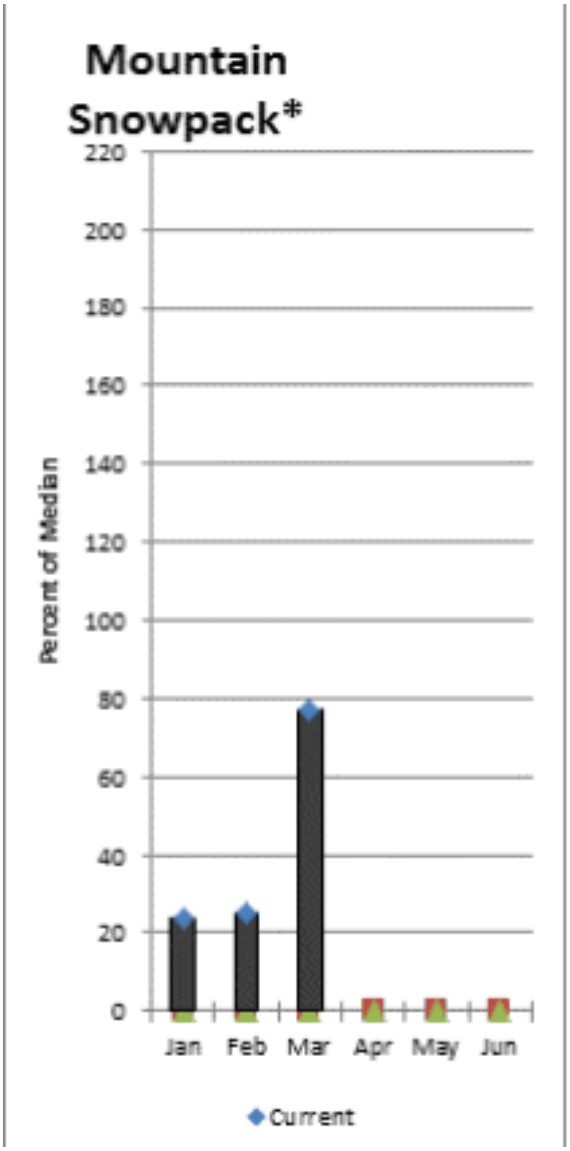
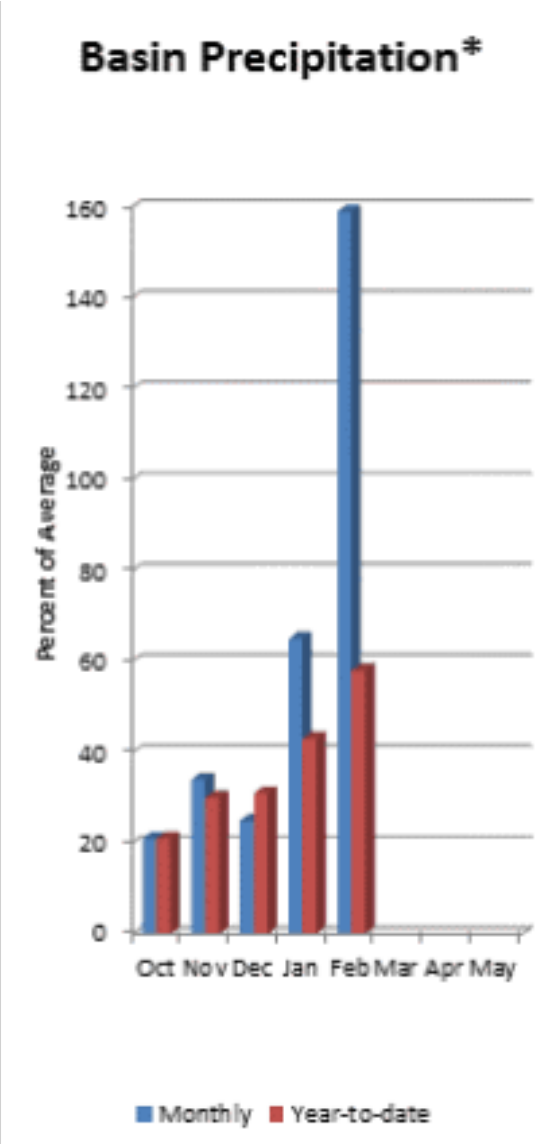
(2) - The value is natural volume - actual volume may be affected by upstream water management.

BAKER, SKAGIT, NOOKSACK Time Series Snowpack Summary
Based on Provisional SNOTEL data as of Mar 05, 2014







*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 90% and Elwha River is 91%. February runoff in the Dungeness River was 65% of normal. Big Quilcene and Wynoochee rivers may expect near to slightly below average runoff this summer as well. February precipitation was 159% of average. Precipitation has accumulated at 58% of average for the water year. February precipitation at Quillayute was 10.64 inches. The 1981-2010 average for February is 10.35 inches. Olympic Peninsula snowpack was still disappointing at 77% of normal on March 1. Temperatures were 2-4 degrees below average for February and close to normal for the water year.

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

Streamflow Forecasts - March 1, 2014

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	86	99	108	90	117	130	120
	APR-SEP	103	120	131	90	142	159	145
Elwha R at Mcdonald Bridge	APR-JUL	295	335	365	91	395	435	400
	APR-SEP	340	395	430	91	465	520	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, 2014

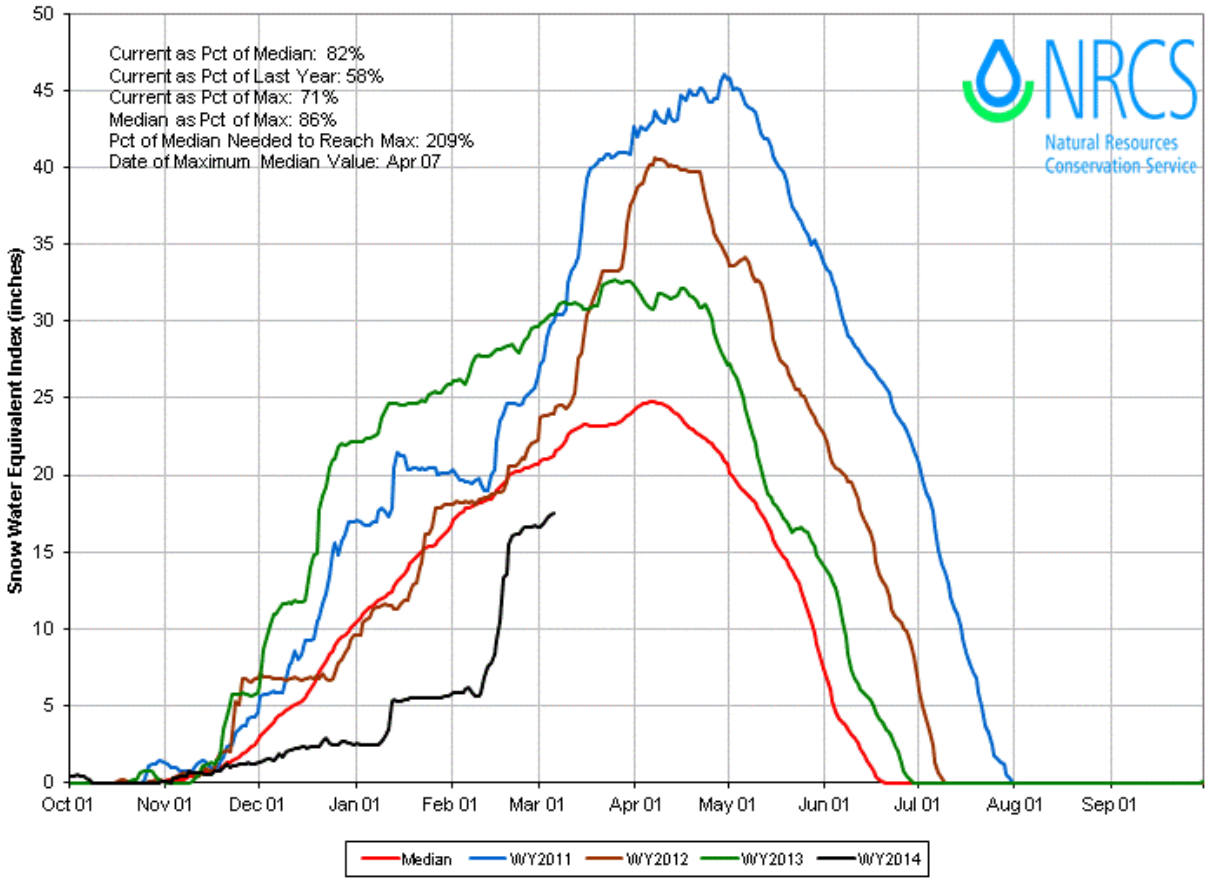
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OLYMPIC PENINSULA	6	54	77

* 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 05, 2014



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

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
April 1, 2014

Pilot, Mike Nehring with Northwest Helicopters. Mt. Baker in the back ground.
Photo by Scott Pattee

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

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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

April 2014

General Outlook

Washington seems to have averted what could have been a disastrous drought just to fall into the lap of one of the states' worst natural disasters to ever hit, one that came with no real warning to the good folks of Oso, WA. As we march into another sunny spring the grass will grow and the flowers will bloom but those affected by the Snohomish County landslide will not forget or be forgotten. Warmer mountain temperatures seem to have advanced the ripening of this years' snowpack with measured densities coming in higher than normal, effectively pushing the snowpack 2-3 weeks ahead of schedule. Weather forecasts continue to trend towards warm and dry which could facilitate an early start to the spring melt, potentially causing rivers to rise higher and quicker than normally expected.

Snowpack

The April 1 statewide SNOTEL readings were 100% of normal but vary across the state. Snowpack appeared to have increased at higher elevations however there was some indication of lower elevation snow courses having little to no snow due to rain on snow events as well as warmer than normal temperatures during the first half of the month. Readings from the Pend Orielle, including Idaho and Montana data, reported the highest at 140% of normal. Westside medians from SNOTEL, and April 1 snow surveys, included the North Puget Sound river basins with 117% of normal, the Central and South Puget river basins averaged 99%, and the Lewis-Cowlitz basins with 92% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima and Wenatchee areas with 101% and 105% respectively. Snowpack in the Spokane River Basin stood at 117% and the Walla Walla River Basin had 96% of the long term median.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	130	117
Newman Lake	79	95
Pend Oreille	152	140
Okanogan	93	98
Methow	114	111
Conconully Lake	48	56
Central Columbia	120	105
Upper Yakima	110	104
Lower Yakima	103	98
Ahtanum Creek	85	80
Walla Walla	110	96
Lower Snake	141	115
Cowlitz	92	114
Lewis	57	71
White	98	115
Green	78	78
Puyallup	104	112
Cedar	70	91
Snoqualmie	76	99
Skykomish	72	94
Skagit	116	121
Nooksack	93	117
Olympic Peninsula	65	82

Precipitation

With nearly twice the normal rainfall in March most basins in the state have erased the previous deficits to come within striking distance of normal water year to date precipitation. Only a hand full of stations reported below average monthly precipitation. Basin precipitation amounts were pretty even throughout the state with a low of 112% in the Upper Columbia to a high of 212% in the North Puget Sound. The wettest spot in the state was reported at Alpine Meadows SNOTEL in the Tolt River Basin with a March accumulation of 34.8 inches, or 198% of average. The highest percent of average was at Darrington, WA, near the location of the devastating Oso landslide, which received 266% of average precipitation.

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	178	93
Pend Oreille	168	89
Upper Columbia	112	77
Central Columbia	192	93
Upper Yakima	172	96
Lower Yakima	180	94
Walla Walla	163	105
Lower Snake	159	101
Lower Columbia	174	90
South Puget Sound	175	102
Central Puget Sound	191	104
North Puget Sound	212	94
Olympic Peninsula	148	73

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. However with the bulk of winter snow and precipitation already on the ground we will start to see reservoirs fill with spring runoff. Reservoir storage in the Yakima Basin was 610,000-acre feet, 119% of average for the Upper Reaches and 201,000-acre feet or 133% of average for Rimrock and Bumping Lakes. The power generation reservoirs included the following: Coeur d'Alene Lake, 192,000 acre feet, 116% of average and 80% of capacity; and the Skagit River reservoirs at 57% of average and 30% 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	80	116
Pend Oreille	42	83
Upper Columbia	89	102
Central Columbia	34	89
Upper Yakima	73	119
Lower Yakima	87	133
Lower Snake	61	88
North Puget Sound	30	57

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

Streamflow

With the addition of more snow and above normal precipitation all forecasts increased by 5-20% this month. Forecasts vary from 78% of average for the Colville River at Kettle Falls to 124% of average for the Okanogan River at Malott. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 108%; White River, 109%; and Skagit River, 116%. Some Eastern Washington streams include the Yakima River near Parker, 102%: Wenatchee River at Plain, 105% and Spokane River near Post Falls, 115%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. March runoff varied greatly by basin and is often influenced this time of year by reservoir control which may cause sudden changes in daily flows. Caution should be taken when working or playing in or near streams influenced by spring snowmelt.

BASIN	PERCENT OF AVERAGE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	83-115
Pend Oreille	86-134
Upper Columbia	78-135
Central Columbia	95-105
Upper Yakima	96-110
Lower Yakima	97-110
Walla Walla	100
Lower Snake	102-134
Lower Columbia	87-107
South Puget Sound	85-109
Central Puget Sound	100-122
North Puget Sound	103-106
Olympic Peninsula	96-97

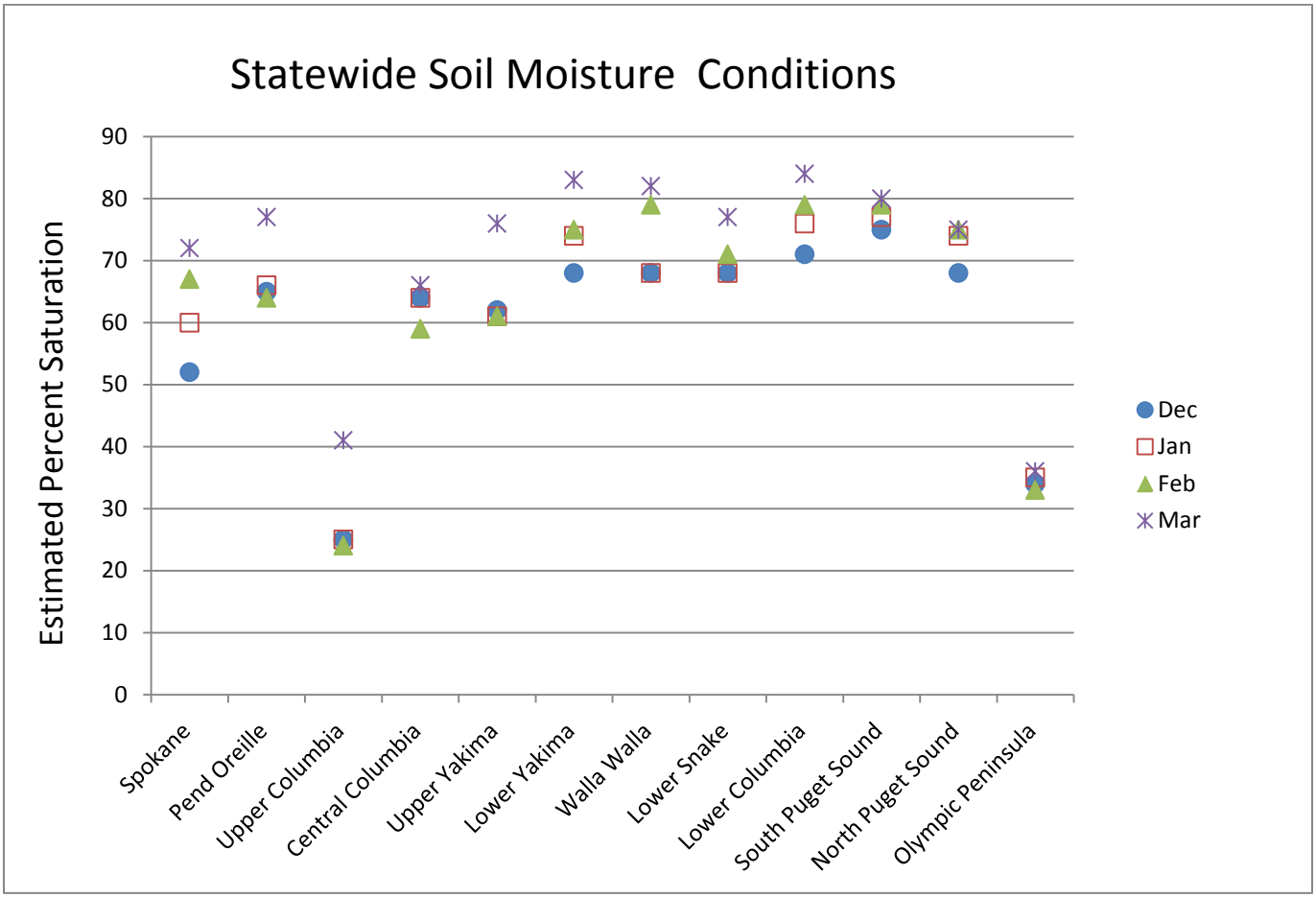
STREAM	PERCENT OF AVERAGE MARCH RUNOFF
Pend Oreille at Albeni Fall Dam	113
Kettle at Laurier	59
Columbia at Birchbank	97
Spokane at Spokane	185
Similkameen at Nighthawk	111
Okanogan at Tonasket	135
Methow at Pateros	75
Chelan at Chelan	112
Wenatchee at Pashastin	142
Cle Elum near Roslyn	168
Yakima at Parker	163
Naches at Naches	218
Grande Ronde at Troy	202
Snake below Lower Granite Dam	128
Columbia River at The Dalles	126
Cowlitz below Mayfield Dam	225
Skagit at Concrete	185
Dungeness near Sequim	178

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. Light fall precipitation created drier than optimal soil moisture conditions coming into winter. However greater than normal precipitation during February and March helped buffer soil moisture levels back to near normal conditions for this time of year. Additional increases should be expected as the snow ripens and begins the normal spring melt phase. Having elevated soil moisture levels now is also a good indicator for increased runoff in the spring.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	72
Pend Oreille	77
Upper Columbia	41
Central Columbia	66
Upper Yakima	76
Lower Yakima	83
Walla Walla	82
Lower Snake	77
Lower Columbia	84
South Puget Sound	80
Central Puget Sound	N/A
North Puget Sound	75
Olympic Peninsula	36



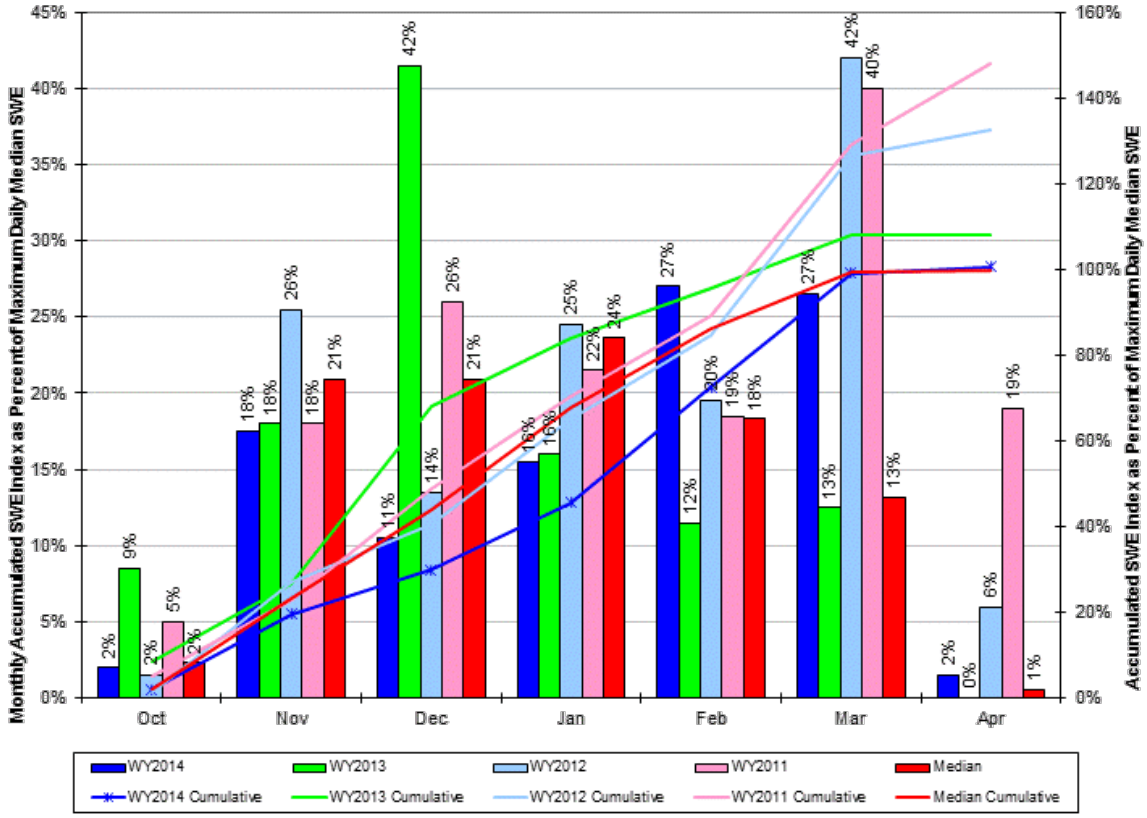
B A S I N S U M M A R Y O F
S N O W C O U R S E D A T A

APRIL 2014

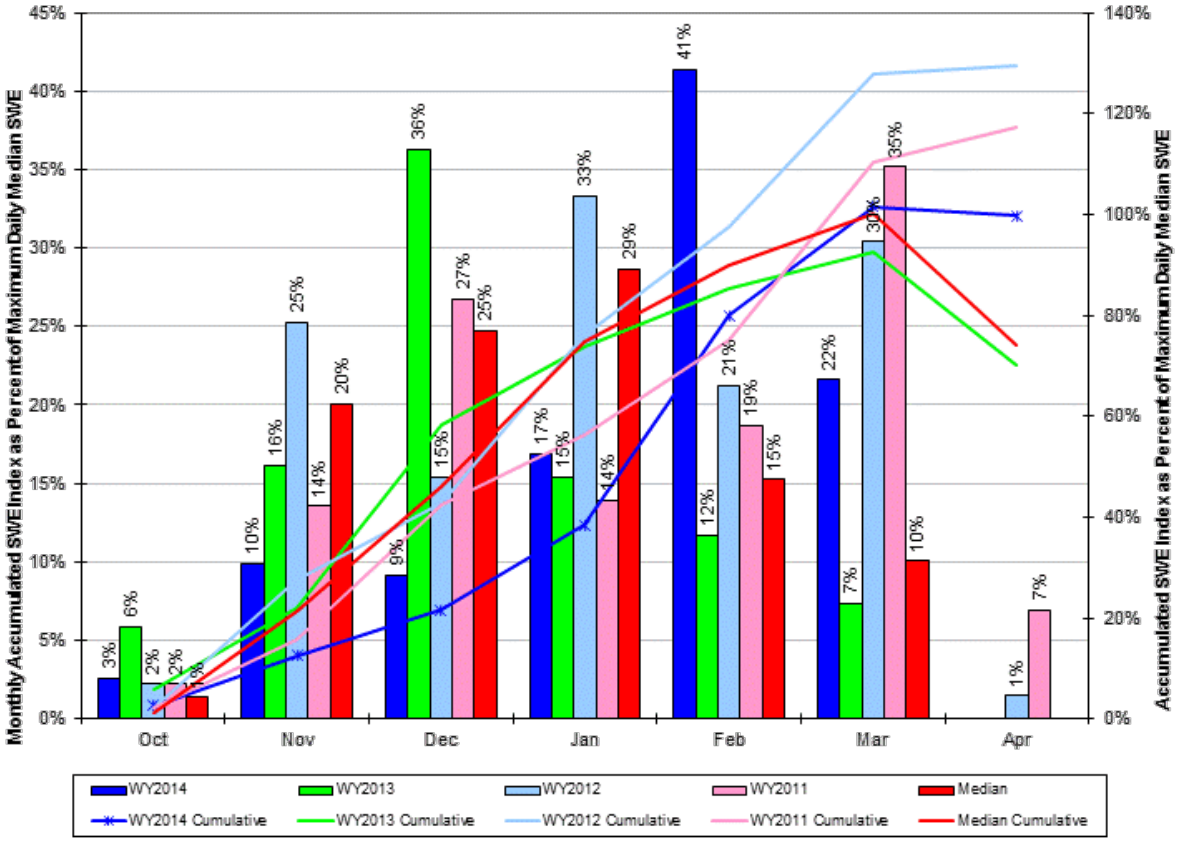
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ABERDEEN LAKE CAN.	4000	3/26/14	24	7.2	5.7	5.6
ALPINE MEADOWS	3500	4/01/14	88	37.0	59.8	40.2
ALPINE MEADOWS SNTL	3500	4/01/14	90	47.9	73.7	51.0
AMBROSE	6480	3/29/14	56	16.6	9.9	10.4
ASHLEY DIVIDE	4820	3/25/14	27	8.6	2.8	4.4
BADGER PASS SNOTEL	6900	4/01/14	104	41.7	32.3	29.8
BAIRD #2	3220	3/27/14	20	5.7	5.6	6.8
BAREE CREEK	5500	3/31/14	112	44.7	36.7	34.9
BAREE MIDWAY	4600	3/31/14	91	33.8	25.5	27.8
BAREE TRAIL	3800	3/31/14	26	9.1	7.8	7.2
BARKER LAKES SNOTEL	8250	4/01/14	70	20.0	12.0	13.9
BARNES CREEK CAN.	5320	4/01/14	65	22.2	18.8	20.4
BASIN CREEK SNOTEL	7180	4/01/14	47	12.3	6.0	7.5
BASSOO PEAK	5150	3/26/14	36	12.6	6.6	7.8
BEAVER CREEK TRAIL	2200	3/27/14	33	12.7	12.8	9.2
BEAVER PASS	3680	3/30/14	71	26.4	37.1	26.0
BEAVER PASS SNOTEL	3630	4/01/14	99	39.5	44.6	32.8
BIG WHITE MTN CAN.	5510	3/26/14	58	17.4	--	20.0
BLACK MOUNTAIN	7750	3/25/14	55	15.3	11.3	14.1
BLACK PINE SNOTEL	7100	4/01/14	55	17.9	7.9	9.6
BLACKWALL PILL CAN.	6370	3/31/14	108	37.4	28.3	35.1
BLEWETT PASS#2SNOTEL	4240	4/01/14	27	13.0	6.0	13.9
BONAUPART SOUTH	4660	3/28/14	10	2.3	5.6	--
BRENDA MINE CAN.	4450	3/27/14	39	11.0	10.0	12.5
BROOKMERE CAN.	3000	3/31/14	19	6.2	5.7	7.9
BROWN TOP AM	6000	3/31/14	170	58.9	54.4	53.4
BROWNS PASS		3/26/14	0	.0	1.5	--
BRUSH CREEK TIMBER	5000	3/27/14	50	19.7	10.0	6.1
BUCKINGHORSE SNOTEL	4870	4/01/14	109	44.9	64.5	--
BULL MOUNTAIN	6600	3/28/14	24	8.8	6.1	5.6
BUMPING LAKE (NEW)	3400	4/02/14	32	12.1	12.5	15.8
BUMPING RIDGE SNOTEL	4610	4/01/14	76	27.6	22.0	25.8
BUNCHGRASS MDWSNOTEL	5000	4/01/14	86	26.8	23.0	26.2
BURNT MOUNTAIN PIL	4170	4/01/14	44	17.2	21.7	16.3
BUTTE CREEK #2		3/26/14	22	5.8	7.4	--
BUTTERMILK BUTTE	5250	3/28/14	41	14.1	13.0	--
CALAMITY SNOTEL	2500	4/01/14	0	.0	.0	--
CARMI CAN.	4100	3/27/14	16	3.3	--	5.6
CAYUSE PASS SNOTEL	5240	4/01/14	141	50.3	59.1	--
CHESSMAN RESERVOIR	6200	3/25/14	33	10.0	4.8	2.6
CHEWALAH #2	4930	3/25/14	43	12.9	15.9	16.3
CHICKEN CREEK	4060	3/25/14	59	20.5	16.4	13.8
CITY CABIN	2390	4/01/14	10	3.2	8.4	8.5
COLD CREEK STRIP	6020	3/25/14	28	6.4	10.8	8.5
COMBINATION SNOTEL	5600	4/01/14	24	8.1	2.8	4.2
COPPER BOTTOM SNOTEL	5200	4/01/14	27	9.6	.0	--
COPPER MOUNTAIN	7700	3/25/14	44	12.9	7.0	9.9
CORRAL PASS SNOTEL	5800	4/01/14	100	38.8	31.9	33.7
COTTONWOOD CREEK	6400	3/27/14	32	9.1	6.1	7.3
COUGAR MTN. SNOTEL	3200	4/01/14	23	9.9	23.3	14.1
COX VALLEY	4500	3/28/14	72	27.3	42.4	36.0
COYOTE HILL	4200	3/27/14	32	12.7	6.5	7.0
DALY CREEK SNOTEL	5780	4/01/14	52	17.5	8.1	9.6
DEER PARK	5200	4/01/14	42	16.1	21.3	16.7
DESERT MOUNTAIN	5600	3/28/14	62	19.5	13.2	12.6
DEVILS PARK	5900	3/27/14	147	53.2	38.6	38.7
DISAUTEL PASS		3/26/14	8	2.1	5.1	--
DISCOVERY BASIN	7050	3/26/14	45	13.6	7.6	9.2
DIX HILL	6400	3/30/14	46	15.2	6.0	9.1
DOCK BUTTE AM	3800	4/02/14	150	67.5	84.0	53.5
DOMMERIE FLATS	2200	4/02/14	0	.0	.0	.0
DUNCAN RIDGE	5370	3/25/14	14	3.7	6.6	4.7
DUNGENESS SNOTEL	4010	4/01/14	15	5.7	11.8	5.4
EASY PASS AM	5200	4/02/14	180	81.0	93.0	73.8
EL DORADO MINE	7800	3/26/14	54	17.8	8.7	17.4
ELBOW LAKE SNOTEL	3200	4/01/14	75	33.7	44.9	36.9
EMERY CREEK SNOTEL	4350	4/01/14	56	20.5	13.3	13.7
ENDERBY CAN.	5800	3/31/14	121	45.3	46.5	40.1
ESPERON CK. MID CAN.	4250	3/26/14	37	10.0	13.6	14.6
ESPERON CK. UP CAN.	5050	3/26/14	43	13.0	16.3	17.1
FARRON CAN.	4000	3/31/14	33	10.9	10.2	12.5
FATTY CREEK	5500	3/31/14	99	34.6	21.1	21.2
FISH CREEK	8000	4/04/14	56	17.6	7.3	9.0
FISH LAKE	3370	4/01/14	76	32.8	27.6	27.4
FISH LAKE SNOTEL	3430	4/01/14	72	29.5	25.9	29.8
FLATTOP MTN SNOTEL	6300	4/01/14	158	52.8	48.1	42.0
FLEECER RIDGE	7500	3/28/14	44	14.4	7.8	9.5
FOURTH OF JULY SUM	3200	3/31/14	8	2.3	3.4	3.4
FREEZEOUT CK. TRAIL	3500	3/31/14	36	13.2E	11.3	9.6
FROHNER MDWS SNOTEL	6480	4/01/14	51	13.8	6.5	7.4
FROST MEADOWS	4630	4/02/14	59	22.0	17.0	16.5
GOAT CREEK	3600	3/26/14	12	3.2	4.9	2.8
GOLD MTN LOOKOUT		3/25/14	13	4.0	7.6	--
GRASS MOUNTAIN #2	2900	4/01/14	0	.0	--	1.1
GRAVE CRK SNOTEL	4300	4/01/14	60	21.9	14.3	13.8
GREEN LAKE SNOTEL	5920	4/01/14	70	22.2	24.2	22.3
GREYBACK RES CAN.	4700	3/28/14	37	10.1	10.0	9.2
GRIFFIN CR DIVIDE	5150	3/26/14	40	14.0	6.3	8.4
GROUSE CAMP SNOTEL	5390	4/01/14	41	18.9	12.6	18.0
HAMILTON HILL CAN.	4550	3/31/14	39	12.3	8.5	14.0
HAND CREEK SNOTEL	5030	4/01/14	44	15.0	7.2	11.1
HARTS PASS SNOTEL	6490	4/01/14	118	47.8	43.8	41.2
HARTS PASS	6500	3/27/14	124	44.4	41.7	36.7
HELL ROARING DIVIDE	5770	3/30/14	101	33.0	26.1	25.8
HERRIG JUNCTION	4850	3/25/14	88	31.0	22.8	24.1
HIGH RIDGE SNOTEL	4920	4/01/14	53	20.3	19.2	20.7
HOLBROOK	4530	3/25/14	30	10.7	4.1	6.8
HOODOO BASIN SNOTEL	6050	4/01/14	146	52.3	36.6	38.9
HUCKLEBERRY SNOTEL	2250	4/01/14	0	.0	.0	.0
HUMBOLDT GLCH SNOTEL	4250	4/01/14	53	18.0	9.5	9.1
HURRICANE	4500	3/28/14	31	10.7	23.1	15.0
INDIAN ROCK SNOTEL	5360	4/01/14	49	19.5	23.7	--
IRENE'S CAMP	5530	3/25/14	35	8.6	9.0	8.6
ISINTOK LAKE CAN.	5100	3/26/14	31	6.4	7.0	7.2
JASPER PASS AM	5400	4/02/14	197	88.6	97.0	77.0
JUNE LAKE SNOTEL	3440	4/01/14	58	22.5	53.7	34.5
KELLER RIDGE	3700	3/27/14	3	.5	3.8	--
KELLOGG PEAK	5560	3/31/14	66	24.2	18.3	24.7
KISHENEHN	3890	3/26/14	38	9.8	7.2	6.6
KLESILKWA CAN.	3450	4/01/14	33	13.5	12.0	11.5
KRAFT CREEK SNOTEL	4750	4/01/14	50	22.4	9.6	--
LAMB BUTTE		3/27/14	46	15.8	16.0	--
LIGHTNING LAKE CAN.	3700	3/26/14	39	12.1	11.0	12.0
LOGAN CREEK	4300	3/28/14	33	10.7	4.2	5.8
LOLO PASS SNOTEL	5240	4/01/14	111	39.0	21.9	27.1
LONE PINE SNOTEL	3930	4/01/14	67	25.0	49.3	35.2
LOOKOUT SNOTEL	5140	4/01/14	85	32.4	22.5	26.2
LOST HORSE MTN CAN.	6300	4/01/14	41	11.5	9.8	9.4
LOST HORSE SNOTEL	5120	4/01/14	34	10.5	14.4	18.6
LOST LAKE SNOTEL	6110	4/01/14	152	59.6	41.6	52.3
LOST LAKE	4070	3/28/14	17	4.3	6.1	--
LOUP LOUP CAMPGROUND		3/26/14	35	8.6	8.6	--
LOWER SANDS CREEK #2	3120	3/27/14	51	18.6	17.2	16.9
LUBRECHT FOREST NO 3	5450	3/28/14	26	8.4	2.3	4.6
LUBRECHT FOREST NO 4	4650	3/28/14	10	3.6	.0	.4
LUBRECHT FOREST NO 6	4040	3/28/14	15	5.6	.0	.6
LUBRECHT HYDROPLOT	4200	3/28/14	18	7.4	.0	.6
LUBRECHT SNOTEL	4680	4/01/14	19	7.1	.0	1.6
LYMAN LAKE SNOTEL	5980	4/01/14	156	59.8	54.4	57.6
LYNN LAKE	4000	4/01/14	---	19.8E	33.0	18.0
LYNN LAKE SNOTEL	3900	4/01/14	55	19.8	33.5	--
MARIAS PASS	5250	3/27/14	61	20.9	14.2	14.4
MARTEN LAKE AM	3600	4/02/14	156	70.2	96.0	70.0
MARTEN RIDGE SNOTEL	3520	4/01/14	129	56.9	71.5	--
MAZAMA		3/26/14	26	9.7	2.6	--
MCCULLOCH CAN.	4200	3/28/14	21	6.7	6.6	6.1
MEADOWS CABIN	1900	3/31/14	15	6.3	.0	.6
MEADOWS PASS SNOTEL	3230	4/01/14	63	25.8	33.1	20.6
METEOR		3/25/14	0	.0	.0	--
M F NOOKSACK SNOTEL	4970	4/01/14	157	75.7	70.3	59.1
MICA CREEK SNOTEL	4510	4/01/14	62	25.4	18.7	20.3
MINERAL CREEK	4000	3/25/14	49	17.2	11.0	15.4
MISSEZULA MTN CAN.	5080	4/01/14	38	11.6	6.6	9.5
MISSION CREEK CAN.	5840	3/31/14	63	21.8	21.5	20.0
MONASHEE PASS CAN.	4500	4/01/14	46	15.0	11.6	13.5
MORSE LAKE SNOTEL	5410	4/01/14	129	51.5	55.2	52.3
MOSES MOUNTAIN (2)	4800	4/01/14	21	7.3	17.9	13.4
MOSES MTN SNOTEL	5010	4/01/14	32	9.2	19.9	14.6
MOSES PEAK	6650	4/01/14	46	14.1	30.3	20.1
MOSQUITO RDG SNOTEL	5200	4/01/14	92	35.8	32.4	31.6
MOULTON RESERVOIR	6850	4/02/14	34	10.6	4.4	6.3
MOUNT BLUM AM	5800	4/02/14	156	70.2	75.0	61.0
MOUNT CRAG SNOTEL	3960	4/01/14	49	19.4	35.2	28.5
MT. KOBAU CAN.	5500	3/29/14	31	8.1	19.7	12.5
MOUNT TOLMAN	2000	3/25/14	0	.0	.0	.0
MOWICH SNOTEL	3160	4/01/14	0	.0	.0	.0
MOUNT GARDNER	3300	4/01/14	19	7.5	15.8	9.5
MOUNT GARDNER SNOTEL	2920	4/01/14	23	9.1	16.6	12.9
MUTTON CREEK #1	5700	3/24/14	26	7.3	15.8	12.8
N.F. ELK CR SNOTEL	6250	4/01/14	57	17.0	8.3	10.6
NEVADA RIDGE SNOTEL	7020	4/01/14	73	22.1	12.3	13.9
NEZ PERCE CMP SNOTEL	5650	4/01/14	65	19.9	11.9	13.0
NOISY BASIN SNOTEL	6040	4/01/14	135	47.8	40.9	39.3
NORTH FORK JOCKO	6330	3/31/14	136	51.0	40.4	38.4
OLALLIE MDWS SNOTEL	4030	4/01/14	123	55.8	56.0	50.0
OPHIR PARK	7150	3/30/14	66	20.5	9.6	14.8
OYAMA LAKE CAN.	4100	3/31/14	26	6.8	5.4	6.7
PARADISE SNOTEL	5130	4/01/14	166	81.1	78.2	67.0
PARK CK RIDGE SNOTEL	4600	4/01/14	107	48.8	47.1	44.4
PEPPER CREEK SNOTEL	2140	4/01/14	0	.0	5.5	--
PETERSON MDW SNOTEL	7200	4/01/14	54	14.9	8.5	9.6
PETTIJOHN CREEK	4300	3/28/14	12	3.0	5.4	--
PIGTAIL PEAK SNOTEL	5800	4/01/14	151	64.0	49.8	50.2
PIKE CREEK SNOTEL	5930	4/01/14	51	12.0	8.2	22.9

