

Washington Water Supply Outlook Report January 1, 2015



Snow Surveyors making the first survey of the season at Rainy Pass snow course.

Date: 12/29/14

Taken by: Scott Pattee

Reminder: We are soliciting field work photos from our snow surveyors again this year. Each month we pick one to grace the cover of this report. The photographer will be given proper credit of course. Please include all specific information when submitting photos.

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

For more water supply and resource management information, contact:

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How forecasts are made

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

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

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

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Washington Water Supply Outlook

January 2015

General Outlook

More rain than snow is the current state of affairs in Washington State. A couple of nice cold snaps back in November and December brought a couple of good shots of mountain snow but not enough to cover all the rocks. So with barely enough snow on the ground to open local ski areas by Christmas, folks were leaving that shiny new equipment under the tree and opting for the old beat up skis and boards just to get the first turns of the season. Warm and wet has been the pattern for most of the first three months of water-year 2015. The latest forecasts provided by the National Weather Service indicates a high probability that the warm temperatures will continue to dominate the region whereas the only real change to recent conditions is a forecasted chance of below normal precipitation for the next several months. Currently mountain temperatures continue to soar to new highs at 15-20 degrees above normal. <http://www.cpc.ncep.noaa.gov/>

Snowpack

The January 1 statewide SNOTEL readings were 51% of normal but vary across the state. So far we should have received about 50% of our annual total snowfall however we fall well short of that with most areas measuring roughly 25% of annual totals. The Tolt River data reported the lowest readings at 26% of the 30-year median for January 1 followed closely by the Baker River with 27%. Readings from the Methow River Basin reported the highest at 114% of normal for January 1. Westside medians from SNOTEL, and January 1 snow surveys, included the North Puget Sound river basins with 67% of normal, the Central and South Puget river basins with 42% and 58% respectively, and the Lower Columbia basins with 41% of normal. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 52% and the Wenatchee area with 82%. Snowpack in the Spokane River Basin was at 57% and the Walla Walla River Basin had 67% of the long term median.

BASIN	PERCENT OF AVERAGE	PERCENT OF LAST YEAR
Spokane	57	72
Newman Lake	57	72
Pend Oreille	110	104
Okanogan	104	92
Methow	114	59
Conconully Lake	100	38
Central Columbia	82	50
Upper Yakima	49	38
Lower Yakima	56	45
Ahtanum Creek	61	55
Walla Walla	67	59
Lower Snake	80	80
Cowlitz	49	50
Lewis	30	18
White	63	52
Green	37	16
Puyallup	66	51
Cedar	30	29
Snoqualmie	35	44
Skykomish	31	58
Skagit	80	44
Nooksack	37	69
Olympic Peninsula	30	24

Precipitation

The first three months of the water-year 2015 delivered some of the wettest conditions on record throughout Washington river basins. However the new-year began with near average precipitation throughout the state with the exception of the Olympic Peninsula with 130% of normal. The Central Puget Sound and Upper Yakima were the driest at 88-87%, which also shows in the lack of snowpack. The wettest spot in the state was reported at Elbow Lake SNOTEL in the South Fork Nooksack River Basin with a water-year accumulation of 77.4 inches, 16 inches above normal or 126% of average.

RIVER BASIN	DECEMBER PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	93	96
Pend Oreille	101	116
Upper Columbia	101	130
Central Columbia	110	124
Upper Yakima	87	100
Lower Yakima	108	116
Walla Walla	120	110
Lower Snake	110	105
Lower Columbia	106	121
South Puget Sound	106	113
Central Puget Sound	88	104
North Puget Sound	110	123
Olympic Peninsula	130	127

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 with decent reservoir carry over. In fact several had to be drawn down in anticipation for winter runoff and flood control storage. January 1 Reservoir storage in the Yakima Basin was 558,000-acre feet, 161% of average for the Upper Reaches and 140,000-acre feet or 135% of average for Rimrock and Bumping Lakes. The power generation reservoirs included the following: Coeur d'Alene Lake, 140,000 acre feet, 149% of average and 59% of capacity; and the Skagit River reservoirs at 79% of average and 64% 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	59	149
Pend Oreille	34	76
Upper Columbia	117	111
Central Columbia		
Upper Yakima	67	161
Lower Yakima	61	135
Lower Snake	70	101
North Puget Sound	64	79

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

Streamflow

April to September runoff forecasts vary from 80% of average in the Wenatchee River and Lower Yakima River basins to 113% of average in the Pend Oreille River and Lower Snake River basins. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 86%; White River, 102%; and Skagit River, 97%. Some Eastern Washington streams include the Yakima River near Parker 80%, Wenatchee River at Plain 84%; and Spokane River near Post Falls 85%. 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 since governing conditions are likely to change for the better or the worse.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
Spokane	80-88
Pend Oreille	82-113
Upper Columbia	75-109
Central Columbia	80-97
Upper Yakima	70-77
Lower Yakima	80-97
Walla Walla	93-96
Lower Snake	97-113
Lower Columbia	86-96
South Puget Sound	88-102
Central Puget Sound	74-88
North Puget Sound	93-98
Olympic Peninsula	99-101

STREAM	PERCENT OF AVERAGE DECEMBER STREAMFLOWS
Pend Oreille at Albeni Fall Dam	138
Kettle at Laurier	103
Columbia at Birchbank	150
Spokane at Spokane	106
Similkameen at Nighthawk	165
Okanogan at Tonasket	138
Methow at Pateros	188
Chelan at Chelan	202
Wenatchee at Pashastin	201
Cle Elum near Roslyn	166
Yakima at Parker	177
Naches at Naches	209
Grande Ronde at Troy	168
Snake below Lower Granite Dam	111
Columbia River at The Dalles	124
Lewis at Merwin Dam	116
Cowlitz below Mayfield Dam	137
Skagit at Concrete	165
Dungeness near Sequim	208

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

Soil Moisture

Near to above normal fall precipitation provided for wet and nearly saturated soils (60-70% saturation) as the snow finally began to accumulate in mid-December. Great fall soil conditions can help buffer low snowpack runoff come spring however it is too early in the season to count those chickens. 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

Washington Snow Measurement Summary:
January 1, 2015

Station Name	Elevation (ft)	Date	Snow Depth		Last Yr		Median SWE (1981-2010) (in)
			(in)	SWE (in)	SWE (in)	SWE (in)	
Aberdeen Lake	4140	30-Dec	21	2.4	2.8		
Alpine Meadows	3500	1-Jan	17	4.2	12.2		19.8
Azure River Pillow	4298	1-Jan	68	24			
Barnes Creek	5243	30-Dec	37	8.3	12.1		
Barnes Creek Pillow	5315	1-Jan		8.7	9.9		
Beaver Creek Trail	2200	30-Dec	2	0.4	0.3		4.2
Beaver Pass	3621	30-Dec	17	3.7	1.7		10.5
Beaver Pass	3630	1-Jan	31	8.4	5.9		15.5
Beaverfoot	6312	5-Jan	19	3.7	4.1		
Blackwall Peak Pillo	6365	1-Jan	54	14.2	12		
Blewett Pass	4240	1-Jan	15	4.2	2.4		6.6
Brenda Mine Pillow	4790	1-Jan		4.8	4.9		
Brown Top	5830	1-Jan	68	21.9	18.2		
Brown Top Ridge Al	6000	30-Dec	69	18.4	7.7		26.2
Buckinghorse	4870	1-Jan	20	6.9	4.2		
Bumping Lake New	3400	29-Dec	16	3.3	0		6.6
Bumping Ridge	4610	1-Jan	15	3.1	4		10.4
Bunchgrass Mdw	5000	1-Jan	28	6.7	9.3		11.6
Burnt Mountain	4170	1-Jan	14	3	2		4.5
Calamity	2500	1-Jan	1	0.3	0		
Cayuse Pass	5240	1-Jan	36	9.3	7.5		
Chamokane 2	3550	2-Jan	2	0.2			
Char Creek	4232	1-Jan	24	6.5	7.3		
Corral Pass	5800	1-Jan	39	10.1	10.1		14.8
Cougar Mountain	3200	1-Jan	7	2	0		6.6
Devils Park	5900	31-Dec	55	15.2	13.9		
Dock Butte AM	3800	29-Dec	24	4.9			29.6
Dommerie Flats	2200	30-Dec	2	0.2	0		4.1
Dungeness	4010	1-Jan	6	1.1	0.4		3.2
East Creek Pillow	6660	1-Jan		14.5	13.2		
Easy Pass	5270	1-Jan	56	13.4			
Elbow Lake	3040	1-Jan	15	3	4.9		13.9
Farron	4032	31-Dec	19	4	4.6		
Ferguson	3048	2-Jan	40	10.1	10.7		
Fernie East	3980	1-Jan	21	4.4	4.2		
Fidelity Mountain	6076	28-Dec	70	20.2	19.7		
Fish Lake	3430	1-Jan	28	6.7	5.3		13
Fish Lake	3300	29-Dec	38	8.9	7.8		12
Floe Lake Pillow	6857	1-Jan		12.6	10.8		
Freezeout Cr. Tr.	3500	31-Dec	20	4.1			

Gold Axe Camp	5360	1-Jan	11	3	2.7	
Gold Mountain	4390	1-Jan	5	1.8		
Granite Creek	3500	29-Dec	34	7	4.4	
Green Lake	5920	1-Jan	32	7.1	6.7	9.4
Greyback Reservoir	5079	31-Dec	21	4.7	6.5	
Grouse Camp	5390	1-Jan	24	5.6	4.7	
Harts Pass	6490	1-Jan	71	23.6	12.6	17.7
Harts Pass	6200	31-Dec	71	20.4	11.5	
Hozomeen Camp	1690		2			
Huckleberry Creek	2250	1-Jan	5	1	0	0.9
Indian Rock	5360	1-Jan	14	3.7	2.5	
Jasper Pass AM	5400	29-Dec	60	12.2		34.7
June Lake	3440	1-Jan	15	3.4	2.4	16.6
Kirbyville Lake	5705	30-Dec	45	10.8	20.5	
Lone Pine	3930	1-Jan	21	4.9	1.8	15.3
Lost Horse	5120	1-Jan	15	2.8	2.2	6.8
Lyman Lake	5980	1-Jan	79	21.7	12.7	26.4
Lynn Lake	3900	1-Jan	15	3.6	3.1	
Marten Lake	3600	29-Dec	40	8.2		30.4
Marten Ridge	3520	1-Jan	24	5.7	8.3	
Meadow Cabins	1900	31-Dec	2	0.4	0.4	
Meadows Pass	3230	1-Jan	16	3.6	3.3	9.3
MF Nooksack	4970	1-Jan	26	7.8	17.5	16.6
Mission Creek Pillow	5840	1-Jan	29	7.1	11.2	
Monashee Pass	4551	30-Dec	26	5	9	
Morrissey Ridge Pill	5906	1-Jan		6.7	11.5	
Morse Lake	5410	1-Jan	47	12.8	9.5	22
Moses Mtn	5010	1-Jan	13	3.5	2.6	6.3
Mount Abbot	6663	28-Dec	69	20.5	16.9	
Mount Blum AM	5800	29-Dec	36	7.3		20.7
Mount Cook Pillow	5085	1-Jan	74	24.1	19.5	
Mount Crag	3960	1-Jan	10	2.6	1.8	11.3
Mount Gardner	2920	1-Jan	5	1.3	0	6.3
Mount Kobau	5961	28-Dec	20	4.3	2.6	
Mowich	3160	1-Jan	3	0.9	0	0
Moyie Mountain Pil	6332	1-Jan	19	5.1	6.9	
Muckamuck	4470	1-Jan	16	4.2		
Nelson	3123	2-Jan	16	3.8	4	
New Lake Hozomee	2800	29-Dec	2	0.4	0.6	
Olallie Meadows	4030	1-Jan	23	8.6	9.8	19.5
Paradise	5130	1-Jan	43	13	15.7	29
Park Creek Ridge	4600	1-Jan	49	12	7.8	19.2
Pepper Creek	2140	1-Jan	3	0.9	0	
Pigtail Peak	5800	1-Jan	42	12.4	15.9	21
Pinto Rock	4440	1-Jan	22	5		
Pope Ridge	3590	1-Jan	24	6.8	2.2	8.8
Potato Hill	4510	1-Jan	28	7	6.7	11.5

