

Washington Water Supply Outlook Report February 1, 2011



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

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How forecasts are made

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

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

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

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Washington Water Supply Outlook

February 2011

General Outlook

The month of January was a pretty disappointing period for snowpack collection in all but a few areas of the state. For the most part above average temperatures and above average rainfall combined to reduce snowpack averages by as much as 35%. Actual water content was increased at higher elevations due to loading of the snow with rain but low to mid elevation packs suffered, melted and subsequently added to the above normal streamflows which swelled rivers to flood stage for days on end. Forecasters are predicting a return to cooler and wetter than normal conditions by mid month. Without a respite from current conditions we could be facing potential water shortages in some areas this summer. On average we have received about 50% of our normal peak snow accumulation. By this time we normally should have received 65%.

Snowpack

The February 1 statewide SNOTEL readings were 80% of average, down 21% from last month. The Green River snow survey data reported the lowest readings at 45% of average. Readings from the Eastern Olympic Peninsula reported the highest at 135% of average. Westside averages from SNOTEL, and February 1 snow surveys, included the North Puget Sound river basins with 88% of average, the Central Puget river basins with 59%, and the Lewis-Cowlitz basins with 86% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 74% and the Wenatchee area with 74%. Snowpack in the Spokane River Basin was at 90% and the Walla Walla River Basin had 81% of average. Maximum confirmed snow cover in Washington was at Paradise SNOTEL, with water content of 41.5 inches. The 30-year average for Paradise on February 1 is 48.1 inches leaving the site at only 86% of average, down slightly from last month.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	161	90
Newman Lake	205	96
Pend Oreille	151	109
Okanogan	108	94
Methow	98	89
Conconully Lake	75	83
Wenatchee	88	69
Chelan	93	75
Upper Yakima	93	65
Lower Yakima	104	83
Ahtanum Creek	79	73
Walla Walla	110	81
Lower Snake	121	87
Cowlitz	118	87
Lewis	113	86
White	111	85
Green	95	45
Puyallup	103	80
Cedar	137	65
Snoqualmie	116	56
Skykomish	108	62
Skagit	111	87
Baker	137	90
Nooksack	121	88
Olympic Peninsula	103	109

Precipitation

During the month of January, the National Weather Service and Natural Resources Conservation Service climate stations reported near to well above average precipitation in all river basins excluding the Walla Walla where they only received 67% of average. Heavy precipitation and warm temperatures throughout the month caused flooding around the state. These same storms loaded higher elevation snowpack densities while washing off most of the lower elevation snow. The highest percent of average in the state was at Newhalem in the Upper Skagit which reported 160% of average for a total of 18.64 inches. The average for Newhalem is 11.62 inches for January. The wettest spot in the state was reported at Olallie SNOTEL near Snoqualmie Pass with a January accumulation of 29.6 inches. Olallie would normally see 18-19 inches of precipitation in January.

RIVER BASIN	JANUARY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	140	118
Pend Oreille	107	109
Upper Columbia	91	104
Central Columbia	108	99
Upper Yakima	132	101
Lower Yakima	100	102
Walla Walla	67	91
Lower Snake	114	113
Lower Columbia	95	104
South Puget Sound	119	107
Central Puget Sound	144	107
North Puget Sound	133	103
Olympic Peninsula	92	128

Reservoir

Seasonal reservoir levels in Washington can vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management, power generation, municipal demands and flood control. Reservoir storage in the Yakima Basin was 633,000-acre feet, 142% of average for the Upper Reaches and 184,000-acre feet or 151% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 124% of average for February 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 211,000 acre feet, 182% of average and 88% of capacity; Chelan Lake, 290,000-acre feet, 92% of average and 43 of capacity; and the Skagit River reservoirs at 111% of average and 79% 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	88	182
Pend Oreille	52	109
Upper Columbia	88	124
Central Columbia	43	92
Upper Yakima	76	142
Lower Yakima	79	151
Lower Snake	67	100
North Puget Sound	79	111

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

Streamflow

Forecasts vary from 77% of average for the Icicle Creek near Leavenworth to 108% of average for S.F. Walla Walla River. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 89%; White River, 97%; and Skagit River, 95%. Some Eastern Washington streams include the Yakima River near Parker, 84%; Wenatchee River at Plain, 85%; and Spokane River near Post Falls, 103%. 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.

Statewide January streamflows were well above and appeared to be precipitation driven. Heavy precipitation caused localized flooding in some streams around the state. The Stehekin River had the highest reported natural flows with 261% of average. The Okanogan at Tonasket with 102% of average was the lowest in the state however that could be due to reservoir control or ice influence. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 151%; the Spokane at Spokane, 249%; the Columbia below Rock Island Dam, 150%; and the Cle Elum near Roslyn, 264%.

BASIN	PERCENT OF AVERAGE (50 PERCENT CHANCE OF EXCEEDENCE)
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Spokane	100-103
Pend Oreille	101-107
Upper Columbia	88-95
Central Columbia	77-89
Upper Yakima	81-84
Lower Yakima	100-84
Walla Walla	9 6-108
Lower Snake	86-104
Lower Columbia	91-99
South Puget Sound	82-97
Central Puget Sound	89-92
North Puget Sound	92-95
Olympic Peninsula	97-103

STREAM	PERCENT OF AVERAGE JANUARY STREAMFLOWS
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Pend Oreille Below Box Canyon	164
Kettle at Laurier	116
Columbia at Birchbank	115
Spokane at Long Lake	208
Similkameen at Nighthawk	141
Okanogan at Tonasket	102
Methow at Pateros	161
Chelan at Chelan	206
Wenatchee at Pashastin	226
Yakima at Cle Elum	243
Yakima at Parker	228
Naches at Naches	241
Grande Ronde at Troy	128
Snake below Lower Granite Dam	126
SF Walla Walla near Milton Freewater	220
Columbia River at The Dalles	144
Cowlitz below Mayfield Dam	162
Skagit at Concrete	159
Dungeness near Sequim	117