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
PIPESTONE PASS	7200	3/25/14	30	8.2	4.7	4.6
POPE RIDGE SNOTEL	3590	4/01/14	36	15.8	13.4	15.8
POSTILL LAKE CAN.	4200	3/31/14	29	8.7	7.5	8.8
POTATO HILL SNOTEL	4510	4/01/14	82	31.7	30.1	24.9
QUARTZ PEAK SNOTEL	4700	4/01/14	48	18.1	16.0	18.9
RAGGED MTN SNOTEL	4210	4/01/14	44	17.9	17.9	20.7
RAGGED RIDGE	3330	3/28/14	1	.2	4.4	1.0
RAINY PASS SNOTEL	4890	4/01/14	---	42.5	33.5	36.5
RAINY PASS	4780	4/01/14	115	53.3	31.2	--
REX RIVER SNOTEL	3810	4/01/14	75	33.5	43.3	34.7
ROCKER PEAK SNOTEL	8000	4/01/14	73	21.1	10.8	12.4
ROCKY CREEK AM	2100	4/02/14	60	27.0	60.0	--
ROLAND SUMMIT	5120	4/01/14	109	47.1	30.0	31.0
ROUND TOP MTN	4020	3/28/14	30	9.4	11.6	--
RUSTY CREEK	4000	3/24/14	3	1.0	5.7	4.9
SADDLE MTN SNOTEL	7900	4/01/14	106	36.4	20.1	22.9
SALMON MDWS SNOTEL	4460	4/01/14	19	6.6	9.7	9.1
SASSE RIDGE SNOTEL	4340	4/01/14	84	32.4	28.1	31.4
SATUS PASS	4030	3/28/14	12	4.9	7.1	7.0
SATUS PASS	3960	4/01/14	13	4.7	4.6	--
SAVAGE PASS SNOTEL	6170	4/01/14	102	36.7	23.3	24.4
SAWMILL RIDGE SNOTEL	4640	4/01/14	85	36.1	37.6	--
SCHREIBERS MDW AM	3400	4/02/14	90	40.5	65.0	45.0
SENTINEL BT SNOTEL	4680	4/01/14	35	8.7	8.8	8.1
SHEEP CANYON SNOTEL	3990	4/01/14	65	26.6	46.1	33.9
SHERWIN SNOTEL	3200	4/01/14	---	3.5	3.7	6.6
SILVER STAR MTN CAN.	5600	3/30/14	83	29.7	33.9	29.9
SKALKAHO SNOTEL	7260	4/01/14	90	30.5	17.9	21.4
SKITWISH RIDGE	5110	3/27/14	86	29.7	27.8	28.6
SKOOKUM CREEK SNOTEL	3310	4/01/14	59	35.3	54.0	29.3
SKOOKUM LAKES	4230	3/28/14	33	11.1	10.9	--
SLIDE ROCK MOUNTAIN	7100	3/26/14	61	20.2	13.6	12.9
SOURDOUGH GUL SNOTEL	4000	4/01/14	0	.0	.0	.0
SOUTH BALDY	4920	3/28/14	60	18.9	15.7	--
SPENCER MDW SNOTEL	3400	4/01/14	37	17.5	31.6	29.4
SPIRIT LAKE SNOTEL	3520	4/01/14	0	.1	15.6	1.2
SPOTTED BEAR MTN.	7000	3/28/14	56	18.8	8.8	12.2
SPRUCE SPGS SNOTEL	5700	4/01/14	43	16.8	9.0	13.8
STARVATION MOUNTAIN	6750	3/28/14	53	16.5	22.0	15.3
STAHL PEAK SNOTEL	6030	4/01/14	123	40.4	34.5	33.3
STAMPEDE PASS SNOTEL	3850	4/01/14	85	33.4	32.9	40.3
STEMPLE PASS	6600	3/27/14	48	13.0	8.1	8.3
STEVENS PASS SNOTEL	3950	4/01/14	113	36.1	34.9	37.0
STORM LAKE	7780	3/26/14	54	15.5	10.5	12.6
STRANGER MOUNTAIN	4230	3/25/14	19	6.4	11.0	10.5
STRYKER BASIN	6180	3/25/14	110	40.4	33.4	28.2
SUMMERLAND RES CAN.	4200	3/27/14	38	11.1	8.9	8.9
SUMMIT G.S. #2	4600	3/26/14	33	8.6	10.2	8.9
SUNSET SNOTEL	5540	4/01/14	73	24.7	17.9	21.4
SURPRISE LKS SNOTEL	4290	4/01/14	92	39.3	46.5	45.5
SWAMP CREEK SNOTEL	3930	4/01/14	61	26.6	15.4	17.4
SWIFT CREEK SNOTEL	4440	4/01/14	105	41.9	70.0	61.0
TEN MILE LOWER	6600	3/26/14	45	14.2	7.6	5.7
TEN MILE MIDDLE	6800	3/26/14	58	16.6	8.8	9.8
THUNDER BASIN SNOTEL	4320	4/01/14	78	31.0	28.9	29.7
THUNDER BASIN	4200	3/31/14	80	26.4	21.0	20.0
THOMPSON CREEK	2500	3/28/14	1	.6	3.7	.0
THOMPSON RIDGE	4650	3/28/14	37	12.6	11.0	--
TINKHAM CREEK SNOTEL	2990	4/01/14	58	22.7	28.8	26.2
TOATS COULEE	2850	3/25/14	1	.2	2.6	.1
TOUCHET SNOTEL	5530	4/01/14	66	28.6	25.4	30.1
TRINKUS LAKE	6100	3/31/14	138	51.0	39.4	37.2
TROUGH #2 SNOTEL	5480	4/01/14	25	9.7	8.2	8.2
TROUT CREEK CAN.	5650	3/26/14	35	10.1	8.2	7.2
TRUMAN CREEK	4060	3/25/14	0	.0	1.5	2.5
TUNNEL AVENUE	2450	3/31/14	37	14.5	10.3	16.4
TWELVEMILE SNOTEL	5600	4/01/14	66	25.5	9.2	14.5
TWIN LAKES SNOTEL	6400	4/01/14	132	54.5	31.5	35.4
UPPER HOLLAND LAKE	6200	3/31/14	116	40.8	30.3	29.6
UPPER WHEELER SNOTEL	4330	4/01/14	26	10.3	7.9	12.2
VASEUX CREEK CAN.	4250	3/29/14	28	7.1	4.1	6.2
VULCAN MTN	4660	3/26/14	32	8.0	11.5	--
VULCAN ROAD	3840	3/26/14	24	6.1	8.1	--
WARM SPRINGS SNOTEL	7800	4/01/14	98	28.3	16.0	19.0
WATSON LAKES AM	4500	4/02/14	144	64.8	72.0	57.0
WATERHOLE SNOTEL	5010	4/01/14	93	36.4	49.0	39.4
WEASEL DIVIDE	5450	3/27/14	101	33.6	27.5	29.0
WELLS CREEK SNOTEL	4030	4/01/14	85	36.3	41.9	29.0
WEST SMAY CREEK	3600	4/01/14	64	28.6	36.6	--
WHITE PASS ES SNOTEL	4440	4/01/14	59	23.4	21.3	21.6
WHITE ROCKS MTN CAN.	7200	3/26/14	56	17.8	23.9	23.1

COLUMBIA ABOVE METHOW Time Series Peak Snowpack Summary
Based on Provisional SNOTEL data as of Apr 07, 2014



CHELAN, ENTIAT, WENATCHEE Time Series Peak Snowpack Summary
Based on Provisional SNOTEL data as of Apr 07, 2014



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

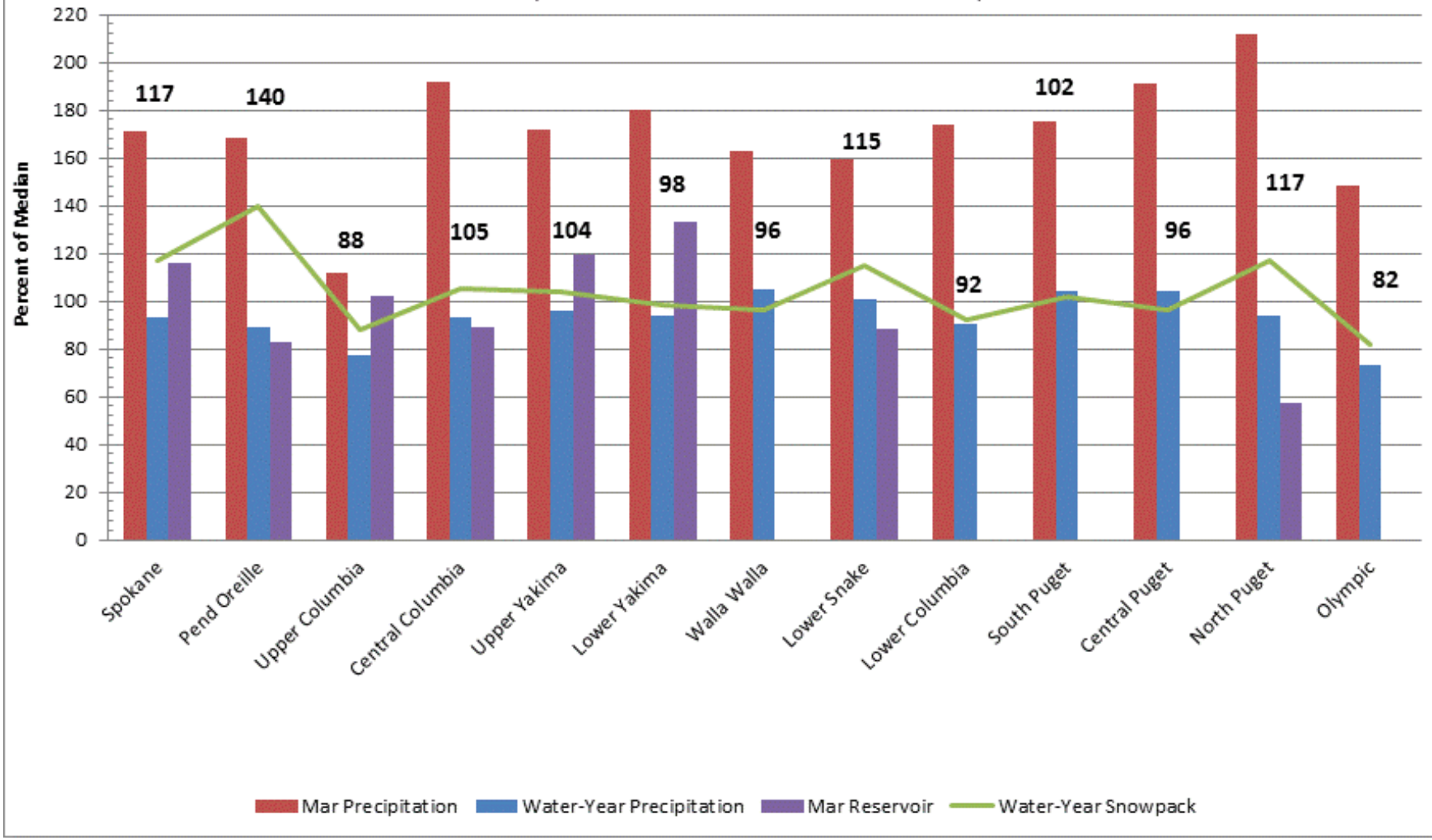
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

April 1, 2014 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2013 - 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 South Continental Area Committee is making plans for the 82nd Annual Western Snow Conference in 2014.

Mark your calendar and start thinking about submitting a paper to attend the 2014 Western Snow Conference:

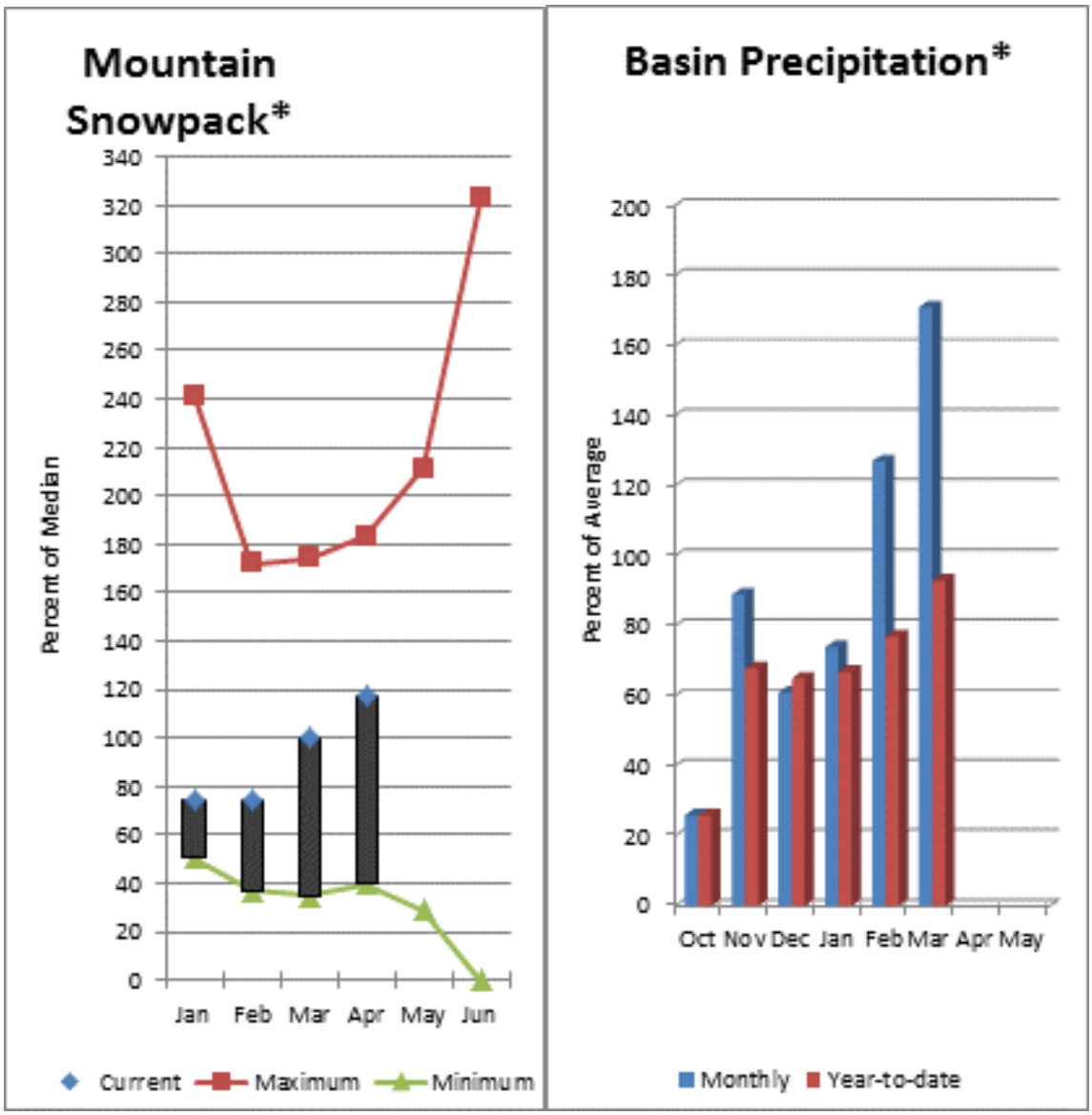
Dates: April 14-17, 2014
Location: Durango, Colorado

The Technical Tour is scheduled for Thursday, April 17th, to explore current research activities in the Durango/Silverton area led by personnel of the Center for Snow and Avalanche Studies in Silverton. One of their projects is the issue of dust on snow, changes in albedo, accelerated melt, and the subsequent impact on stream flow.

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 April 1 forecasts for summer runoff within the Spokane River Basin are 115% of average near Post Falls and 114% at Long Lake. The Chamokane River near Long Lake forecasted to have 83% of average flows for the May-August period. The forecast is based on a basin snowpack that is 117% of normal and precipitation that is 89% of average for the water year. Precipitation for March was above normal at 171% of average. Streamflow on the Spokane River at Spokane was 185% of average for March. April 1 storage in Coeur d'Alene Lake was 192,000 acre feet, 116% of average and 80% of capacity. Snowpack at Quartz Peak SNOTEL site was 96% of average with 18.1 inches of water content. Average temperatures in the Spokane basin were slightly above normal for March and 1-2 degrees below for the water year.

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

Streamflow Forecasts - April 1, 2014

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	1050	1580	1950	82	2320	2850	2390
	APR-SEP	1100	1650	2020	81	2390	2940	2480
Spokane R at Long Lake (2)	APR-JUL	1190	1800	2210	84	2620	3230	2620
	APR-SEP	1340	1970	2400	84	2830	3460	2850
Chamokane Ck nr Long Lake	MAY-AUG	1.93	3.9	5.3	57	6.7	8.7	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	50.4	72.9	93.7

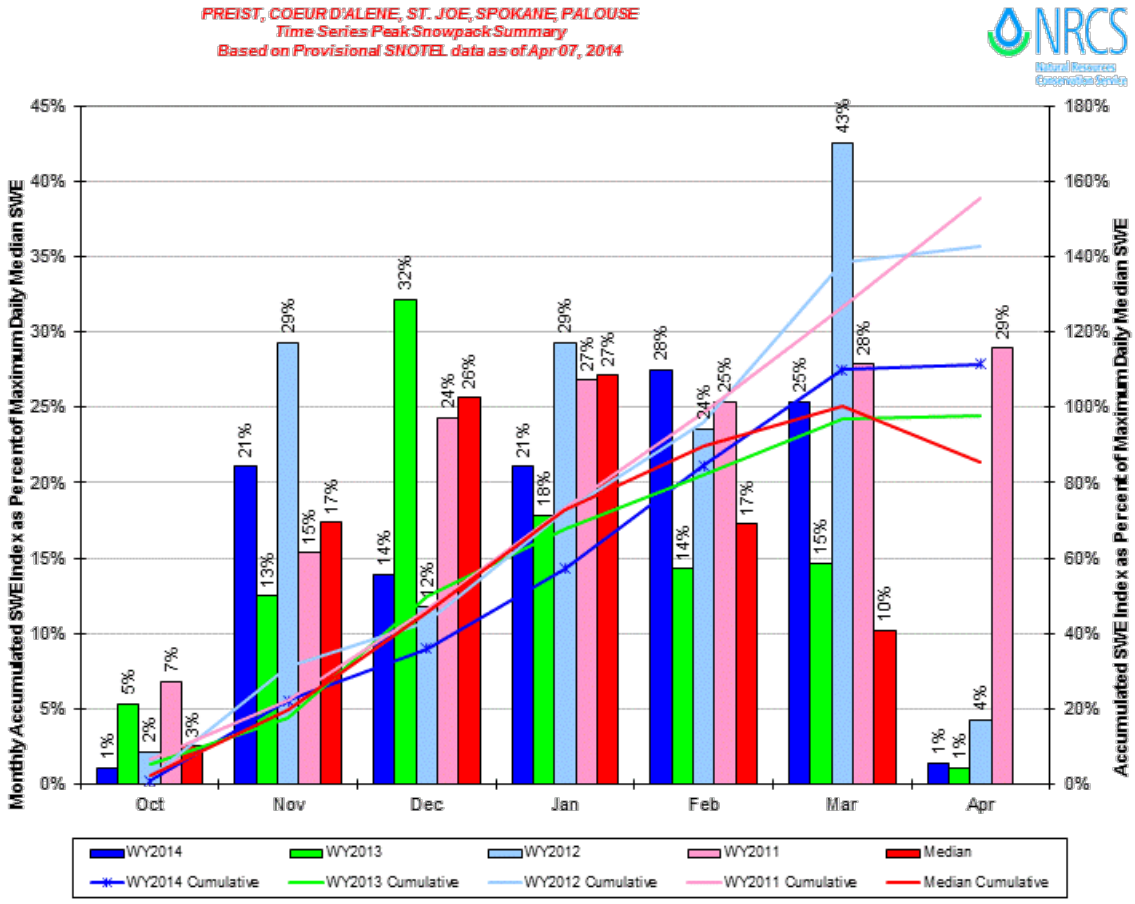
SPOKANE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

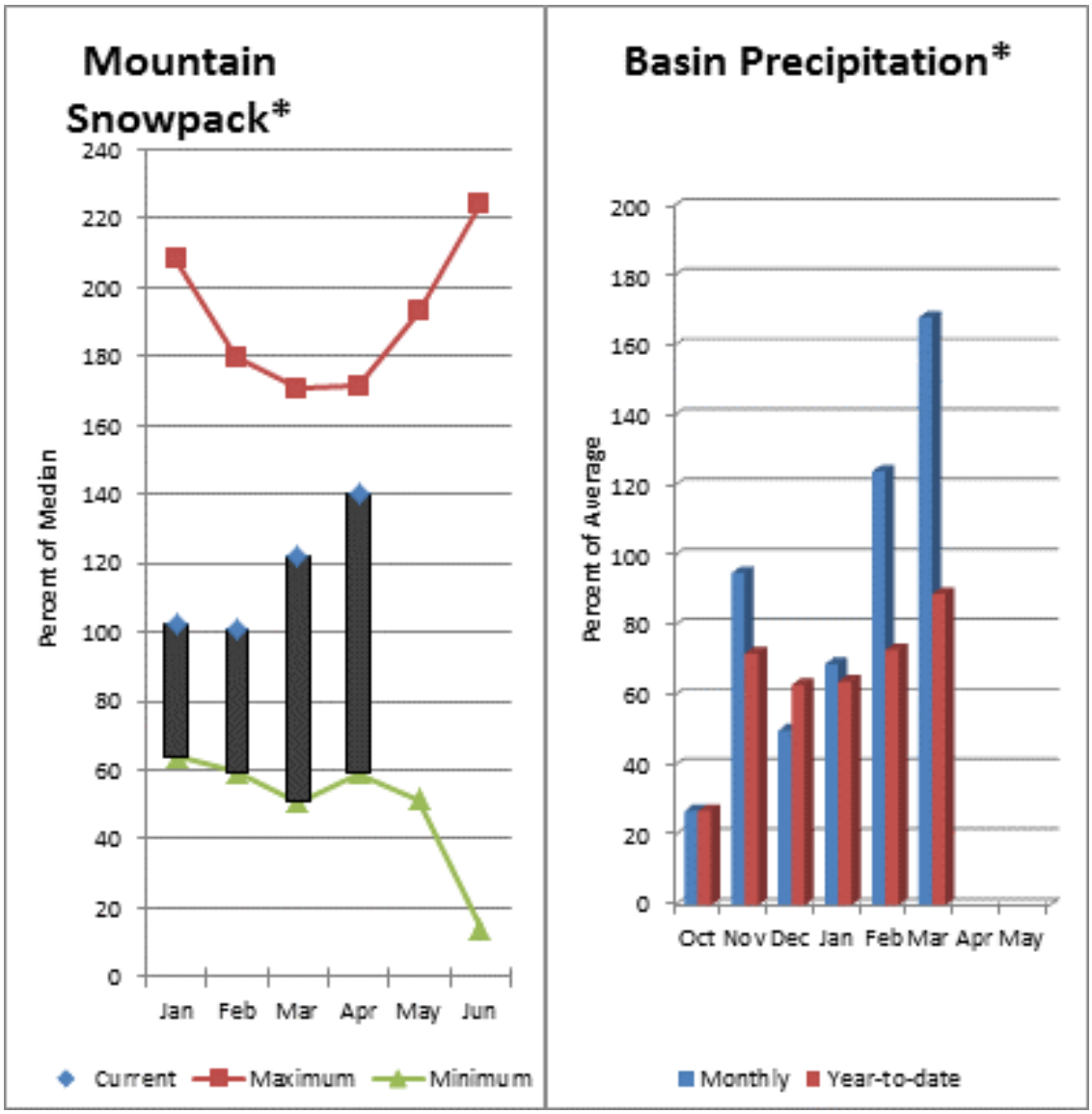
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SPOKANE RIVER	13	79	72
NEWMAN LAKE	1	73	72

* 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.





*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 86% and the Pend Orielle below Box Canyon is 133%. March streamflow was 133% of average on the Pend Oreille River and 97% on the Columbia Birchbank. April 1 snow cover was 140% of normal in the Pend Oreille River Basin. Bunchgrass Meadows SNOTEL site had 26.8 inches of snow water on the snow pillow. Normally Bunchgrass would have 26.2 inches on April 1. Precipitation during March was 168% of average, keeping the year-to-date precipitation at 89% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 83% of normal. Average temperatures were 1-2 degrees above normal 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, 2014

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>					30-Yr Avg. (1000AF)
		Chance Of Exceeding *					
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Pend Oreille Lake Inflow (2)	APR-JUL	8960	10700	11800	100	12900	14600	11800
	APR-SEP	9950	11700	12900	101	14100	15900	12800
Priest R nr Priest River (1,2)	APR-JUL	215	425	570	73	615	825	780
	APR-SEP	230	455	605	73	655	880	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	9110	10800	12000	101	13200	14900	11900
	APR-SEP	10100	11900	13100	101	14300	16100	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.	522.6	900.3	708.2
Priest Lake Nr Coolin	119.3	54.9	64.1	56.5

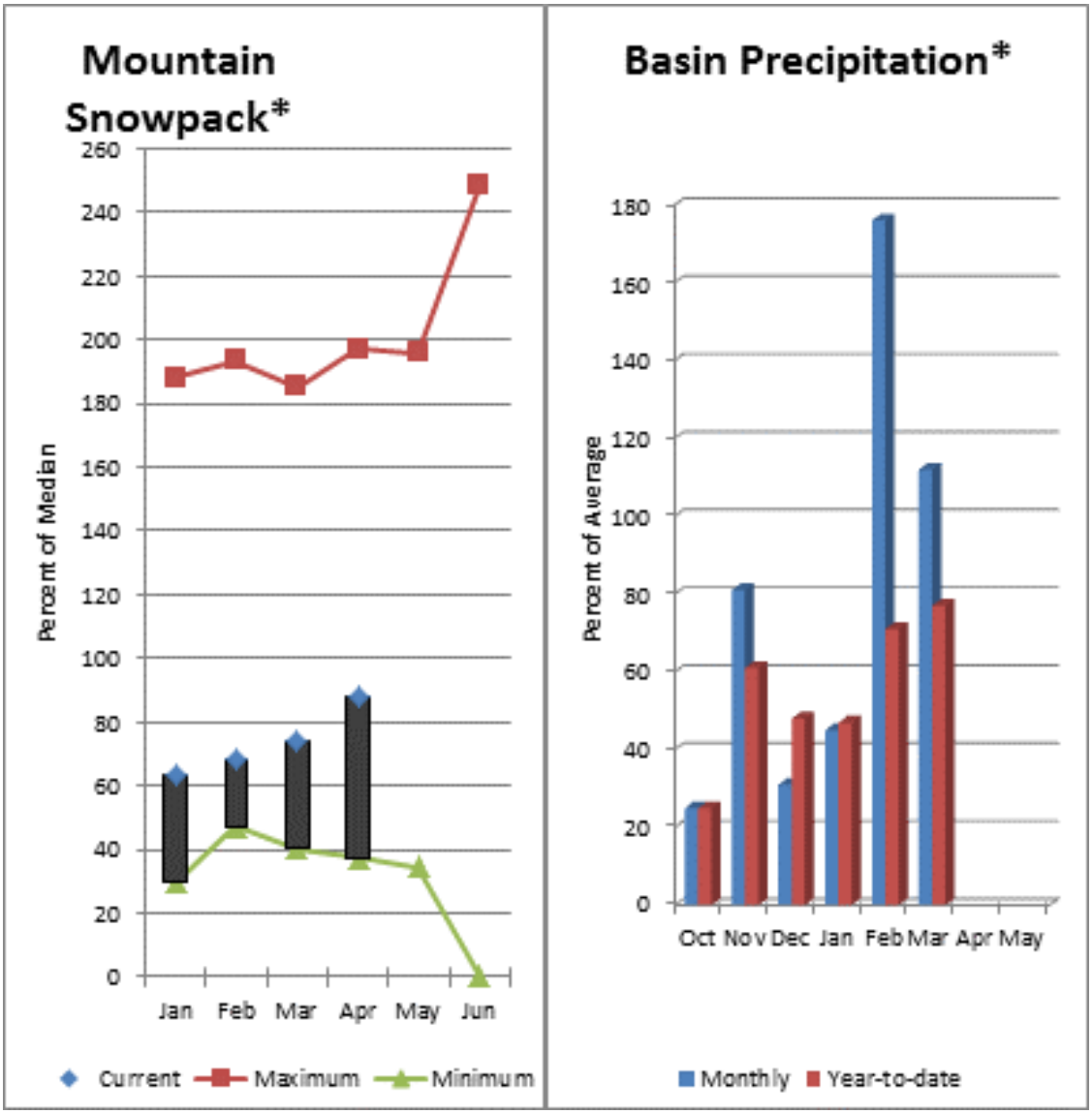
PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
COLVILLE RIVER	0		
PEND OREILLE RIVER	49	105	105
KETTLE RIVER	1	62	100

* 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.



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 135%, Similkameen River is 116%, Kettle River 95% and Methow River is 83%. April 1 snow cover on the Okanogan was 98% of normal, Omak Creek was 64% and the Methow was 111%. March precipitation in the Upper Columbia was 112% of average, with precipitation for the water year at 77% of average. March streamflow for the Methow River was 75% of average, 135% for the Okanogan River and 111% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 6.6 inches. Average for this site is 9.1 inches on April 1. Combined storage in the Conconully Reservoirs was 102% of normal and 89% of capacity. Temperatures were 1-2 degrees below normal for March and 1-3 below for the water year.

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

Streamflow Forecasts - April 1, 2014

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	9.5	42	72	61	102	146	119
	APR-SEP	13.1	47	80	61	113	161	131
Kettle R nr Laurier	APR-JUL	1110	1430	1640	91	1850	2170	1800
	APR-SEP	1150	1480	1710	91	1940	2270	1880
Columbia R at Birchbank (1,2)	APR-JUL	22200	27900	30500	90	33100	38800	33840
	APR-SEP	27600	34800	38000	91	41200	48400	41750
Columbia R at Grand Coulee (2)	APR-JUL	30700	41100	45900	90	50700	61100	51015
	APR-SEP	37100	49600	55300	92	61000	73500	60110
Similkameen R nr Nighthawk (1)	APR-JUL	510	820	960	80	1100	1410	1200
	APR-SEP	535	870	1020	80	1170	1500	1280
Okanogan R nr Tonasket (1)	APR-JUL	805	1320	1550	105	1780	2300	1480
	APR-SEP	870	1450	1720	104	1990	2570	1650
Okanogan R at Malott (1)	APR-JUL	820	1360	1600	110	1840	2380	1450
	APR-SEP	885	1490	1770	109	2050	2660	1620
Methow R nr Pateros	APR-JUL	155	320	435	52	550	715	835
	APR-SEP	165	340	460	51	580	755	895

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Conconully Lake (salmon Lake Dam)	0.0	9.3	8.5	7.3
Conconully Reservoir	13.0	11.3	9.1	6.5

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
OKANOGAN RIVER	2	42	64
OMAK CREEK	1	18	41
SANPOIL RIVER	0		
SIMILKAMEEN RIVER	0		
TOATS COULEE CREEK	0		
CONCONULLY LAKE	1	20	38
METHOW RIVER	3	43	59

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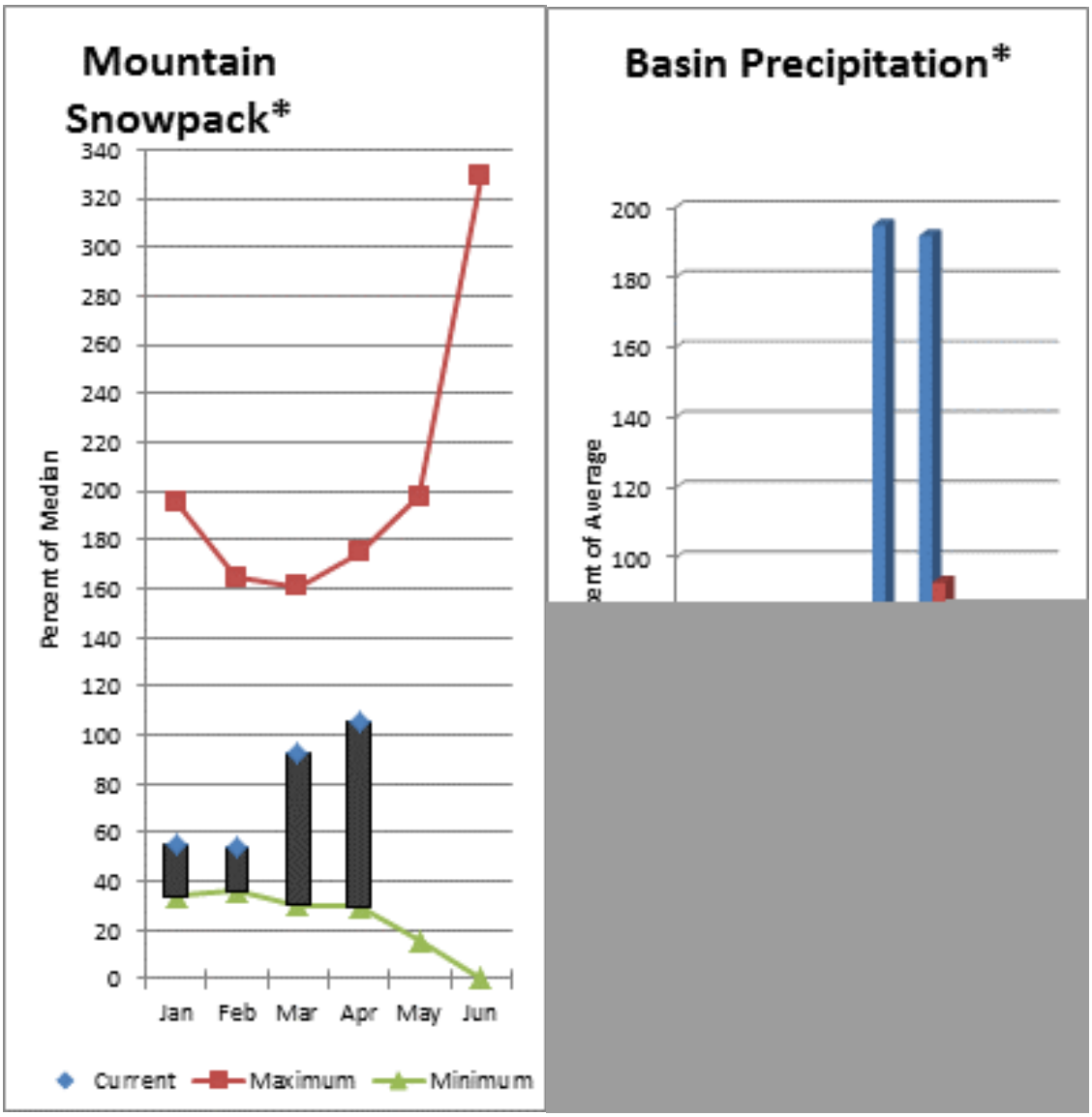
(2) - The value is natural volume - actual volume may be affected by upstream water management.