Quartz Peak	4700	1-Jan	21	5.5	7	9.7
Rainy Pass	4780	29-Dec	57	13.4	8.6	
Rainy Pass	4890	1-Jan	49	15.2	8	15.7
Rex River	3810	1-Jan	14	4	4.6	12.9
Rocky Creek	2100	29-Dec	12	2.4		
Salmon Meadows	4460	1-Jan	17	4.7	1.8	4.7
Sasse Ridge	4340	1-Jan	30	7.3	5.5	11.7
Satus Pass	3960	1-Jan	10	1.6	1.8	
Sawmill Ridge	4640	1-Jan	25	6.5	5.8	
Schreibers Meadow	3400	29-Dec	24	4.9		24
Sentinel Butte	4680	1-Jan	12	2	3.7	3.7
Sheep Canyon	3990	1-Jan	16	3.6	3.4	15.1
Skate Creek	3770	1-Jan	15	3		
Skookum Creek	3310	1-Jan	13	3.3	3.4	9.6
Sourdough Gulch	4000	1-Jan	3	0.7	0.5	0.6
Spencer Meadow	3400	1-Jan	11	2.4	2	12.4
Spirit Lake	3520	1-Jan	10	2.9	0	3.1
Spruce Springs	5700	1-Jan	21	4.5	3.6	7.1
St. Leon Creek Pillo	5906	1-Jan		18.7	17.4	
St. Leon River	5997	30-Dec	70	20.7	23.5	
Stampede Pass	3850	1-Jan	33	6.8	3.9	17.4
Stevens Pass	3950	1-Jan	33	7.2	9.3	17
Sullivan Mine	5184	1-Jan	12	3.1	5.2	
Surprise Lakes	4290	1-Jan	27	8.3	5.2	19.9
Swamp Creek	3930	1-Jan	29	7.9	6.6	5.8
Swift Creek	4440	1-Jan	25	8.4	7.5	23.4
Thunder Basin	4320	1-Jan	33	9.7	5.8	14.2
Thunder Creek	6765	5-Jan	20	5.5		
Tinkham Creek	2990	1-Jan	13	2.6	3.2	9.8
Togo	3370	2-Jan	2	0.2		
Touchet	5530	1-Jan	28	7.7	8.2	12.9
Trinity	2930	1-Jan	40	10.6	4	
Trough	5480	1-Jan	21	4.7	4.6	5.2
Tunnel Avenue	2433	30-Dec	4	1.3	0	6.3
Upper Wheeler	4330	1-Jan	20	4.8	2.3	5
Vermont Creek	5030	5-Jan	27	4.8	7.1	
Waterhole	5010	1-Jan	22	5.8	5.5	17
Watson Lakes	4500	29-Dec	30	6.1		23
Wells Creek	4030	1-Jan	19	5	7.1	12.5
Whatshan Upper	4843	30-Dec	39	8.8	13.9	
White Pass E.S.	4440	1-Jan	18	4.7	2.9	9
Yellowhead Pillow	6102	1-Jan	35	9.7	10	



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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

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

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

USDA-NRCS Agency Homepages

Washington:
<http://www.nrcs.usda.gov/wps/portal/nrcs/site/wa/home/>

NRCS National:
<http://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/>

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 Pacific Area Committee is making plans for the 83rd Annual Western Snow Conference in 2015.

Mark your calendar and start thinking about submitting a paper to attend the 2015 Western Snow Conference:

Dates: April 20-24, 2015

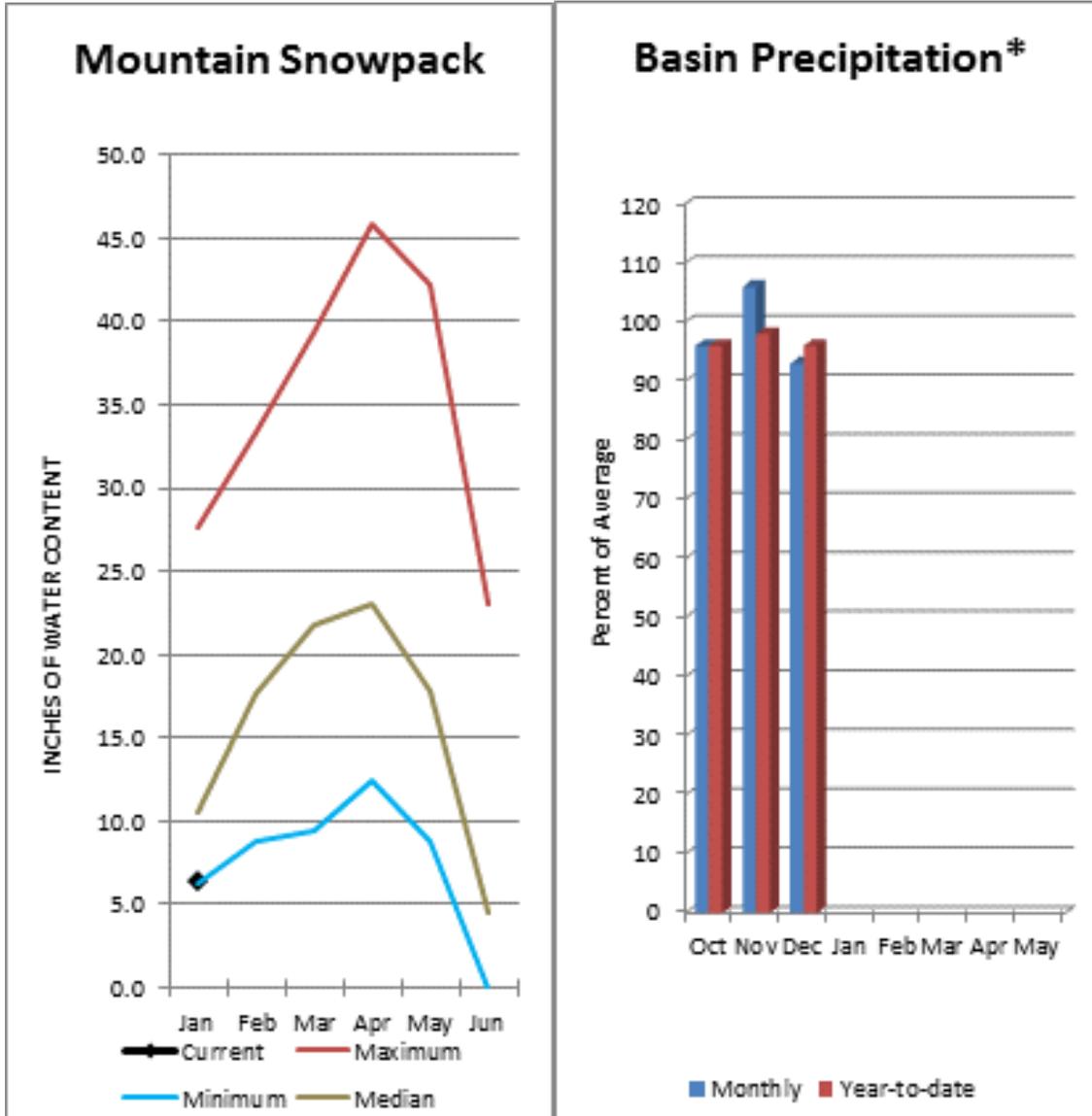
Location: Grass Valley, California

The Conference will begin Monday, April 20th with a short course and panel discussion on " LIDAR Basics, Applications, and Use in Snow Hydrology and Field Studies " with several invited experts in the field. Tuesday and Wednesday will include formal paper and poster presentations on a variety of topics, including climate variability, climate change impacts on snow and runoff, water management, water supply forecasting, and modeling and climatology of snow. Thursday will include a technical tour to visit hydrologic and gold mining points of interest around Grass Valley

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



The January 1 forecasts for summer runoff within the Spokane River Basin are 85% of average near Post Falls and 88% at Long Lake. The Chamokane River near Long Lake forecasted to have 80% of average flows for the May-August period. The forecast is based on a basin snowpack that is 57% of normal and precipitation that is 96% of average for the water year. Precipitation for December was near normal at 93% of average. Streamflow on the Spokane River at Spokane was 106% of average for December. January 1 storage in Coeur d'Alene Lake was 140,000 acre feet, 149% of average and 59% of capacity. Snowpack at Quartz Peak SNOTEL site was 57% of average with 5.5 inches of water content. Average temperatures in the Spokane basin were 4-6 degrees above normal for December and 3-5 degrees above normal for the water year.