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BASIN SUMMARY OF
SNOW COURSE DATA

FEBRUARY 2011

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00	KELLER RIDGE KELLOGG PEAK SNOW COURSE	3700 5560 ELEVATION	1/27/11 1/27/11 DATE	14 51 SNOW DEPTH	3.7 18.1 WATER CONTENT	3.8 12.4 LAST YEAR	-- 20.7 AVERAGE 1971-00
AHTANUM R.S.	3100	1/28/11	10	4.5	6.1	7.1							
ALPINE MEADOWS	3500	1/26/11	40	15.9	10.9	--							
ALPINE MEADOWS SNTL	3500	2/01/11	39	18.5	16.1	29.2	KLESILKWA CAN.	3450	2/01/11	18	4.7	3.3	7.6
ASHLEY DIVIDE	4820	1/27/11	27	7.4	2.7	5.1	KRAFT CREEK SNOTEL	4750	2/01/11	41	10.9	6.9	10.9
BADGER PASS SNOTEL	6900	2/01/11	71	22.0	18.8	22.3	LAMB BUTTE		1/28/11	30	8.4	11.6	--
BAIRD #2	3220	1/27/11	28	6.6	4.8	--	LOLO PASS SNOTEL	5240	2/01/11	72	21.3	11.6	20.9
BARKER LAKES SNOTEL	8250	2/01/11	34	8.4	11.4	9.2	LONE PINE SNOTEL	3930	2/01/11	57	24.2	20.8	24.1
BASIN CREEK SNOTEL	7180	2/01/11	22	5.1	4.4	4.9	LOOKOUT SNOTEL	5140	2/01/11	66	20.1	11.5	21.5
BEAVER CREEK TRAIL	2200	2/01/11	36	12.0	6.6	10.3	LOST HORSE MTN CAN.	6300	2/01/11	17	5.7	4.8	6.5
BEAVER PASS	3680	2/01/11	51	18.1	18.2	19.3	LOST HORSE SNOTEL	5120	2/01/11	24	8.9	12.0	13.1
BEAVER PASS SNOTEL	3630	2/01/11	65	24.3	21.5	26.2	LOST LAKE SNOTEL	6110	2/01/11	103	35.4	21.9	40.6
BIG WHITE MTN CAN.	5510	1/31/11	44	10.9	--	13.3	LOST LAKE	4070	1/25/11	21	4.9	5.2	--
BLACK PINE SNOTEL	7100	2/01/11	34	8.9	5.4	8.0	LOUP LOUP CAMPGROUND		1/24/11	23	5.4	7.1	--
BLACKWALL PILL CAN.	6370	2/01/11	69	21.2	20.7	23.8	LUBRECHT FOREST NO 3	5450	1/31/11	24	5.8	2.2	4.6
BLEWETT PASS#2SNOTEL	4240	2/01/11	18	7.1	10.8	12.4	LUBRECHT FOREST NO 4	4650	1/31/11	11	2.7	1.4	2.5
BROWN TOP AM	6000	1/30/11	115	39.4	41.6	42.5	LUBRECHT FOREST NO 6	4040	1/31/11	20	5.4	1.9	2.8
BROWNS PASS		1/27/11	14	2.5	3.5	--	LUBRECHT HYDROPLOT	4200	1/31/11	24	6.1	2.5	4.2
BUCKINGHORSE SNOTEL	4870	2/01/11	101	43.3	44.1	--	LUBRECHT SNOTEL	4680	2/01/11	19	5.0	3.1	4.2
BUMPING LAKE (NEW)	3400	1/31/11	33	12.2	9.9	13.3	LYMAN LAKE SNOTEL	5980	2/01/11	107	34.4	34.7	43.4
BUMPING RIDGE SNOTEL	4610	2/01/11	45	16.5	16.1	19.4	LYNN LAKE	4000	2/01/11	18	6.4E	--	14.5
BUNCHGRASS MDWSNOTEL	5000	2/01/11	60	16.3	17.1	18.6	LYNN LAKE SNOTEL	3900	2/01/11	18	6.4	5.0	--
BURNT MOUNTAIN PIL	4170	2/01/11	13	5.1	4.3	9.0	MARIAS PASS	5250	1/27/11	40	11.7	6.7	11.7
BUTTERMILK BUTTE	5250	1/27/11	29	9.1	11.0	--	MARTEN LAKE AM	3600	1/26/11	133	49.2	31.4	46.8
CALAMITY SNOTEL	2500	2/01/11	1	.1	.0	--	MARTEN RIDGE SNOTEL	3520	2/01/11	77	35.1	31.0	--
CAYUSE PASS SNOTEL	5240	2/01/11	99	38.5	30.2	--	MAZAMA		1/24/11	21	6.0	5.7	--
CHESSMAN RESERVOIR	6200	1/26/11	15	3.0	2.3	2.5	MCCULLOCH CAN.	4200	1/31/11	22	5.4	3.9	4.9
CHEWALAH #2	4930	1/31/11	40	11.2	11.0	--	MEADOWS CABIN	1900	1/30/11	7	2.0	.0	5.0
CHICKEN CREEK	4060	1/27/11	47	13.2	8.7	11.5	MEADOWS PASS SNOTEL	3230	2/01/11	30	13.4	9.8	19.1
CHIWAUKUM G.S.	2500	1/28/11	20	7.2	6.8	8.6	METEOR		1/28/11	16	6.0	3.2	--
CITY CABIN	2390	1/26/11	0	.0	.0	--	M F NOOKSACK SNOTEL	4970	2/01/11	79	34.8	28.4	39.4
COLD CREEK STRIP	6020	1/26/11	23	4.5	6.0	--	MICA CREEK SNOTEL	4510	2/01/11	52	14.9	11.3	18.3
COLOCKUM PASS	5370	1/31/11	29	9.4	9.7	11.7	MISSEZULA MTN CAN.	5080	1/29/11	26	5.6	4.3	6.5
COMBINATION SNOTEL	5600	2/01/11	12	3.8	3.1	3.4	MISSION RIDGE	5000	1/28/11	28	8.3	10.7	11.9
COPPER BOTTOM SNOTEL	5200	2/01/11	22	5.6	4.2	8.0	MORSE LAKE SNOTEL	5410	2/01/11	85	31.7	34.9	36.9
COPPER MOUNTAIN	7700	1/29/11	30	6.1	6.0	7.0	MOSES MOUNTAIN (2)	4800	1/31/11	25	5.2	10.0	12.0
CORRAL PASS SNOTEL	5800	2/01/11	58	20.2	16.2	22.1	MOSES MTN SNOTEL	5010	2/01/11	28	8.2	8.1	10.4
COUGAR MTN. SNOTEL	3200	2/01/11	14	5.0	1.5	13.7	MOSES PEAK	6650	1/31/11	47	15.6	16.3	9.6
COX VALLEY	4500	1/28/11	56	22.9	23.8	24.2	MOSQUITO RDG SNOTEL	5200	2/01/11	---	25.9	18.0	24.6
COYOTE HILL	4200	1/28/11	27	8.1	4.3	7.3	MOULTON RESERVOIR	6850	1/28/11	26	5.8	4.1	5.2
DALY CREEK SNOTEL	5780	2/01/11	30	7.5	5.2	7.4	MOUNT CRAG SNOTEL	3960	2/01/11	65	26.0	22.4	19.3
DEER PARK	5200	1/31/11	25	11.0	13.7	12.2	MT. KOBAU CAN.	5500	1/29/11	28	6.5	9.5	7.9