*Based on selected stations

Precipitation during March was 192% of average in the basin and 93% for the water-year-to-date. Runoff for Entiat River is forecast to be 95% of average for 105%, Stehekin River is 102% and Icicle Creek is 103%. March average streamflows on the Chelan River were 112% and on the Wenatchee River 142%. April 1 snowpack in the Wenatchee River Basin was 102% of normal; the Chelan, 109%; the Entiat, 100%; Stemilt Creek, 98% and Colockum Creek, 118%. Reservoir storage in Lake Chelan was 89% of average and 34% of capacity. Lyman Lake SNOTEL had the most snow water with 59.8 inches of water. This site would normally have 57.6 inches on April 1. Temperatures were near normal 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, 2014

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	365	455	520	76	585	675	680
	APR-SEP	415	515	585	74	655	755	790
Chelan R at Chelan (2)	APR-JUL	480	600	680	68	760	880	1000
	APR-SEP	495	640	735	66	830	975	1120
Entiat R nr Ardenvoir	APR-JUL	52	86	109	55	132	166	200
	APR-SEP	54	90	115	52	140	176	220
Wenatchee R at Plain	APR-JUL	465	615	715	72	815	965	990
	APR-SEP	480	645	755	70	865	1030	1080
Icicle Ck nr Leavenworth	APR-JUL	138	178	205	75	230	270	275
	APR-SEP	150	192	220	73	250	290	300
Wenatchee R at Peshastin	APR-JUL	660	860	995	73	1130	1330	1370
	APR-SEP	675	900	1050	70	1200	1420	1490
Columbia R bl Rock Island Dam (2)	APR-JUL	37500	45400	50800	91	56200	64100	55770
	APR-SEP	44300	53600	60000	92	66400	75700	65200

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Lake Chelan	676.1		387.4	411.3

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CHELAN LAKE BASIN	3	38	46
ENTIAT RIVER	1	21	25
WENATCHEE RIVER	7	42	52
STEMILT CREEK	1	37	46
COLOCKUM CREEK	1	61	88

* 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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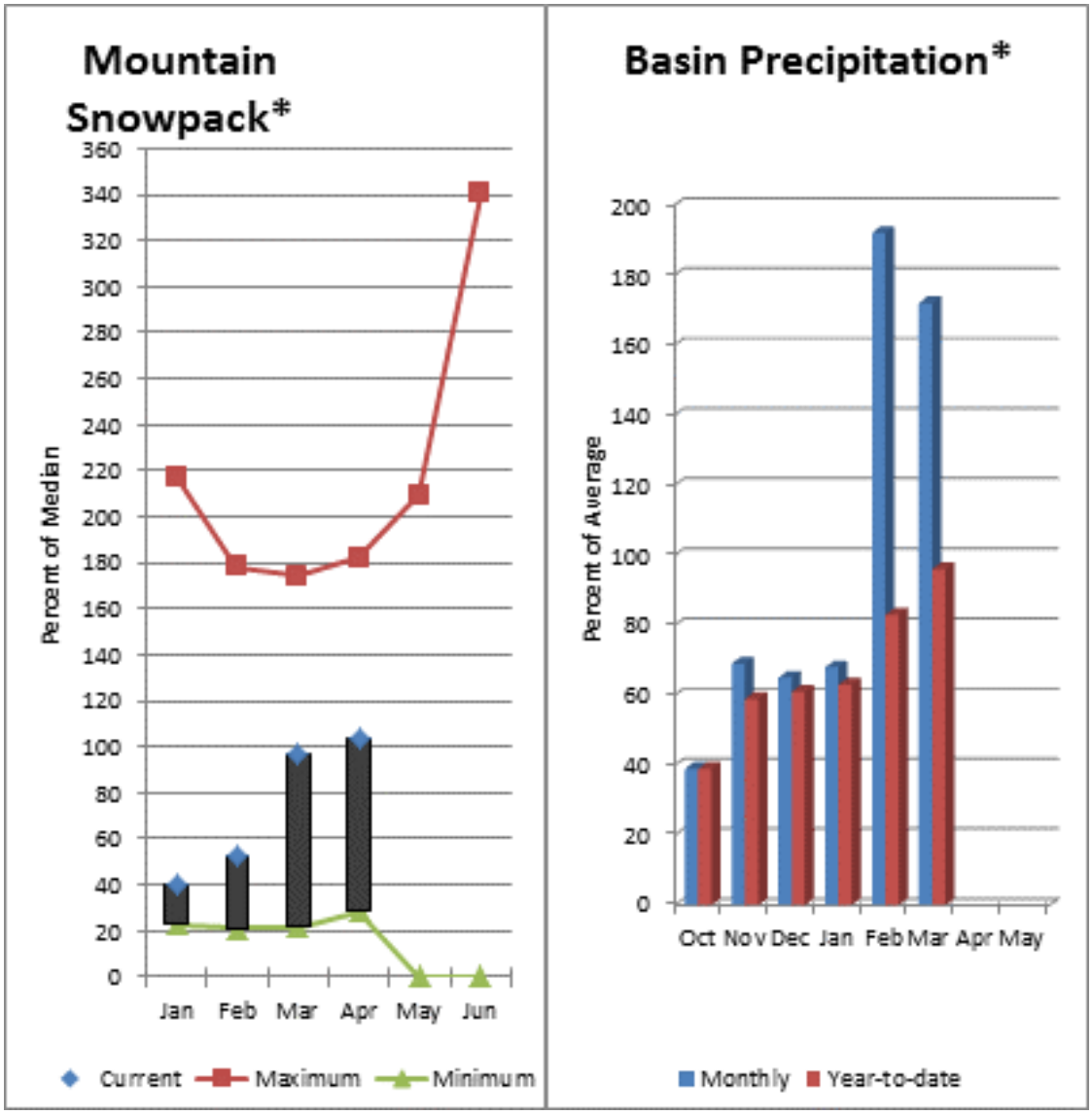

*Based on selected stations

April 1 reservoir storage for the Upper Yakima reservoirs was 610,000-acre feet, 119% of average. Forecasts for the Yakima River at Cle Elum are 96% of average and the Teanaway River near Cle Elum is at 110%. Lake inflows are all forecasted to be near average this summer as well. March streamflows within the basin were Cle Elum River near Roslyn at 168%. April 1 snowpack was 104% based upon 10 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 172% of average for March and 96% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Streamflow Forecasts - April 1, 2014

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	43	66	81	70	96	119	116
	APR-SEP	49	72	88	70	104	127	126
Kachess Reservoir Inflow (2)	APR-JUL	37	58	73	70	88	109	104
	APR-SEP	42	63	77	68	91	112	113
Cle Elum Lake Inflow (2)	APR-JUL	175	240	285	74	330	395	385
	APR-SEP	183	255	300	72	345	415	415
Yakima R at Cle Elum (2)	APR-JUL	285	425	520	69	615	755	755
	APR-SEP	315	465	565	68	665	815	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	20	54	77	59	100	134	130
	APR-SEP	22	56	79	59	102	136	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	85.9	93.7	68.5
Kachess	239.0	162.3	172.7	113.4
Cle Elum	436.9	163.0	272.6	164.0

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
UPPER YAKIMA RIVER	8	32	38

* 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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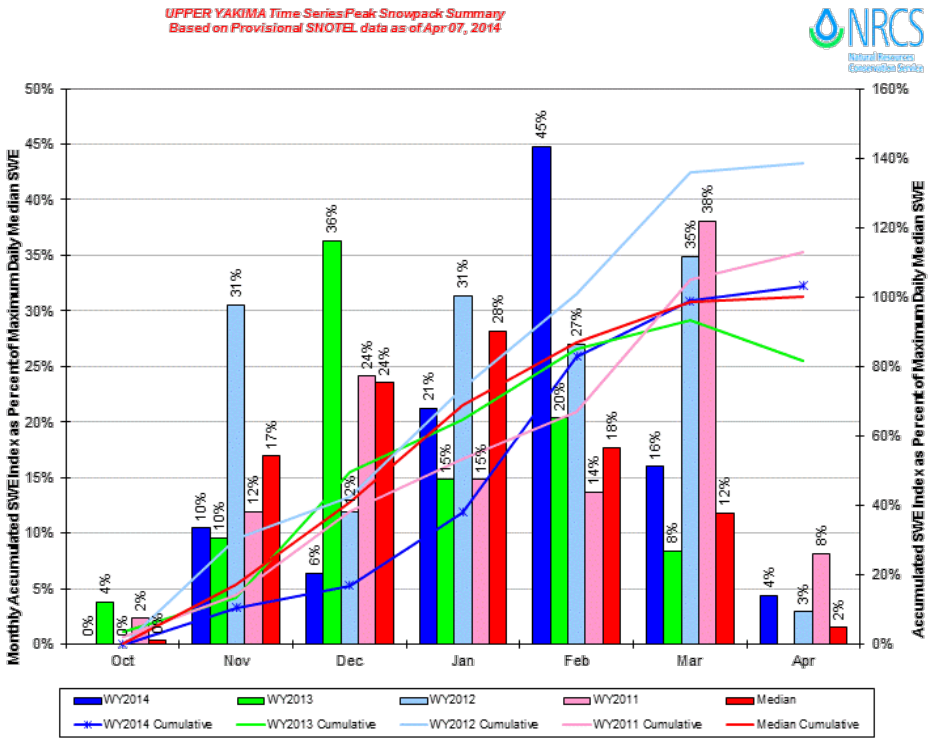

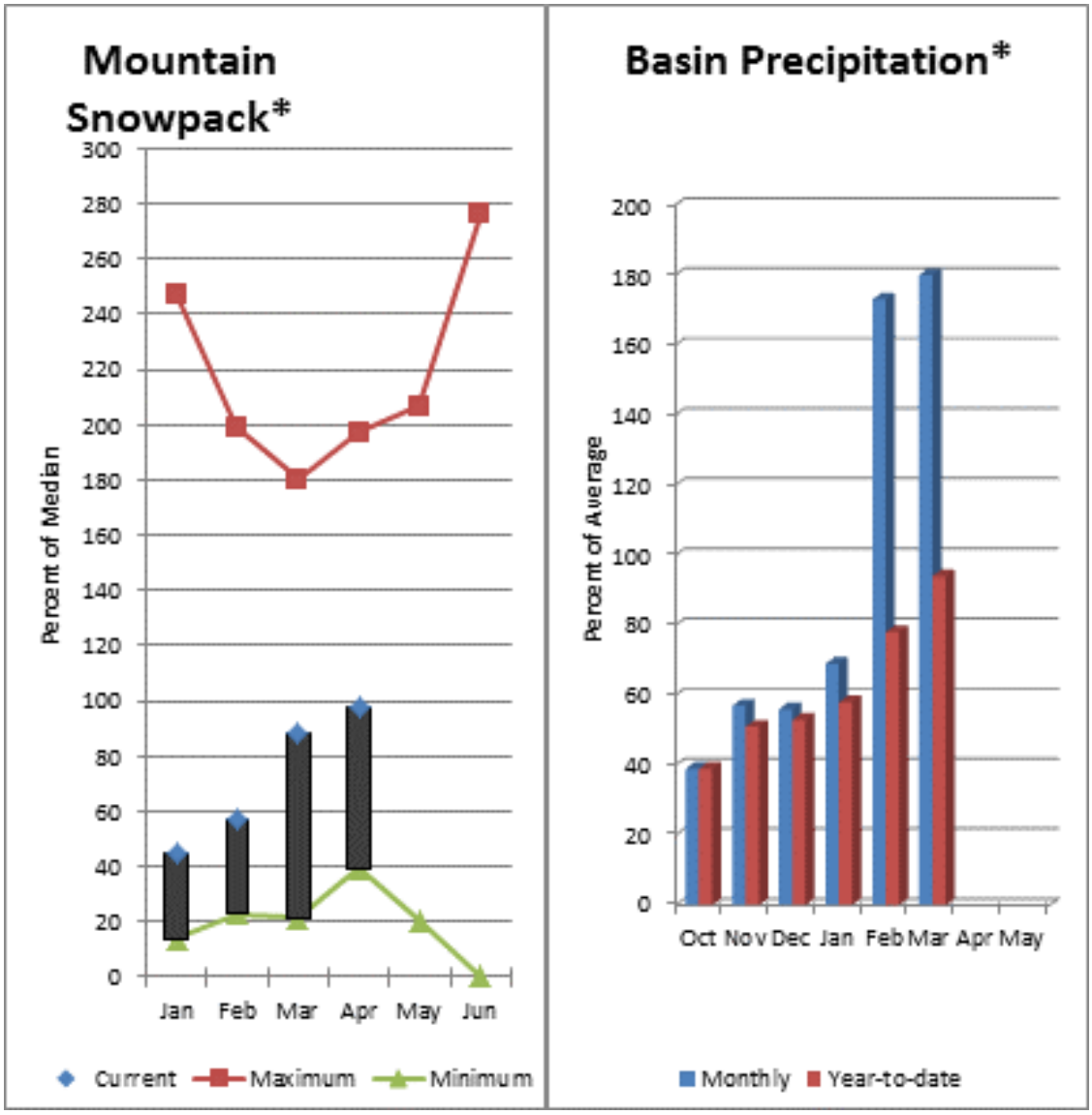

*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 163%; Naches River near Naches, 218%; and Yakima River at Kiona, 132%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 201,000-acre feet, 133% of average. Forecast averages for Yakima River near Parker are 102%; American River near Nile, 97%; Ahtanum Creek, 97%; and Klickitat River near Glenwood, 101%. April 1 snowpack was 98% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 80% of normal. Precipitation was 180% of average for March and 94% year-to-date for water. Temperatures were near normal for March and for 1-2 degrees below normal for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Streamflow Forecasts - April 1, 2014

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	54	73	85	75	97	116	114
	APR-SEP	58	78	91	74	104	124	123
American R nr Nile	APR-JUL	38	54	65	64	76	92	102
	APR-SEP	38	56	68	62	80	98	110
Rimrock Lake Inflow (2)	APR-JUL	101	127	145	78	163	189	187
	APR-SEP	120	150	170	77	190	220	220
Naches R nr Naches (2)	APR-JUL	275	390	470	67	550	665	700
	APR-SEP	285	415	500	66	585	715	760
Ahtanum Ck at Union Gap	APR-JUL	0.85	9.9	16.1	60	22	31	27
	APR-SEP	2.4	11.7	18.0	62	24	34	29
Yakima R nr Parker (2)	APR-JUL	580	885	1090	66	1300	1600	1660
	APR-SEP	640	965	1190	65	1410	1740	1820
Klickitat R nr Glenwood	APR-JUL	47	68	83	66	98	119	126
	APR-SEP	53	76	92	66	108	131	139
Klickitat R nr Pitt	APR-JUL	215	280	325	75	370	435	435
	APR-SEP	275	355	405	78	455	535	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	21.3	14.4	11.5
Rimrock	198.0	123.9	121.9	92.4

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER YAKIMA RIVER	7	30	45
AHTANUM CREEK	2	30	55

* 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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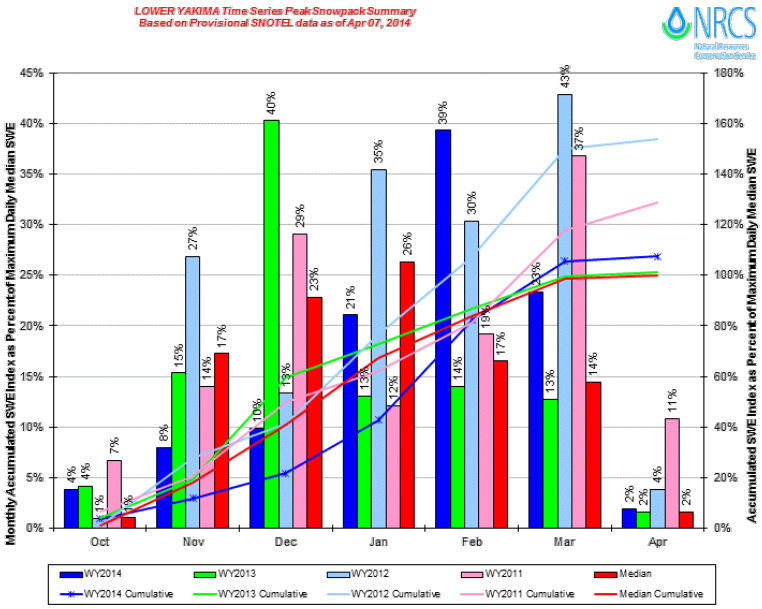

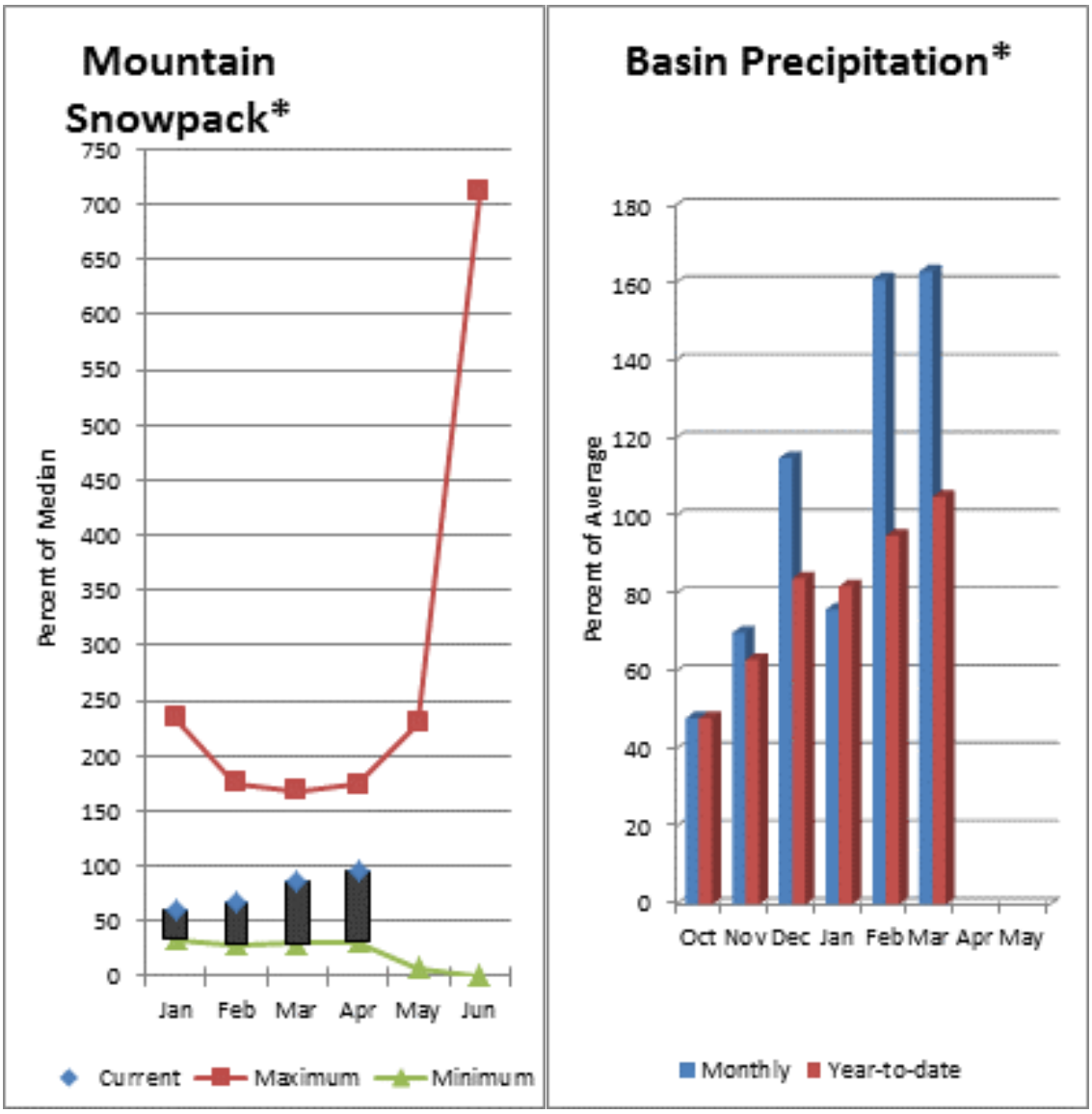

*Based on selected stations

March precipitation was 163% of average, maintaining the year-to-date precipitation at 105% of average. Snowpack in the basin was 96% of normal. Streamflow forecasts are average runoff for both Mill Creek and SF Walla Walla River near Milton-Freewater. Average temperatures were 1-2 degrees above normal for March and 1-3 below normal for the water year.

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

Streamflow Forecasts - April 1, 2014

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	61	69	74	93	79	87	80
	APR-JUL	38	44	48	89	52	58	54
	APR-SEP	49	55	60	91	65	71	66
Mill Ck nr Walla Walla	APR-JUL	13.0	17.0	19.8	83	23	27	24
	APR-SEP	15.8	20	23	85	26	30	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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WALLA WALLA RIVER	2	66	59

* 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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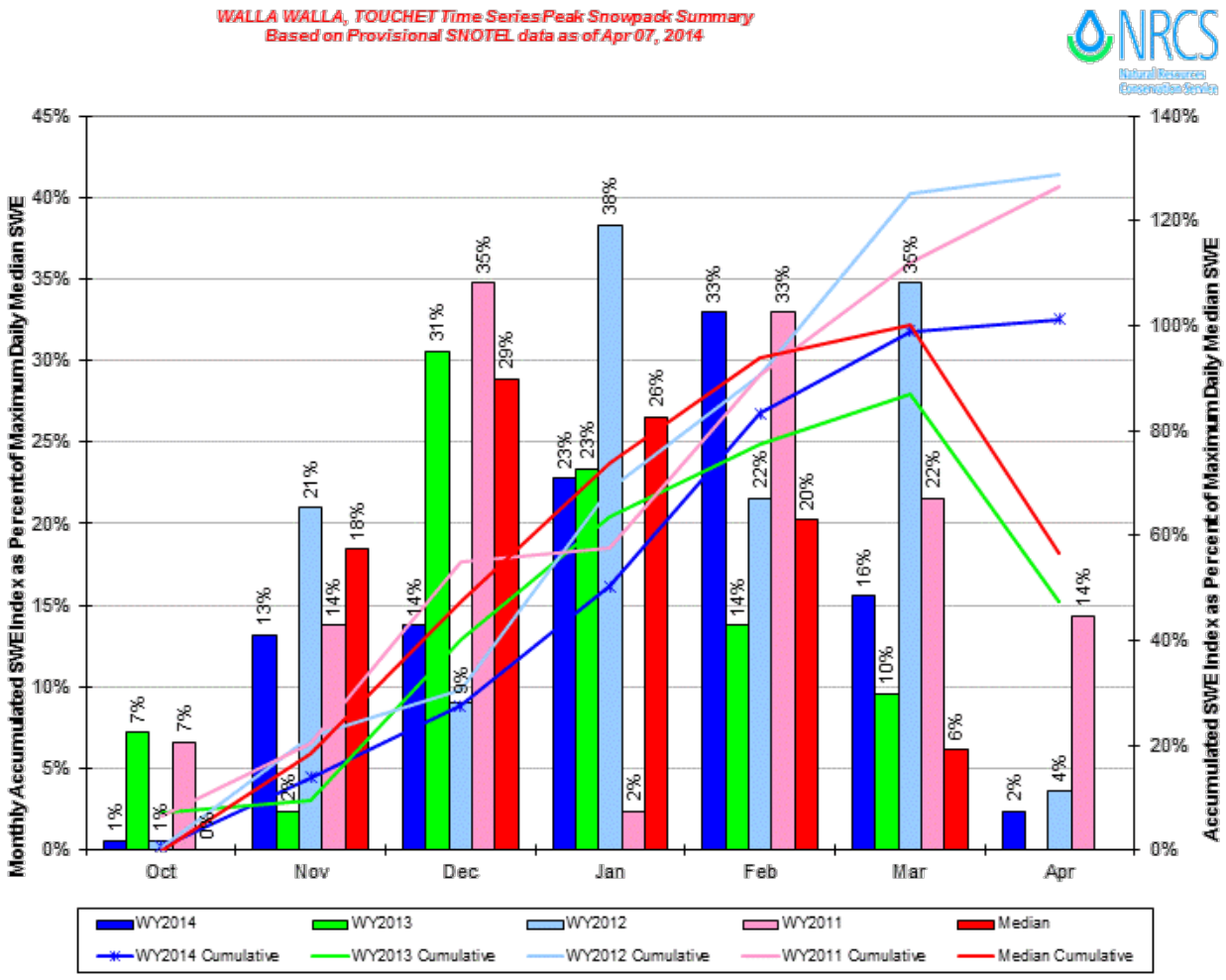

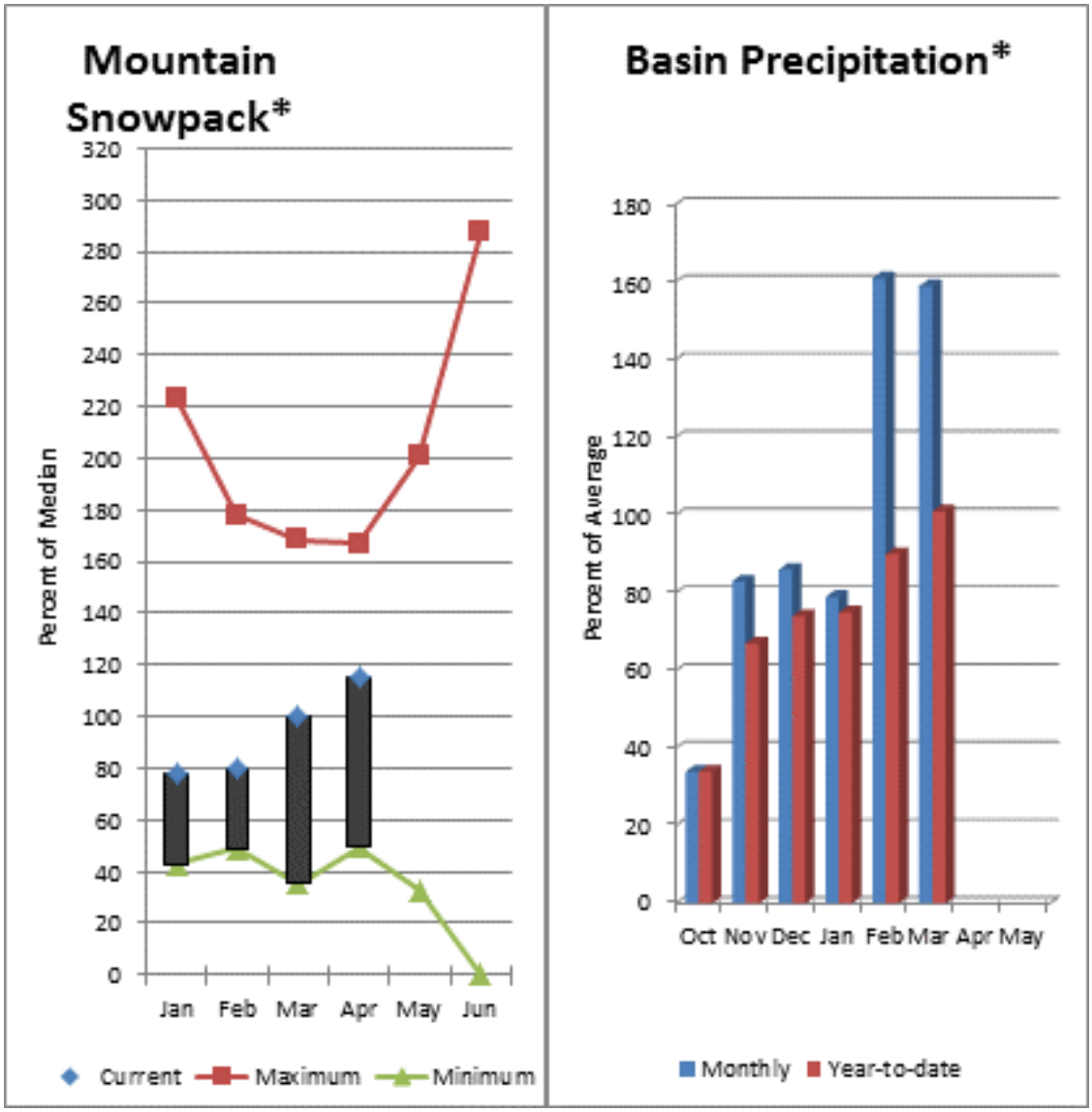

*Based on selected stations

The Grande Ronde River can expect summer flows to be about 102% of normal. The forecast for Asotin Creek at Asotin predicts 103% of average flows for the April – July runoff period. March precipitation was 159% of average, bringing the year-to-date precipitation to 101% of average. April 1 snowpack readings averaged 115% of normal. March streamflow was 128% of average for Snake River below Lower Granite Dam and 202% for Grande Ronde River near Troy. Dworshak Reservoir storage was 88% of average. Average temperatures were 1-2 degrees above normal for March and 2-3 degrees below for the water year.

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

Streamflow Forecasts - April 1, 2014

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	730	1100	1270	84	1440	1810	1510
	APR-SEP	575	930	1090	83	1250	1600	1310
Asotin Ck at Asotin	APR-JUL	8.7	19.6	27	77	34	45	35
Clearwater R at Spalding (1,2)	APR-JUL	3450	5370	6240	91	7110	9030	6890
	APR-SEP	3740	5700	6590	91	7480	9440	7270
Snake R bl Lower Granite Dam (1,2)	APR-JUL	7730	15200	18600	94	22000	29500	19848
	APR-SEP	9080	17500	21300	96	25100	33500	22280

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.	2298.	2565.	2403.

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER SNAKE, GRANDE RON	12	104	83

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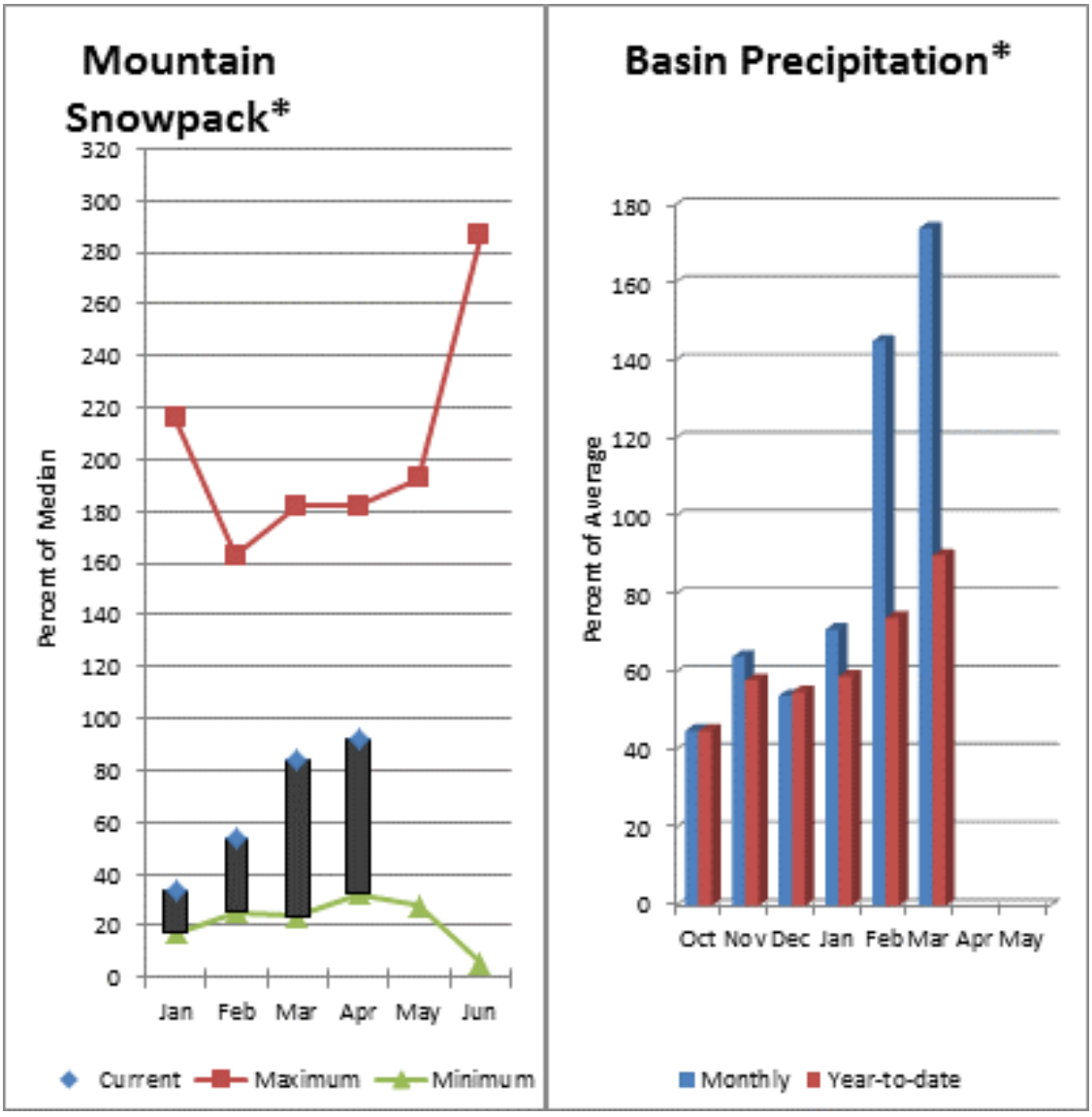

*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 87% and Cowlitz River at Castle Rock, 98% of average. The Columbia at The Dalles is forecasted to have 93% of average flows this summer according to the River Forecast Center. March average streamflow for Cowlitz River was 208%. The Columbia River at The Dalles was 126% of average. March precipitation was 174% of average and the water-year average was 90%. April 1 snow cover for Cowlitz River was 114%, and Lewis River was 71% of normal. Temperatures were 1-2 degrees below normal during March and 2-4 below normal for the water year.

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

Streamflow Forecasts - April 1, 2014

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	53100	64800	72700	91	80600	92300	79855
	APR-SEP	63300	76900	86200	93	95500	109000	92704
Klickitat R nr Glenwood	APR-JUL	47	68	83	66	98	119	126
	APR-SEP	53	76	92	66	108	131	139
Klickitat R nr Pitt	APR-JUL	215	280	325	75	370	435	435
	APR-SEP	275	355	405	78	455	535	520
Lewis R at Ariel (2)	APR-JUL	495	670	790	81	910	1080	970
	APR-SEP	585	770	895	80	1020	1200	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	830	1130	1340	83	1550	1850	1620
	APR-SEP	890	1270	1530	83	1790	2170	1840
Cowlitz R at Castle Rock (2)	APR-JUL	1340	1640	1850	83	2060	2360	2230
	APR-SEP	1560	1900	2140	85	2380	2720	2520

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Swift	0.0	689.0		634.1
Yale	0.0	383.1		
Merwin	0.0	404.4		400.1
Mossyrock Dam (riffe Lk)	0.0	1212.		1203.

LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LEWIS RIVER	4	11	18
COWLITZ RIVER	6	34	50

* 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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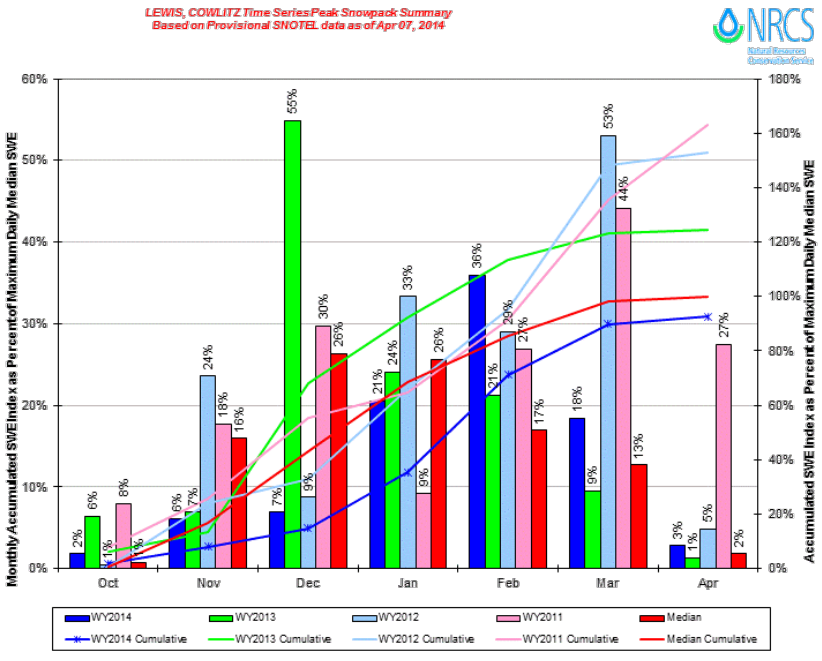

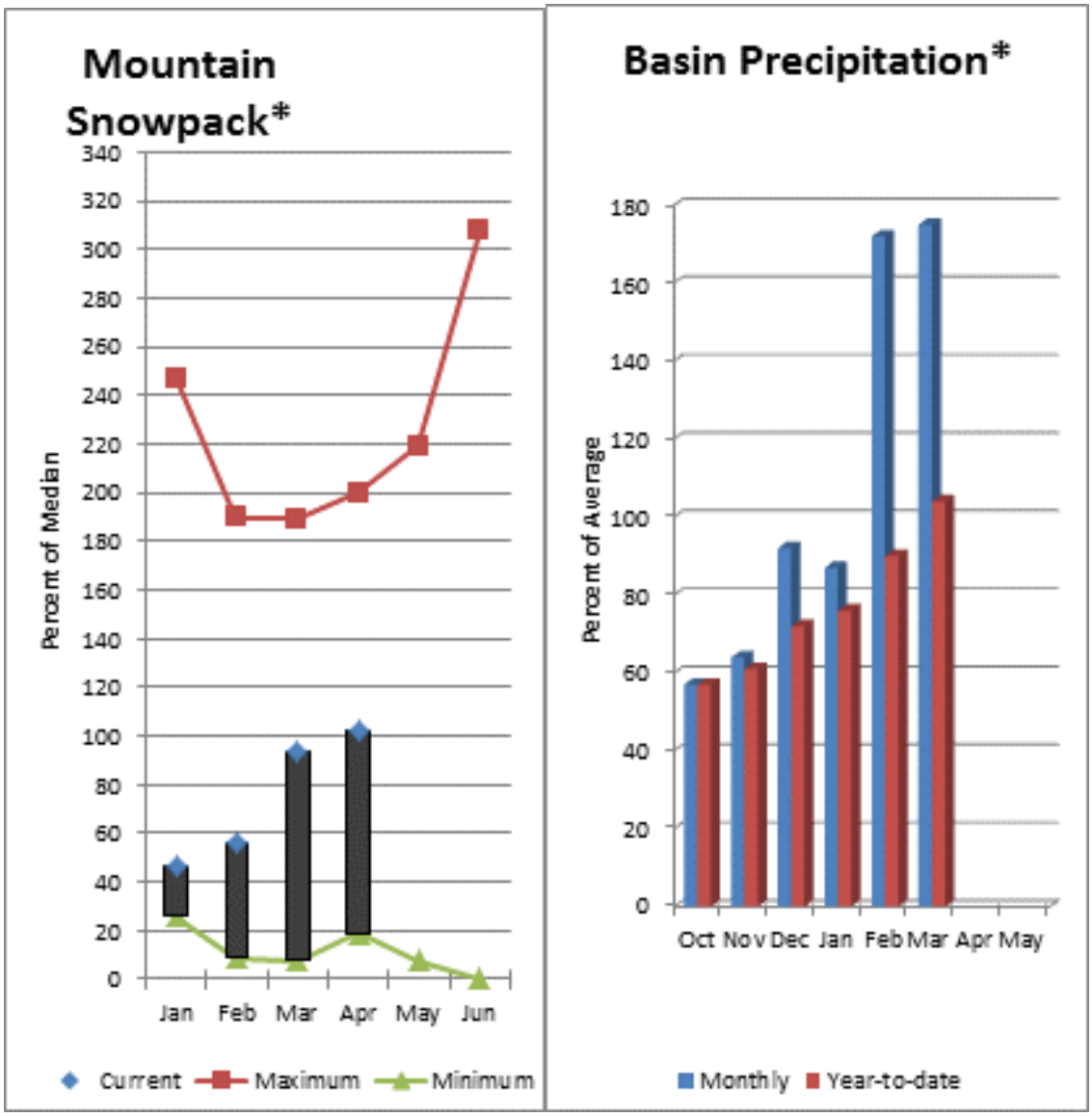

*Based on selected stations

Summer runoff is forecast to be 85% of normal for the Green River below Howard Hanson Dam and 109% for the White River near Buckley. April 1 snowpack was 115% of average for the White River, 112% for Puyallup River and 78% in the Green River Basin. March precipitation was 175% of average, bringing the water year-to-date to 104% of average for the basins. Average temperatures in the area were 1-2 degrees below normal for March and 1-2 below average for the water-year.

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

Streamflow Forecasts - April 1, 2014

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	275	355	390	91	425	505	430
	APR-SEP	340	430	470	91	510	600	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	99	159	186	79	215	275	235
	APR-SEP	118	178	205	79	230	290	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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
WHITE RIVER	3	36	52
GREEN RIVER	2	16	16
PUYALLUP RIVER	4	33	51

* 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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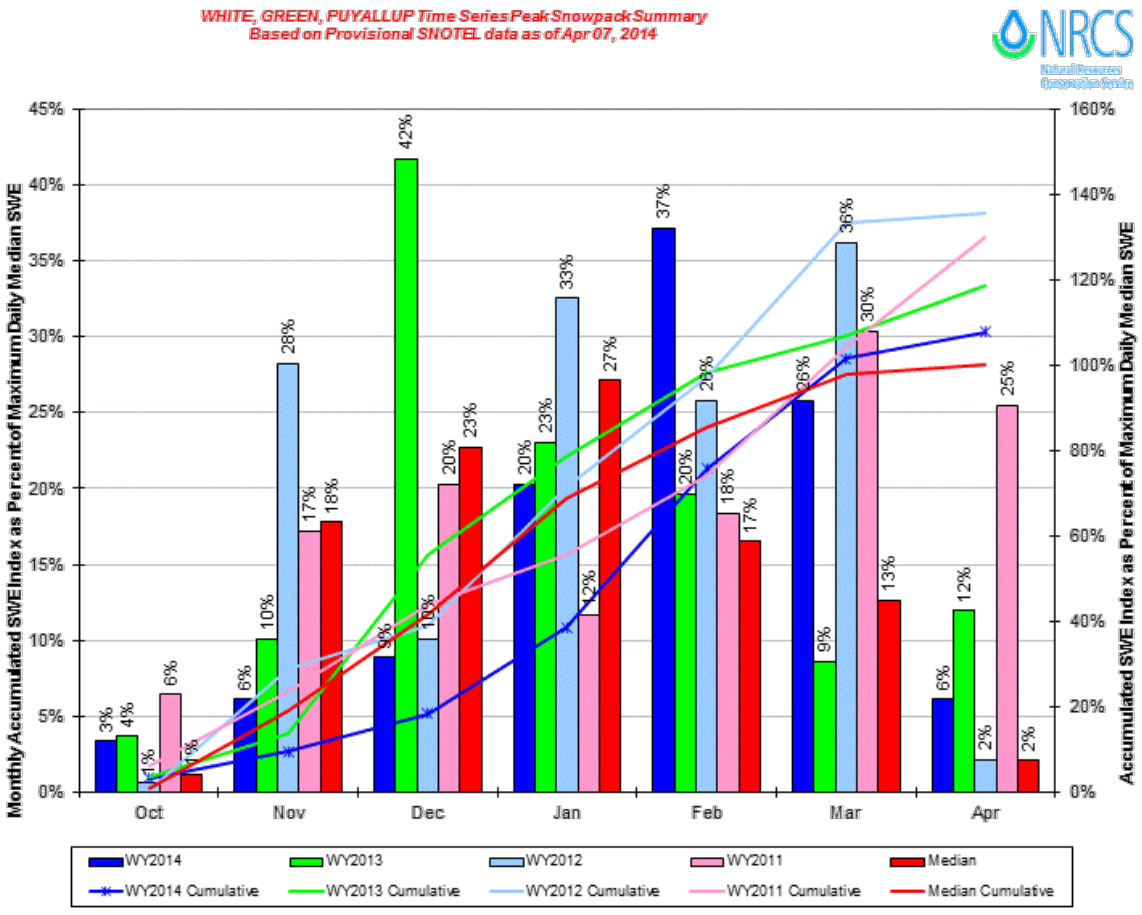
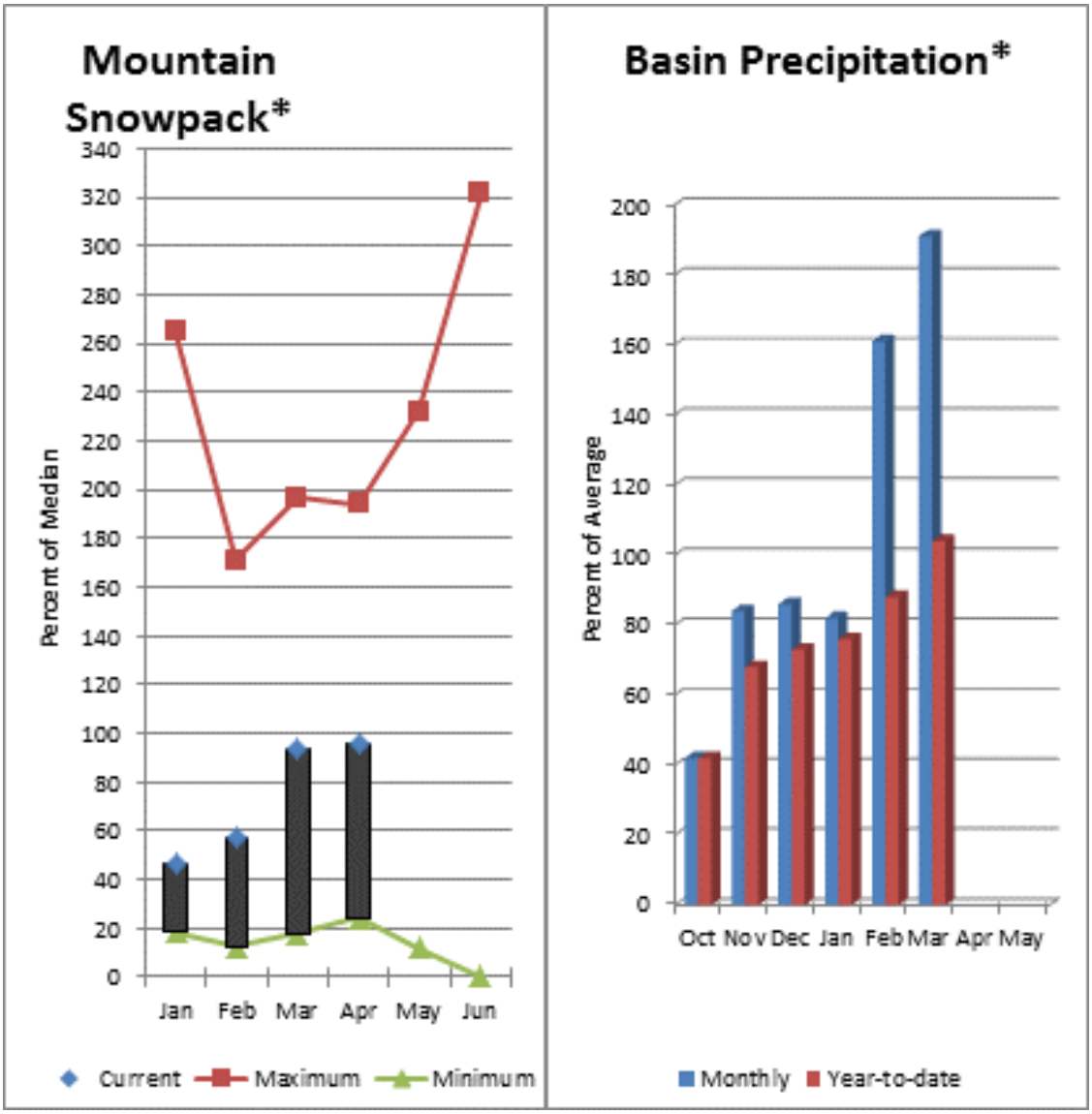


Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are: 108% for Cedar River near Cedar Falls; 104% for Rex River; 122% for South Fork of the Tolt River; and 100% for Taylor Creek near Selleck. Basin-wide precipitation for March was 191% of average, bringing water-year-to-date to 104% of average. April 1 median snow cover in Cedar River Basin was 91%, Tolt River Basin was 100%, Snoqualmie River Basin was 99%, and Skykomish River Basin was 94%. Temperatures were 1-2 degrees below normal for March and for the water-year.

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

Streamflow Forecasts - April 1, 2014

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	33	48	58	83	68	83	70
	APR-SEP	40	55	65	86	75	90	76
Rex R nr Cedar Falls	APR-JUL	9.2	15.4	19.6	82	24	30	24
	APR-SEP	11.5	17.8	22	81	26	32	27
Taylor Creek nr Selleck	APR-JUL	11.6	15.1	17.4	87	19.7	23	20
	APR-SEP	14.9	18.5	21	88	23	27	24
SF Tolt R nr Index	APR-JUL	7.1	9.8	11.7	82	13.6	16.3	14.2
	APR-SEP	8.5	11.4	13.3	83	15.2	18.1	16.1

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

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

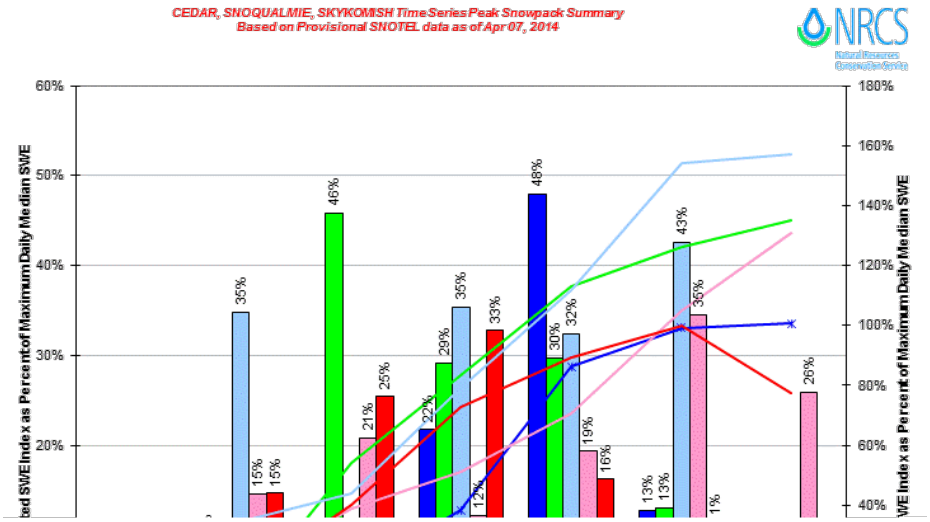
CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

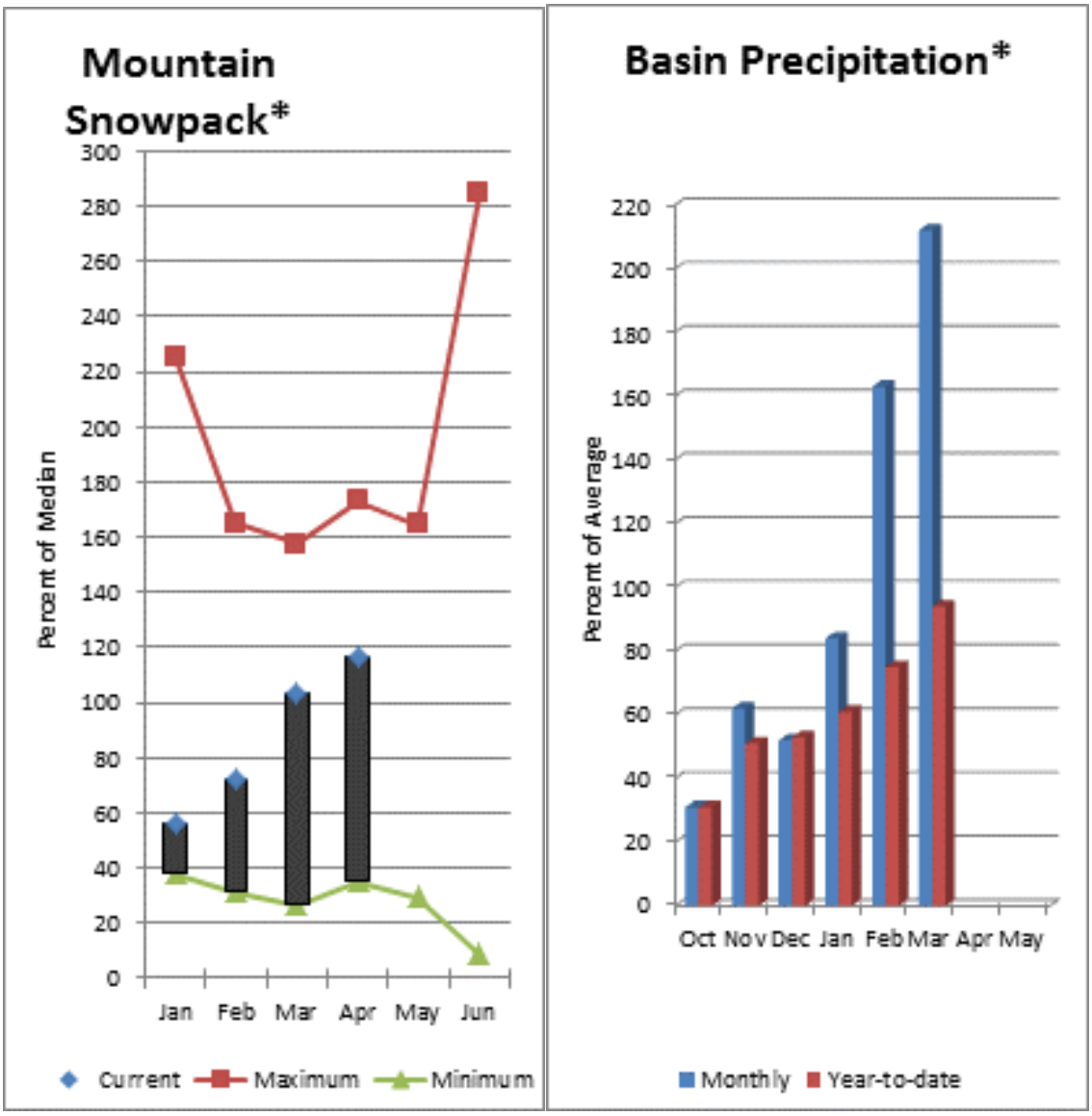
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CEDAR RIVER	4	21	29
TOLT RIVER	2	31	53
SNOQUALMIE RIVER	4	32	44
SKYKOMISH RIVER	2	44	58

* 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.





*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 116% of average for the spring and summer period. March streamflow in Skagit River was 185% of average. Other forecast points included Baker River at 110% and Thunder Creek at 104% of average. Basin-wide precipitation for March was 212% of average, bringing water-year-to-date to 94% of average. April 1 average snow cover in Skagit River Basin was 121%, Nooksack River Basin was 117% and the Baker River was 112%. April 1 Skagit River reservoir storage was 57% of average and 30% of capacity in anticipation of a strong runoff season. Average temperatures were 1-2 degrees below normal for March and 1-2 below for the water year.

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

Streamflow Forecasts - April 1, 2014

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	171	191	205	87	220	240	235
	APR-SEP	250	275	290	88	305	330	330
Skagit R at Newhalem	APR-JUL	980	1170	1300	77	1430	1620	1680
	APR-SEP	1180	1400	1550	76	1700	1920	2030
Baker R nr Concrete (2)	APR-JUL	395	500	570	73	640	745	780
	APR-SEP	495	635	730	74	825	965	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.	672.4	1130.	1135.
Diablo Reservoir	90.6		85.6	85.8

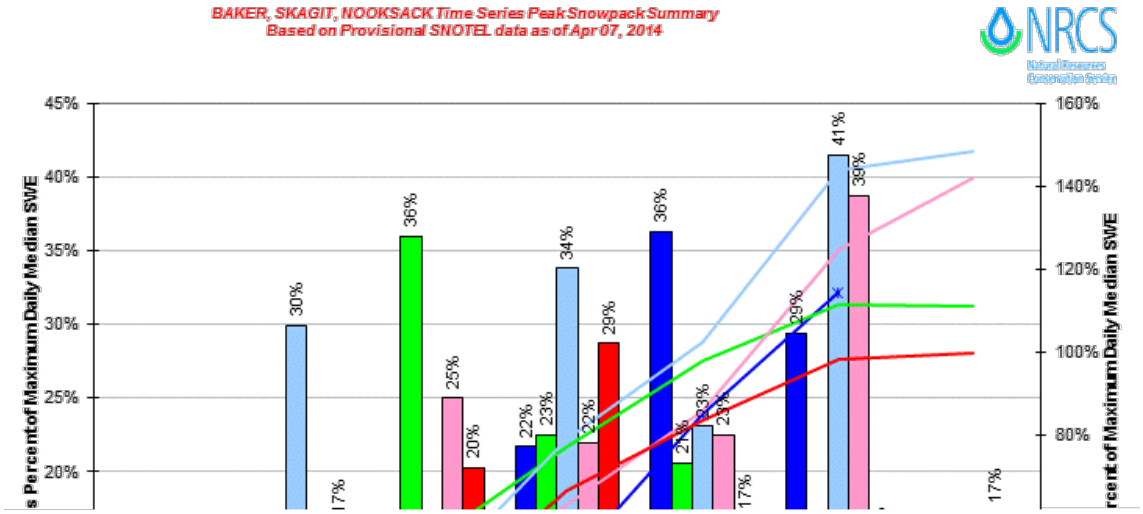
NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

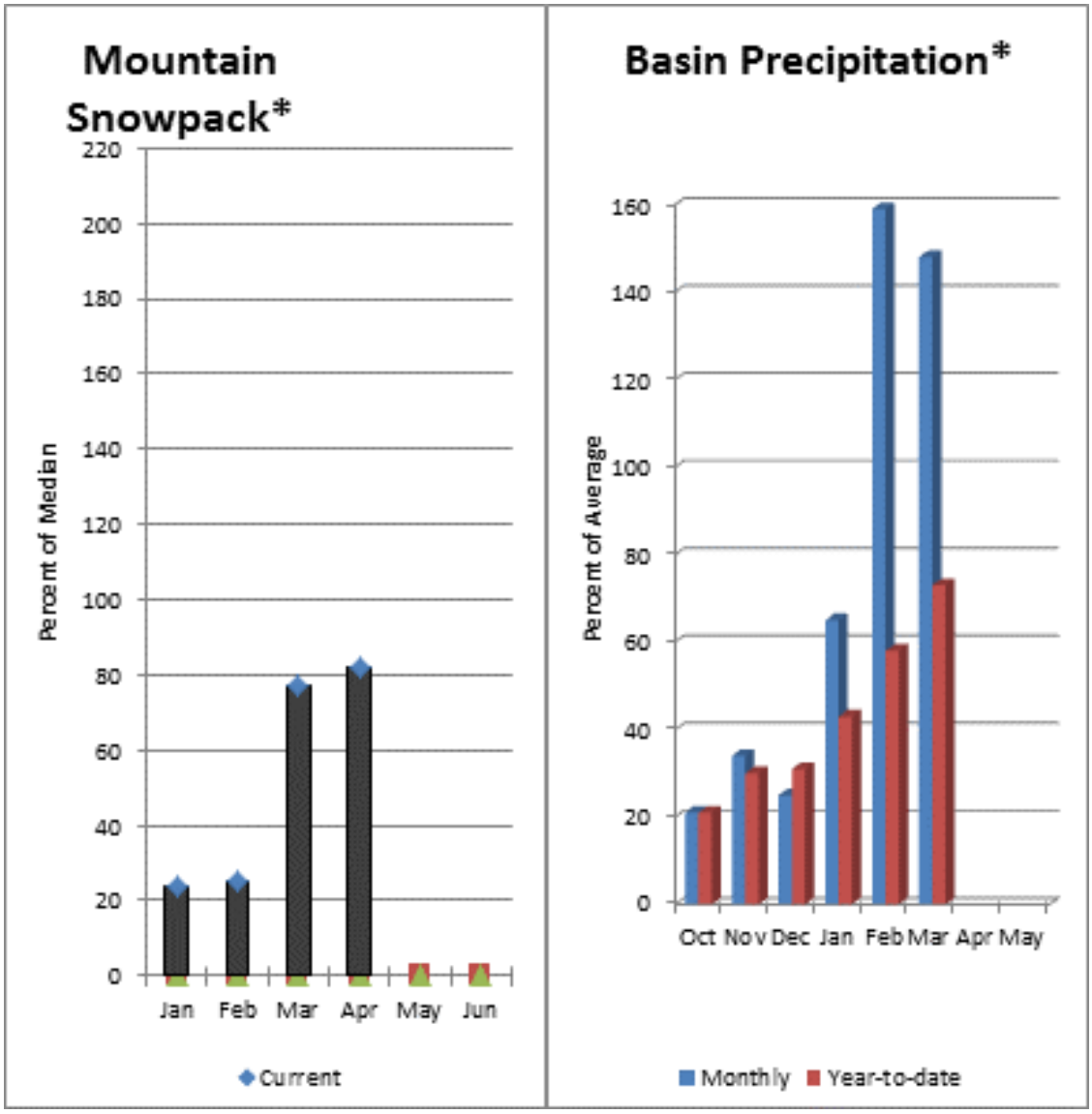
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SKAGIT RIVER	8	31	44
BAKER RIVER	0		
NOOKSACK RIVER	3	42	69

* 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.





*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 97% and Elwha River is 96%. March runoff in the Dungeness River was 178% of normal. Big Quilcene and Wynoochee rivers may expect near to slightly below average runoff this summer as well. March precipitation was 148% of average. Precipitation has accumulated at 73% of average for the water year. March precipitation at Quillayute was 15.81 inches. The 1981-2010 average for March is 10.83 inches. Olympic Peninsula snowpack was still low at 82% of normal on April 1. Temperatures were 1-2 degrees above average for March and close to normal for the water year.

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

Streamflow Forecasts - April 1, 2014

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	64	80	91	76	102	118	120
	APR-SEP	73	93	106	73	119	139	145
Elwha R at Mcdonald Bridge	APR-JUL	195	250	285	71	320	375	400
	APR-SEP	225	290	330	70	370	435	470

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

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

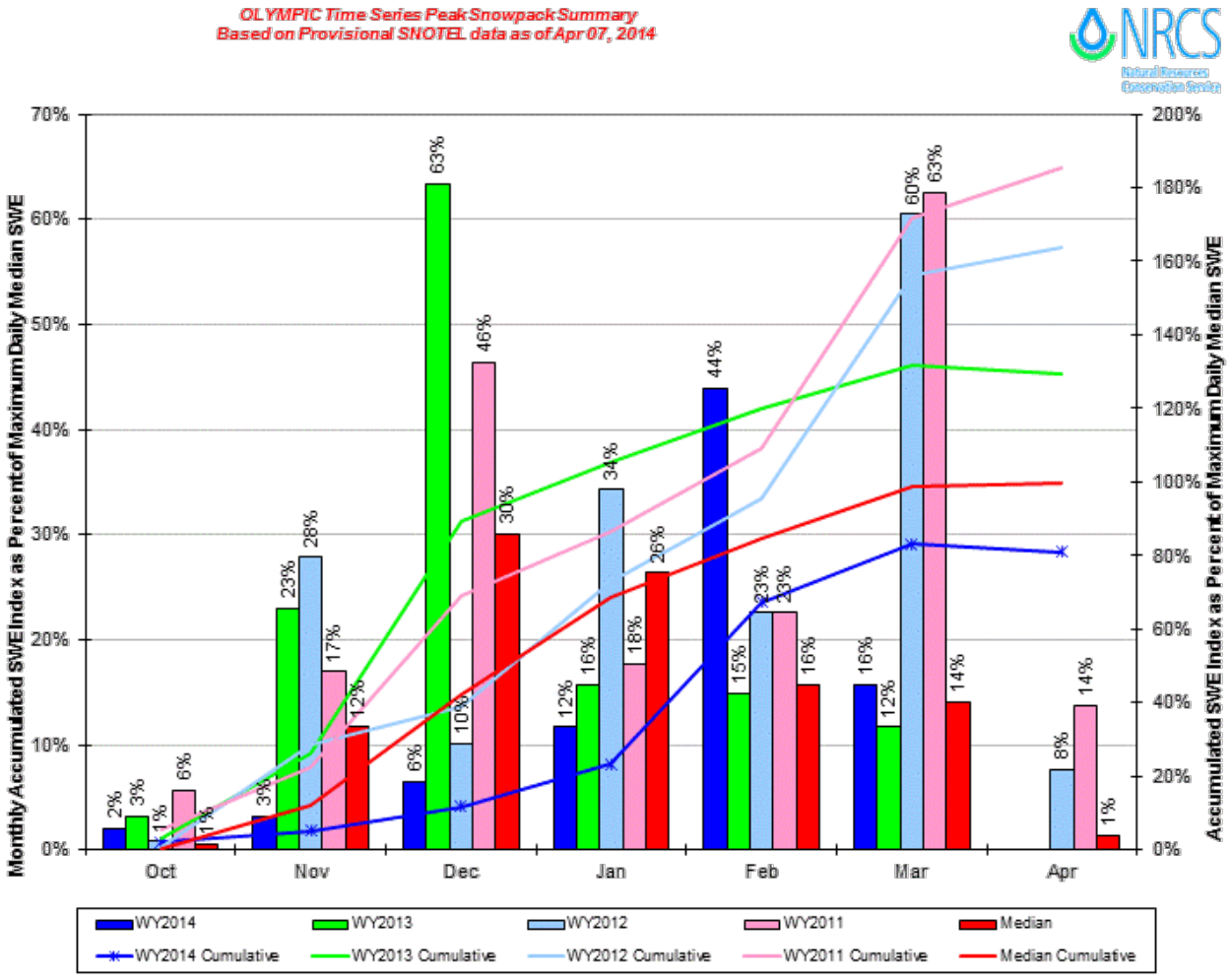
OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - January 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OLYMPIC PENINSULA	3	12	24

* 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.



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

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
April 1, 2014

Pilot, Mike Nehring with Northwest Helicopters. Mt. Baker in the back ground.
Photo by Scott Pattee

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

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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

April 2014

General Outlook

Washington seems to have averted what could have been a disastrous drought just to fall into the lap of one of the states' worst natural disasters to ever hit, one that came with no real warning to the good folks of Oso, WA. As we march into another sunny spring the grass will grow and the flowers will bloom but those affected by the Snohomish County landslide will not forget or be forgotten. Warmer mountain temperatures seem to have advanced the ripening of this years' snowpack with measured densities coming in higher than normal, effectively pushing the snowpack 2-3 weeks ahead of schedule. Weather forecasts continue to trend towards warm and dry which could facilitate an early start to the spring melt, potentially causing rivers to rise higher and quicker than normally expected.

Snowpack

The April 1 statewide SNOTEL readings were 100% of normal but vary across the state. Snowpack appeared to have increased at higher elevations however there was some indication of lower elevation snow courses having little to no snow due to rain on snow events as well as warmer than normal temperatures during the first half of the month. Readings from the Pend Orielle, including Idaho and Montana data, reported the highest at 140% of normal. Westside medians from SNOTEL, and April 1 snow surveys, included the North Puget Sound river basins with 117% of normal, the Central and South Puget river basins averaged 99%, and the Lewis-Cowlitz basins with 92% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima and Wenatchee areas with 101% and 105% respectively. Snowpack in the Spokane River Basin stood at 117% and the Walla Walla River Basin had 96% of the long term median.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	130	117
Newman Lake	79	95
Pend Oreille	152	140
Okanogan	93	98
Methow	114	111
Conconully Lake	48	56
Central Columbia	120	105
Upper Yakima	110	104
Lower Yakima	103	98
Ahtanum Creek	85	80
Walla Walla	110	96
Lower Snake	141	115
Cowlitz	92	114
Lewis	57	71
White	98	115
Green	78	78
Puyallup	104	112
Cedar	70	91
Snoqualmie	76	99
Skykomish	72	94
Skagit	116	121
Nooksack	93	117
Olympic Peninsula	65	82

Precipitation

With nearly twice the normal rainfall in March most basins in the state have erased the previous deficits to come within striking distance of normal water year to date precipitation. Only a hand full of stations reported below average monthly precipitation. Basin precipitation amounts were pretty even throughout the state with a low of 112% in the Upper Columbia to a high of 212% in the North Puget Sound. The wettest spot in the state was reported at Alpine Meadows SNOTEL in the Tolt River Basin with a March accumulation of 34.8 inches, or 198% of average. The highest percent of average was at Darrington, WA, near the location of the devastating Oso landslide, which received 266% of average precipitation.

RIVER BASIN	MARCH PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	178	93
Pend Oreille	168	89
Upper Columbia	112	77
Central Columbia	192	93
Upper Yakima	172	96
Lower Yakima	180	94
Walla Walla	163	105
Lower Snake	159	101
Lower Columbia	174	90
South Puget Sound	175	102
Central Puget Sound	191	104
North Puget Sound	212	94
Olympic Peninsula	148	73

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. However with the bulk of winter snow and precipitation already on the ground we will start to see reservoirs fill with spring runoff. Reservoir storage in the Yakima Basin was 610,000-acre feet, 119% of average for the Upper Reaches and 201,000-acre feet or 133% of average for Rimrock and Bumping Lakes. The power generation reservoirs included the following: Coeur d'Alene Lake, 192,000 acre feet, 116% of average and 80% of capacity; and the Skagit River reservoirs at 57% of average and 30% 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	80	116
Pend Oreille	42	83
Upper Columbia	89	102
Central Columbia	34	89
Upper Yakima	73	119
Lower Yakima	87	133
Lower Snake	61	88
North Puget Sound	30	57

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

Streamflow

With the addition of more snow and above normal precipitation all forecasts increased by 5-20% this month. Forecasts vary from 78% of average for the Colville River at Kettle Falls to 124% of average for the Okanogan River at Malott. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 108%; White River, 109%; and Skagit River, 116%. Some Eastern Washington streams include the Yakima River near Parker, 102%: Wenatchee River at Plain, 105% and Spokane River near Post Falls, 115%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. March runoff varied greatly by basin and is often influenced this time of year by reservoir control which may cause sudden changes in daily flows. Caution should be taken when working or playing in or near streams influenced by spring snowmelt.