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

Data Current as of: 1/8/2015 11:23:28 AM

Spokane Streamflow Forecasts - January 1, 2015

Spokane	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
Spokane R nr Post Falls ²	APR-JUL	1130	1670	2040	85%	2400	2940	2390
	APR-SEP	1190	1740	2110	85%	2480	3030	2480
Spokane R at Long Lake ²	APR-JUL	1280	1890	2300	88%	2720	3330	2620
	APR-SEP	1440	2070	2500	88%	2920	3550	2850
Chamokane Ck nr Long Lake	MAY-AUG	4	6	7.4	80%	8.8	10.8	9.3

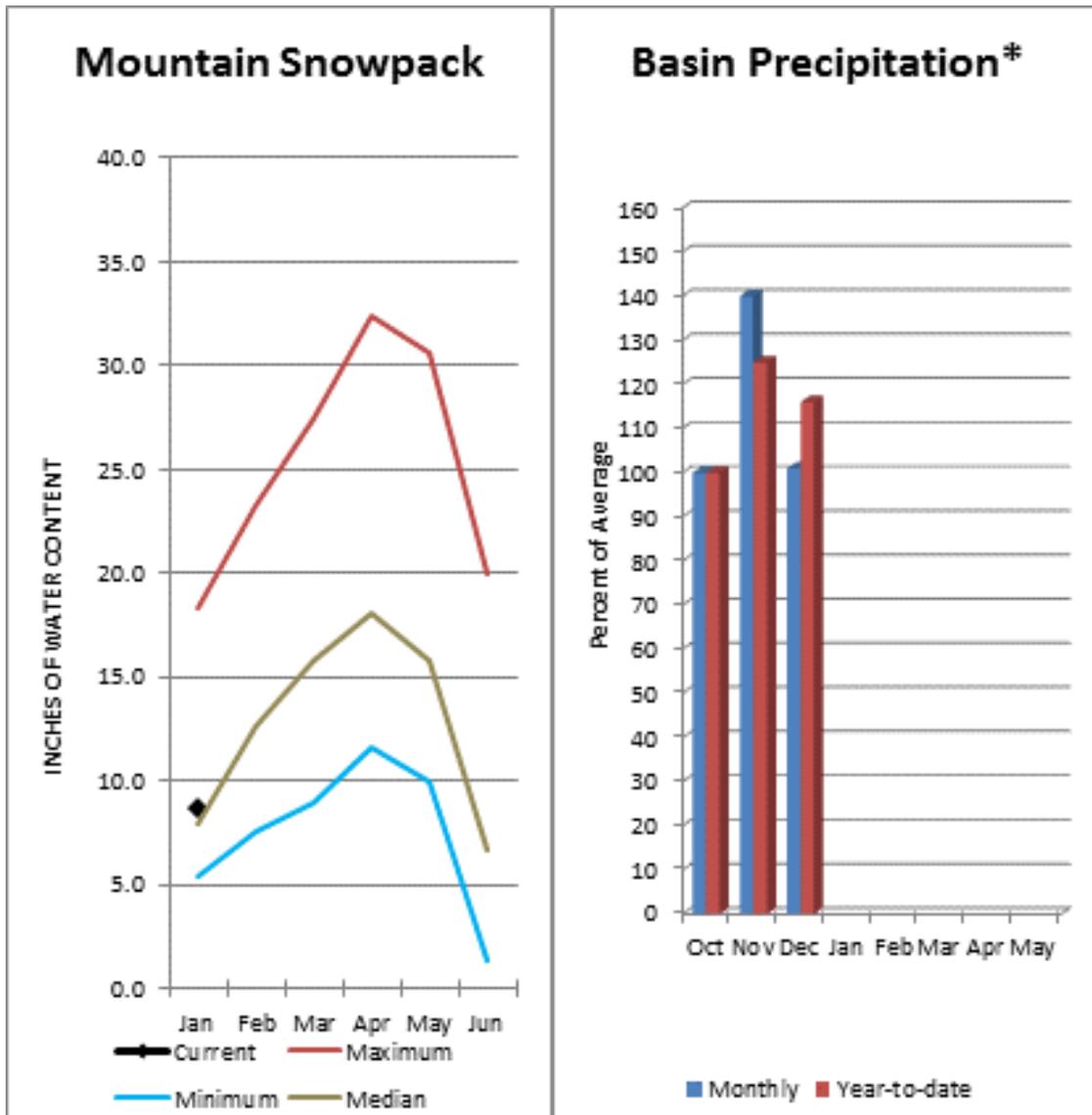
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Coeur d' Alene	139.7	50.4	93.7	238.5
Basin-wide Total	139.7	50.4	93.7	238.5
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Spokane	13	57%	72%
Newman Lake	1	57%	72%

Pend Oreille River Basins



The April – September average forecast for the Priest River near the town of Priest River is 82% and the Pend Orielle below Box Canyon is 112%. December streamflow was 138% of average on the Pend Oreille River and 150% on the Columbia Birchbank. January 1 snow cover was 110% of normal in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 6.7 inches of snow water on the snow pillow. Normally Bunchgrass would have 11.6 inches on January 1. Precipitation during December was 101% of average, pushing the year-to-date precipitation at 116% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 76% of normal. Average temperatures were 4-6 degrees above normal for December and 3-5 degrees above normal for the water year.

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

Data Current as of: 1/8/2015 11:23:31 AM

Pend Oreille Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Pend Oreille Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Pend Oreille Lake Inflow ²	APR-JUL	10400	12100	13300	113%	14400	16100	11800
	APR-SEP	11400	13200	14400	113%	15600	17400	12800
Priest R nr Priest River ^{1,2}	APR-JUL	335	545	640	82%	735	945	780
	APR-SEP	355	580	680	82%	780	1000	830
Pend Oreille R bl Box Canyon ²	APR-JUL	10600	12300	13500	113%	14600	16400	11900
	APR-SEP	11600	13400	14600	112%	15800	17600	13000

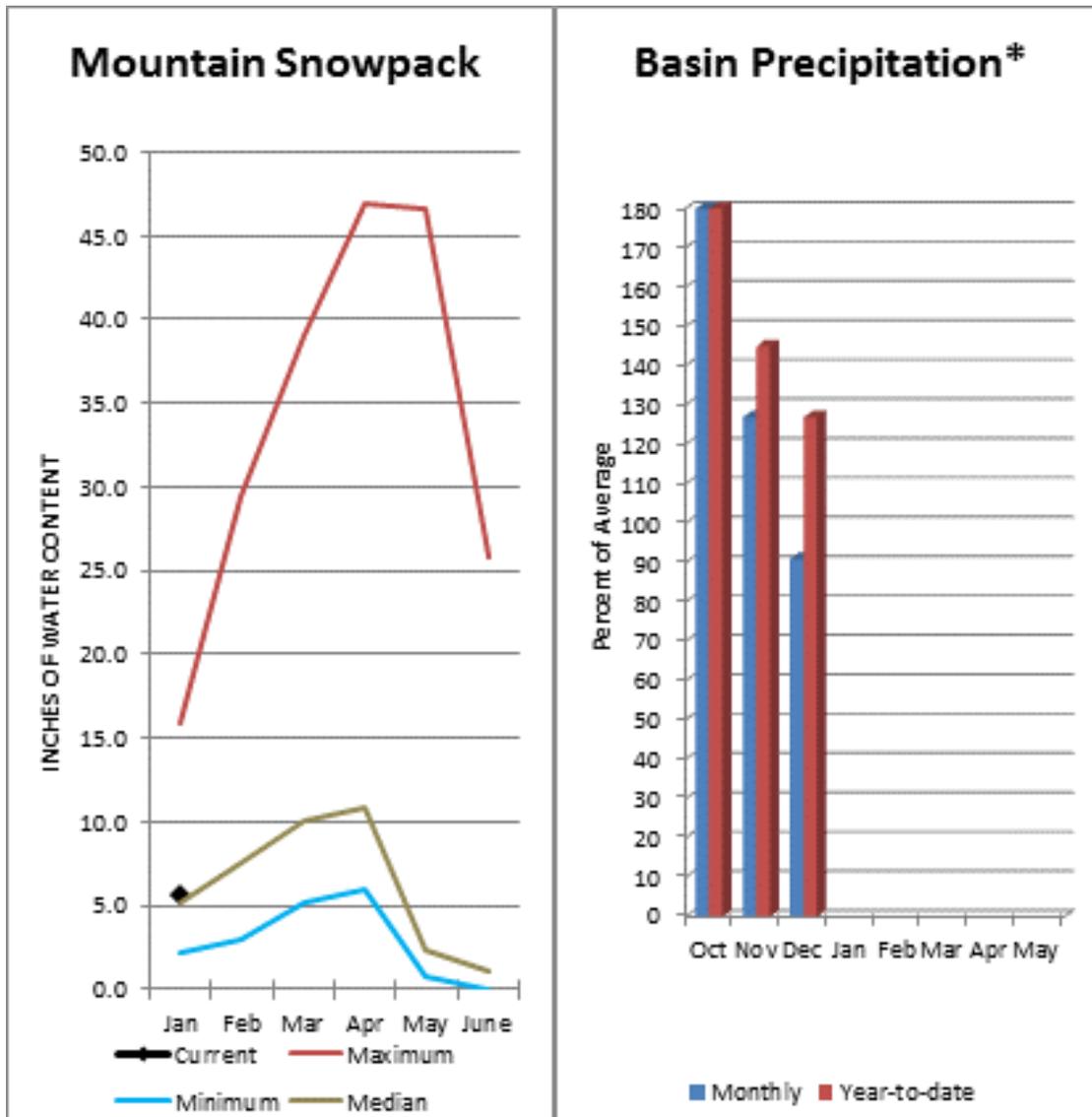
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Pend Oreille	520.8	522.6	708.2	1561.3
Priest Lake	57.5	54.9	56.5	119.3
Basin-wide Total	578.3	577.4	764.7	1680.6
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Pend Oreille Basins	52	110%	104%
Colville River	0		
Pend Oreille River	52	110%	104%
Kettle River	4	75%	114%

Upper Columbia River Basins



Summer runoff average forecast for the Okanogan River is 91%, Similkameen River is 109%, Kettle River 96% and Methow River is 113%. January 1 snow cover on the Okanogan was 104% of normal, Omak Creek was 56% and the Methow was 114%. December precipitation in the Upper Columbia was 101% of average, with precipitation for the water year at 130% of average. December streamflow for the Methow River was 188% of average, 138% for the Okanogan River and 165% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 47 inches which normal for January 1. Combined storage in the Conconully Reservoirs was 15,000 acre-feet or 111% of normal. Temperatures were 4-6 degrees above normal for December and 3-5 degrees above for the water year.

Worth mentioning was the installation of two new SNOTEL sites within the basin. First in was Muckamuck SNOTEL within the West Fork Salmon Creek in support of Conconully Reservoir operations. Next came Gold Mtn. SNOTEL which will provide additional forecasting opportunities for the Sanpoil River and Upper reaches of the Columbia River as well as support for the Colville Tribe.