DEVILS PARK	5900	1/31/11	84	27.3	21.0	30.7	MOUNT TOLMAN	2000	1/26/11	19	2.1	.0	3.6
DISAUTEL PASS		1/26/11	15	3.4	3.4	--	MOWICH SNOTEL	3160	2/01/11	0	.0	.0	1.2
DISCOVERY BASIN	7050	1/31/11	31	6.5	5.2	6.6	MOUNT GARDNER	3300	1/26/11	18	8.0	3.2	--
DIX HILL	6400	1/29/11	29	7.9	5.1	7.6	MOUNT GARDNER SNOTEL	2920	2/01/11	21	7.9	3.6	12.0
DOCK BUTTE AM	3800	1/26/11	72	28.8	18.1	37.2	MUTTON CREEK #1	5700	1/28/11	28	8.0	10.7	9.4
DOMMERIE FLATS	2200	2/01/11	9	3.3	4.9	6.4	N.F. ELK CR SNOTEL	6250	2/01/11	42	10.3	5.2	8.0
DUNCAN RIDGE	5370	1/26/11	19	3.7	4.6	--	NEVADA RIDGE SNOTEL	7020	2/01/11	45	12.1	7.9	10.1
DUNGENESS SNOTEL	4010	2/01/11	23	9.3	4.5	5.9	NEW HOZOMEEN LAKE	2800	1/30/11	---	4.2E	.0	7.8
EASY PASS AM	5200	1/26/11	112	43.7	41.3	46.2	NEZ PERCE CMP SNOTEL	5650	2/01/11	34	10.0	6.0	9.9
ELBOW LAKE SNOTEL	3200	2/01/11	48	20.1	15.4	24.5	NOISY BASIN SNOTEL	6040	2/01/11	127	44.5	24.3	27.0
EMERY CREEK SNOTEL	4350	2/01/11	49	13.5	8.0	10.5	OLALLIE MDWS SNOTEL	4030	2/01/11	57	24.6	29.1	39.2
FISH CREEK	8000	1/28/11	26	6.6	6.2	5.8	OPHIR PARK	7150	1/29/11	39	11.6	8.6	10.6
FISH LAKE	3370	2/01/11	41	15.9	17.9	24.5	OYAMA LAKE CAN.	4100	2/01/11	18	3.5	3.4	5.0
FISH LAKE SNOTEL	3430	2/01/11	39	15.2	16.7	24.7	PARADISE SNOTEL	5130	2/01/11	95	41.5	37.2	48.1
FLATTOP MTN SNOTEL	6300	2/01/11	115	33.6	25.8	31.8	PARK CK RIDGE SNOTEL	4600	2/01/11	61	24.1	31.1	35.0
FOURTH OF JULY SUM	3200	1/27/11	14	4.5	.0	7.1	PEPPER CREEK SNOTEL	2140	2/01/11	9	4.4	.0	--
FREEZEOUT CK. TRAIL	3500	1/30/11	27	7.1	6.0	8.8	PETERSON MDW SNOTEL	7200	2/01/11	25	5.7	5.7	6.1
FROHNER MDWS SNOTEL	6480	2/01/11	23	5.4	4.5	5.0	PIGTAIL PEAK SNOTEL	5800	2/01/11	80	31.7	27.7	34.3
FROST MEADOWS	4630	2/02/11	27	9.7	9.7	--	PIKE CREEK SNOTEL	5930	2/01/11	44	12.9	7.9	17.8
GOAT CREEK	3600	1/28/11	20	4.6	5.4	5.1	PIPESTONE PASS	7200	1/28/11	16	3.0	2.6	3.2
GOLD MTN LOOKOUT		1/28/11	29	6.4	9.8	--	POPE RIDGE SNOTEL	3590	2/01/11	33	10.3	12.5	14.9
GRASS MOUNTAIN #2	2900	1/27/11	6	2.8	--	7.5	POSTILL LAKE CAN.	4200	1/31/11	22	5.2	3.9	5.8
GRAVE CRK SNOTEL	4300	2/01/11	44	12.6	9.2	11.7	POTATO HILL SNOTEL	4510	2/01/11	51	18.0	18.5	18.5
GRAYSTOKE LAKE CAN.	5500	2/01/11	28	7.5	--	--	QUARTZ PEAK SNOTEL	4700	2/01/11	52	16.6	11.3	15.4
GREEN LAKE SNOTEL	5920	2/01/11	37	12.5	14.7	15.4	RAGGED MOUNTAIN	4200	1/27/11	44	16.4	11.1	14.1
GROUSE CAMP SNOTEL	5390	2/01/11	35	11.1	12.1	14.0	RAGGED MTN SNOTEL	4210	2/01/11	46	16.6	10.6	--
HAMILTON HILL CAN.	4550	1/29/11	26	5.6	6.2	9.9	RAGGED RIDGE	3330	1/26/11	14	4.8	.2	--
HAND CREEK SNOTEL	5030	2/01/11	35	9.0	5.9	8.6	RAINY PASS SNOTEL	4890	2/01/11	62	22.5	22.4	30.2
HARTS PASS SNOTEL	6490	2/01/11	80	32.8	23.5	31.3	RAINY PASS	4780	1/31/11	64	20.5	21.4	27.6
HARTS PASS	6500	1/31/11	86	30.2	29.1	29.5	REX RIVER SNOTEL	3810	2/01/11	30	12.2	12.3	21.7
HELL ROARING DIVIDE	5770	1/29/11	82	25.3	17.2	20.7	ROCKER PEAK SNOTEL	8000	2/01/11	39	10.3	8.3	9.1
HERRIG JUNCTION	4850	1/27/11	62	18.8	13.7	18.1	ROCKY CREEK AM	2100	1/26/11	46	18.9	14.4	20.2
HIGH RIDGE SNOTEL	4920	2/01/11	41	18.3	13.6	16.9	ROUND TOP MTN	4020	1/26/11	30	9.4	5.8	--
HOLBROOK	4530	2/02/11	24	6.6	4.3	7.2	RUSTY CREEK	4000	1/28/11	14	3.6	5.2	4.9
HOODOO BASIN SNOTEL	6050	2/01/11	93	31.1	15.2	30.1	SF THUNDER CK AM	2200	1/26/11	4	1.6	2.6	5.9
HUCKLEBERRY SNOTEL	2250	2/01/11	0	.0	.0	2.0	SADDLE MTN SNOTEL	7900	2/01/11	67	20.2	9.6	17.3
HUMBOLDT GLCH SNOTEL	4250	2/01/11	---	8.6	5.0	9.5	SALMON MDWS SNOTEL	4460	2/01/11	22	6.4	8.2	7.5
HURRICANE	4500	1/27/11	27	10.7	8.9	11.7	SASSE RIDGE SNOTEL	4340	2/01/11	46	17.6	16.6	23.8
INDIAN ROCK SNOTEL	5360	2/01/11	48	22.1	22.0	--	SATUS PASS	4030	1/26/11	21	8.2	6.6	8.7
INTERGAARD	6450	1/26/11	21	4.8	2.0	4.8	SAVAGE PASS SNOTEL	6170	2/01/11	64	19.4	10.4	17.6
IRENE'S CAMP	5530	1/26/11	25	5.3	6.4	--	SAWMILL RIDGE SNOTEL	4640	2/01/11	51	22.2	28.5	--
ISINTOK LAKE CAN.	5100	1/28/11	18	4.1	4.0	5.2	SCHREIBERS MDW AM	3400	1/26/11	60	27.0	21.8	32.4
JASPER PASS AM	5400	1/26/11	130	58.5	36.1	56.5	SENTINEL BT SNOTEL	4680	2/01/11	27	6.5	6.5	6.1
JUNE LAKE SNOTEL	3440	2/01/11	57	25.0	17.1	28.4	SHEEP CANYON SNOTEL	3990	2/01/11	54	22.7	13.3	23.9