BASIN	PERCENT OF AVERAGE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	83-115
Pend Oreille	86-134
Upper Columbia	78-135
Central Columbia	95-105
Upper Yakima	96-110
Lower Yakima	97-110
Walla Walla	100
Lower Snake	102-134
Lower Columbia	87-107
South Puget Sound	85-109
Central Puget Sound	100-122
North Puget Sound	103-106
Olympic Peninsula	96-97

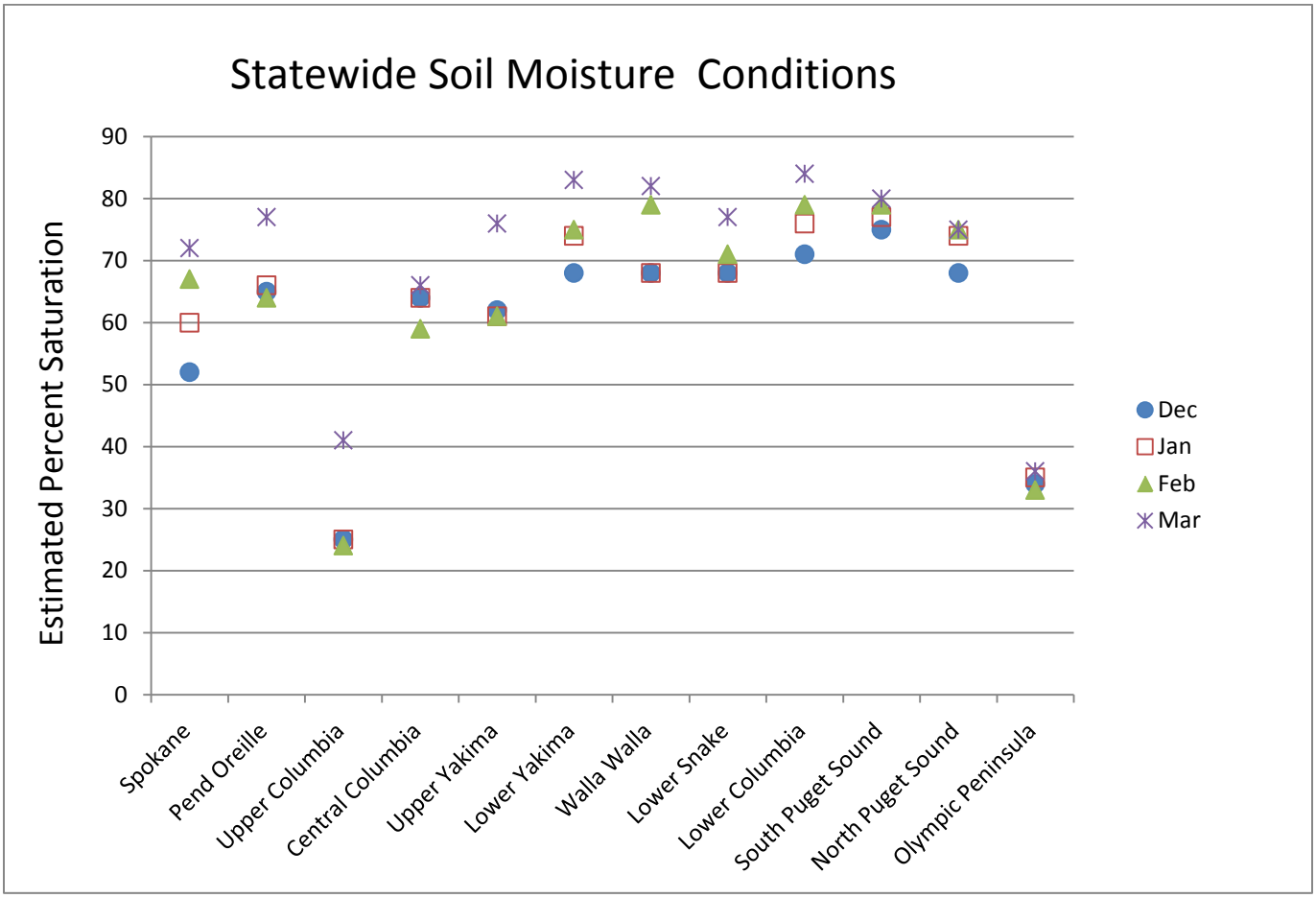
STREAM	PERCENT OF AVERAGE MARCH RUNOFF
Pend Oreille at Albeni Fall Dam	113
Kettle at Laurier	59
Columbia at Birchbank	97
Spokane at Spokane	185
Similkameen at Nighthawk	111
Okanogan at Tonasket	135
Methow at Pateros	75
Chelan at Chelan	112
Wenatchee at Pashastin	142
Cle Elum near Roslyn	168
Yakima at Parker	163
Naches at Naches	218
Grande Ronde at Troy	202
Snake below Lower Granite Dam	128
Columbia River at The Dalles	126
Cowlitz below Mayfield Dam	225
Skagit at Concrete	185
Dungeness near Sequim	178

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. Light fall precipitation created drier than optimal soil moisture conditions coming into winter. However greater than normal precipitation during February and March helped buffer soil moisture levels back to near normal conditions for this time of year. Additional increases should be expected as the snow ripens and begins the normal spring melt phase. Having elevated soil moisture levels now is also a good indicator for increased runoff in the spring.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	72
Pend Oreille	77
Upper Columbia	41
Central Columbia	66
Upper Yakima	76
Lower Yakima	83
Walla Walla	82
Lower Snake	77
Lower Columbia	84
South Puget Sound	80
Central Puget Sound	N/A
North Puget Sound	75
Olympic Peninsula	36



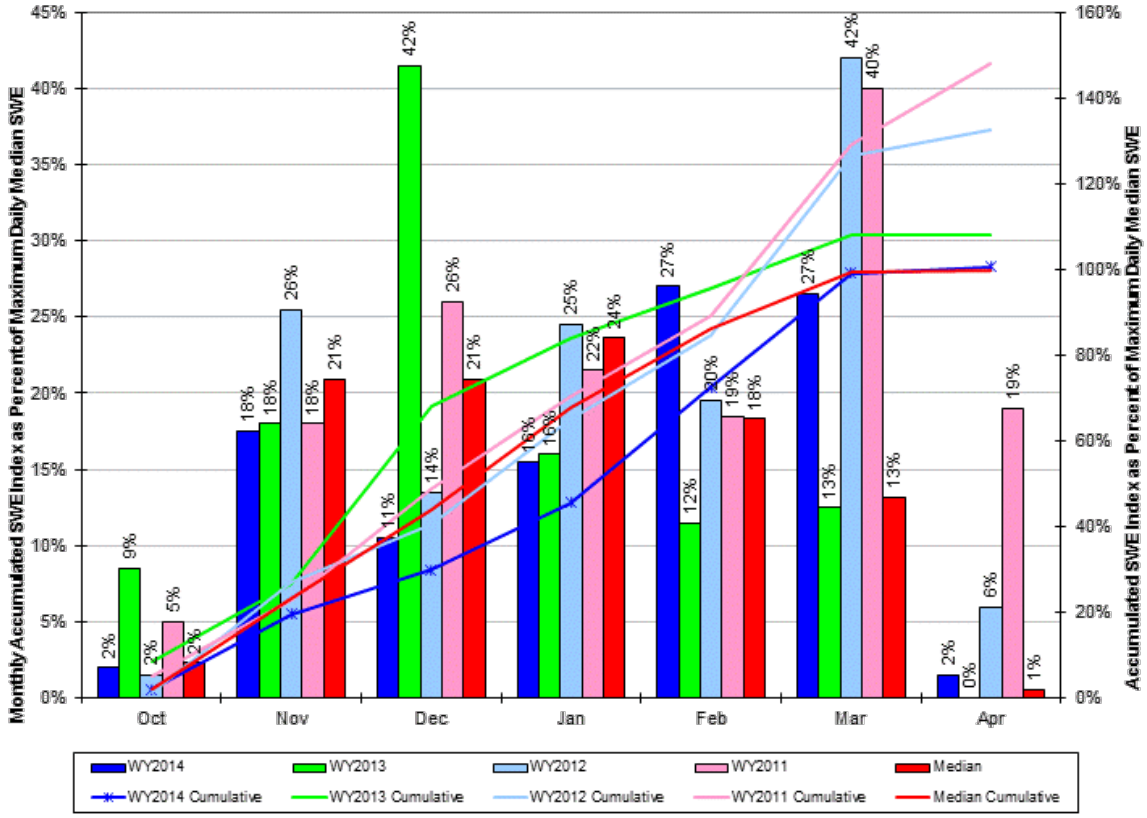
B A S I N S U M M A R Y O F
S N O W C O U R S E D A T A

APRIL 2014

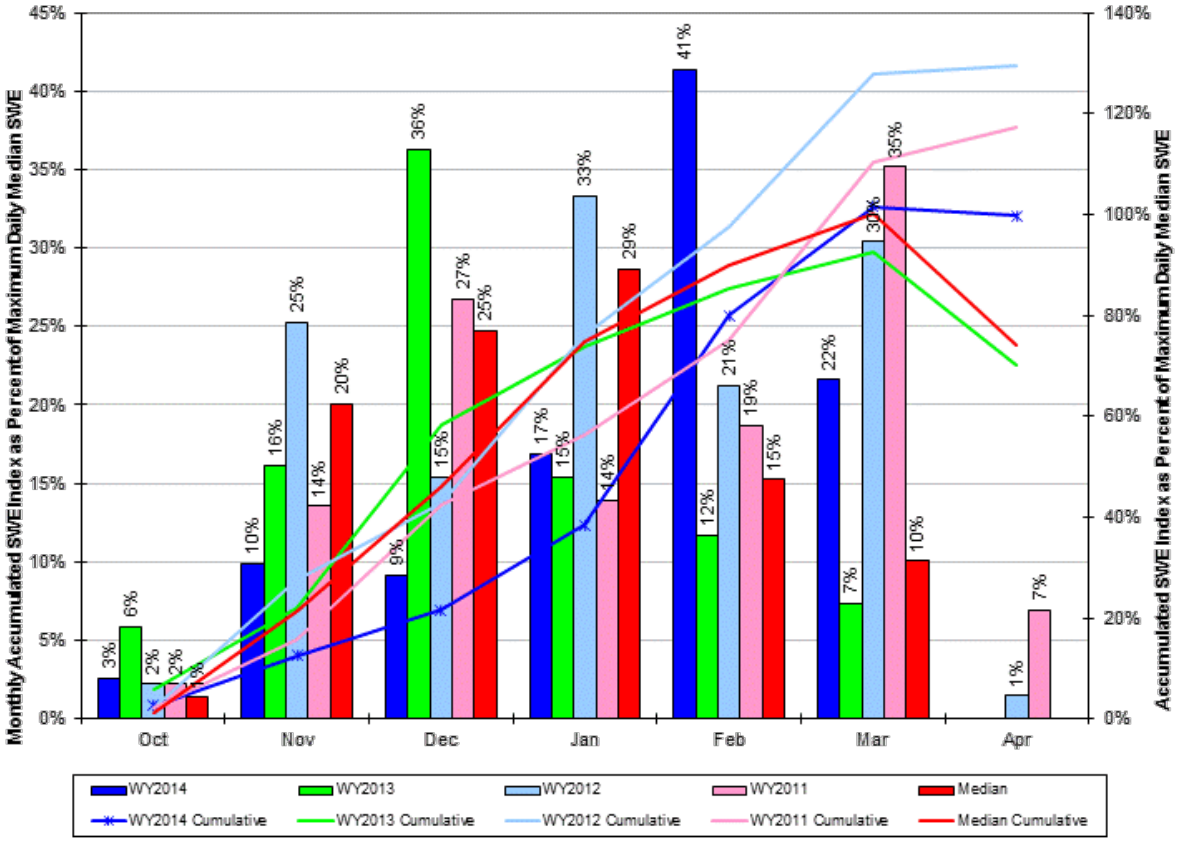
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ABERDEEN LAKE CAN.	4000	3/26/14	24	7.2	5.7	5.6
ALPINE MEADOWS	3500	4/01/14	88	37.0	59.8	40.2
ALPINE MEADOWS SNTL	3500	4/01/14	90	47.9	73.7	51.0
AMBROSE	6480	3/29/14	56	16.6	9.9	10.4
ASHLEY DIVIDE	4820	3/25/14	27	8.6	2.8	4.4
BADGER PASS SNOTEL	6900	4/01/14	104	41.7	32.3	29.8
BAIRD #2	3220	3/27/14	20	5.7	5.6	6.8
BAREE CREEK	5500	3/31/14	112	44.7	36.7	34.9
BAREE MIDWAY	4600	3/31/14	91	33.8	25.5	27.8
BAREE TRAIL	3800	3/31/14	26	9.1	7.8	7.2
BARKER LAKES SNOTEL	8250	4/01/14	70	20.0	12.0	13.9
BARNES CREEK CAN.	5320	4/01/14	65	22.2	18.8	20.4
BASIN CREEK SNOTEL	7180	4/01/14	47	12.3	6.0	7.5
BASSOO PEAK	5150	3/26/14	36	12.6	6.6	7.8
BEAVER CREEK TRAIL	2200	3/27/14	33	12.7	12.8	9.2
BEAVER PASS	3680	3/30/14	71	26.4	37.1	26.0
BEAVER PASS SNOTEL	3630	4/01/14	99	39.5	44.6	32.8
BIG WHITE MTN CAN.	5510	3/26/14	58	17.4	--	20.0
BLACK MOUNTAIN	7750	3/25/14	55	15.3	11.3	14.1
BLACK PINE SNOTEL	7100	4/01/14	55	17.9	7.9	9.6
BLACKWALL PILL CAN.	6370	3/31/14	108	37.4	28.3	35.1
BLEWETT PASS#2SNOTEL	4240	4/01/14	27	13.0	6.0	13.9
BONAUPART SOUTH	4660	3/28/14	10	2.3	5.6	--
BRENDA MINE CAN.	4450	3/27/14	39	11.0	10.0	12.5
BROOKMERE CAN.	3000	3/31/14	19	6.2	5.7	7.9
BROWN TOP AM	6000	3/31/14	170	58.9	54.4	53.4
BROWNS PASS		3/26/14	0	.0	1.5	--
BRUSH CREEK TIMBER	5000	3/27/14	50	19.7	10.0	6.1
BUCKINGHORSE SNOTEL	4870	4/01/14	109	44.9	64.5	--
BULL MOUNTAIN	6600	3/28/14	24	8.8	6.1	5.6
BUMPING LAKE (NEW)	3400	4/02/14	32	12.1	12.5	15.8
BUMPING RIDGE SNOTEL	4610	4/01/14	76	27.6	22.0	25.8
BUNCHGRASS MDWSNOTEL	5000	4/01/14	86	26.8	23.0	26.2
BURNT MOUNTAIN PIL	4170	4/01/14	44	17.2	21.7	16.3
BUTTE CREEK #2		3/26/14	22	5.8	7.4	--
BUTTERMILK BUTTE	5250	3/28/14	41	14.1	13.0	--
CALAMITY SNOTEL	2500	4/01/14	0	.0	.0	--
CARMI CAN.	4100	3/27/14	16	3.3	--	5.6
CAYUSE PASS SNOTEL	5240	4/01/14	141	50.3	59.1	--
CHESSMAN RESERVOIR	6200	3/25/14	33	10.0	4.8	2.6
CHEWALAH #2	4930	3/25/14	43	12.9	15.9	16.3
CHICKEN CREEK	4060	3/25/14	59	20.5	16.4	13.8
CITY CABIN	2390	4/01/14	10	3.2	8.4	8.5
COLD CREEK STRIP	6020	3/25/14	28	6.4	10.8	8.5
COMBINATION SNOTEL	5600	4/01/14	24	8.1	2.8	4.2
COPPER BOTTOM SNOTEL	5200	4/01/14	27	9.6	.0	--
COPPER MOUNTAIN	7700	3/25/14	44	12.9	7.0	9.9
CORRAL PASS SNOTEL	5800	4/01/14	100	38.8	31.9	33.7
COTTONWOOD CREEK	6400	3/27/14	32	9.1	6.1	7.3
COUGAR MTN. SNOTEL	3200	4/01/14	23	9.9	23.3	14.1
COX VALLEY	4500	3/28/14	72	27.3	42.4	36.0
COYOTE HILL	4200	3/27/14	32	12.7	6.5	7.0
DALY CREEK SNOTEL	5780	4/01/14	52	17.5	8.1	9.6
DEER PARK	5200	4/01/14	42	16.1	21.3	16.7
DESERT MOUNTAIN	5600	3/28/14	62	19.5	13.2	12.6
DEVILS PARK	5900	3/27/14	147	53.2	38.6	38.7
DISAUTEL PASS		3/26/14	8	2.1	5.1	--
DISCOVERY BASIN	7050	3/26/14	45	13.6	7.6	9.2
DIX HILL	6400	3/30/14	46	15.2	6.0	9.1
DOCK BUTTE AM	3800	4/02/14	150	67.5	84.0	53.5
DOMMERIE FLATS	2200	4/02/14	0	.0	.0	.0
DUNCAN RIDGE	5370	3/25/14	14	3.7	6.6	4.7
DUNGENESS SNOTEL	4010	4/01/14	15	5.7	11.8	5.4
EASY PASS AM	5200	4/02/14	180	81.0	93.0	73.8
EL DORADO MINE	7800	3/26/14	54	17.8	8.7	17.4
ELBOW LAKE SNOTEL	3200	4/01/14	75	33.7	44.9	36.9
EMERY CREEK SNOTEL	4350	4/01/14	56	20.5	13.3	13.7
ENDERBY CAN.	5800	3/31/14	121	45.3	46.5	40.1
ESPERON CK. MID CAN.	4250	3/26/14	37	10.0	13.6	14.6
ESPERON CK. UP CAN.	5050	3/26/14	43	13.0	16.3	17.1
FARRON CAN.	4000	3/31/14	33	10.9	10.2	12.5
FATTY CREEK	5500	3/31/14	99	34.6	21.1	21.2
FISH CREEK	8000	4/04/14	56	17.6	7.3	9.0
FISH LAKE	3370	4/01/14	76	32.8	27.6	27.4
FISH LAKE SNOTEL	3430	4/01/14	72	29.5	25.9	29.8
FLATTOP MTN SNOTEL	6300	4/01/14	158	52.8	48.1	42.0
FLEECER RIDGE	7500	3/28/14	44	14.4	7.8	9.5
FOURTH OF JULY SUM	3200	3/31/14	8	2.3	3.4	3.4
FREEZEOUT CK. TRAIL	3500	3/31/14	36	13.2E	11.3	9.6
FROHNER MDWS SNOTEL	6480	4/01/14	51	13.8	6.5	7.4
FROST MEADOWS	4630	4/02/14	59	22.0	17.0	16.5
GOAT CREEK	3600	3/26/14	12	3.2	4.9	2.8
GOLD MTN LOOKOUT		3/25/14	13	4.0	7.6	--
GRASS MOUNTAIN #2	2900	4/01/14	0	.0	--	1.1
GRAVE CRK SNOTEL	4300	4/01/14	60	21.9	14.3	13.8
GREEN LAKE SNOTEL	5920	4/01/14	70	22.2	24.2	22.3
GREYBACK RES CAN.	4700	3/28/14	37	10.1	10.0	9.2
GRIFFIN CR DIVIDE	5150	3/26/14	40	14.0	6.3	8.4
GROUSE CAMP SNOTEL	5390	4/01/14	41	18.9	12.6	18.0
HAMILTON HILL CAN.	4550	3/31/14	39	12.3	8.5	14.0
HAND CREEK SNOTEL	5030	4/01/14	44	15.0	7.2	11.1
HARTS PASS SNOTEL	6490	4/01/14	118	47.8	43.8	41.2
HARTS PASS	6500	3/27/14	124	44.4	41.7	36.7
HELL ROARING DIVIDE	5770	3/30/14	101	33.0	26.1	25.8
HERRIG JUNCTION	4850	3/25/14	88	31.0	22.8	24.1
HIGH RIDGE SNOTEL	4920	4/01/14	53	20.3	19.2	20.7
HOLBROOK	4530	3/25/14	30	10.7	4.1	6.8
HOODOO BASIN SNOTEL	6050	4/01/14	146	52.3	36.6	38.9
HUCKLEBERRY SNOTEL	2250	4/01/14	0	.0	.0	.0
HUMBOLDT GLCH SNOTEL	4250	4/01/14	53	18.0	9.5	9.1
HURRICANE	4500	3/28/14	31	10.7	23.1	15.0
INDIAN ROCK SNOTEL	5360	4/01/14	49	19.5	23.7	--
IRENE'S CAMP	5530	3/25/14	35	8.6	9.0	8.6
ISINTOK LAKE CAN.	5100	3/26/14	31	6.4	7.0	7.2
JASPER PASS AM	5400	4/02/14	197	88.6	97.0	77.0
JUNE LAKE SNOTEL	3440	4/01/14	58	22.5	53.7	34.5
KELLER RIDGE	3700	3/27/14	3	.5	3.8	--
KELLOGG PEAK	5560	3/31/14	66	24.2	18.3	24.7
KISHENEHN	3890	3/26/14	38	9.8	7.2	6.6
KLESILKWA CAN.	3450	4/01/14	33	13.5	12.0	11.5
KRAFT CREEK SNOTEL	4750	4/01/14	50	22.4	9.6	--
LAMB BUTTE		3/27/14	46	15.8	16.0	--
LIGHTNING LAKE CAN.	3700	3/26/14	39	12.1	11.0	12.0
LOGAN CREEK	4300	3/28/14	33	10.7	4.2	5.8
LOLO PASS SNOTEL	5240	4/01/14	111	39.0	21.9	27.1
LONE PINE SNOTEL	3930	4/01/14	67	25.0	49.3	35.2
LOOKOUT SNOTEL	5140	4/01/14	85	32.4	22.5	26.2
LOST HORSE MTN CAN.	6300	4/01/14	41	11.5	9.8	9.4
LOST HORSE SNOTEL	5120	4/01/14	34	10.5	14.4	18.6
LOST LAKE SNOTEL	6110	4/01/14	152	59.6	41.6	52.3
LOST LAKE	4070	3/28/14	17	4.3	6.1	--
LOUP LOUP CAMPGROUND		3/26/14	35	8.6	8.6	--
LOWER SANDS CREEK #2	3120	3/27/14	51	18.6	17.2	16.9
LUBRECHT FOREST NO 3	5450	3/28/14	26	8.4	2.3	4.6
LUBRECHT FOREST NO 4	4650	3/28/14	10	3.6	.0	.4
LUBRECHT FOREST NO 6	4040	3/28/14	15	5.6	.0	.6
LUBRECHT HYDROPLOT	4200	3/28/14	18	7.4	.0	.6
LUBRECHT SNOTEL	4680	4/01/14	19	7.1	.0	1.6
LYMAN LAKE SNOTEL	5980	4/01/14	156	59.8	54.4	57.6
LYNN LAKE	4000	4/01/14	---	19.8E	33.0	18.0
LYNN LAKE SNOTEL	3900	4/01/14	55	19.8	33.5	--
MARIAS PASS	5250	3/27/14	61	20.9	14.2	14.4
MARTEN LAKE AM	3600	4/02/14	156	70.2	96.0	70.0
MARTEN RIDGE SNOTEL	3520	4/01/14	129	56.9	71.5	--
MAZAMA		3/26/14	26	9.7	2.6	--
MCCULLOCH CAN.	4200	3/28/14	21	6.7	6.6	6.1
MEADOWS CABIN	1900	3/31/14	15	6.3	.0	.6
MEADOWS PASS SNOTEL	3230	4/01/14	63	25.8	33.1	20.6
METEOR		3/25/14	0	.0	.0	--
M F NOOKSACK SNOTEL	4970	4/01/14	157	75.7	70.3	59.1
MICA CREEK SNOTEL	4510	4/01/14	62	25.4	18.7	20.3
MINERAL CREEK	4000	3/25/14	49	17.2	11.0	15.4
MISSEZULA MTN CAN.	5080	4/01/14	38	11.6	6.6	9.5
MISSION CREEK CAN.	5840	3/31/14	63	21.8	21.5	20.0
MONASHEE PASS CAN.	4500	4/01/14	46	15.0	11.6	13.5
MORSE LAKE SNOTEL	5410	4/01/14	129	51.5	55.2	52.3
MOSES MOUNTAIN (2)	4800	4/01/14	21	7.3	17.9	13.4
MOSES MTN SNOTEL	5010	4/01/14	32	9.2	19.9	14.6
MOSES PEAK	6650	4/01/14	46	14.1	30.3	20.1
MOSQUITO RDG SNOTEL	5200	4/01/14	92	35.8	32.4	31.6
MOULTON RESERVOIR	6850	4/02/14	34	10.6	4.4	6.3
MOUNT BLUM AM	5800	4/02/14	156	70.2	75.0	61.0
MOUNT CRAG SNOTEL	3960	4/01/14	49	19.4	35.2	28.5
MT. KOBAU CAN.	5500	3/29/14	31	8.1	19.7	12.5
MOUNT TOLMAN	2000	3/25/14	0	.0	.0	.0
MOWICH SNOTEL	3160	4/01/14	0	.0	.0	.0
MOUNT GARDNER	3300	4/01/14	19	7.5	15.8	9.5
MOUNT GARDNER SNOTEL	2920	4/01/14	23	9.1	16.6	12.9
MUTTON CREEK #1	5700	3/24/14	26	7.3	15.8	12.8
N.F. ELK CR SNOTEL	6250	4/01/14	57	17.0	8.3	10.6
NEVADA RIDGE SNOTEL	7020	4/01/14	73	22.1	12.3	13.9
NEZ PERCE CMP SNOTEL	5650	4/01/14	65	19.9	11.9	13.0
NOISY BASIN SNOTEL	6040	4/01/14	135	47.8	40.9	39.3
NORTH FORK JOCKO	6330	3/31/14	136	51.0	40.4	38.4
OLALLIE MDWS SNOTEL	4030	4/01/14	123	55.8	56.0	50.0
OPHIR PARK	7150	3/30/14	66	20.5	9.6	14.8
OYAMA LAKE CAN.	4100	3/31/14	26	6.8	5.4	6.7
PARADISE SNOTEL	5130	4/01/14	166	81.1	78.2	67.0
PARK CK RIDGE SNOTEL	4600	4/01/14	107	48.8	47.1	44.4
PEPPER CREEK SNOTEL	2140	4/01/14	0	.0	5.5	--
PETERSON MDW SNOTEL	7200	4/01/14	54	14.9	8.5	9.6
PETTIJOHN CREEK	4300	3/28/14	12	3.0	5.4	--
PIGTAIL PEAK SNOTEL	5800	4/01/14	151	64.0	49.8	50.2
PIKE CREEK SNOTEL	5930	4/01/14	51	12.0	8.2	22.9

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
PIPESTONE PASS	7200	3/25/14	30	8.2	4.7	4.6
POPE RIDGE SNOTEL	3590	4/01/14	36	15.8	13.4	15.8
POSTILL LAKE CAN.	4200	3/31/14	29	8.7	7.5	8.8
POTATO HILL SNOTEL	4510	4/01/14	82	31.7	30.1	24.9
QUARTZ PEAK SNOTEL	4700	4/01/14	48	18.1	16.0	18.9
RAGGED MTN SNOTEL	4210	4/01/14	44	17.9	17.9	20.7
RAGGED RIDGE	3330	3/28/14	1	.2	4.4	1.0
RAINY PASS SNOTEL	4890	4/01/14	---	42.5	33.5	36.5
RAINY PASS	4780	4/01/14	115	53.3	31.2	--
REX RIVER SNOTEL	3810	4/01/14	75	33.5	43.3	34.7
ROCKER PEAK SNOTEL	8000	4/01/14	73	21.1	10.8	12.4
ROCKY CREEK AM	2100	4/02/14	60	27.0	60.0	--
ROLAND SUMMIT	5120	4/01/14	109	47.1	30.0	31.0
ROUND TOP MTN	4020	3/28/14	30	9.4	11.6	--
RUSTY CREEK	4000	3/24/14	3	1.0	5.7	4.9
SADDLE MTN SNOTEL	7900	4/01/14	106	36.4	20.1	22.9
SALMON MDWS SNOTEL	4460	4/01/14	19	6.6	9.7	9.1
SASSE RIDGE SNOTEL	4340	4/01/14	84	32.4	28.1	31.4
SATUS PASS	4030	3/28/14	12	4.9	7.1	7.0
SATUS PASS	3960	4/01/14	13	4.7	4.6	--
SAVAGE PASS SNOTEL	6170	4/01/14	102	36.7	23.3	24.4
SAWMILL RIDGE SNOTEL	4640	4/01/14	85	36.1	37.6	--
SCHREIBERS MDW AM	3400	4/02/14	90	40.5	65.0	45.0
SENTINEL BT SNOTEL	4680	4/01/14	35	8.7	8.8	8.1
SHEEP CANYON SNOTEL	3990	4/01/14	65	26.6	46.1	33.9
SHERWIN SNOTEL	3200	4/01/14	---	3.5	3.7	6.6
SILVER STAR MTN CAN.	5600	3/30/14	83	29.7	33.9	29.9
SKALKAHO SNOTEL	7260	4/01/14	90	30.5	17.9	21.4
SKITWISH RIDGE	5110	3/27/14	86	29.7	27.8	28.6
SKOOKUM CREEK SNOTEL	3310	4/01/14	59	35.3	54.0	29.3
SKOOKUM LAKES	4230	3/28/14	33	11.1	10.9	--
SLIDE ROCK MOUNTAIN	7100	3/26/14	61	20.2	13.6	12.9
SOURDOUGH GUL SNOTEL	4000	4/01/14	0	.0	.0	.0
SOUTH BALDY	4920	3/28/14	60	18.9	15.7	--
SPENCER MDW SNOTEL	3400	4/01/14	37	17.5	31.6	29.4
SPIRIT LAKE SNOTEL	3520	4/01/14	0	.1	15.6	1.2
SPOTTED BEAR MTN.	7000	3/28/14	56	18.8	8.8	12.2
SPRUCE SPGS SNOTEL	5700	4/01/14	43	16.8	9.0	13.8
STARVATION MOUNTAIN	6750	3/28/14	53	16.5	22.0	15.3
STAHL PEAK SNOTEL	6030	4/01/14	123	40.4	34.5	33.3
STAMPEDE PASS SNOTEL	3850	4/01/14	85	33.4	32.9	40.3
STEMPLE PASS	6600	3/27/14	48	13.0	8.1	8.3
STEVENS PASS SNOTEL	3950	4/01/14	113	36.1	34.9	37.0
STORM LAKE	7780	3/26/14	54	15.5	10.5	12.6
STRANGER MOUNTAIN	4230	3/25/14	19	6.4	11.0	10.5
STRYKER BASIN	6180	3/25/14	110	40.4	33.4	28.2
SUMMERLAND RES CAN.	4200	3/27/14	38	11.1	8.9	8.9
SUMMIT G.S. #2	4600	3/26/14	33	8.6	10.2	8.9
SUNSET SNOTEL	5540	4/01/14	73	24.7	17.9	21.4
SURPRISE LKS SNOTEL	4290	4/01/14	92	39.3	46.5	45.5
SWAMP CREEK SNOTEL	3930	4/01/14	61	26.6	15.4	17.4
SWIFT CREEK SNOTEL	4440	4/01/14	105	41.9	70.0	61.0
TEN MILE LOWER	6600	3/26/14	45	14.2	7.6	5.7
TEN MILE MIDDLE	6800	3/26/14	58	16.6	8.8	9.8
THUNDER BASIN SNOTEL	4320	4/01/14	78	31.0	28.9	29.7
THUNDER BASIN	4200	3/31/14	80	26.4	21.0	20.0
THOMPSON CREEK	2500	3/28/14	1	.6	3.7	.0
THOMPSON RIDGE	4650	3/28/14	37	12.6	11.0	--
TINKHAM CREEK SNOTEL	2990	4/01/14	58	22.7	28.8	26.2
TOATS COULEE	2850	3/25/14	1	.2	2.6	.1
TOUCHET SNOTEL	5530	4/01/14	66	28.6	25.4	30.1
TRINKUS LAKE	6100	3/31/14	138	51.0	39.4	37.2
TROUGH #2 SNOTEL	5480	4/01/14	25	9.7	8.2	8.2
TROUT CREEK CAN.	5650	3/26/14	35	10.1	8.2	7.2
TRUMAN CREEK	4060	3/25/14	0	.0	1.5	2.5
TUNNEL AVENUE	2450	3/31/14	37	14.5	10.3	16.4
TWELVEMILE SNOTEL	5600	4/01/14	66	25.5	9.2	14.5
TWIN LAKES SNOTEL	6400	4/01/14	132	54.5	31.5	35.4
UPPER HOLLAND LAKE	6200	3/31/14	116	40.8	30.3	29.6
UPPER WHEELER SNOTEL	4330	4/01/14	26	10.3	7.9	12.2
VASEUX CREEK CAN.	4250	3/29/14	28	7.1	4.1	6.2
VULCAN MTN	4660	3/26/14	32	8.0	11.5	--
VULCAN ROAD	3840	3/26/14	24	6.1	8.1	--
WARM SPRINGS SNOTEL	7800	4/01/14	98	28.3	16.0	19.0
WATSON LAKES AM	4500	4/02/14	144	64.8	72.0	57.0
WATERHOLE SNOTEL	5010	4/01/14	93	36.4	49.0	39.4
WEASEL DIVIDE	5450	3/27/14	101	33.6	27.5	29.0
WELLS CREEK SNOTEL	4030	4/01/14	85	36.3	41.9	29.0
WEST SMAY CREEK	3600	4/01/14	64	28.6	36.6	--
WHITE PASS ES SNOTEL	4440	4/01/14	59	23.4	21.3	21.6
WHITE ROCKS MTN CAN.	7200	3/26/14	56	17.8	23.9	23.1

COLUMBIA ABOVE METHOW Time Series Peak Snowpack Summary
Based on Provisional SNOTEL data as of Apr 07, 2014



CHELAN, ENTIAT, WENATCHEE Time Series Peak Snowpack Summary
Based on Provisional SNOTEL data as of Apr 07, 2014



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

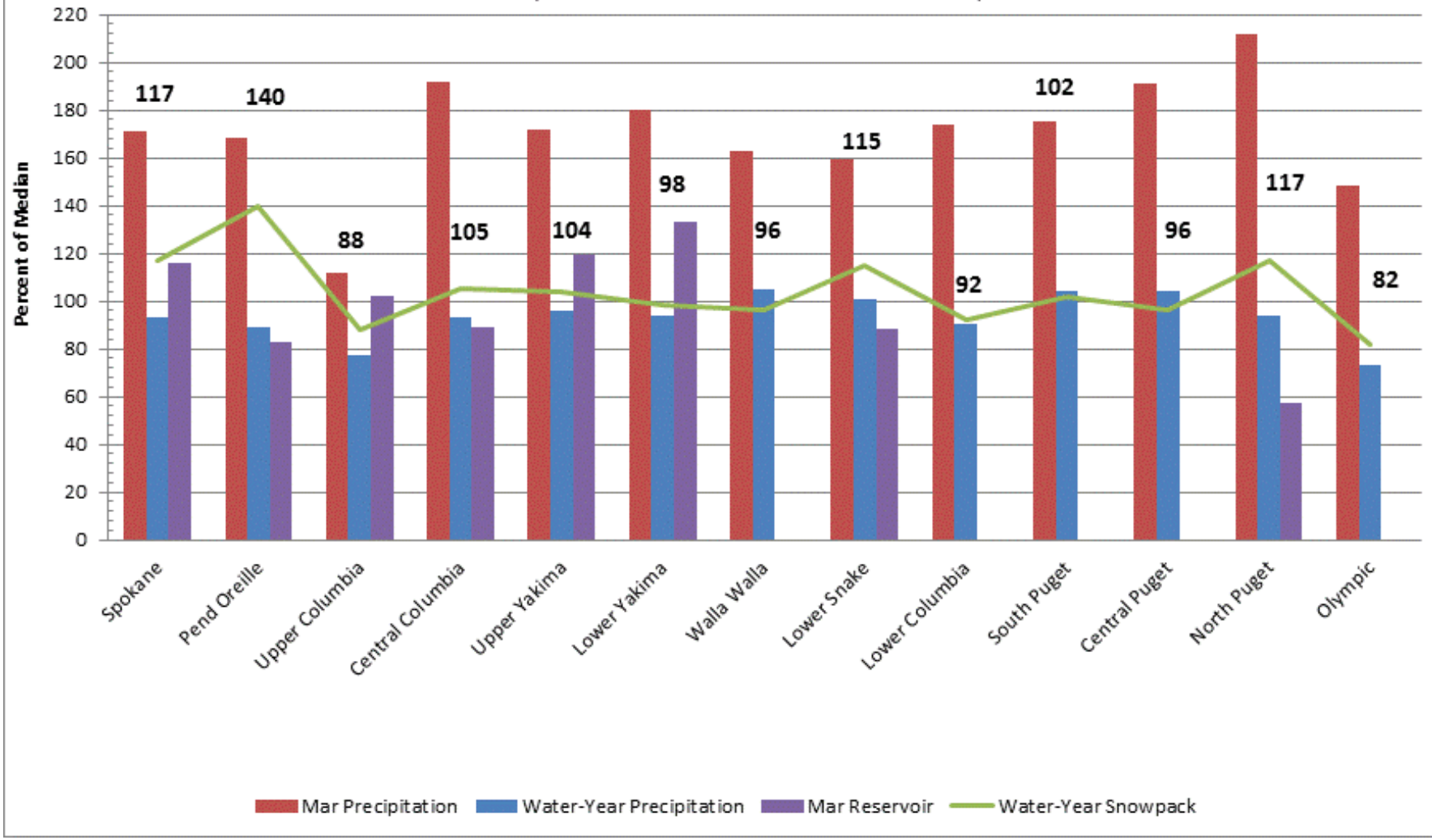
Washington:
http://www.wa.nrcs.usda.gov

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

NRCS Natural Resources Conservation Service

April 1, 2014 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2013 - 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 South Continental Area Committee is making plans for the 82nd Annual Western Snow Conference in 2014.

Mark your calendar and start thinking about submitting a paper to attend the 2014 Western Snow Conference:

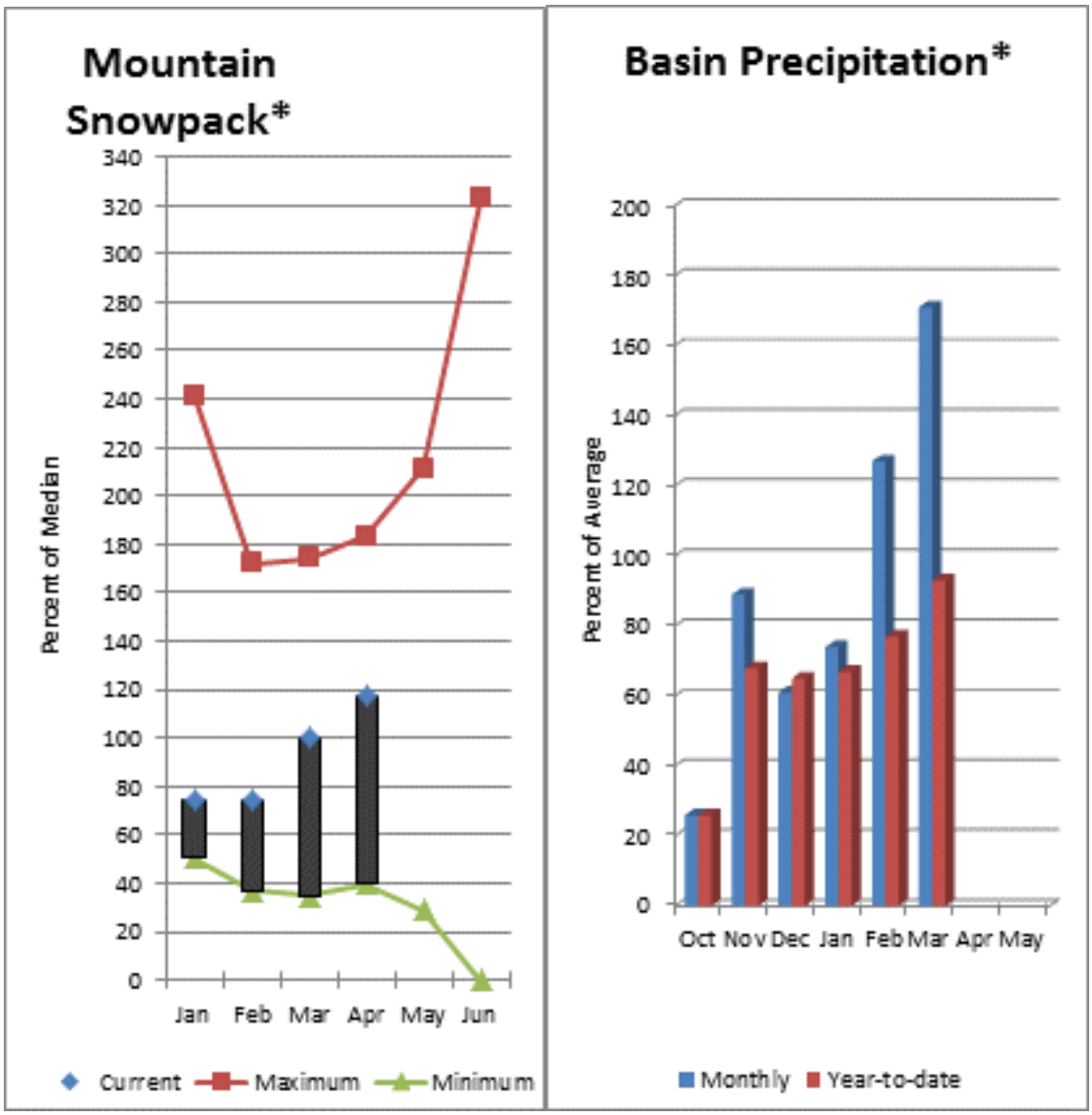
Dates: April 14-17, 2014
Location: Durango, Colorado

The Technical Tour is scheduled for Thursday, April 17th, to explore current research activities in the Durango/Silverton area led by personnel of the Center for Snow and Avalanche Studies in Silverton. One of their projects is the issue of dust on snow, changes in albedo, accelerated melt, and the subsequent impact on stream flow.