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

Upper Columbia River Basins

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Upper Columbia Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Upper Columbia Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Kettle R nr Laurier	APR-JUL	1200	1510	1720	96%	1930	2250	1800
	APR-SEP	1230	1570	1800	96%	2020	2360	1880
Colville R at Kettle Falls	APR-JUL	15	59	89	75%	119	163	119
	APR-SEP	17.3	65	98	75%	130	178	131
Columbia R at Grand Coulee ^{1,2}	APR-JUL	34300	44700	49500	97%	54300	64700	51015
Similkameen R nr Nighthawk ¹	APR-JUL	850	1160	1300	108%	1440	1750	1200
	APR-SEP	910	1240	1390	109%	1540	1880	1280
Okanogan R nr Tonasket ¹	APR-JUL	545	1060	1290	87%	1520	2030	1480
	APR-SEP	585	1170	1430	87%	1700	2280	1650
Okanogan R at Malott ¹	APR-JUL	555	1090	1330	92%	1580	2110	1450
	APR-SEP	590	1200	1480	91%	1750	2360	1620
Methow R nr Pateros	APR-JUL	660	825	940	113%	1050	1220	835
	APR-SEP	715	890	1010	113%	1130	1300	895
Columbia R at Birchbank ^{1,2}	APR-JUL	23500	29200	31800	94%	34400	40100	33840
	APR-SEP	28900	36100	39300	94%	42500	49700	41750

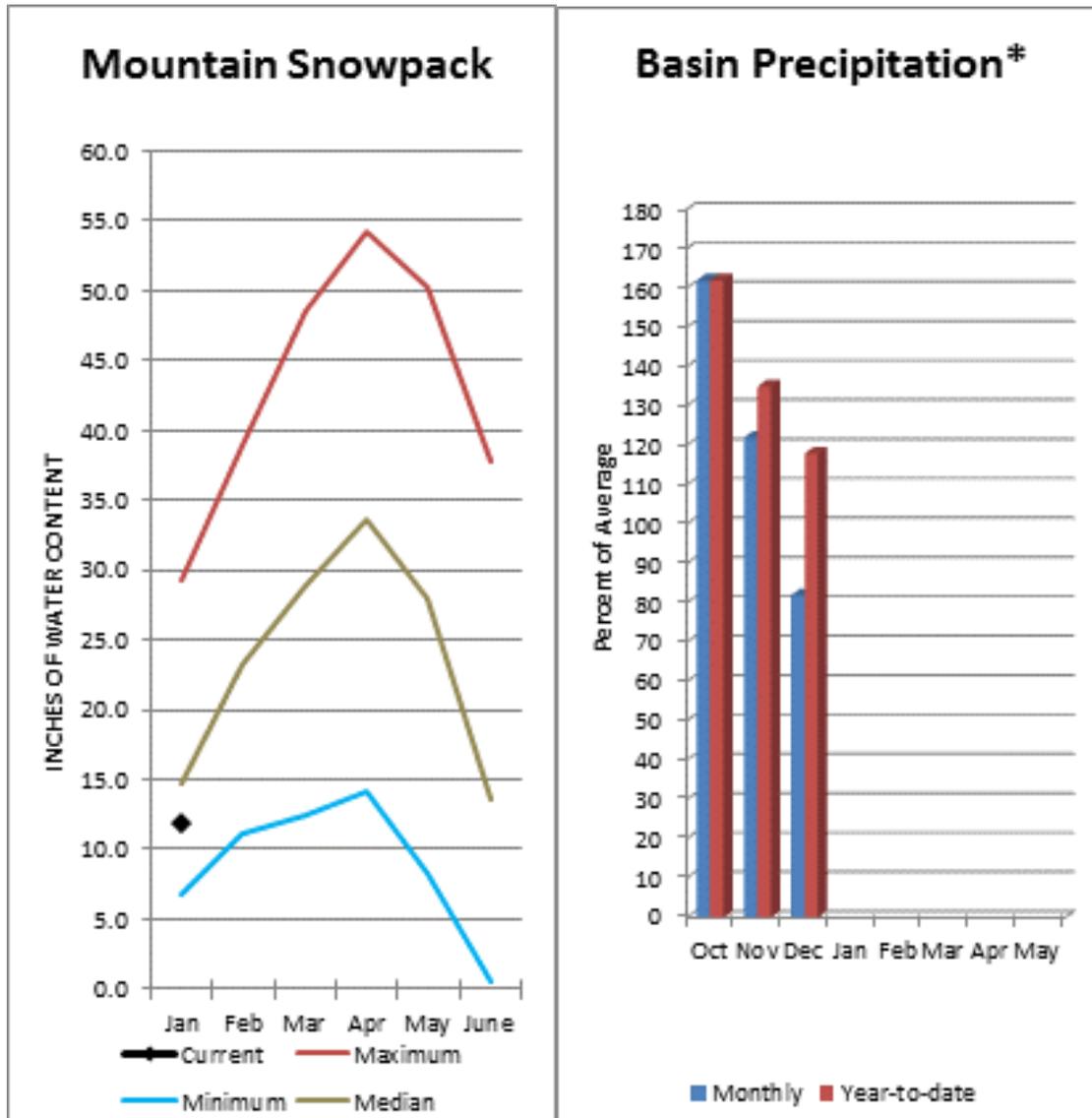
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Conconully Lake (Salmon Lake Dam)	6.9	9.3	7.3	10.5
Conconully Reservoir	8.3	11.3	6.5	13.0
Basin-wide Total	15.3	20.7	13.8	23.5
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper Columbia Basins	7	98%	77%
Okanogan River	6	104%	92%
Omak Creek	1	56%	41%
Sanpoil River	0		
Similkameen River	1	95%	81%
Toats Coulee Creek	0		
Conconully Lake	1	100%	38%
Methow River	3	114%	59%

Central Columbia River Basins



Precipitation during December was 110% of average in the basin and 124% for the year-to-date. Runoff for Entiat River is forecast to be 90% of average for the summer. The April-September average forecast for Chelan River is 89%, Wenatchee River at Plain is 84%, Stehekin River is 97% and Icicle Creek is 80%. December average streamflows on the Chelan River were 188% and on the Wenatchee River 201%. January 1 snowpack in the Wenatchee River Basin was 68% of normal; the Chelan, 80%; the Entiat, 77%; Stemilt Creek, 96% and Colockum Creek, 90%. Reservoir storage in Lake Chelan was not available. Lyman Lake SNOTEL had the most snow water with 21.7 inches of water. This site would normally have 26.4 inches on January 1. Temperatures were 2-4 degrees above normal for December and 2-3 degrees above normal for the water year.

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

Central Columbia River Basins

Data Current as of: 1/8/2015 11:23:37 AM

Central Columbia Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Central Columbia Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Stehekin R at Stehekin	APR-JUL	510	605	665	98%	730	825	680
	APR-SEP	600	705	770	97%	840	940	790
Chelan R at Chelan	APR-JUL	700	820	905	91%	985	1100	1000
	APR-SEP	765	905	1000	89%	1100	1240	1120
Entiat R nr Ardenvoir	APR-JUL	125	160	183	92%	205	240	200
	APR-SEP	137	173	198	90%	225	260	220
Wenatchee R at Plain	APR-JUL	595	745	845	85%	945	1090	990
	APR-SEP	635	800	910	84%	1020	1180	1080
Icicle Ck nr Leavenworth	APR-JUL	156	196	225	82%	250	290	275
	APR-SEP	171	215	240	80%	270	310	300
Wenatchee R at Peshastin	APR-JUL	825	1030	1160	85%	1300	1500	1370
	APR-SEP	875	1100	1250	84%	1400	1620	1490
Columbia R bl Rock Island Dam ²	APR-JUL	41700	49600	55000	99%	60400	68300	55770
	APR-SEP	49800	59100	65500	100%	71800	81200	65200

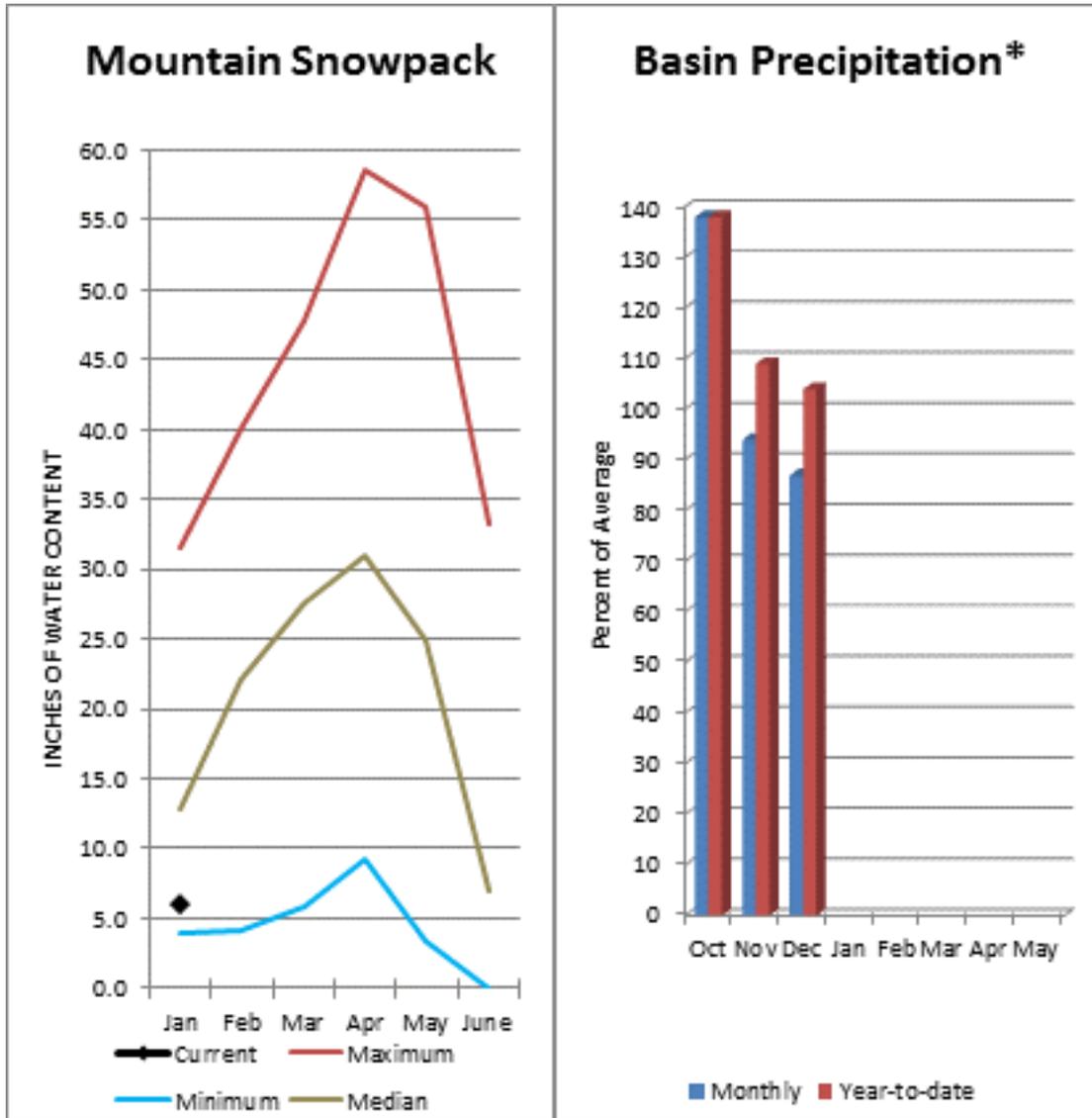
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Chelan			411.3	676.1
Basin-wide Total			0.0	0.0
# of reservoirs	0	0	0	0

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Central Columbia Basins	3	80%	46%
Chelan Lake Basin	3	80%	46%
Entiat River	1	77%	25%
Wenatchee River	7	68%	52%
Stemilt Creek	1	96%	46%
Colockum Creek	1	90%	88%

Upper Yakima River Basin



January 1 reservoir storage for the Upper Yakima reservoirs was 558,000-acre feet, 161% of average. Forecasts for the Yakima River at Cle Elum are 73% of average and the Teanaway River near Cle Elum is at 70%. Lake inflows are all forecasted to be slightly below average this summer as well. December streamflows within the basin were Cle Elum River near Roslyn at 166%. January 1 snowpack was 49% based upon 8 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 87% of average for December and 100% for the water-year. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Upper Yakima River Basin