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
SHERWIN SNOTEL	3200	2/01/11	---	7.7	4.2	8.4
SILVER STAR MTN CAN.	5600	1/30/11	63	20.7	18.3	20.0
SKALKAHO SNOTEL	7260	2/01/11	60	17.2	8.5	16.0
SKOOKUM CREEK SNOTEL	3310	2/01/11	16	8.1	0	20.2
SKOOKUM LAKES	4230	1/27/11	37	9.8	5.9	--
SOURDOUGH GUL SNOTEL	4000	2/01/11	0	.0	.3	--
SOUTH BALDY	4920	1/27/11	50	14.8	12.6	--
SPENCER MDW SNOTEL	3400	2/01/11	30	15.0	14.2	21.9
SPIRIT LAKE SNOTEL	3520	2/01/11	0	.3	2.4	5.1
SPOTTED BEAR MTN.	7000	2/02/11	42	10.2	7.7	10.1
SPRUCE SPGS SNOTEL	5700	2/01/11	18	4.8	7.7	13.0
STARVATION MOUNTAIN	6750	1/27/11	40	12.2	10.9	13.0
STAHL PEAK SNOTEL	6030	2/01/11	96	30.3	21.0	24.1
STAMPEDE PASS SNOTEL	3850	2/01/11	40	15.6	14.9	31.0
STEVENS PASS SNOTEL	3950	2/01/11	54	18.2	21.5	30.2
STORM LAKE	7780	1/31/11	34	7.1	7.7	8.3
STRYKER BASIN	6180	1/27/11	76	24.9	19.5	21.3
STUART MOUNTAIN	7400	2/02/11	96	31.3	--	--
SUMMERLAND RES CAN.	4200	1/27/11	28	7.1	5.8	6.9
SUMMIT G.S. #2	4600	1/28/11	29	6.9	7.4	6.3
SUNSET SNOTEL	5540	2/01/11	---	16.5	7.7	20.9
SURPRISE LKS SNOTEL	4290	2/01/11	67	27.7	26.9	32.2
SWAMP CREEK SNOTEL	3930	2/01/11	37	11.6	9.9	13.9
SWIFT CREEK SNOTEL	4440	2/01/11	---	36.3	38.6	38.5
TEN MILE LOWER	6600	1/26/11	24	4.3	3.7	4.7
TEN MILE MIDDLE	6800	1/26/11	28	6.2	6.1	7.1
THUNDER BASIN SNOTEL	4320	2/01/11	45	18.2	20.1	24.3
THUNDER BASIN	4200	1/30/11	33	10.8	12.7	14.5