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 April 1 forecasts for summer runoff within the Spokane River Basin are 115% of average near Post Falls and 114% at Long Lake. The Chamokane River near Long Lake forecasted to have 83% of average flows for the May-August period. The forecast is based on a basin snowpack that is 117% of normal and precipitation that is 89% of average for the water year. Precipitation for March was above normal at 171% of average. Streamflow on the Spokane River at Spokane was 185% of average for March. April 1 storage in Coeur d'Alene Lake was 192,000 acre feet, 116% of average and 80% of capacity. Snowpack at Quartz Peak SNOTEL site was 96% of average with 18.1 inches of water content. Average temperatures in the Spokane basin were slightly above normal for March and 1-2 degrees below for the water year.

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

Streamflow Forecasts - April 1, 2014

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	2180	2510	2740	115	2970	3300	2390
	APR-SEP	2260	2610	2840	115	3070	3420	2480
Spokane R at Long Lake (2)	APR-JUL	2370	2730	2980	114	3230	3590	2620
	APR-SEP	2610	2990	3250	114	3510	3890	2850
Chamokane Ck nr Long Lake	MAY-AUG	4.0	6.2	7.7	83	9.2	11.4	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	191.6	138.1	165.5

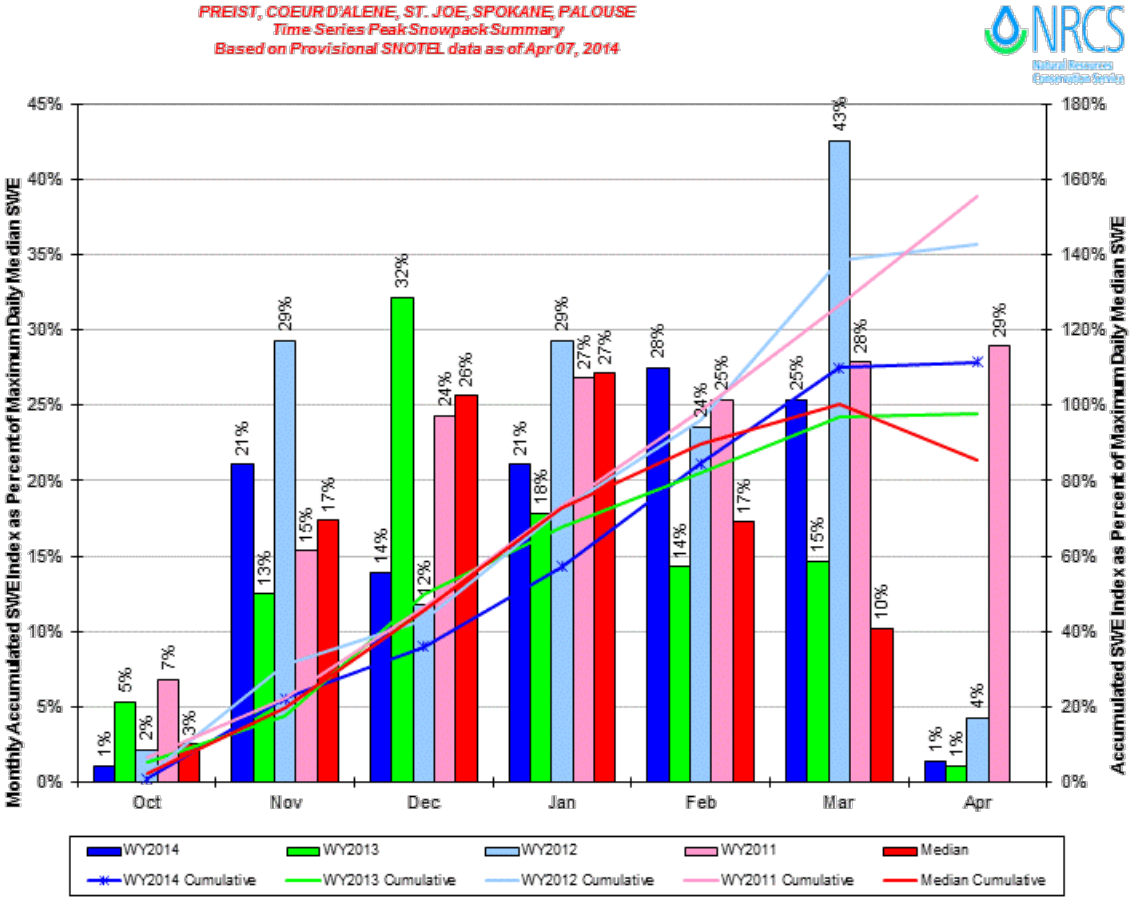
SPOKANE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2014

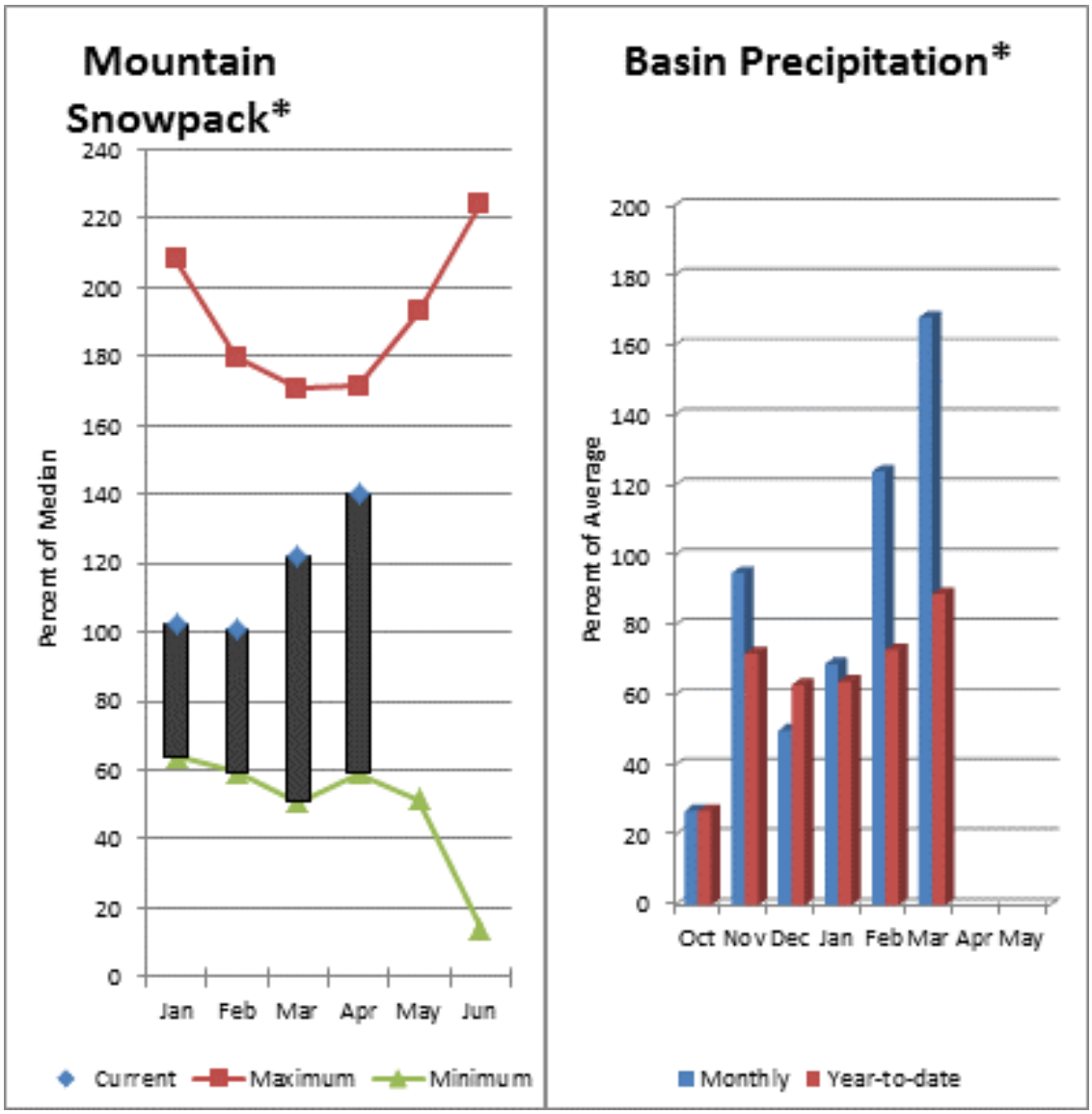
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SPOKANE RIVER	16	130	117
NEWMAN LAKE	2	90	92

* 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.





*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 86% and the Pend Orielle below Box Canyon is 133%. March streamflow was 133% of average on the Pend Oreille River and 97% on the Columbia Birchbank. April 1 snow cover was 140% of normal in the Pend Oreille River Basin. Bunchgrass Meadows SNOTEL site had 26.8 inches of snow water on the snow pillow. Normally Bunchgrass would have 26.2 inches on April 1. Precipitation during March was 168% of average, keeping the year-to-date precipitation at 89% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 83% of normal. Average temperatures were 1-2 degrees above normal 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, 2014

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	14100	15100	15800	134	16500	17500	11800
	APR-SEP	15100	16300	17100	134	17900	19100	12800
Priest R nr Priest River (1,2)	APR-JUL	510	625	675	87	725	840	780
	APR-SEP	530	660	715	86	770	900	830
Pend Oreille R bl Box Canyon (2)	APR-JUL	14200	15300	16000	134	16700	17800	11900
	APR-SEP	15300	16500	17300	133	18100	19300	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.	632.2	888.0	773.0
Priest Lake Nr Coolin	119.3	65.6	62.7	67.6

PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
COLVILLE RIVER	3	77	74
PEND OREILLE RIVER	80	150	140
KETTLE RIVER	3	86	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.

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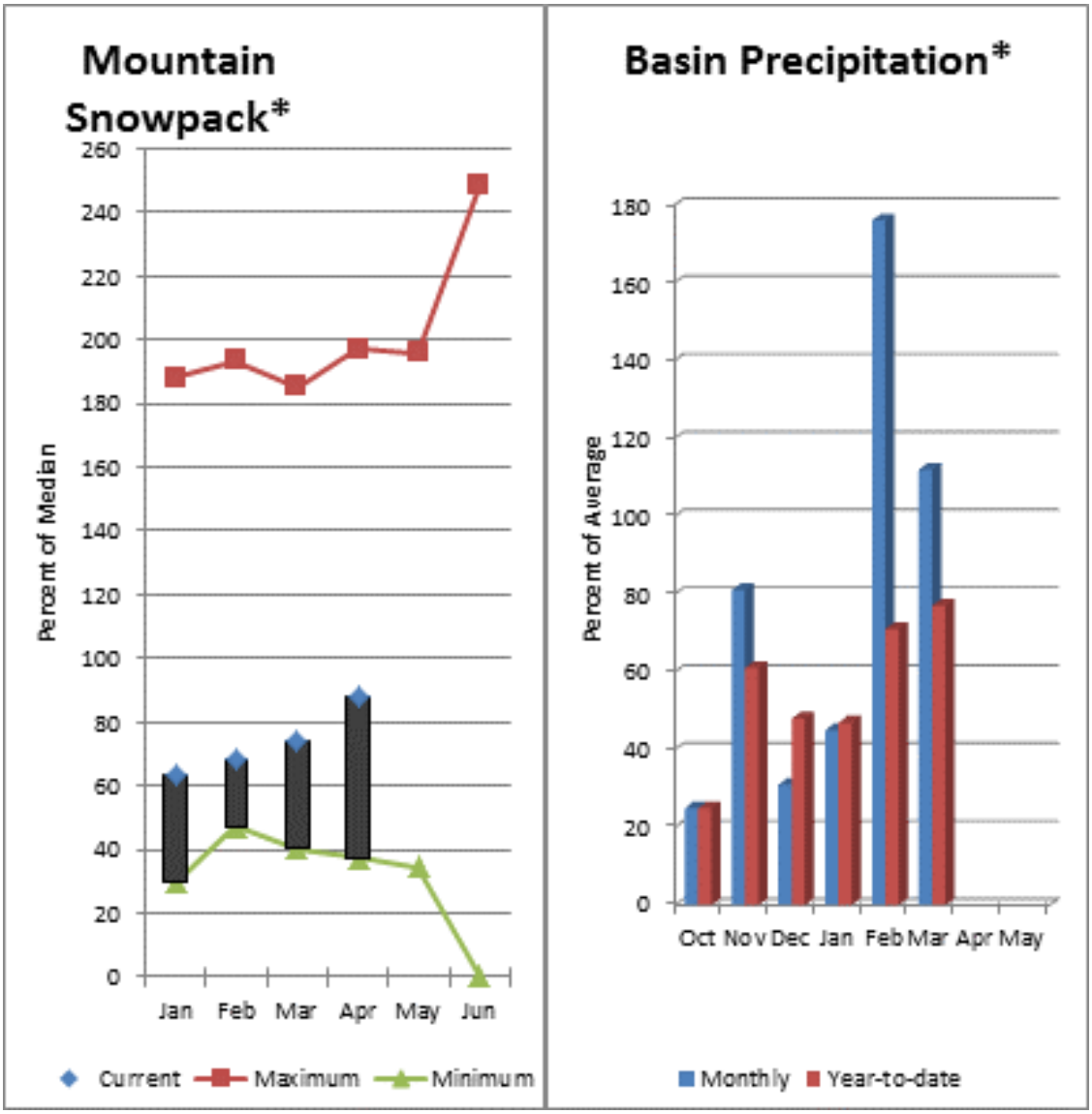
(2) - The value is natural volume - actual volume may be affected by upstream water management.



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 135%, Similkameen River is 116%, Kettle River 95% and Methow River is 83%. April 1 snow cover on the Okanogan was 98% of normal, Omak Creek was 64% and the Methow was 111%. March precipitation in the Upper Columbia was 112% of average, with precipitation for the water year at 77% of average. March streamflow for the Methow River was 75% of average, 135% for the Okanogan River and 111% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 6.6 inches. Average for this site is 9.1 inches on April 1. Combined storage in the Conconully Reservoirs was 102% of normal and 89% of capacity. Temperatures were 1-2 degrees below normal for March and 1-3 below for the water year.

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

Streamflow Forecasts - April 1, 2014

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	32	68	93	78	118	154	119
	APR-SEP	35	75	102	78	129	169	131
Kettle R nr Laurier	APR-JUL	1390	1570	1700	94	1830	2010	1800
	APR-SEP	1440	1640	1780	95	1920	2120	1880
Columbia R at Birchbank (1,2)	APR-JUL	30700	33600	34900	103	36200	39100	33840
	APR-SEP	37600	41300	43000	103	44700	48400	41750
Columbia R at Grand Coulee (2)	APR-JUL	47900	52900	55100	108	57300	62300	51015
	APR-SEP	56400	62200	64900	108	67600	73400	60110
Similkameen R nr Nighthawk (1)	APR-JUL	1120	1300	1380	115	1460	1640	1200
	APR-SEP	1210	1400	1480	116	1560	1750	1280
Okanogan R nr Tonasket (1)	APR-JUL	1490	1770	1900	128	2030	2310	1480
	APR-SEP	1650	1970	2120	128	2270	2590	1650
Okanogan R at Malott (1)	APR-JUL	1550	1830	1960	135	2090	2370	1450
	APR-SEP	1710	2030	2180	135	2330	2650	1620
Methow R nr Pateros	APR-JUL	545	630	685	82	740	825	835
	APR-SEP	590	680	740	83	800	890	895

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Conconully Lake (salmon Lake Dam)	0.0	9.3	8.6	7.3
Conconully Reservoir	13.0	11.6	10.0	7.8

UPPER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
OKANOGAN RIVER	5	88	98
OMAK CREEK	3	45	64
SANPOIL RIVER	0		
SIMILKAMEEN RIVER	0		
TOATS COULEE CREEK	4	65	86
CONCONULLY LAKE	3	48	56
METHOW RIVER	7	96	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.

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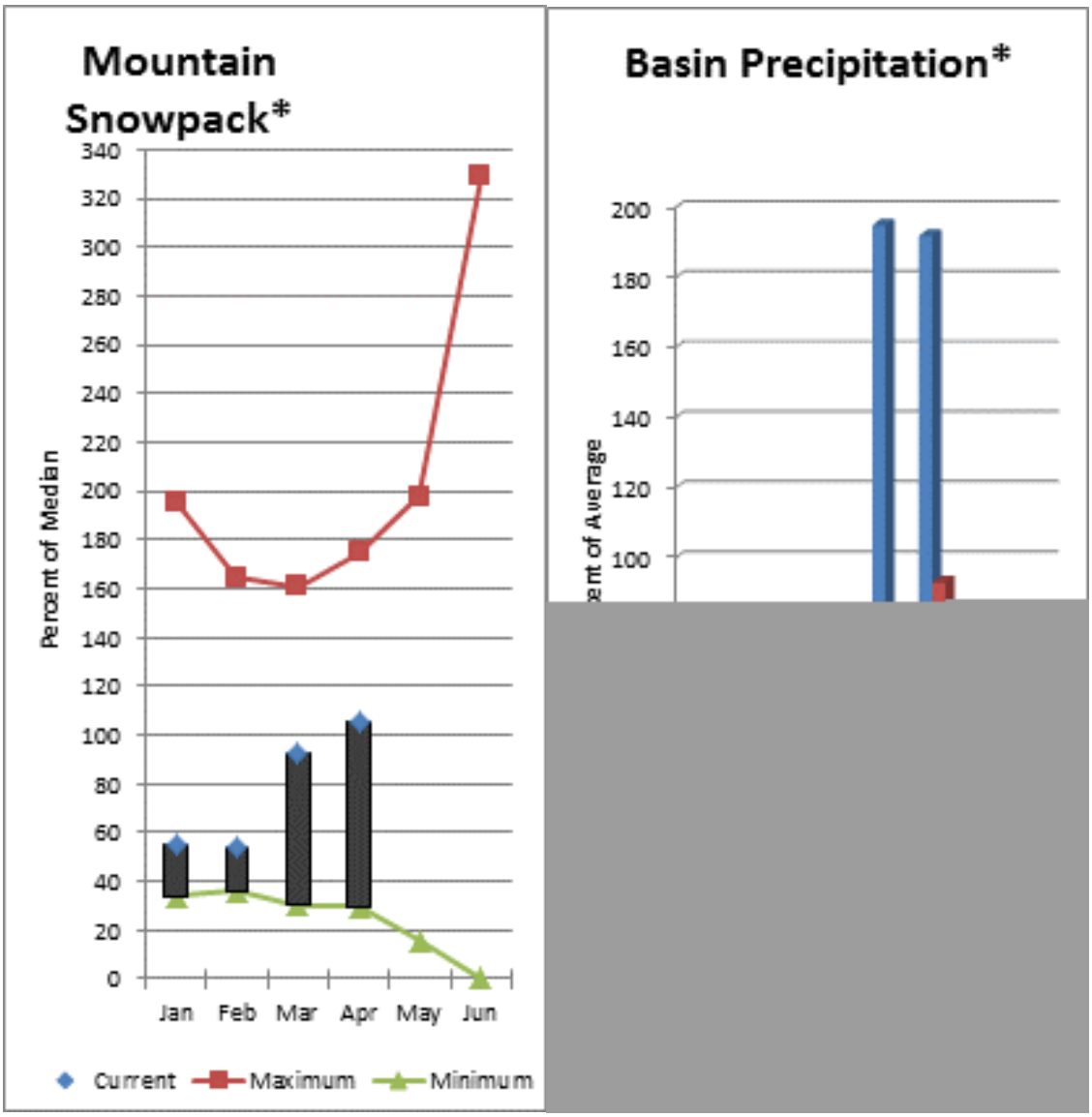

*Based on selected stations

Precipitation during March was 192% of average in the basin and 93% for the water-year-to-date. Runoff for Entiat River is forecast to be 95% of average for 105%, Stehekin River is 102% and Icicle Creek is 103%. March average streamflows on the Chelan River were 112% and on the Wenatchee River 142%. April 1 snowpack in the Wenatchee River Basin was 102% of normal; the Chelan, 109%; the Entiat, 100%; Stemilt Creek, 98% and Colockum Creek, 118%. Reservoir storage in Lake Chelan was 89% of average and 34% of capacity. Lyman Lake SNOTEL had the most snow water with 59.8 inches of water. This site would normally have 57.6 inches on April 1. Temperatures were near normal 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, 2014

Forecast Point	Forecast Period	<<====== Drier ====== 90% (1000AF)	70% (1000AF)	Future Conditions 50% (1000AF)	50% (% AVG.)	======= Wetter =====>> 30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Stehekin R at Stehekin	APR-JUL	585	650	690	101	730	795	680
	APR-SEP	705	765	805	102	845	905	790
Chelan R at Chelan (2)	APR-JUL	905	960	995	100	1030	1090	1000
	APR-SEP	1020	1070	1110	99	1150	1200	1120
Entiat R nr Ardenvoir	APR-JUL	170	185	195	98	205	220	200
	APR-SEP	184	199	210	95	220	235	220
Wenatchee R at Plain	APR-JUL	920	985	1030	104	1080	1140	990
	APR-SEP	1010	1080	1130	105	1180	1250	1080
Icicle Ck nr Leavenworth	APR-JUL	250	270	285	104	300	320	275
	APR-SEP	270	295	310	103	325	350	300
Wenatchee R at Peshastin	APR-JUL	1270	1360	1420	104	1480	1570	1370
	APR-SEP	1390	1480	1550	104	1620	1710	1490
Columbia R bl Rock Island Dam (2)	APR-JUL	52900	56600	59100	106	61600	65300	55770
	APR-SEP	63100	67500	70400	108	73300	77700	65200

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Lake Chelan	676.1	227.6		256.1

CENTRAL COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CHELAN LAKE BASIN	3	112	109
ENTIAT RIVER	1	118	100
WENATCHEE RIVER	7	116	103
STEMILT CREEK	1	130	84
COLOCKUM CREEK	1	118	118

* 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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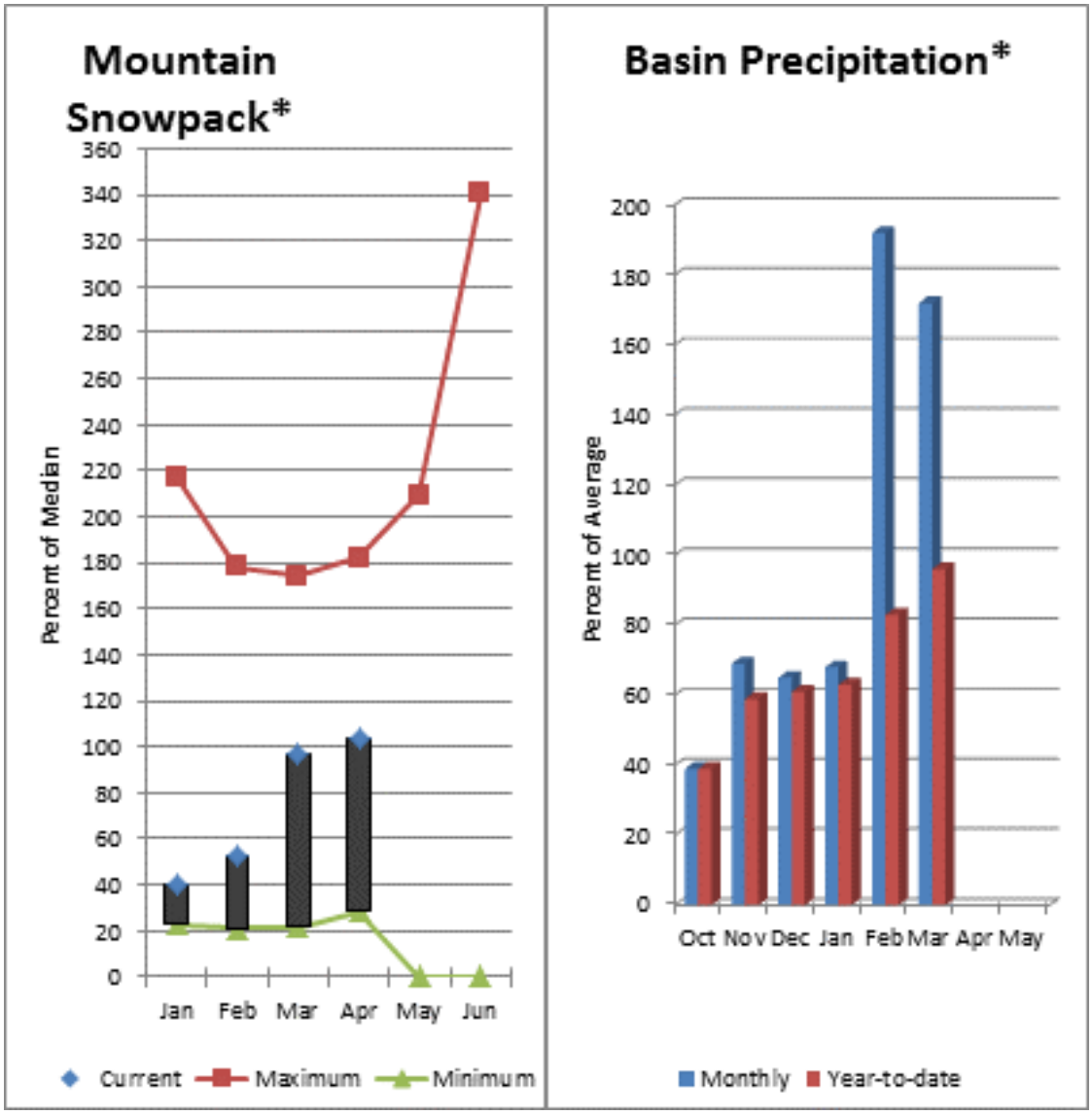

*Based on selected stations

April 1 reservoir storage for the Upper Yakima reservoirs was 610,000-acre feet, 119% of average. Forecasts for the Yakima River at Cle Elum are 96% of average and the Teanaway River near Cle Elum is at 110%. Lake inflows are all forecasted to be near average this summer as well. March streamflows within the basin were Cle Elum River near Roslyn at 168%. April 1 snowpack was 104% based upon 10 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 172% of average for March and 96% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Streamflow Forecasts - April 1, 2014

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	94	105	113	97	121	132	116
	APR-SEP	103	115	123	98	131	143	126
Kachess Reservoir Inflow (2)	APR-JUL	87	96	102	98	108	117	104
	APR-SEP	94	103	109	96	115	124	113
Cle Elum Lake Inflow (2)	APR-JUL	340	360	375	97	390	410	385
	APR-SEP	360	385	405	98	425	450	415
Yakima R at Cle Elum (2)	APR-JUL	605	675	725	96	775	845	755
	APR-SEP	650	735	795	96	855	940	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	114	131	143	110	155	172	130
	APR-SEP	117	134	146	110	158	175	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	137.3	117.4	106.3
Kachess	239.0	218.6	198.5	159.8
Cle Elum	436.9	254.4	308.4	246.3

UPPER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Median
UPPER YAKIMA RIVER	8	115	103

* 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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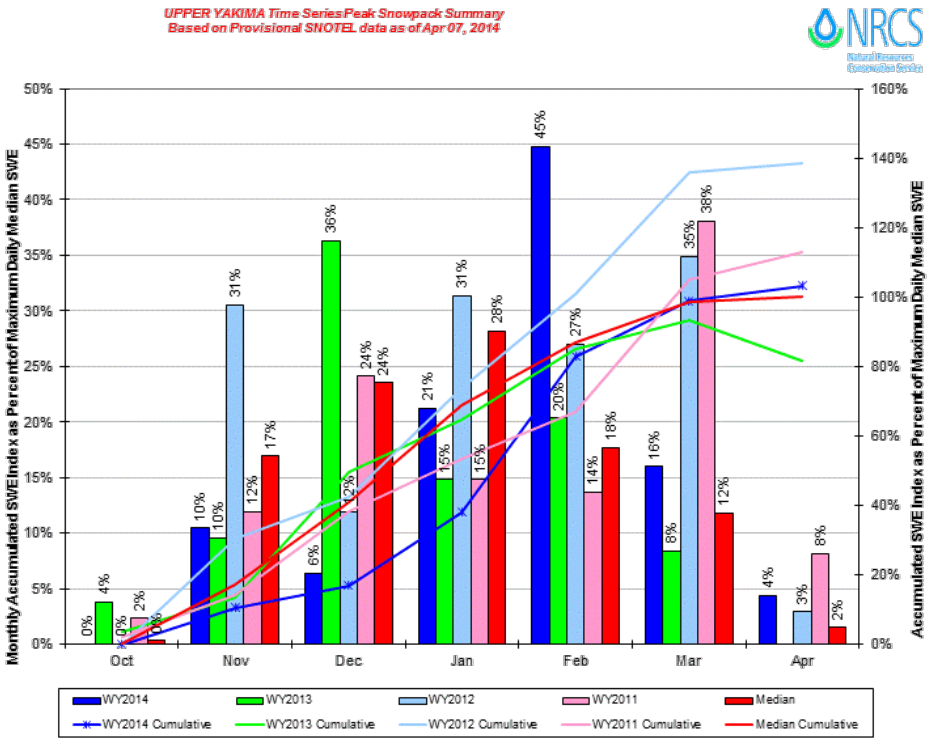

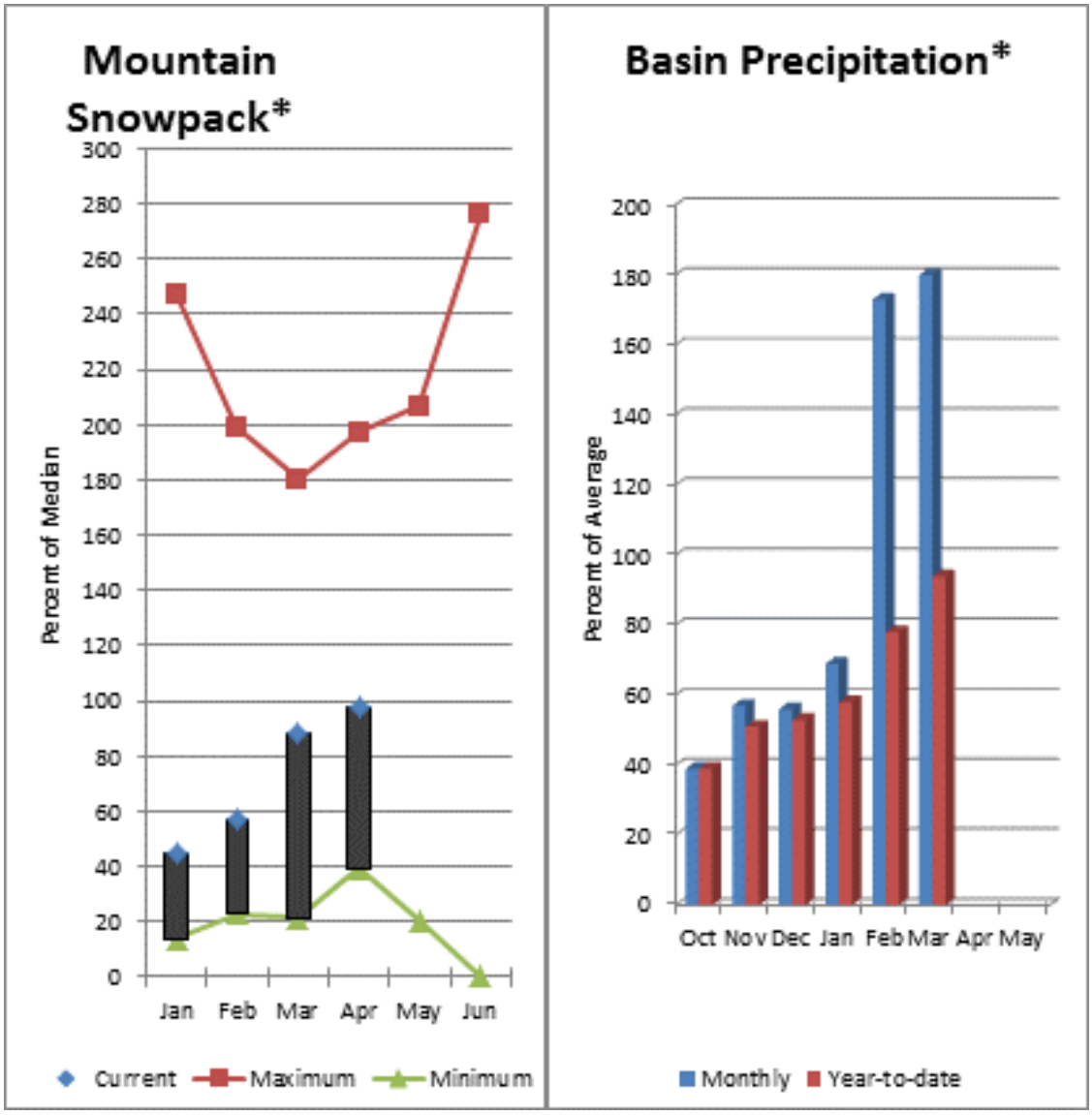

*Based on selected stations

March average streamflows within the basin were: Yakima River near Parker, 163%; Naches River near Naches, 218%; and Yakima River at Kiona, 132%. April 1 reservoir storage for Bumping and Rimrock reservoirs was 201,000-acre feet, 133% of average. Forecast averages for Yakima River near Parker are 102%; American River near Nile, 97%; Ahtanum Creek, 97%; and Klickitat River near Glenwood, 101%. April 1 snowpack was 98% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 80% of normal. Precipitation was 180% of average for March and 94% year-to-date for water. Temperatures were near normal for March and for 1-2 degrees below normal for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Streamflow Forecasts - April 1, 2014

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	106	117	124	109	131	142	114
	APR-SEP	116	127	135	110	143	154	123
American R nr Nile	APR-JUL	85	93	99	97	105	113	102
	APR-SEP	93	101	107	97	113	121	110
Rimrock Lake Inflow (2)	APR-JUL	175	188	197	105	205	220	187
	APR-SEP	205	220	230	105	240	255	220
Naches R nr Naches (2)	APR-JUL	620	675	715	102	755	810	700
	APR-SEP	670	735	775	102	815	880	760
Ahtanum Ck at Union Gap	APR-JUL	18.7	23	26	96	29	33	27
	APR-SEP	21	25	28	97	31	35	29
Yakima R nr Parker (2)	APR-JUL	1480	1610	1690	102	1770	1900	1660
	APR-SEP	1630	1760	1850	102	1940	2070	1820
Klickitat R nr Glenwood	APR-JUL	107	119	127	101	135	147	126
	APR-SEP	117	131	140	101	149	163	139
Klickitat R nr Pitt	APR-JUL	380	425	460	106	495	540	435
	APR-SEP	460	515	555	107	595	650	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	20.0	11.5	14.6
Rimrock	198.0	181.4	154.4	136.6

LOWER YAKIMA RIVER BASIN
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LOWER YAKIMA RIVER	7	103	98
AHTANUM CREEK	2	85	80

* 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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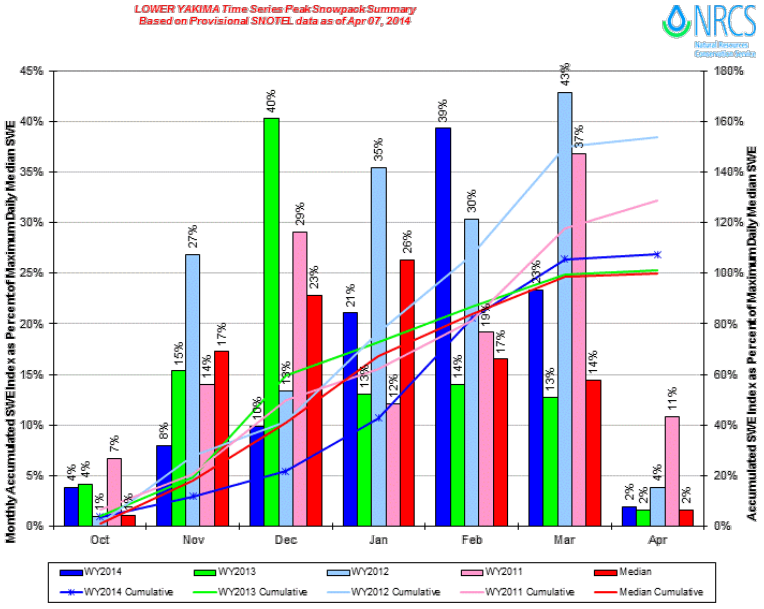

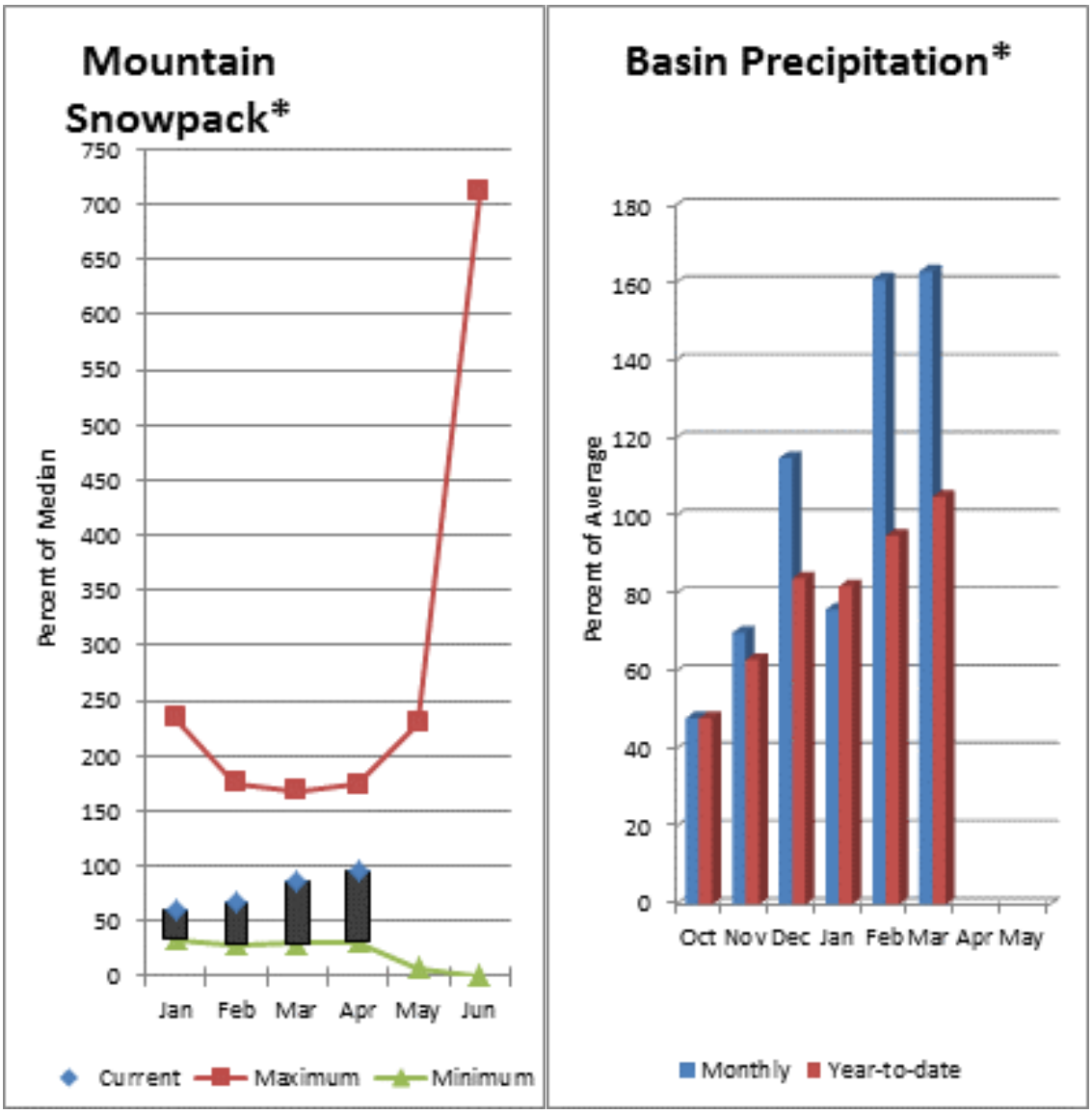

*Based on selected stations

March precipitation was 163% of average, maintaining the year-to-date precipitation at 105% of average. Snowpack in the basin was 96% of normal. Streamflow forecasts are average runoff for both Mill Creek and SF Walla Walla River near Milton-Freewater. Average temperatures were 1-2 degrees above normal for March and 1-3 below normal for the water year.