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Upper Yakima River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Upper Yakima River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Keechelus Reservoir Inflow ²	APR-JUL	49	72	87	75%	103	125	116
	APR-SEP	56	79	95	75%	110	133	126
Kachess Reservoir Inflow ²	APR-JUL	42	64	78	75%	93	114	104
	APR-SEP	48	69	83	73%	98	119	113
Cle Elum Lake Inflow ²	APR-JUL	192	260	300	78%	345	410	385
	APR-SEP	205	275	320	77%	370	440	415
Yakima R at Cle Elum ²	APR-JUL	320	465	560	74%	655	795	755
	APR-SEP	360	505	605	73%	705	855	830
Teanaway R bl Forks nr Cle Elum	APR-JUL	35	68	91	70%	114	148	130
	APR-SEP	36	70	93	70%	116	150	133

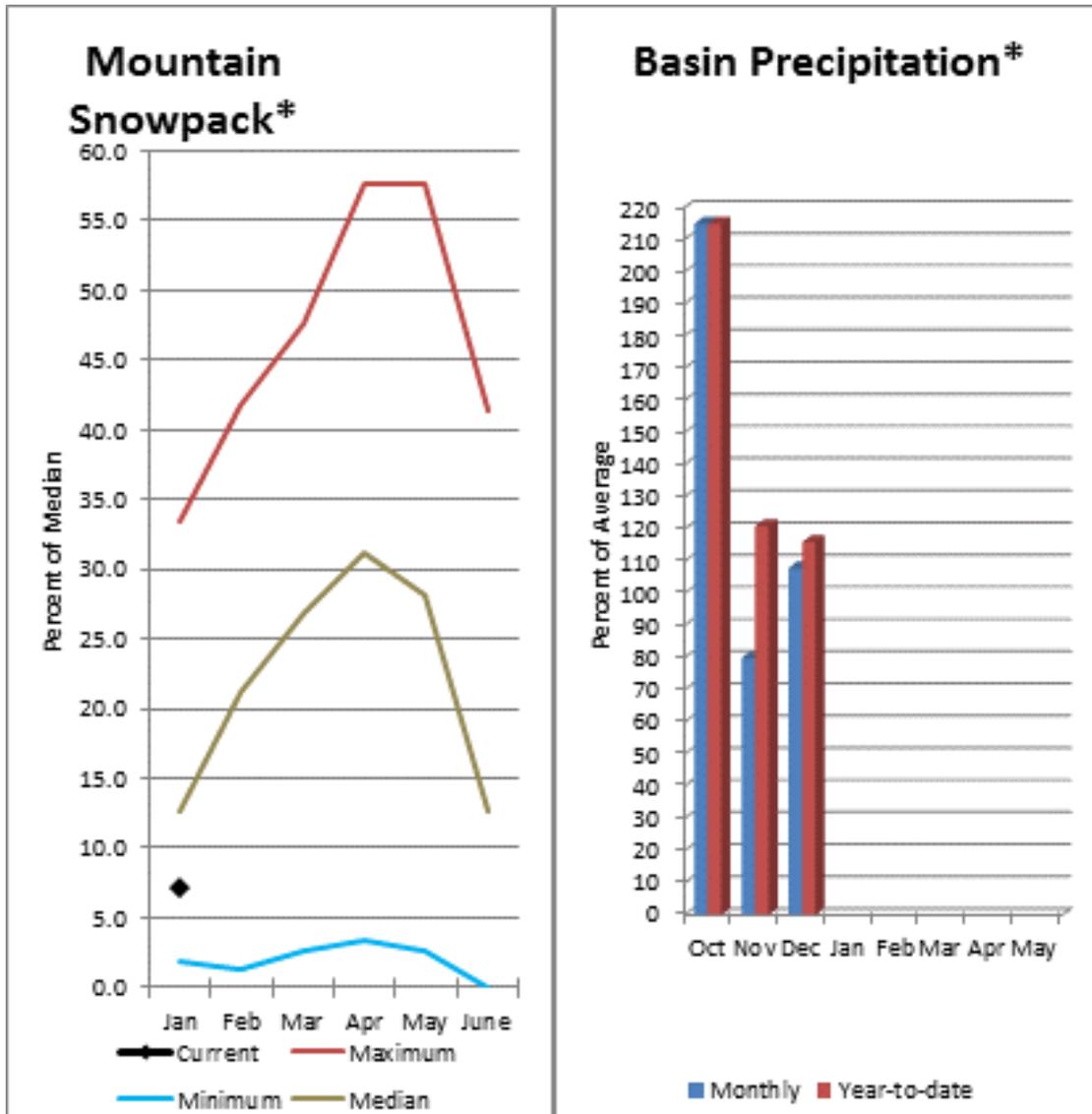
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Keechelus	109.1	85.9	68.5	157.8
Kachess	171.8	162.3	113.4	239.0
Cle Elum	277.1	163.0	164.0	436.9
Basin-wide Total	558.1	411.1	345.9	833.7
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Upper Yakima River	8	49%	38%

Lower Yakima River Basin



December average streamflows within the basin were: Yakima River near Parker, 177% and the Naches River near Naches, 209%. January 1 reservoir storage for Bumping and Rimrock reservoirs was 140,000-acre feet, 135% of average. Forecast averages for Yakima River near Parker are 80%; American River near Nile, 80%; Ahtanum Creek, 97%; and Klickitat River near Glenwood, 120%. January 1 snowpack was 56% based upon 7 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 61% of normal. Precipitation was 108% of average for December and 116% for the water-year. Temperatures were 4-6 degrees above normal for December and for 2-4 degrees above 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.

Lower Yakima River Basin

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Lower Yakima River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Lower Yakima River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Bumping Lake Inflow ²	APR-JUL	68	86	99	87%	111	129	114
	APR-SEP	73	93	106	86%	120	139	123
American R nr Nile	APR-JUL	55	71	82	80%	93	109	102
	APR-SEP	58	76	88	80%	100	118	110
Rimrock Lake Inflow ²	APR-JUL	122	148	165	88%	183	210	187
	APR-SEP	144	174	194	88%	215	245	220
Naches R nr Naches	APR-JUL	375	490	570	81%	650	765	700
	APR-SEP	400	525	615	81%	700	830	760
Ahtanum Ck at Union Gap	APR-JUL	10.7	19.8	26	96%	32	41	27
	APR-SEP	12.4	22	28	97%	34	44	29
Yakima R nr Parker ²	APR-JUL	820	1120	1330	80%	1540	1840	1660
	APR-SEP	900	1230	1450	80%	1670	2000	1820
Klickitat R nr Glenwood	APR-JUL	71	93	108	86%	122	144	126
	APR-SEP	81	104	120	86%	136	159	139
Klickitat R nr Pitt	APR-JUL	290	360	405	93%	450	515	435
	APR-SEP	365	440	490	94%	545	620	520

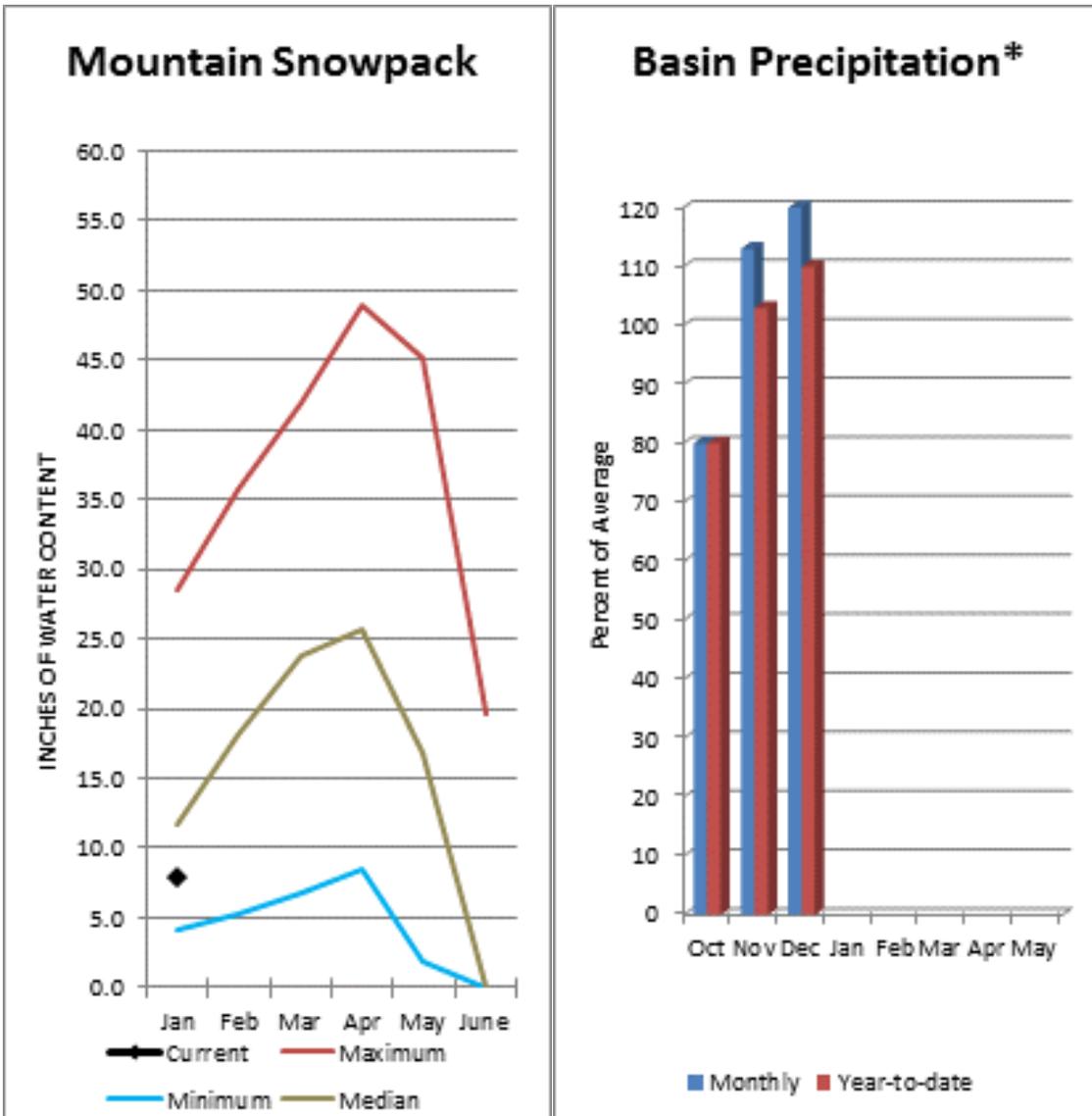
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bumping Lake	19.1	21.3	11.5	33.7
Rimrock	121.1	123.9	92.4	198.0
Basin-wide Total	140.2	145.2	103.9	231.7
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lower Yakima River	7	56%	45%
Ahtanum Creek	2	61%	55%

Walla Walla River Basin



December precipitation was 120% of average, maintaining the year-to-date precipitation at 110% of average. Snowpack in the basin was 67% of normal. Streamflow forecasts are 93% of average for Mill Creek and 98% for the SF Walla Walla near Milton-Freewater. Average temperatures were 6-8 degrees above normal for December and 3-5 degrees above normal for the water year.