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1971-00
THOMPSON CREEK	2500	1/26/11	16	4.6	.0	--
THOMPSON RIDGE	4650	1/27/11	26	7.3	8.6	--
TINKHAM CREEK SNOTEL	2990	2/01/11	38	15.8	12.8	22.7
TOATS COULEE	2850	1/26/11	10	2.1	1.9	2.6
TOUCHET SNOTEL	5530	2/01/11	34	14.5	16.2	23.8
TRINKUS LAKE	6100	2/02/11	111	38.5	22.2	26.6
TROUGH #2 SNOTEL	5480	2/01/11	18	6.8	10.0	7.5
TROUT CREEK CAN.	5650	1/29/11	31	6.6	5.8	5.5
TRUMAN CREEK	4060	1/27/11	16	4.8	1.8	3.5
TUNNEL AVENUE	2450	2/01/11	28	11.5	9.1	14.8
TV MOUNTAIN	6800	2/02/11	55	17.4	7.1	11.8
TWELVEMILE SNOTEL	5600	2/01/11	36	10.6	7.0	12.8
TWIN LAKES SNOTEL	6400	2/01/11	85	28.5	15.0	27.5
TWIN SPIRIT DIVIDE	3480	1/27/11	16	5.2	5.8	10.5
UPPER HOLLAND LAKE	6200	2/02/11	80	24.8	14.7	23.7
UPPER WHEELER SNOTEL	4330	2/01/11	20	6.6	7.6	9.2
VULCAN MTN	4660	1/28/11	30	7.3	8.9	--
VULCAN ROAD	3840	1/28/11	23	5.8	5.4	--
WARM SPRINGS SNOTEL	7800	2/01/11	57	15.5	12.1	13.8
WATSON LAKES AM	4500	1/26/11	68	24.5	13.3	35.6
WATERHOLE SNOTEL	5010	2/01/11	58	25.5	29.3	23.2
WEASEL DIVIDE	5450	2/03/11	70	23.2	17.1	21.5
WELLS CREEK SNOTEL	4030	2/01/11	58	20.7	18.8	22.0
WHITE PASS ES SNOTEL	4440	2/01/11	35	13.3	11.6	17.1
WHITE ROCKS MTN CAN.	7200	1/29/11	47	14.1	--	15.7



Natural Resources Conservation Service

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Snow, Water and Climate Services

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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

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

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

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

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

USDA-NRCS Agency Homepages

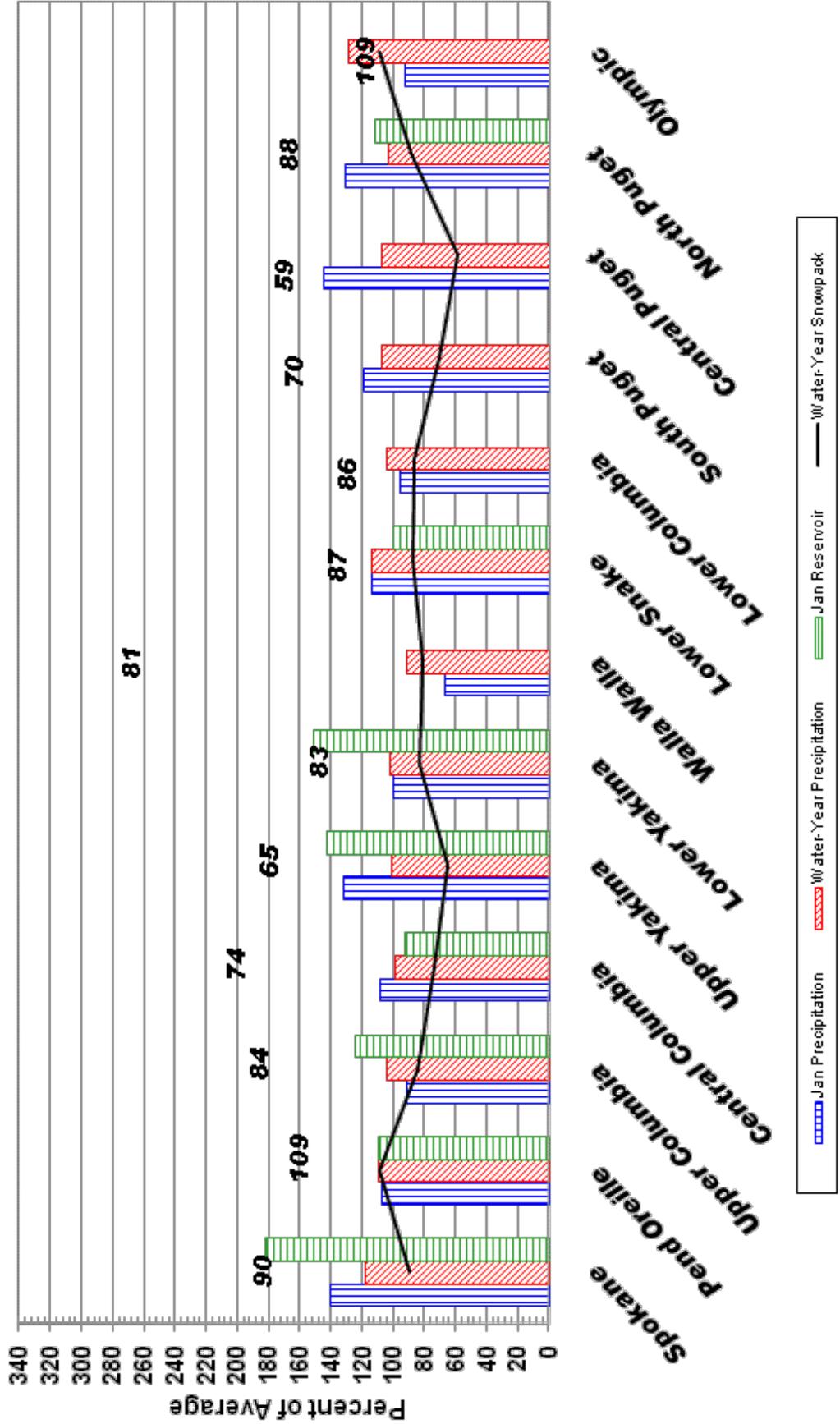
Washington:
<http://www.wa.nrcs.usda.gov>