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

Streamflow Forecasts - April 1, 2014

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	44	50	54	100	58	64	54
	APR-SEP	54	61	66	100	71	78	66
Mill Ck nr Walla Walla	APR-JUL	17.4	21	23	96	25	29	24
	APR-SEP	21	25	27	100	29	33	27

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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WALLA WALLA RIVER	2	110	96

* 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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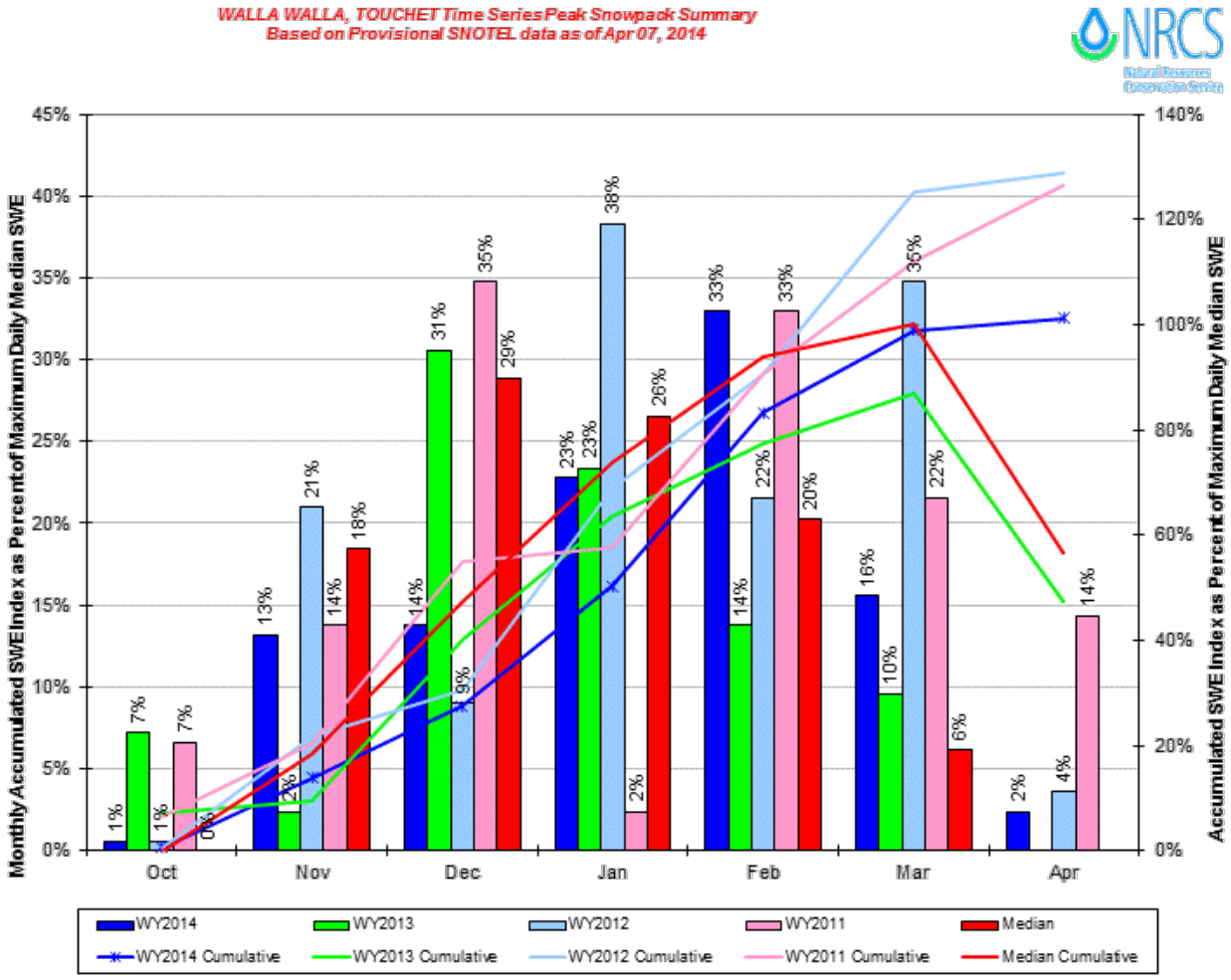

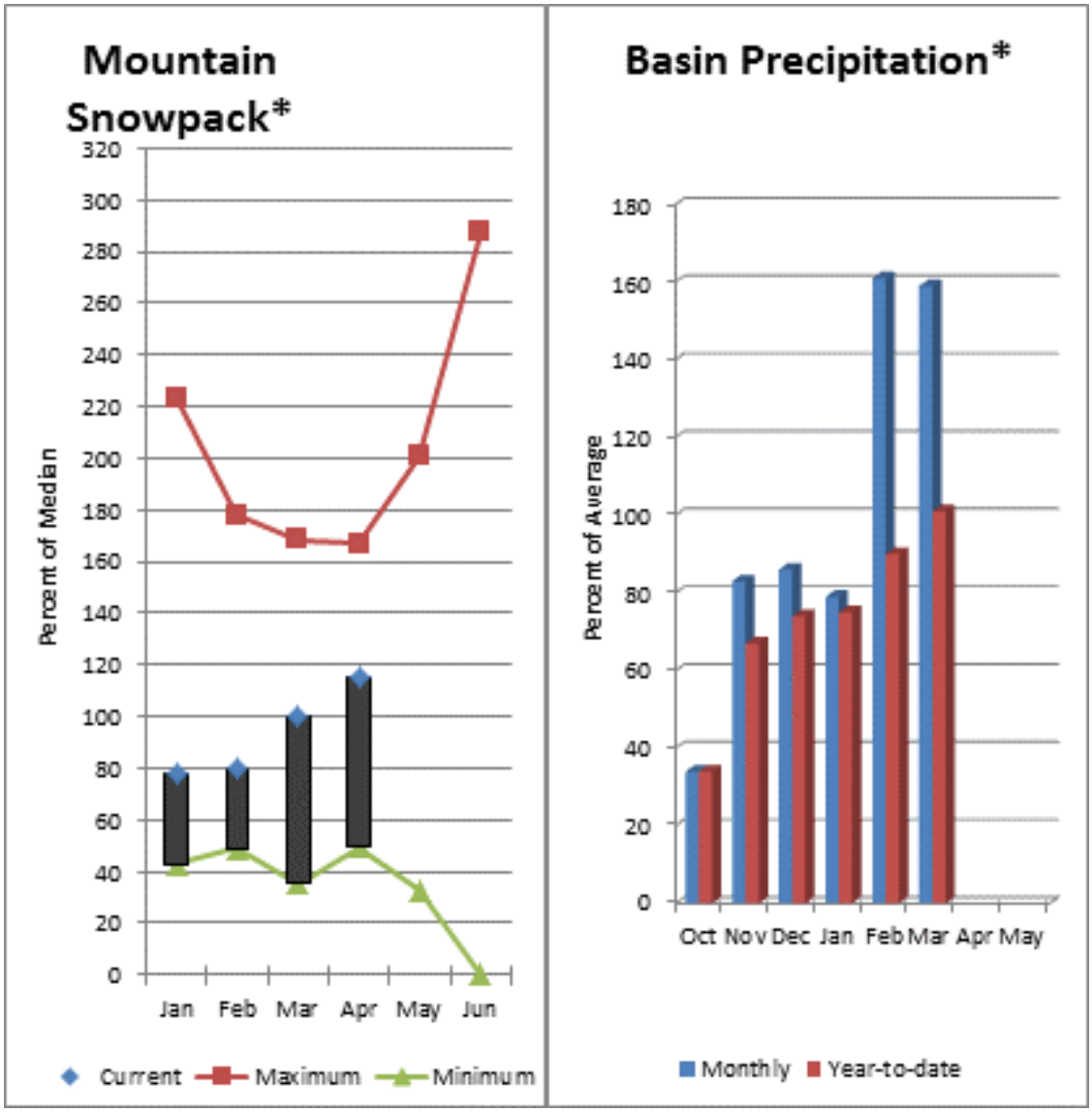

*Based on selected stations

The Grande Ronde River can expect summer flows to be about 102% of normal. The forecast for Asotin Creek at Asotin predicts 103% of average flows for the April – July runoff period. March precipitation was 159% of average, bringing the year-to-date precipitation to 101% of average. April 1 snowpack readings averaged 115% of normal. March streamflow was 128% of average for Snake River below Lower Granite Dam and 202% for Grande Ronde River near Troy. Dworshak Reservoir storage was 88% of average. Average temperatures were 1-2 degrees above normal for March and 2-3 degrees below for the water year.

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

Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>>					30-Yr Avg. (1000AF)
		Chance Of Exceeding *					
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Grande Ronde R at Troy (1)	APR-JUL	855	1120	1240	102	1360	1630	1220
	APR-SEP	935	1210	1330	102	1450	1730	1310
Asotin Ck at Asotin	APR-JUL	23	31	36	103	41	49	35
Clearwater R at Spalding (1,2)	APR-JUL	7600	8760	9280	135	9800	11000	6890
	APR-SEP	7960	9180	9730	134	10300	11500	7270
Snake R bl Lower Granite Dam (1,2)	APR-JUL	17300	20700	22200	112	23700	27100	19848
	APR-SEP	19500	23300	25000	112	26700	30500	22280

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.	2124.	2807.	2417.

LOWER SNAKE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of: Last Yr	Median
LOWER SNAKE, GRANDE RON	11	147	117

* 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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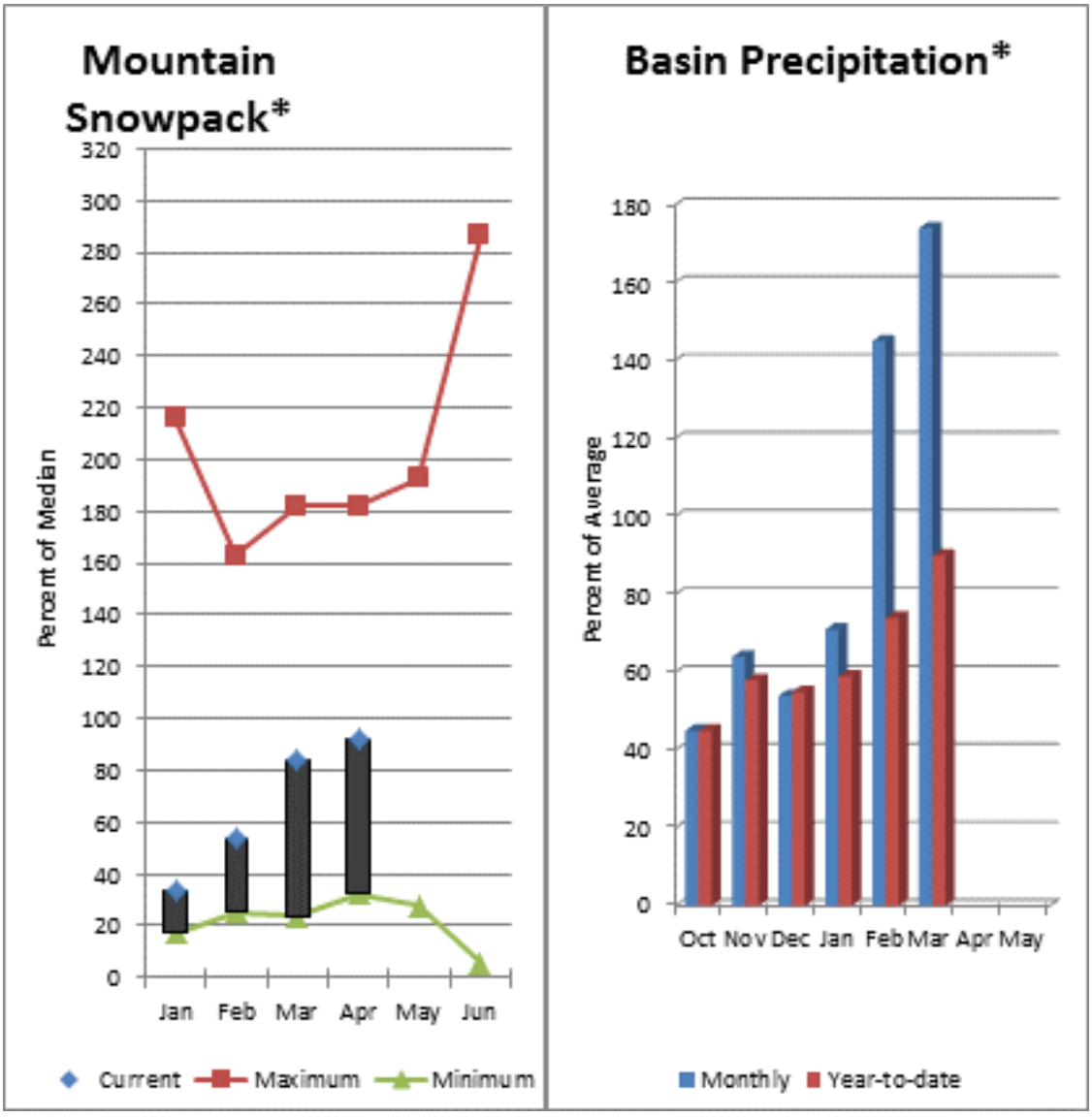


*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 87% and Cowlitz River at Castle Rock, 98% of average. The Columbia at The Dalles is forecasted to have 93% of average flows this summer according to the River Forecast Center. March average streamflow for Cowlitz River was 208%. The Columbia River at The Dalles was 126% of average. March precipitation was 174% of average and the water-year average was 90%. April 1 snow cover for Cowlitz River was 114%, and Lewis River was 71% of normal. Temperatures were 1-2 degrees below normal during March and 2-4 below normal for the water year.

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

Streamflow Forecasts - April 1, 2014

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	74700	80100	83800	105	87500	92900	79855
	APR-SEP	88500	94900	99200	107	104000	110000	92704
Klickitat R nr Glenwood	APR-JUL	107	119	127	101	135	147	126
	APR-SEP	117	131	140	101	149	163	139
Klickitat R nr Pitt	APR-JUL	380	425	460	106	495	540	435
	APR-SEP	460	515	555	107	595	650	520
Lewis R at Ariel (2)	APR-JUL	590	755	865	89	975	1140	970
	APR-SEP	680	855	970	87	1090	1260	1120
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1040	1290	1460	90	1630	1880	1620
	APR-SEP	1280	1580	1780	97	1980	2280	1840
Cowlitz R at Castle Rock (2)	APR-JUL	1620	1900	2090	94	2280	2560	2230
	APR-SEP	1970	2270	2480	98	2690	2990	2520

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Swift	0.0			644.2
Yale	0.0	167.8	186.5	
Merwin	0.0			399.5
Mossyrock Dam (riffe Lk)	0.0			1270.

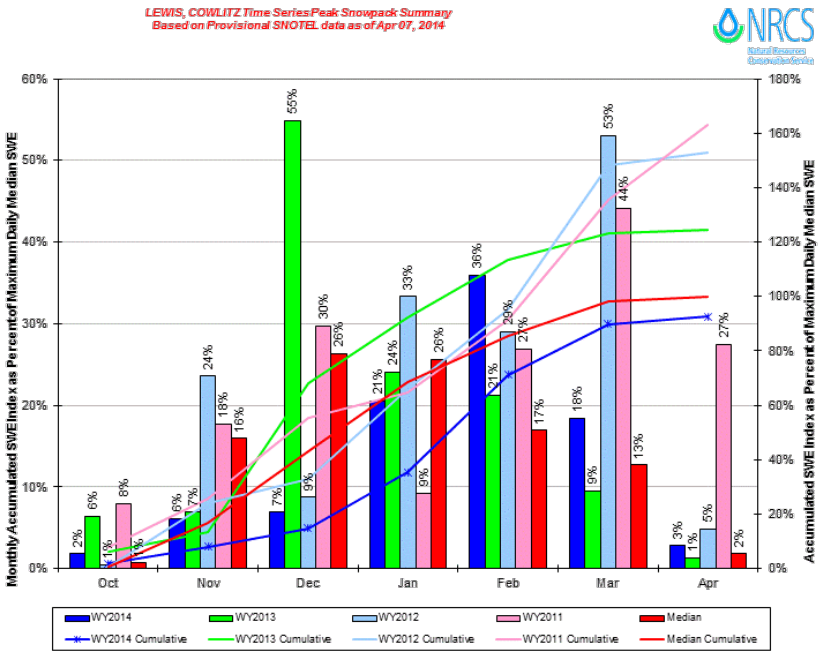
LOWER COLUMBIA RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

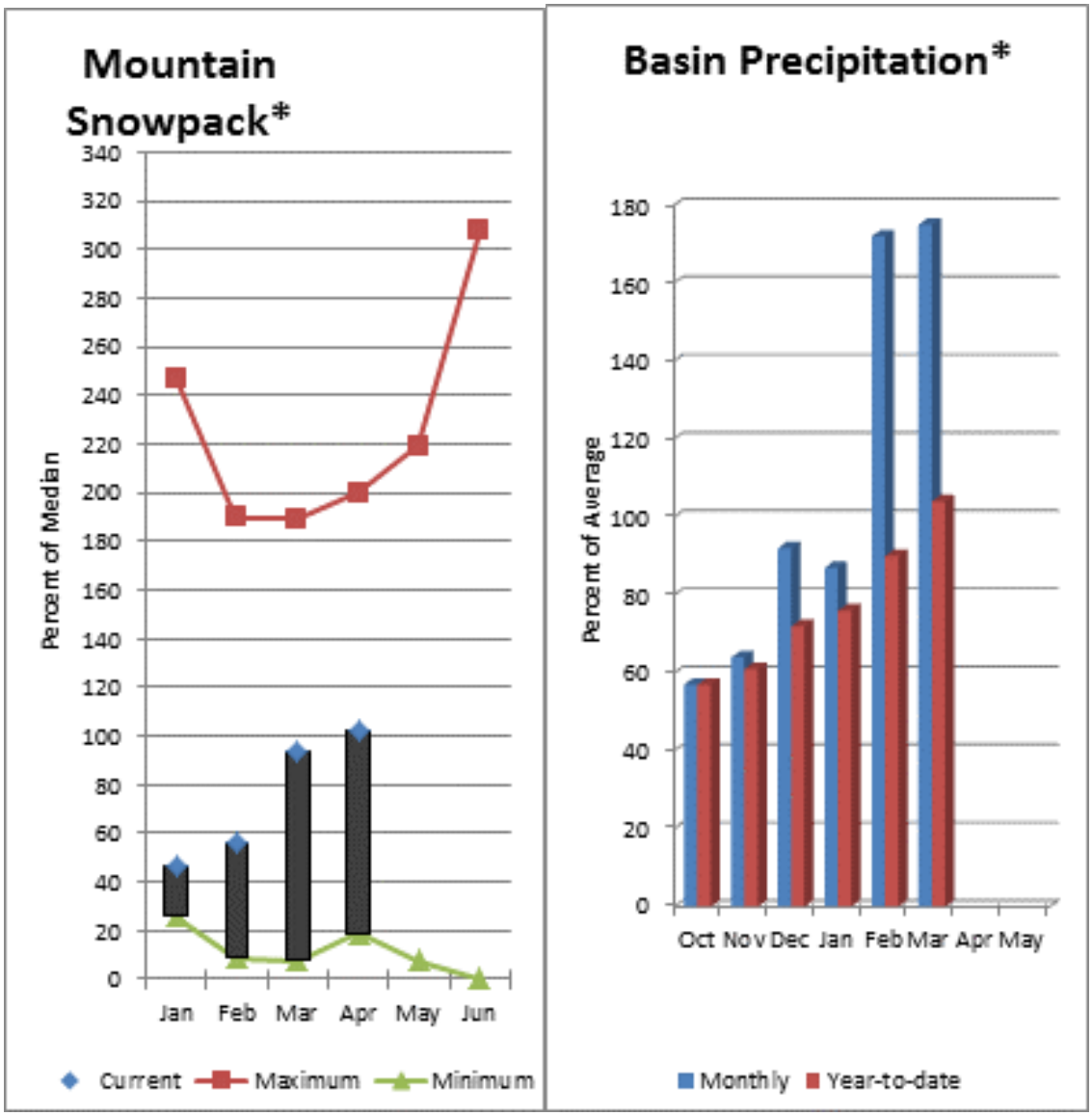
Watershed	Number of Data Sites	This Year as % of Last Yr	Median
LEWIS RIVER	4	58	72
COWLITZ RIVER	6	94	114

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

The average is computed for the 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.





*Based on selected stations

Summer runoff is forecast to be 85% of normal for the Green River below Howard Hanson Dam and 109% for the White River near Buckley. April 1 snowpack was 115% of average for the White River, 112% for Puyallup River and 78% in the Green River Basin. March precipitation was 175% of average, bringing the water year-to-date to 104% of average for the basins. Average temperatures in the area were 1-2 degrees below normal for March and 1-2 below average for the water-year.

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

Streamflow Forecasts - April 1, 2014

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	360	430	465	108	500	570	430
	APR-SEP	435	520	560	109	600	685	515
Green R bl Howard Hanson Dam (1,2)	APR-JUL	123	172	194	83	215	265	235
	APR-SEP	144	196	220	85	245	295	260

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

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

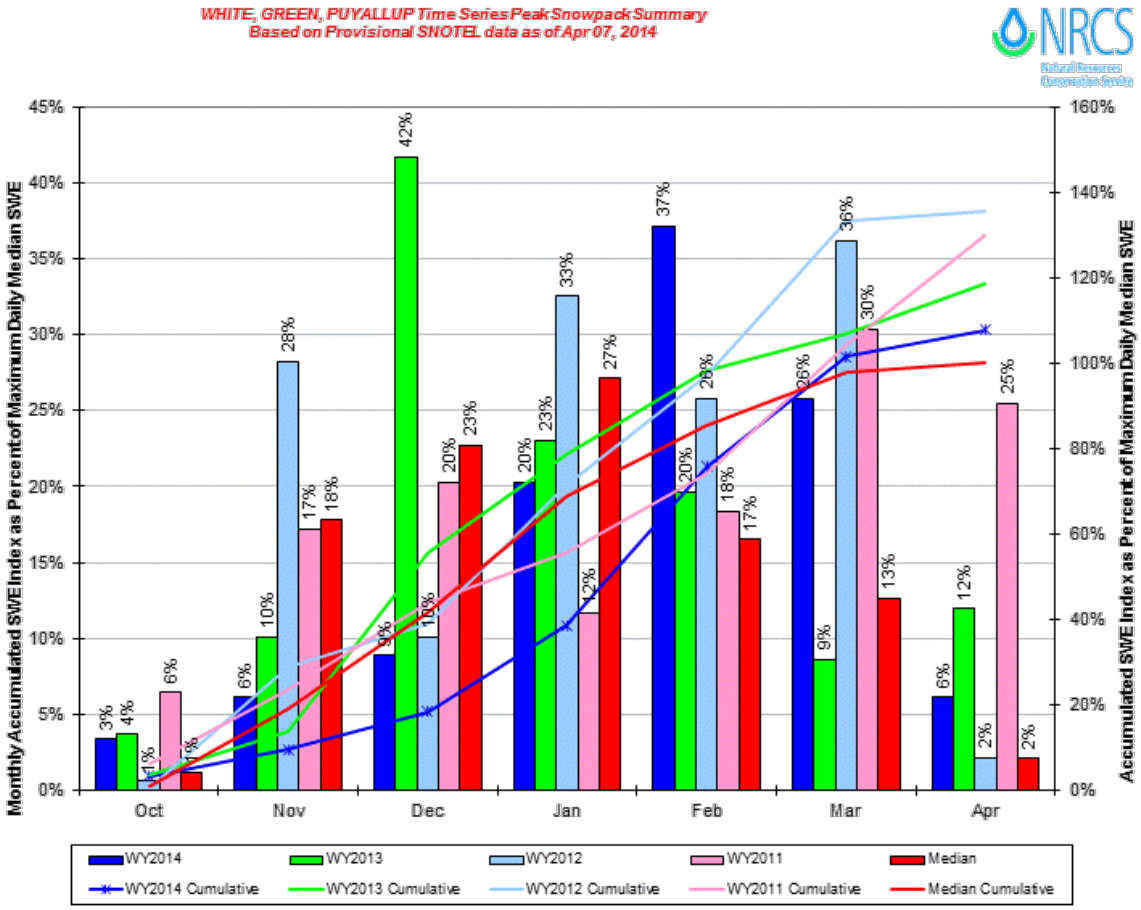
SOUTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
WHITE RIVER	2	104	105
GREEN RIVER	3	71	87
PUYALLUP RIVER	3	99	105

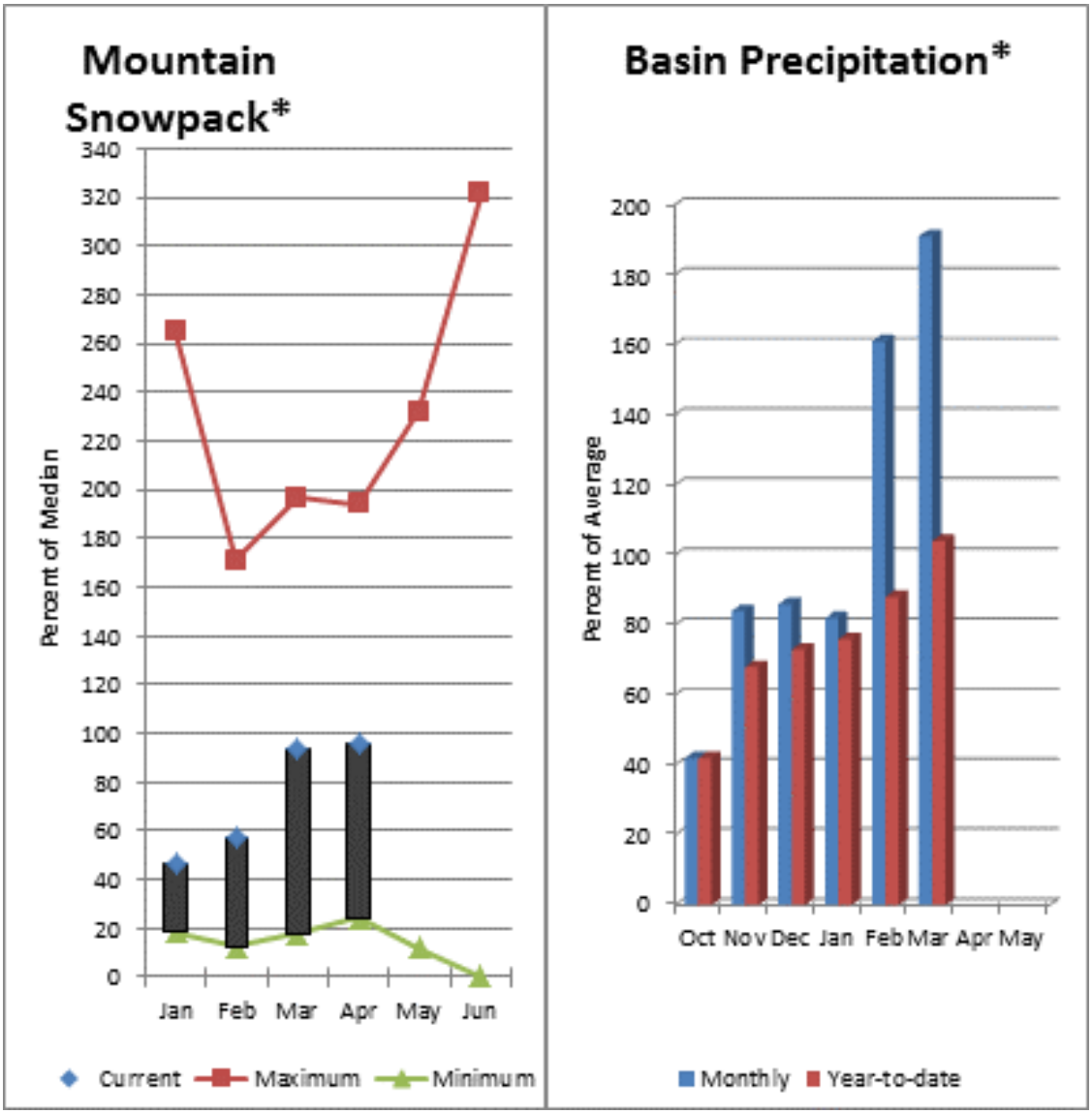
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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: 108% for Cedar River near Cedar Falls; 104% for Rex River; 122% for South Fork of the Tolt River; and 100% for Taylor Creek near Selleck. Basin-wide precipitation for March was 191% of average, bringing water-year-to-date to 104% of average. April 1 median snow cover in Cedar River Basin was 91%, Tolt River Basin was 100%, Snoqualmie River Basin was 99%, and Skykomish River Basin was 94%. Temperatures were 1-2 degrees below normal for March and for the water-year.

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

Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<====== Drier ====== 90% (1000AF)	70% (1000AF)	Future Conditions 50% (1000AF)	50% (% AVG.)	======= Wetter =====>> 30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Cedar R nr Cedar Falls	APR-JUL	61	69	75	107	81	89	70
	APR-SEP	67	76	82	108	88	97	76
Rex R nr Cedar Falls	APR-JUL	19.5	23	26	108	29	32	24
	APR-SEP	21	25	28	104	31	35	27
Taylor Creek nr Selleck	APR-JUL	16.8	19.3	21	105	23	25	20
	APR-SEP	19.3	22	24	100	26	29	24
SF Tolt R nr Index	APR-JUL	13.9	16.0	17.4	123	18.8	21	14.2
	APR-SEP	15.5	18.0	19.7	122	21	24	16.1

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

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

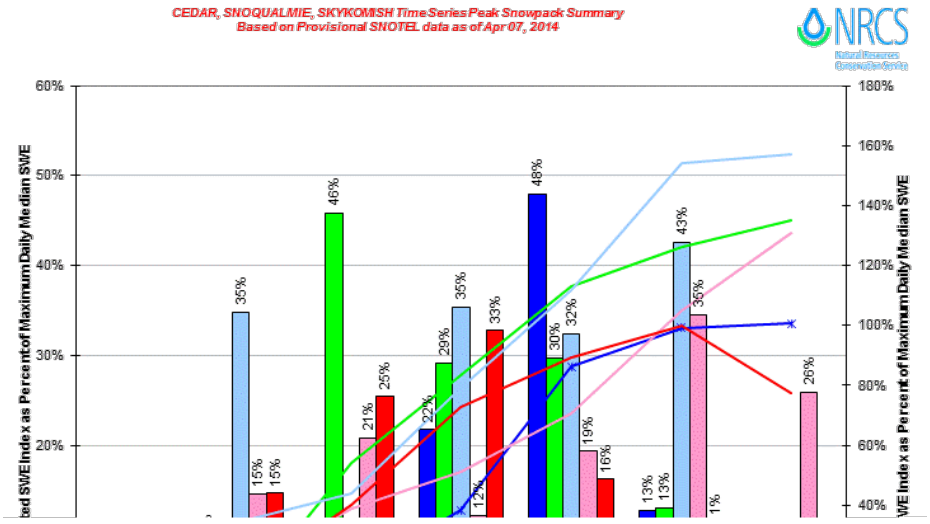
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

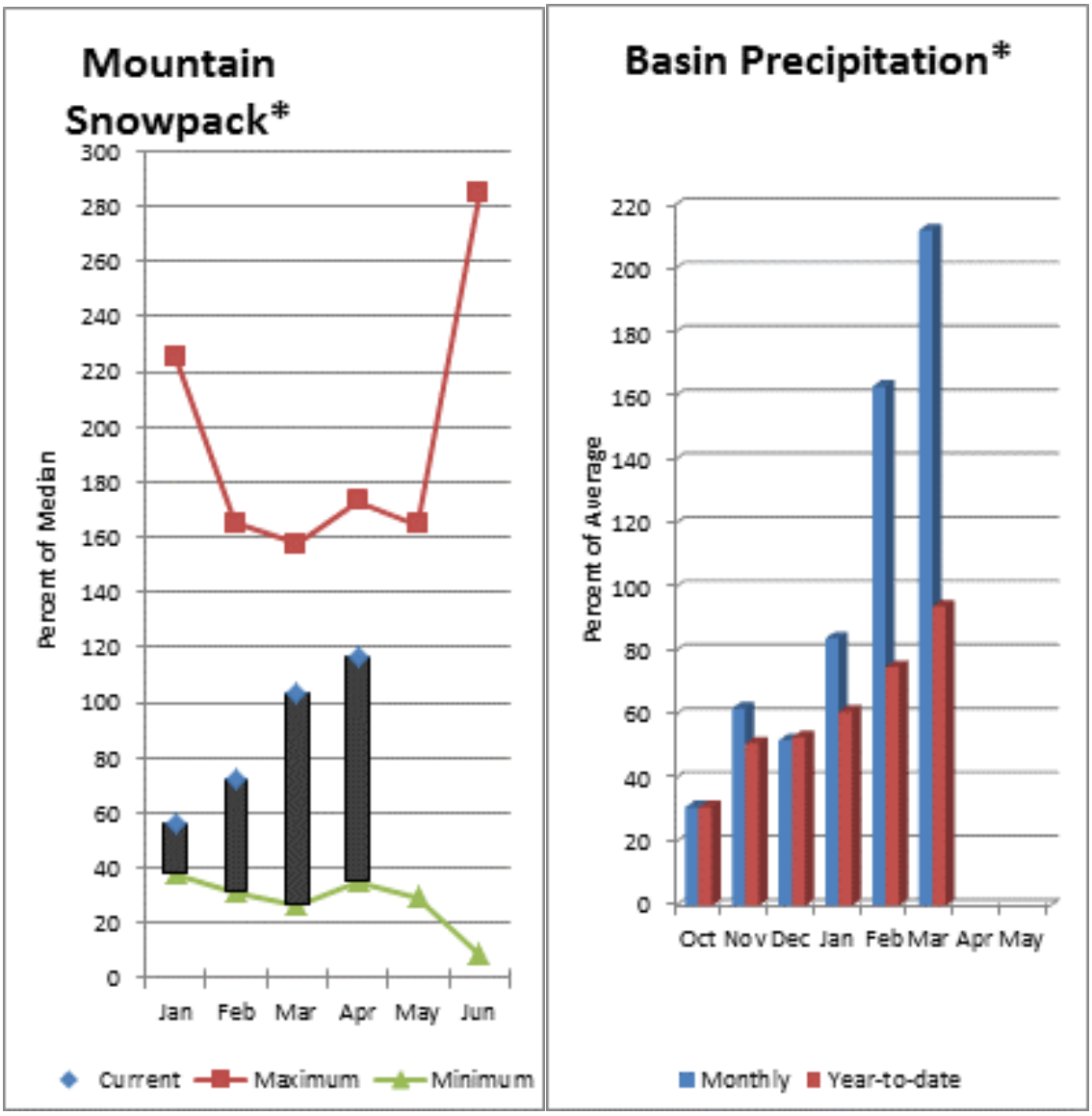
CENTRAL PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of March

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

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
CEDAR RIVER	6	70	91
TOLT RIVER	3	64	100
SNOQUALMIE RIVER	5	76	99
SKYKOMISH RIVER	3	72	94





*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 116% of average for the spring and summer period. March streamflow in Skagit River was 185% of average. Other forecast points included Baker River at 110% and Thunder Creek at 104% of average. Basin-wide precipitation for March was 212% of average, bringing water-year-to-date to 94% of average. April 1 average snow cover in Skagit River Basin was 121%, Nooksack River Basin was 117% and the Baker River was 112%. April 1 Skagit River reservoir storage was 57% of average and 30% of capacity in anticipation of a strong runoff season. Average temperatures were 1-2 degrees below normal for March and 1-2 below for the water year.