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

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Walla Walla River Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

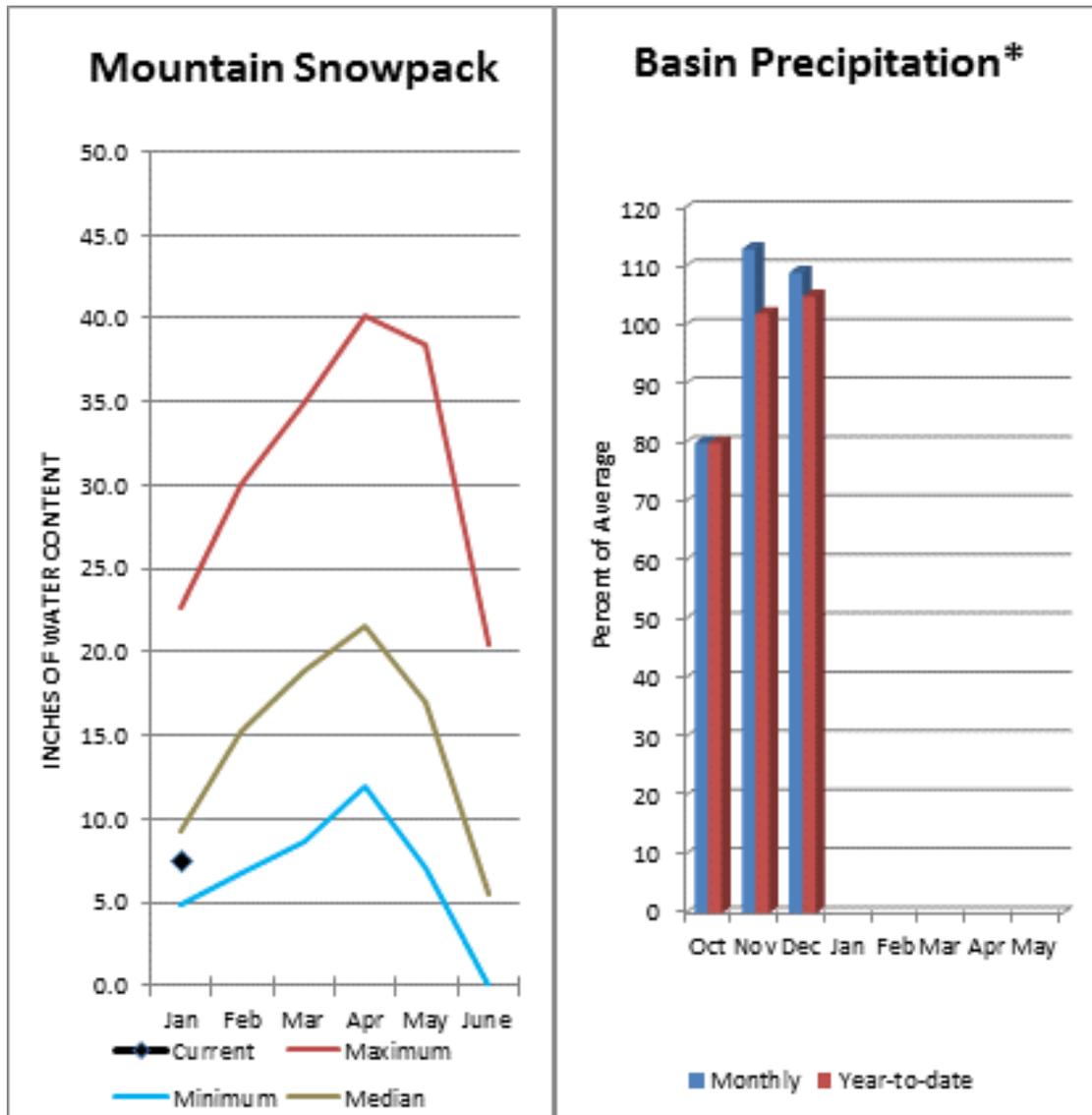
Walla Walla River	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
<hr/>								
SF Walla Wall R nr Milton-Freewater	MAR-SEP	65	73	79	99%	84	92	80
	APR-JUL	42	48	52	96%	56	62	54
	APR-SEP	53	60	65	98%	69	76	66
Mill Ck nr Walla Walla	APR-JUL	15.4	19.4	22	92%	25	29	24
	APR-SEP	17.8	22	25	93%	28	32	27

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Walla Walla River	2	67%	59%

Lower Snake River Basin



The Grande Ronde River can expect summer flows to be about 107% of normal. The forecast for Asotin Creek at Asotin predicts 97% of average flows for the April – July runoff period. December precipitation was 110% of average, bringing the year-to-date precipitation to 105% of average. January 1 snowpack readings averaged 80% of normal. December streamflow was 111% of average for Snake River below Lower Granite Dam and 168% for Grande Ronde River near Troy. Dworshak Reservoir storage was 101% of average. Average temperatures were 4-6 degrees above normal for December and 3-4 degrees above for the water year.

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

Lower Snake River Basin

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Lower Snake, Grande Ronde, Clearwater Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Lower Snake, Grande Ronde, Clearwater Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Grande Ronde R at Troy ¹	MAR-JUL	1080	1450	1620	107%	1790	2160	1510
	APR-SEP	880	1240	1400	107%	1560	1910	1310
Asotin Ck at Asotin	APR-JUL	15.6	27	34	97%	41	52	35
Clearwater R at Spalding ^{1,2}	APR-JUL	5000	6920	7790	113%	8660	10600	6890
	APR-SEP	5340	7300	8190	113%	9070	11000	7270
Snake R bl Lower Granite Dam ^{1,2}	APR-JUL	15200	17900	20500	103%	22800	25000	19848

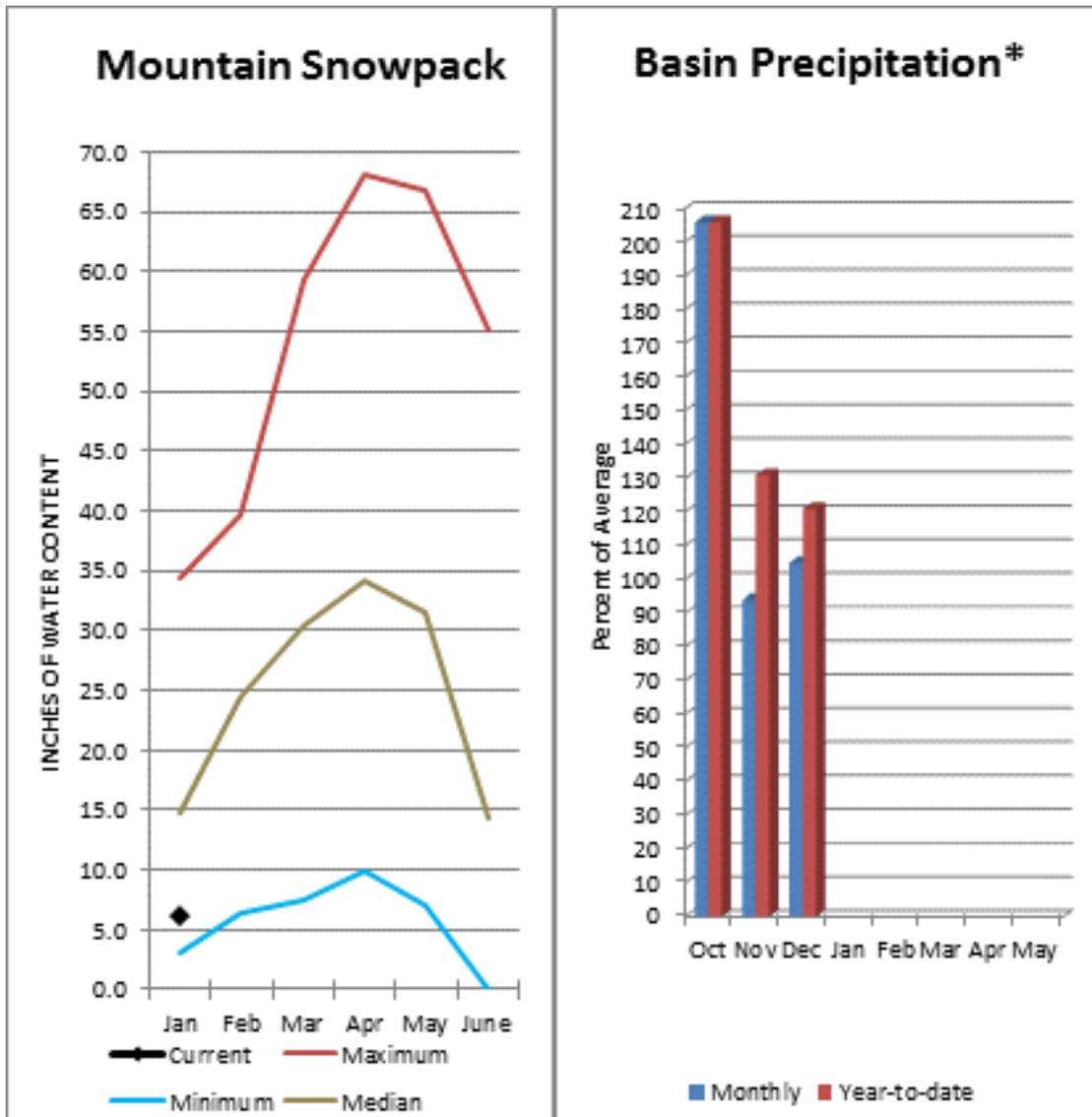
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2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Dworshak Reservoir	2431.1	2298.7	2403.0	3468.0
Basin-wide Total	2431.1	2298.7	2403.0	3468.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lower Snake, Grande Ronde, Clearwater Basins	12	80%	80%

Lower Columbia River Basins



Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 92% and Cowlitz River at Castle Rock, 95% of average. The Columbia at The Dalles is forecasted to have 100% of average flows this summer according to the River Forecast Center. December average streamflow for Cowlitz River was 137%. The Columbia River at The Dalles was 124% of average. December precipitation was 106% of average and the water-year average was 121%. January 1 snow cover for Cowlitz River was 49%, and Lewis River was 30% of normal. Temperatures were 2-4 degrees above normal during December and for the water year.

October brought the installation of two new SNOTEL sites within the Cowlitz River Basin. In cooperation with Tacoma Power we installed both Skate Creek and Pinto Rock SNOTEL sites during one of the rainiest weeks of the month. Both of these sites will support the ongoing work of Tacoma Power as well as providing a wealth of information to year round recreationists.