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

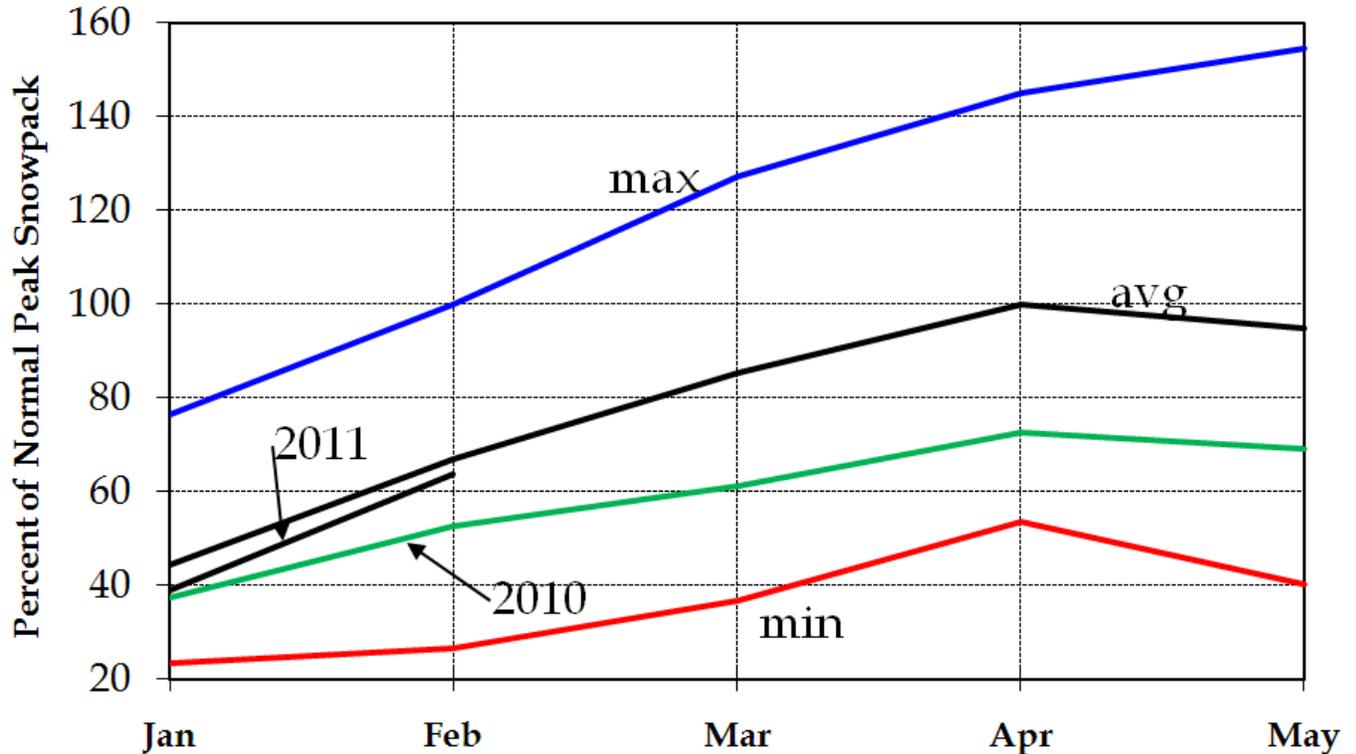


February 1, 2011 - Snowpack, Precipitation and Reservoir Conditions at a Glance

(Water Year = October 1, 2010 - Current Date)



Columbia above The Dalles



February 1, 2011

The Columbia Basin snowpack charts are produced, using only automated data. These data are telemetered via remote collection sites in Canada and the United States. The data are provisional, until they are officially released by the responsible data collection agency.

The combined Columbia Basin snowpack above The Dalles is currently at 95 percent of average, compared to 89 percent of average last month and 79 percent last year. This increase in the snowpack was due largely to increases in the northern tier of the basin that more than offset substantial snowpack losses to normal in the southern tier.