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

Streamflow Forecasts - April 1, 2014

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	225	240	102	255	270	235
	APR-SEP	305	325	340	103	355	375	330
Skagit R at Newhalem	APR-JUL	1830	1940	2010	120	2080	2190	1680
	APR-SEP	2150	2280	2360	116	2440	2570	2030
Baker R nr Concrete (2)	APR-JUL	700	785	840	108	895	980	780
	APR-SEP	865	995	1080	110	1170	1290	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.	417.5	211.5	730.5
Diablo Reservoir	90.6			86.0

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
SKAGIT RIVER	12	110	120
BAKER RIVER	0		
NOOKSACK RIVER	3	93	117

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

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

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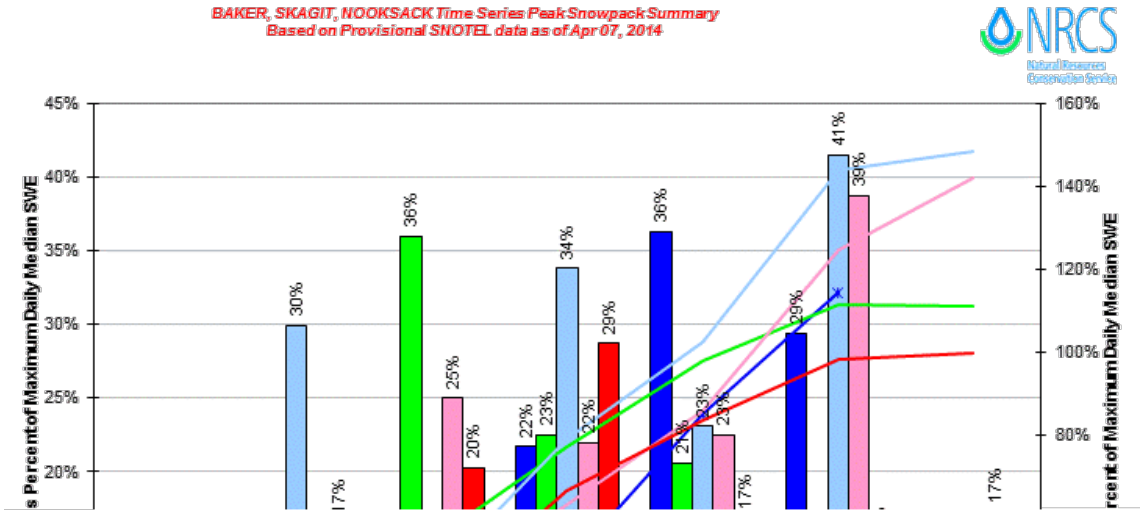
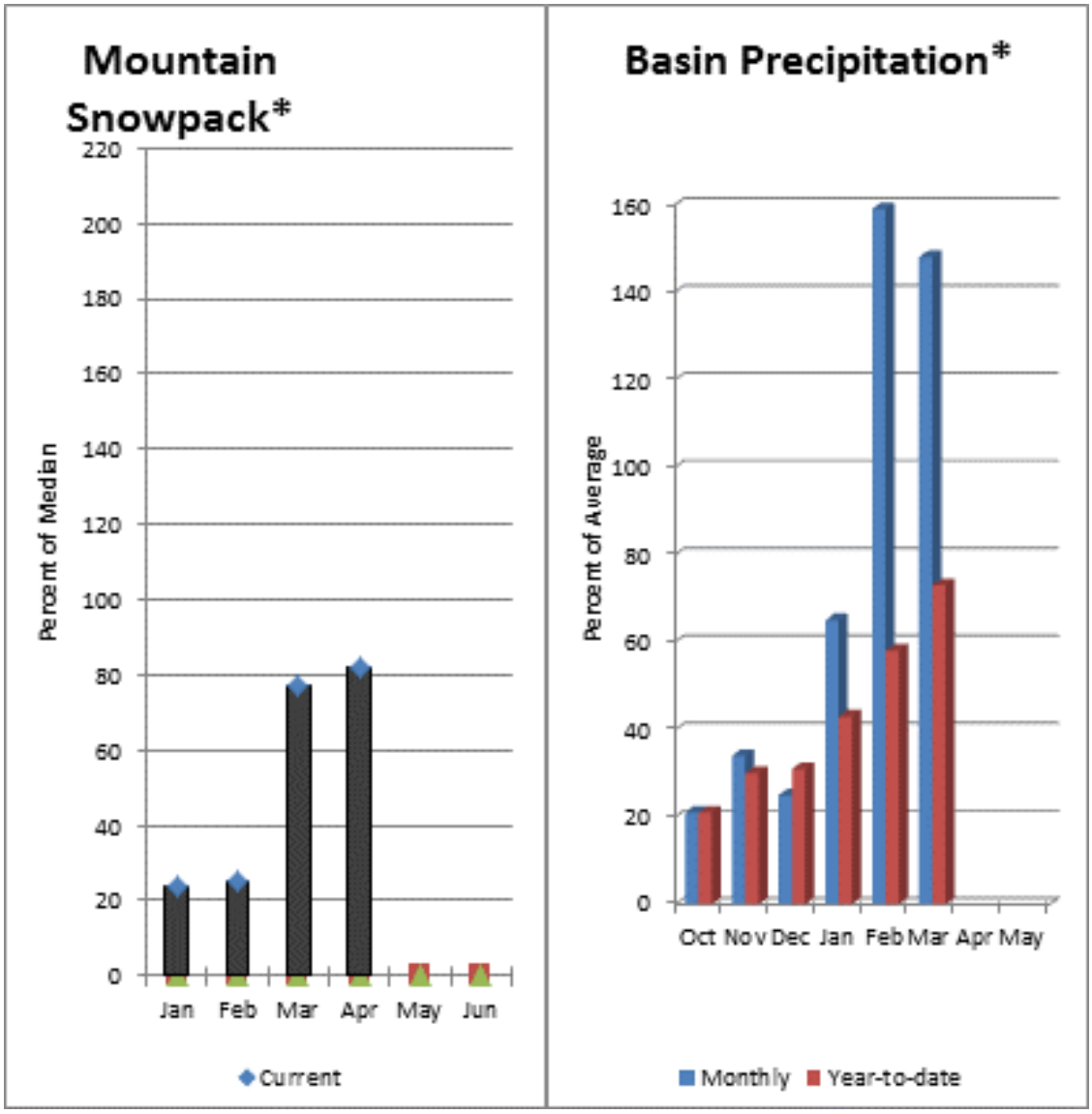
(2) - The value is natural volume - actual volume may be affected by upstream water management.





*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 97% and Elwha River is 96%. March runoff in the Dungeness River was 178% of normal. Big Quilcene and Wynoochee rivers may expect near to slightly below average runoff this summer as well. March precipitation was 148% of average. Precipitation has accumulated at 73% of average for the water year. March precipitation at Quillayute was 15.81 inches. The 1981-2010 average for March is 10.83 inches. Olympic Peninsula snowpack was still low at 82% of normal on April 1. Temperatures were 1-2 degrees above average for March and close to normal for the water year.

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

Streamflow Forecasts - April 1, 2014

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	93	107	116	97	125	139	120
	APR-SEP	111	128	140	97	152	169	145
Elwha R at Mcdonald Bridge	APR-JUL	320	360	385	96	410	450	400
	APR-SEP	370	415	450	96	485	530	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, 2014

Watershed	Number of Data Sites	This Year as % of Last Yr	Median
OLYMPIC PENINSULA	6	63	82

* 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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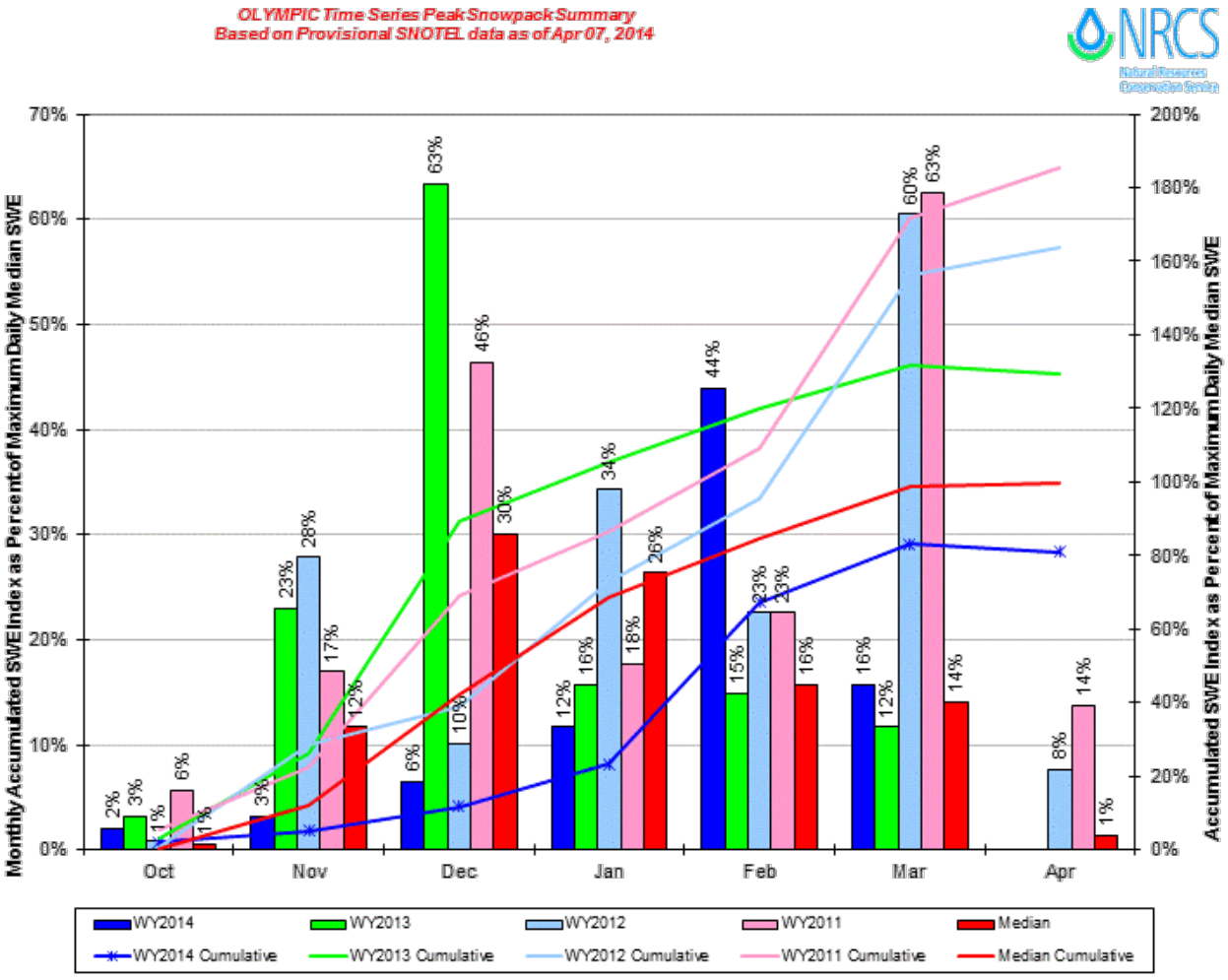

Issued by

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

United States Department of Agriculture

NRCS Natural Resources Conservation Service

Washington
Water Supply Outlook Report
June 1, 2014

Unknown windshield sunset, Pattee

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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W 316 Boone Ave., Suite 450
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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 2014

General Outlook

May was a tale of two worlds as far as weather was concerned. West of the Cascades we experienced very wet conditions, helping to set a new Feb-July total rainfall record in Seattle, whereas Eastern Washington received well below normal precipitation at most locations, to the point of almost no rain in Leavenworth at only 0.09 inches. Both short term and long term weather forecasts are calling for mostly dryer and warmer conditions for the rest of summer as we transition to an El' Nino for this fall and winter, however accurately predicting long range weather is a shot in dark at best so it's advisable to just watch it do what it's going to do and make note in record book afterword. Remember, it always gets warm and it hardly rains in summer anyway.

Snowpack

The June 1 statewide SNOTEL readings showed considerable variation across the state. Percent of normal readings for this time of year can be somewhat misleading in that during the melt cycle SNOTEL sites melt at different rates. Essentially sites below 4000 feet elevation are snow free, 4-5000 feet is represented by approximately 50% of normal snowpack remaining. Whereas sites above 5000 feet tend to still be above normal due to heavier snowpack through the winter and a slight lag in reaching peak and starting the melt phase. For water resource decision making one should take a very close look at actual water content, along with other variables, and not rely on percent of normal for a basin. If a basin is showing zero snow it does not mean that it is completely snow free, only that our SNOTEL network within the basin has melted out.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	170	165
Newman Lake	0	0
Pend Oreille	202	173
Okanogan	93	139
Methow	131	140
Conconully Lake	0	0
Central Columbia	111	110
Upper Yakima	75	84
Lower Yakima	98	86
Ahtanum Creek	0	0
Walla Walla	0	0
Lower Snake	238	184
Cowlitz	91	132
Lewis	34	59
White	92	120
Green	32	62
Puyallup	102	120
Cedar	0	0
Snoqualmie	53	75
Skykomish	49	97
Skagit	108	117
Nooksack	96	147
Olympic Peninsula	59	93

Precipitation

May precipitation favored the west slopes of the cascades with above average rainfall whereas the east side of the state as well as the Olympics didn't fare so well. Basin precipitation amounts vary with a low of 41% in the Walla Wall to a high of 127% in the Lower Columbia. The wettest spot in the state was reported at Alpine Meadows SNOTEL in the Tolt River Basin with a May accumulation of 12.5 inches, or 128% of average. The highest percent of average was at Spenser Meadow SNOTEL which received 158% of average precipitation. Leavenworth was the driest location with only 0.09 inches of rainfall, or 8% of normal.

RIVER BASIN	MAY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	70	95
Pend Oreille	92	93
Upper Columbia	87	75
Central Columbia	48	91
Upper Yakima	77	97
Lower Yakima	72	94
Walla Walla	41	99
Lower Snake	55	97
Lower Columbia	127	96
South Puget Sound	102	107
Central Puget Sound	107	108
North Puget Sound	114	98
Olympic Peninsula	85	76

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. Most all reservoirs in the state have either reached maximum storage or are well on their way to filling. Reservoir storage in the Yakima Basin was 827,000-acre feet, 114% of average for the Upper Reaches and 230,000-acre feet or 107% of average for Rimrock and Bumping Lakes. The power generation reservoirs included the following: Coeur d'Alene Lake, 211,000 acre feet, 79% of average and 88% of capacity; and the Skagit River reservoirs at 75% of average and 56% of capacity. Recent climate impacts and management procedures can affect these numbers on a daily or weekly basis.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	88	79
Pend Oreille	92	105
Upper Columbia	98	98
Central Columbia	76	105
Upper Yakima	99	114
Lower Yakima	99	107
Lower Snake	82	92
North Puget Sound	56	75

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

Streamflow

A lack of adequate rain along with early and rapid melt of low and mid elevation snow caused this month's forecast runs to drop. Forecasts vary from 65% of average for the Ahtanum Creek to 134% of average for the Okanogan River at Malott. June-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 103%; White River, 114%; and Skagit River, 120%. Some Eastern Washington streams include the Yakima River near Parker, 84%: Wenatchee River at Plain, 115% and Spokane River near Post Falls, 114%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. May runoff varied greatly by basin and is often influenced this time of year by reservoir control which can cause sudden changes in daily flows. Caution should be taken when working or playing in or near streams influenced by spring snowmelt.

BASIN	PERCENT OF AVERAGE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	91-114
Pend Oreille	108-125
Upper Columbia	78-134
Central Columbia	92-115
Upper Yakima	85-103
Lower Yakima	65-93
Walla Walla	92-97
Lower Snake	90-129
Lower Columbia	85-102
South Puget Sound	101-114
Central Puget Sound	95-132
North Puget Sound	104-120
Olympic Peninsula	91-92

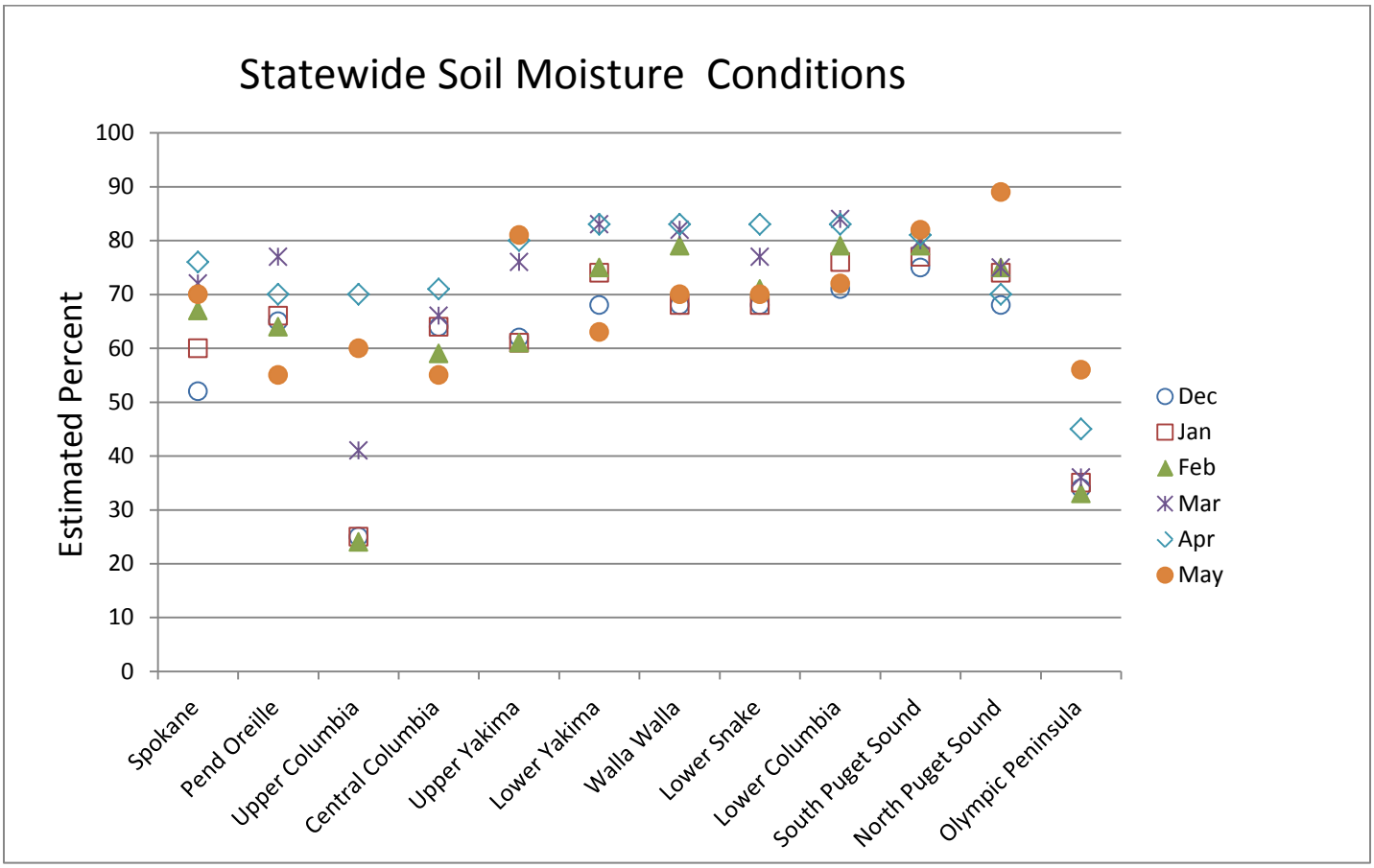
STREAM	PERCENT OF AVERAGE MAY RUNOFF
Pend Oreille at Albeni Fall Dam	137
Kettle at Laurier	114
Columbia at Birchbank	120
Spokane at Spokane	123
Similkameen at Nighthawk	158
Okanogan at Tonasket	173
Methow at Pateros	121
Chelan at Chelan	114
Wenatchee at Pashastin	122
Cle Elum near Roslyn	120
Yakima at Parker	119
Naches at Naches	112
Grande Ronde at Troy	88
Snake below Lower Granite Dam	111
Columbia River at The Dalles	118
Cowlitz below Mayfield Dam	131
Skagit at Concrete	135
Dungeness near Sequim	110

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. Light fall precipitation created drier than optimal soil moisture conditions coming into winter however greater than normal precipitation during February and April helped buffer soil moisture levels back to near normal conditions for that time of year. For the most part east side soils began to dry out after final snow melt however west cascade soil moisture continues to stay near saturation.

BASIN	ESTIMATED PERCENT SATURATION
Spokane	70
Pend Oreille	55
Upper Columbia	60
Central Columbia	55
Upper Yakima	81
Lower Yakima	63
Walla Walla	70
Lower Snake	70
Lower Columbia	72
South Puget Sound	82
Central Puget Sound	N/A
North Puget Sound	89
Olympic Peninsula	56



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 2014

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
ALPINE MEADOWS SNTL	3500	6/01/14	33	21.9	54.5	30.7
BADGER PASS SNOTEL	6900	6/01/14	53	28.2	18.6	17.2
BARKER LAKES SNOTEL	8250	6/01/14	39	13.9	8.9	11.0
BASIN CREEK SNOTEL	7180	6/01/14	0	.0	.0	.3
BEAVER PASS SNOTEL	3630	6/01/14	37	17.3	24.8	21.4
BLACK PINE SNOTEL	7100	6/01/14	0	.0	.0	.0
BLEWETT PASS#2SNOTEL	4240	6/01/14	0	.0	.0	.0
BUCKINGHORSE SNOTEL	4870	6/01/14	57	30.0	41.4	--
BUMPING RIDGE SNOTEL	4610	6/01/14	0	.0	.0	6.5
BUNCHGRASS MDWSNOTEL	5000	6/01/14	30	10.7	5.5	6.4
BURNT MOUNTAIN PIL	4170	6/01/14	0	.0	1.0	.0
CALAMITY SNOTEL	2500	6/01/14	0	.0	.0	--
CAYUSE PASS SNOTEL	5240	6/01/14	71	31.7	38.9	--
CHICKEN CREEK	4060	5/27/14	0	.0	.0	.0
COMBINATION SNOTEL	5600	6/01/14	0	.0	.0	.0
COPPER BOTTOM SNOTEL	5200	6/01/14	0	.0	.0	--
CORRAL PASS SNOTEL	5800	6/01/14	70	31.3	29.8	26.0
COUGAR MTN. SNOTEL	3200	6/01/14	0	.0	.0	.0
DALY CREEK SNOTEL	5780	6/01/14	0	.0	.0	.0
DISCOVERY BASIN	7050	5/30/14	12	4.9	.0	.2
DIX HILL	6400	5/27/14	0	.0	.0	--
DUNGENESS SNOTEL	4010	6/01/14	0	.0	.0	.0
ELBOW LAKE SNOTEL	3200	6/01/14	0	.0	6.0	.7
EMERY CREEK SNOTEL	4350	6/01/14	0	.0	.0	.0
ENDERBY CAN.	5800	6/01/14	85	43.6	39.5	--
FISH LAKE SNOTEL	3430	6/01/14	0	.0	.0	.0
FLATTOP MTN SNOTEL	6300	6/01/14	95	46.6	36.8	32.3
FROHNER MDWS SNOTEL	6480	6/01/14	0	.0	.0	.0
GRAVE CRK SNOTEL	4300	6/01/14	0	.0	.0	.0
GREEN LAKE SNOTEL	5920	6/01/14	0	.0	.8	4.0
GROUSE CAMP SNOTEL	5390	6/01/14	0	.0	.0	.0
HAND CREEK SNOTEL	5030	6/01/14	0	.0	.0	.0
HARTS PASS SNOTEL	6490	6/01/14	57	34.1	31.8	24.6
HELL ROARING DIVIDE	5770	5/30/14	51	23.7	14.1	11.3
HERRIG JUNCTION	4850	5/27/14	33	14.8	.0	.3
HIGH RIDGE SNOTEL	4920	6/01/14	0	.0	.0	.0
HOODOO BASIN SNOTEL	6050	6/01/14	89	42.4	25.6	23.5
HUCKLEBERRY SNOTEL	2250	6/01/14	0	.0	.0	.0
HUMBOLDT GLCH SNOTEL	4250	6/01/14	0	.0	.0	.0
INDIAN ROCK SNOTEL	5360	6/01/14	0	.0	.0	--
JUNE LAKE SNOTEL	3440	6/01/14	0	.0	23.0	.0
KRAFT CREEK SNOTEL	4750	6/01/14	0	.0	.0	--
LOLO PASS SNOTEL	5240	6/01/14	14	7.9	.0	.0
LONE PINE SNOTEL	3930	6/01/14	8	5.8	28.2	13.7
LOOKOUT SNOTEL	5140	6/01/14	5	1.6	.0	.0
LOST HORSE SNOTEL	5120	6/01/14	0	.0	.0	.0
LOST LAKE SNOTEL	6110	6/01/14	100	46.4	27.2	31.9
LUBRECHT SNOTEL	4680	6/01/14	0	.0	.0	.0
LYMAN LAKE SNOTEL	5980	6/01/14	87	47.5	47.3	48.9
LYNN LAKE SNOTEL	3900	6/01/14	0	.0	11.4	--
MARTEN RIDGE SNOTEL	3520	6/01/14	51	31.4	39.9	--
MEADOWS PASS SNOTEL	3230	6/01/14	0	.0	2.4	.0
M F NOOKSACK SNOTEL	4970	6/01/14	119	73.4	65.4	51.6
MICA CREEK SNOTEL	4510	6/01/14	0	.0	.0	.0
MORSE LAKE SNOTEL	5410	6/01/14	60	29.4	31.6	32.8
MOSES MTN SNOTEL	5010	6/01/14	0	.0	.0	.0
MOSQUITO RDG SNOTEL	5200	6/01/14	21	10.8	10.4	6.4
MOUNT CRAG SNOTEL	3960	6/01/14	0	.0	10.3	4.1
MT. KOBAU CAN.	5500	5/28/14	0	.0	7.3	--
MOWICH SNOTEL	3160	6/01/14	0	.0	.0	.0
MOUNT GARDNER SNOTEL	2920	6/01/14	0	.0	.0	.0
N.F. ELK CR SNOTEL	6250	6/01/14	0	.0	.0	.0
NEVADA RIDGE SNOTEL	7020	6/01/14	13	5.6	.0	2.5
NEZ PERCE CMP SNOTEL	5650	6/01/14	0	.0	.0	.0
NOISY BASIN SNOTEL	6040	6/01/14	72	33.7	25.4	28.5
OLALLIE MDWS SNOTEL	4030	6/01/14	64	24.5	32.1	29.0
OPHIR PARK	7150	5/27/14	15	6.7	.0	3.2
PARADISE SNOTEL	5130	6/01/14	120	83.4	79.0	61.9
PARK CK RIDGE SNOTEL	4600	6/01/14	14	4.0	1.6	4.6
PEPPER CREEK SNOTEL	2140	6/01/14	0	.0	.0	--
PETERSON MDW SNOTEL	7200	6/01/14	12	4.0	.0	1.3
PIGTAIL PEAK SNOTEL	5800	6/01/14	96	53.4	41.1	36.6
PIKE CREEK SNOTEL	5930	6/01/14	0	.0	.0	.0
POPE RIDGE SNOTEL	3590	6/01/14	0	.0	.0	.0
POTATO HILL SNOTEL	4510	6/01/14	4	1.9	6.5	.6
QUARTZ PEAK SNOTEL	4700	6/01/14	0	.0	.0	.0
RAGGED MTN SNOTEL	4210	6/01/14	0	.0	.0	.0
RAINY PASS SNOTEL	4890	6/01/14	44	26.5	14.4	18.7
REX RIVER SNOTEL	3810	6/01/14	0	.0	13.8	.0
ROCKER PEAK SNOTEL	8000	6/01/14	33	15.1	5.0	10.6
SADDLE MTN SNOTEL	7900	6/01/14	50	27.5	6.5	13.3
SALMON MDWS SNOTEL	4460	6/01/14	0	.0	.0	.0
SASSE RIDGE SNOTEL	4340	6/01/14	8	3.0	4.9	.0
SATUS PASS	3960	6/01/14	0	.0	.0	--
SAVAGE PASS SNOTEL	6170	6/01/14	36	15.2	2.1	4.3
SAWMILL RIDGE SNOTEL	4640	6/01/14	0	.0	1.9	--
SENTINEL BT SNOTEL	4680	6/01/14	0	.0	.0	.0
SHEEP CANYON SNOTEL	3990	6/01/14	4	2.2	23.7	5.9
SHERWIN SNOTEL	3200	6/01/14	---	.0	.0	.0
SILVER STAR MTN CAN.	5600	6/01/14	48	23.7	23.2	--
SKALKAHO SNOTEL	7260	6/01/14	22	10.2	.0	9.5
SKOOKUM CREEK SNOTEL	3310	6/01/14	0	.0	3.5	.0
SOURDOUGH GUL SNOTEL	4000	6/01/14	0	.0	.0	.0
SPENCER MDW SNOTEL	3400	6/01/14	0	.0	.0	.0
SPIRIT LAKE SNOTEL	3520	6/01/14	0	.0	.0	.0
SPRUCE SPGS SNOTEL	5700	6/01/14	0	.1	.0	.0
STAHL PEAK SNOTEL	6030	6/01/14	74	36.9	24.1	25.8
STAMPEDE PASS SNOTEL	3850	6/01/14	16	8.7	14.1	14.1
STEVENS PASS SNOTEL	3950	6/01/14	23	10.8	11.6	3.0
STRYKER BASIN	6180	5/27/14	67	33.9	19.4	20.1
SUNSET SNOTEL	5540	6/01/14	12	5.0	.0	.3
SURPRISE LKS SNOTEL	4290	6/01/14	31	15.2	24.6	16.9
SWAMP CREEK SNOTEL	3930	6/01/14	0	.0	.0	.0
SWIFT CREEK SNOTEL	4440	6/01/14	46	21.4	47.2	40.8
THUNDER BASIN SNOTEL	4320	6/01/14	3	5.9	6.7	6.8
TINKHAM CREEK SNOTEL	2990	6/01/14	0	.0	12.5	.0
TOUCHET SNOTEL	5530	6/01/14	0	.0	.0	.0
TROUGH #2 SNOTEL	5480	6/01/14	0	.0	.0	.0
TWELVEMILE SNOTEL	5600	6/01/14	0	.0	.0	.0
TWIN LAKES SNOTEL	6400	6/01/14	58	29.9	8.4	16.5
UPPER WHEELER SNOTEL	4330	6/01/14	0	.0	.0	.0
WARM SPRINGS SNOTEL	7800	6/01/14	57	25.1	11.3	17.0
WATERHOLE SNOTEL	5010	6/01/14	30	18.6	31.0	16.0
WELLS CREEK SNOTEL	4030	6/01/14	30	14.8	20.5	7.9
WHITE PASS ES SNOTEL	4440	6/01/14	0	.0	.0	1.4
WHITE ROCKS MTN CAN.	7200	5/31/14	6	2.3	10.1	--

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

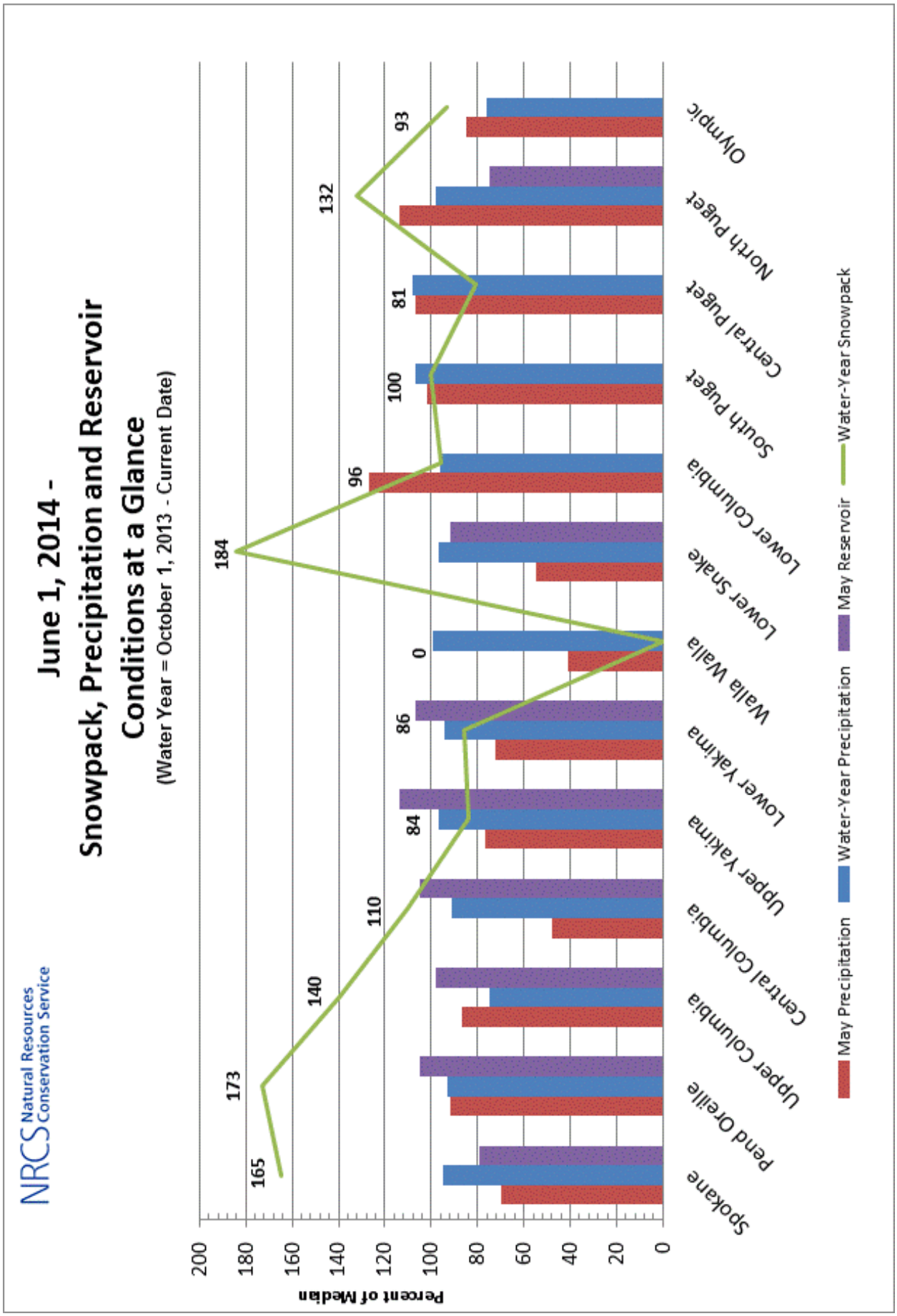
Idaho:
http://www.id.nrcs.usda.gov/snow

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



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

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.**

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Washington Water Supply Outlook Report

Natural Resources Conservation Service
Spokane, WA