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

Lower Columbia River Basins

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Lower Columbia Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

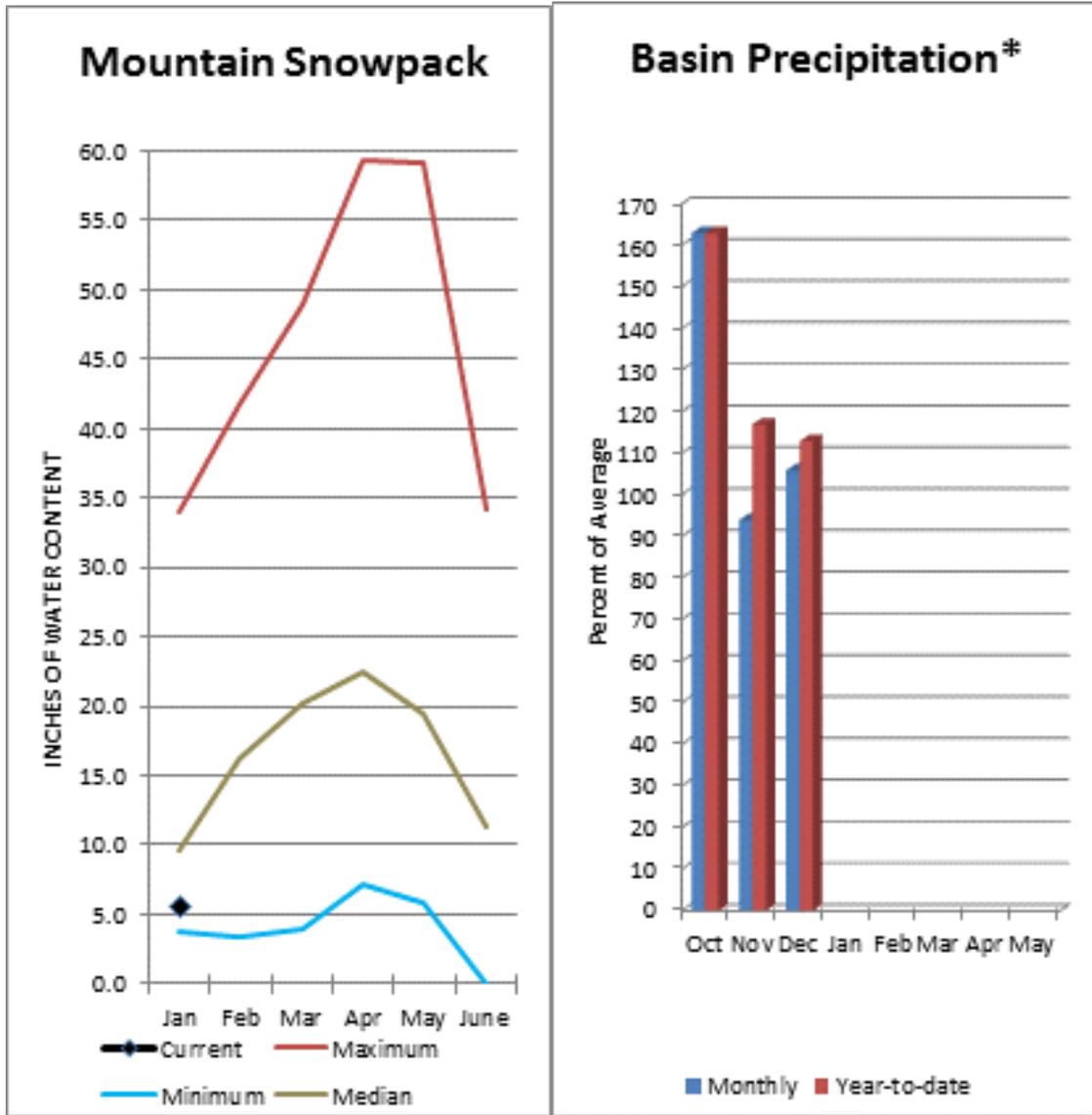
Lower Columbia Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Columbia R at The Dalles ²	APR-JUL	60000	71700	79600	100%	87500	99200	79855
	APR-SEP	70000	83600	92900	100%	102000	116000	92704
Klickitat R nr Glenwood	APR-JUL	71	93	108	86%	122	144	126
	APR-SEP	81	104	120	86%	136	159	139
Klickitat R nr Pitt	APR-JUL	290	360	405	93%	450	515	435
	APR-SEP	365	440	490	94%	545	620	520
Lewis R at Ariel	APR-JUL	615	790	910	94%	1030	1200	970
	APR-SEP	720	905	1030	92%	1150	1340	1120
Cowlitz R bl Mayfield ²	APR-JUL	1030	1330	1540	95%	1750	2050	1620
	APR-SEP	1110	1500	1760	96%	2020	2400	1840
Cowlitz R at Castle Rock ²	APR-JUL	1610	1910	2120	95%	2330	2630	2230
	APR-SEP	1810	2160	2390	95%	2630	2970	2520

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Lower Columbia Basins	10	41%	37%
Lewis River	4	30%	18%
Cowlitz River	6	49%	50%

South Puget Sound River Basins



Summer runoff is forecast to be 88% of normal for the Green River below Howard Hanson Dam and 102% for the White River near Buckley. January 1 snowpack was 63% of average for the White River, 66% for Puyallup River and 37% in the Green River Basin. December precipitation was 106% of average, bringing the water year-to-date to 113% of average for the basins. Average temperatures in the area were 2-4 degrees above normal for December and for the water-year.

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

South Puget Sound River Basins

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South Puget Sound Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

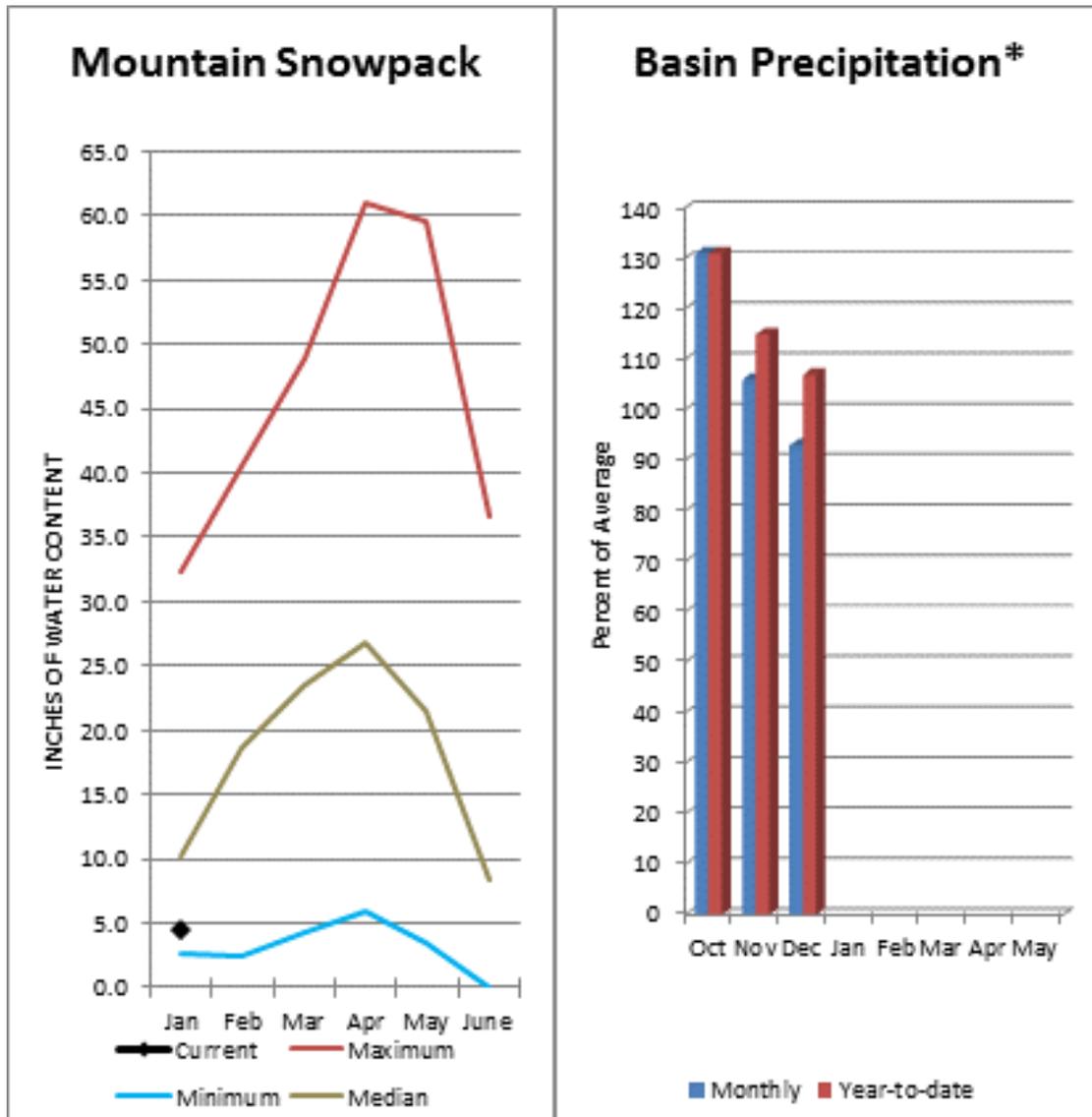
South Puget Sound Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
White R nr Buckley ^{1,2}	APR-JUL	325	405	440	102%	475	555	430
	APR-SEP	395	485	525	102%	570	660	515
Green R bl Howard A Hanson Dam ^{1,2}	APR-JUL	122	182	210	89%	235	295	235
	APR-SEP	145	205	230	88%	260	320	260

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
South Puget Sound Basins	10	58%	43%
White River	3	63%	52%
Green River	2	37%	16%

Central Puget Sound River Basins



Forecast for spring and summer flows are: 67% for Cedar River near Cedar Falls; 23% for Rex River; 74% for South Fork of the Tolt River; and 88% for Taylor Creek near Selleck. Basin-wide precipitation for December was 88% of average, bringing water-year-to-date to 104% of average. January 1 median snow cover in Cedar River Basin was 30%, Tolt River Basin was 26%, Snoqualmie River Basin was 35%, and Skykomish River Basin was 31%. Temperatures were 2-4 degrees above normal for December and for the water-year.