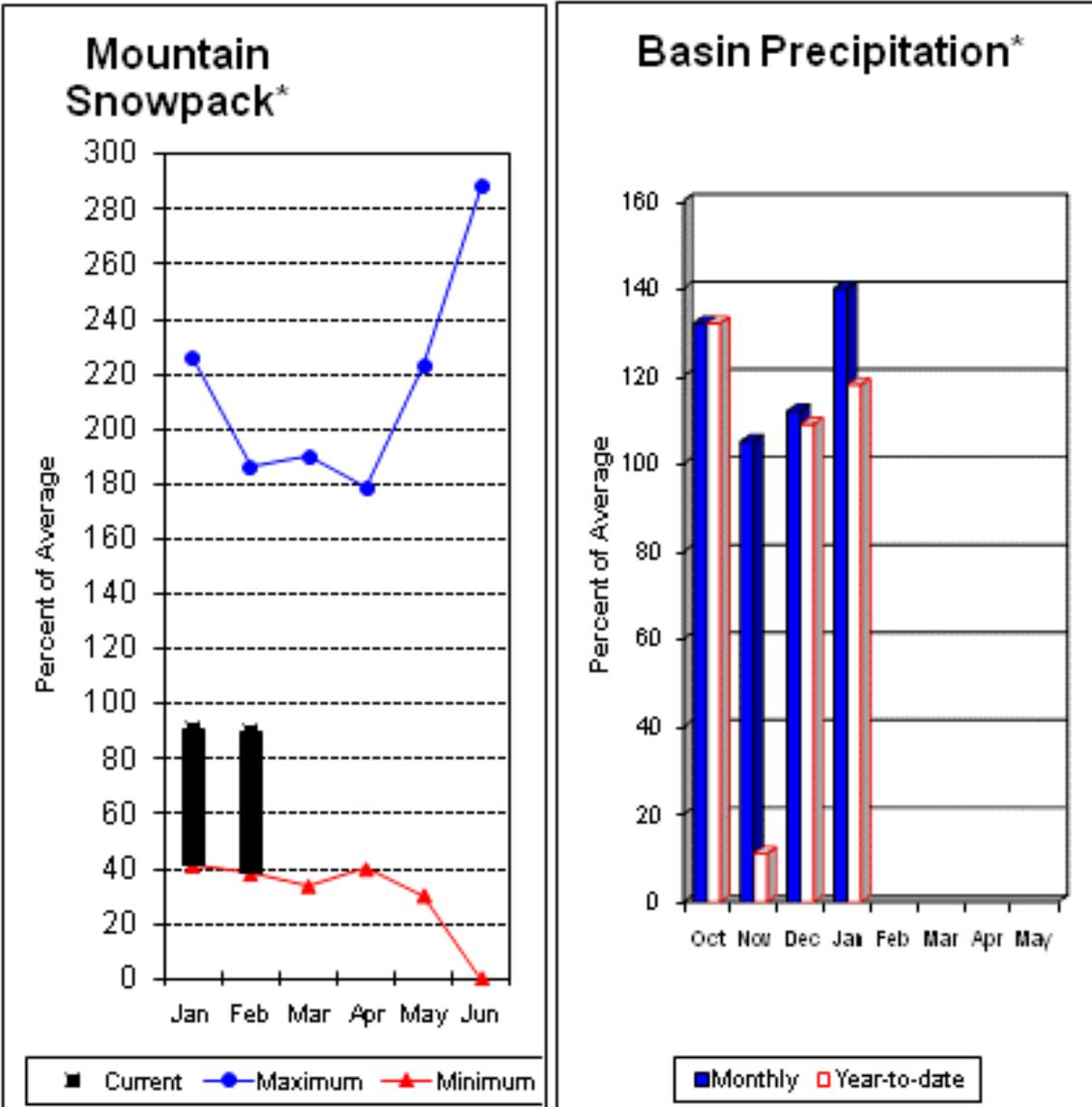
The Canadian portion of Columbia mainstem was up 25% over last month, and the Kootenay, Pend Oreille, Kettle, Spokane, and Clearwater were up 17%, 7%, 19%, 6%, and 11% respectively. As mentioned previously, the increases in the northern portions of the basin were offset by losses (some substantial) in the south. The biggest losses were reported in the John Day (-50%) and the Deschutes (-47%). Other losing snowpacks were Yakima (-20%), Snake headwaters (-16%), Boise (-31%), Eastern Oregon (-35%), Salmon (-10%). The North Cascades snowpack was unchanged.

The overall snowpack above The Dalles is at 64 percent of the average peak accumulation. This compares to 53 percent last year. Normal for this time of year is 67 percent of the peak accumulation.

The snowpack in the Columbia Basin above Castlegar is at 91 percent of average. This compares to 70 percent last month and 90 percent last year. For the basin above Grand Coulee, the snowpack is at 96 percent of average, compared to 79 percent last month and 83 percent last year. The Snake River snowpack above Ice Harbor is at 100 percent of average, compared to 110 percent last month and 67 percent last year.

Last month's promise of improvement in the Spokane and Canadian snowpacks turned out to be true. The CPC forecast for the Columbia Basin during February calls for below normal temperatures over almost the entire basin, with above average precipitation. We should look for the entire snowpack to improve when the March 1 snow samples are recorded.

Spokane River Basin



*Based on selected stations

The February 1 forecasts for summer runoff within the Spokane River Basin are 103% of average near Post Falls and 91038% at Long Lake. The Chamokane River near Long Lake forecasted to have 100% of average flows for the May-August period. The forecast is based on a basin snowpack that is 90% of average and precipitation that is 118% of average for the water year. Precipitation for January was above normal at 140% of average. Streamflow on the Spokane River at Long Lake was 208% of average for January. February 1 storage in Coeur d'Alene Lake was 211,000acre feet, 182% of average and 88% of capacity. Snowpack at Quartz Peak SNOTEL site was 108% of average with 16.6 inches of water content. Average temperatures in the Spokane basin were 1-2 degrees above normal for January and 4-5 degrees above for the water year.