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

Central Puget Sound River Basins

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Central Puget Sound Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

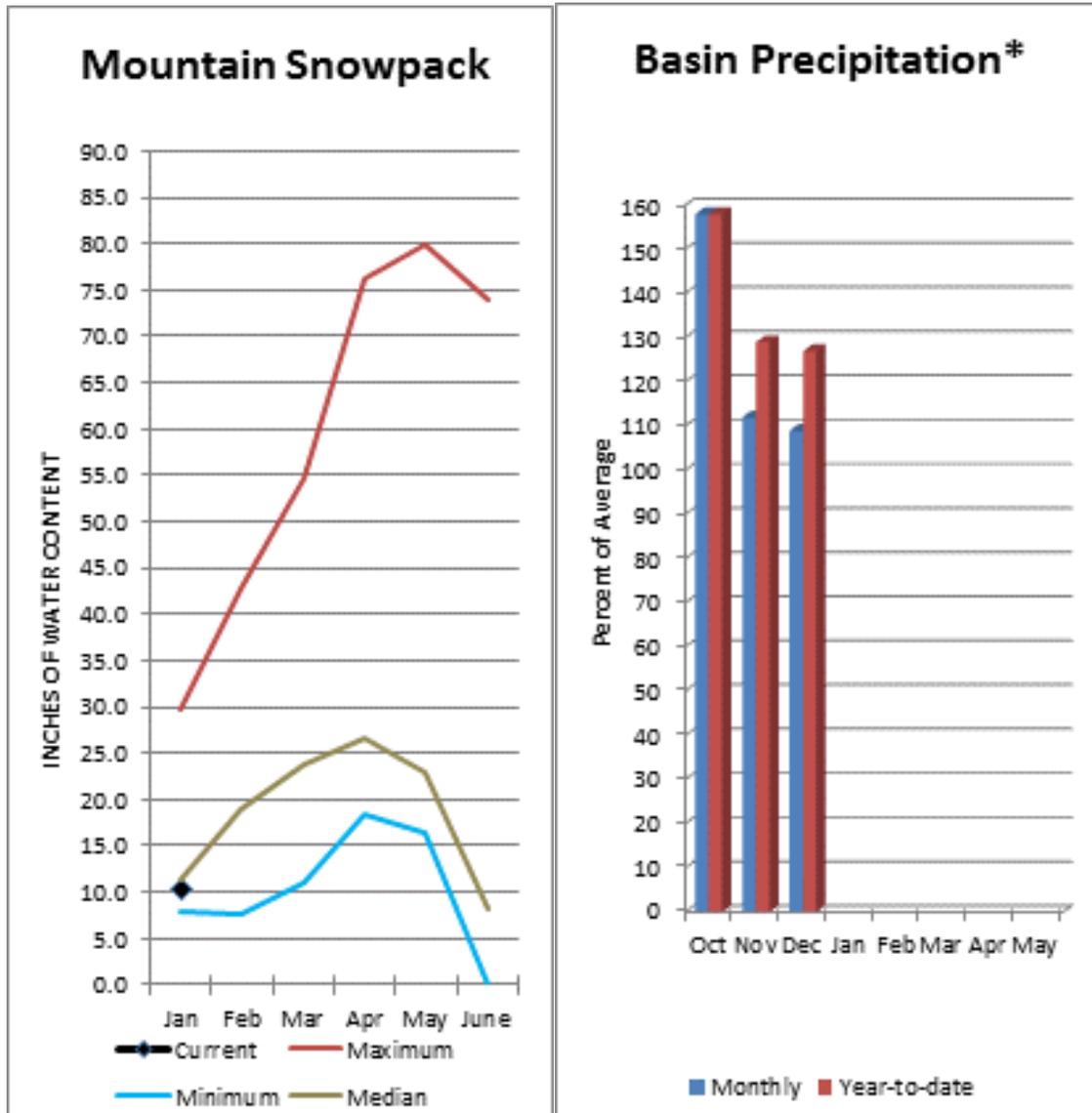
Central Puget Sound Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Cedar R nr Cedar Falls	APR-JUL	36	50	60	86%	70	85	70
	APR-SEP	41	56	67	88%	77	92	76
Rex R nr Cedar Falls	APR-JUL	10	16.1	20	83%	25	31	24
	APR-SEP	12.4	18.6	23	85%	27	33	27
Taylor Ck nr Selleck	APR-JUL	11.9	15.3	17.6	88%	20	23	20
	APR-SEP	15.2	18.9	21	88%	24	27	24
SF Tolt R nr Index	APR-JUL	5.8	8.5	10.4	73%	12.3	15	14.2
	APR-SEP	7.2	10	11.9	74%	13.8	16.7	16.1

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Central Puget Sound Basins	14	42%	44%
Puyallup River	5	66%	51%
Cedar River	4	30%	29%
Tolt River	2	26%	53%
Snoqualmie River	4	35%	44%
Skykomish River	2	31%	58%

North Puget Sound River Basins



Forecast for Skagit River streamflow at Newhalem is 97% of average for the spring and summer period. December streamflow in Skagit River was 165% of average. Other forecast points included Baker River at 93% and Thunder Creek at 98% of average. Basin-wide precipitation for December was 110% of average, bringing water-year-to-date to 123% of average. January 1 average snow cover in Skagit River Basin was 80%, Nooksack River Basin was 37% and Baker River Basin 27% of normal. January 1 Skagit River reservoir storage was 79% of average and 64% of capacity. Average temperatures were 204 degrees above normal for December and 1-3 degrees above for the water year.

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

North Puget Sound River Basins

Data Current as of: 1/8/2015 11:24:00 AM

North Puget Sound Basins Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

North Puget Sound Basins	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Thunder Ck nr Newhalem	APR-JUL	194	215	230	98%	240	260	235
	APR-SEP	280	305	325	98%	340	365	330
Skagit R at Newhalem ²	APR-JUL	1330	1520	1650	98%	1780	1970	1680
	APR-SEP	1590	1810	1960	97%	2100	2320	2030
Baker R at Concrete	APR-JUL	520	625	695	89%	765	870	780
	APR-SEP	675	815	910	93%	1000	1140	980

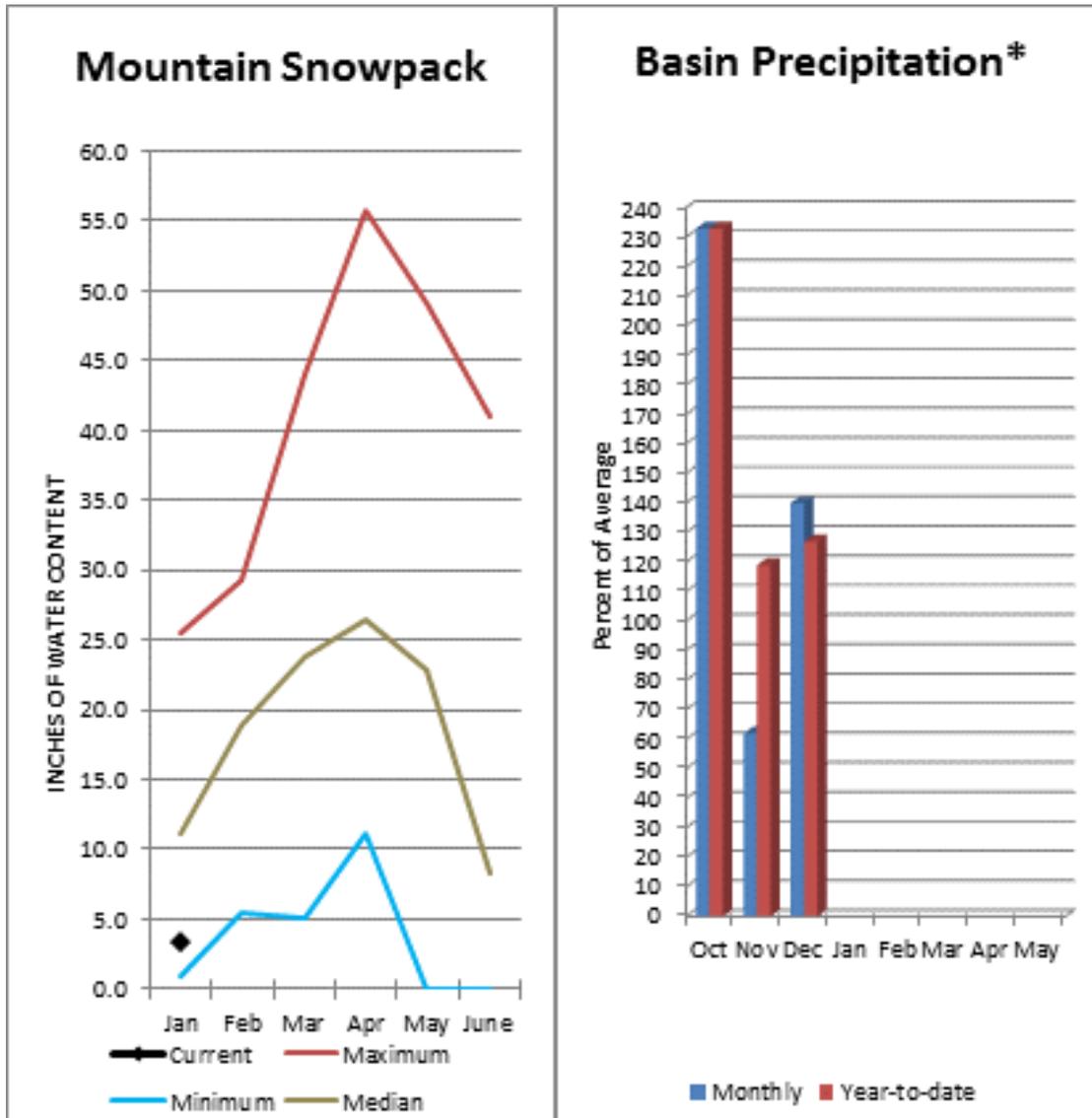
1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage End of December, 2014	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Ross	892.8	672.4	1135.0	1404.1
Diablo Reservoir			85.8	90.6
Basin-wide Total	892.8	672.4	1135.0	1404.1
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
North Puget Sound Basins	11	67%	51%
Skagit River	8	80%	44%
Baker River	0		
Nooksack River	3	37%	69%

Olympic Peninsula River Basins



Forecasted average runoff for streamflow for the Dungeness River is 101% and Elwha River is 99%. December runoff in the Dungeness River was 208% of normal. Big Quilcene and Wynoochee rivers may expect near average runoff this summer as well. December precipitation was 130% of average. Precipitation has accumulated at 127% of average for the water year. December precipitation at Quillayute was 14.2 inches. The 1981-2010 average for December is 12.99 inches. Olympic Peninsula snowpack averaged a whopping 30% of normal on January 1, the lowest region in the state. Temperatures were 2-4 degrees above average for December and 2-3 degrees above normal for the water year.

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

Olympic Peninsula River Basins

Data Current as of: 1/8/2015 11:24:03 AM

Olympic Peninsula Streamflow Forecasts - January 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

Olympic Peninsula	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Dungeness R nr Sequim	APR-JUL	95	111	122	102%	133	149	120
	APR-SEP	113	132	146	101%	159	178	145
Elwha R at McDonald Bridge nr Port Angeles	APR-JUL	300	355	390	98%	430	480	400
	APR-SEP	360	420	465	99%	505	565	470

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Watershed Snowpack Analysis January 1, 2015	# of Sites	% Median	Last Year % Median
Olympic Peninsula	3	30%	24%

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

Canada	Snow Survey Network Program – British Columbia Ministry of Environment River Forecast Center – British Columbia Ministry of Forests, Lands and Natural Resource Operations
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs Recourse Conservation & Development Councils
Local	City of Tacoma 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