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

Spokane River Basin

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter		Chance Of Exceeding *		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)	50% (1000AF)	(% AVG.)	
Spokane R nr Post Falls (2)	APR-JUL	2010	2380	2630	103	2880	3250	2550
	APR-SEP	2110	2480	2730	103	2980	3350	2650
Spokane R at Long Lake (2)	APR-JUL	2260	2660	2940	103	3220	3620	2850
	APR-SEP	2480	2890	3170	103	3450	3860	3070
Chamokane Ck nr Long Lake	MAY-AUG	4.5	7.9	10.2	100	12.5	15.9	10.2

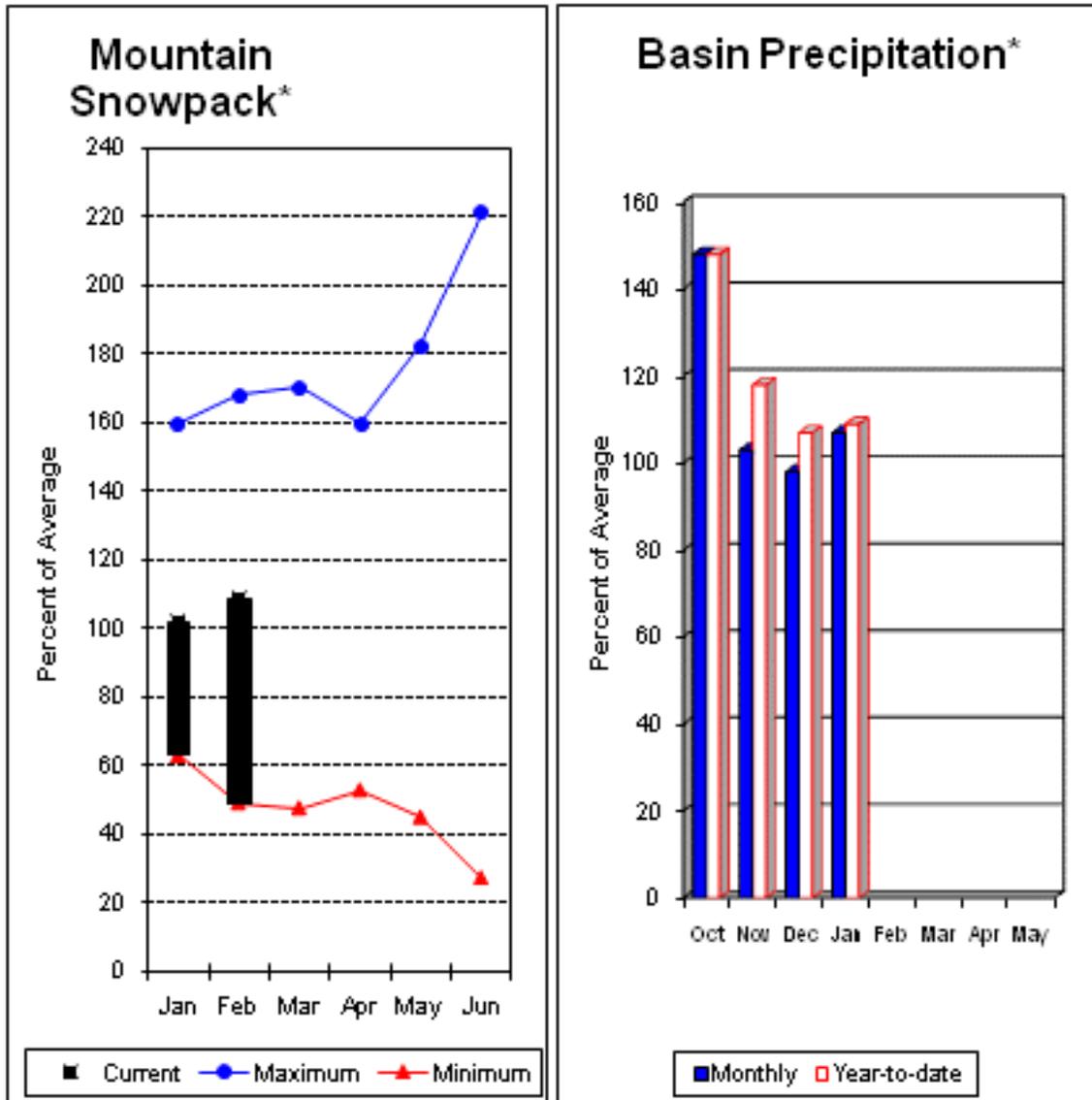
SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of January					SPOKANE RIVER BASIN Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
COEUR D'ALENE	238.5	210.8	54.9	115.6	SPOKANE RIVER	12	161	90
					NEWMAN LAKE	1	205	108

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

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

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

Pend Oreille River Basins



*Based on selected stations

The April – September average forecast for the Priest River near the town of Priest River is 101% and the Pen Oreille below Box Canyon is 107%. January streamflow was 134% of average on the Pend Oreille River and 115% on the Columbia Birchbank. February 1 snow cover was 109% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 16.3 inches of snow water on the snow pillow. Normally Bunchgrass would have 18.6 inches on February 1. Precipitation during January was 107% of average, bringing the year-to-date precipitation to 109% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 109% of normal. Average temperatures were 102 degrees above normal for January and 3-4 degrees above for the water year.

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

Pend Oreille River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
Pend Oreille Lake Inflow (2)	APR-JUL	11600	12900	13700	108	14500	15800	12700				
	APR-SEP	12700	14000	14900	107	15800	17100	13900				
Priest R nr Priest River (1,2)	APR-JUL	610	760	825	101	890	1040	815				
	APR-SEP	645	805	880	101	955	1110	870				
Pend Oreille R bl Box Canyon (2)	APR-JUL	11700	12900	13800	107	14700	15900	12900				
	APR-SEP	12900	14200	15100	107	16000	17300	14100				

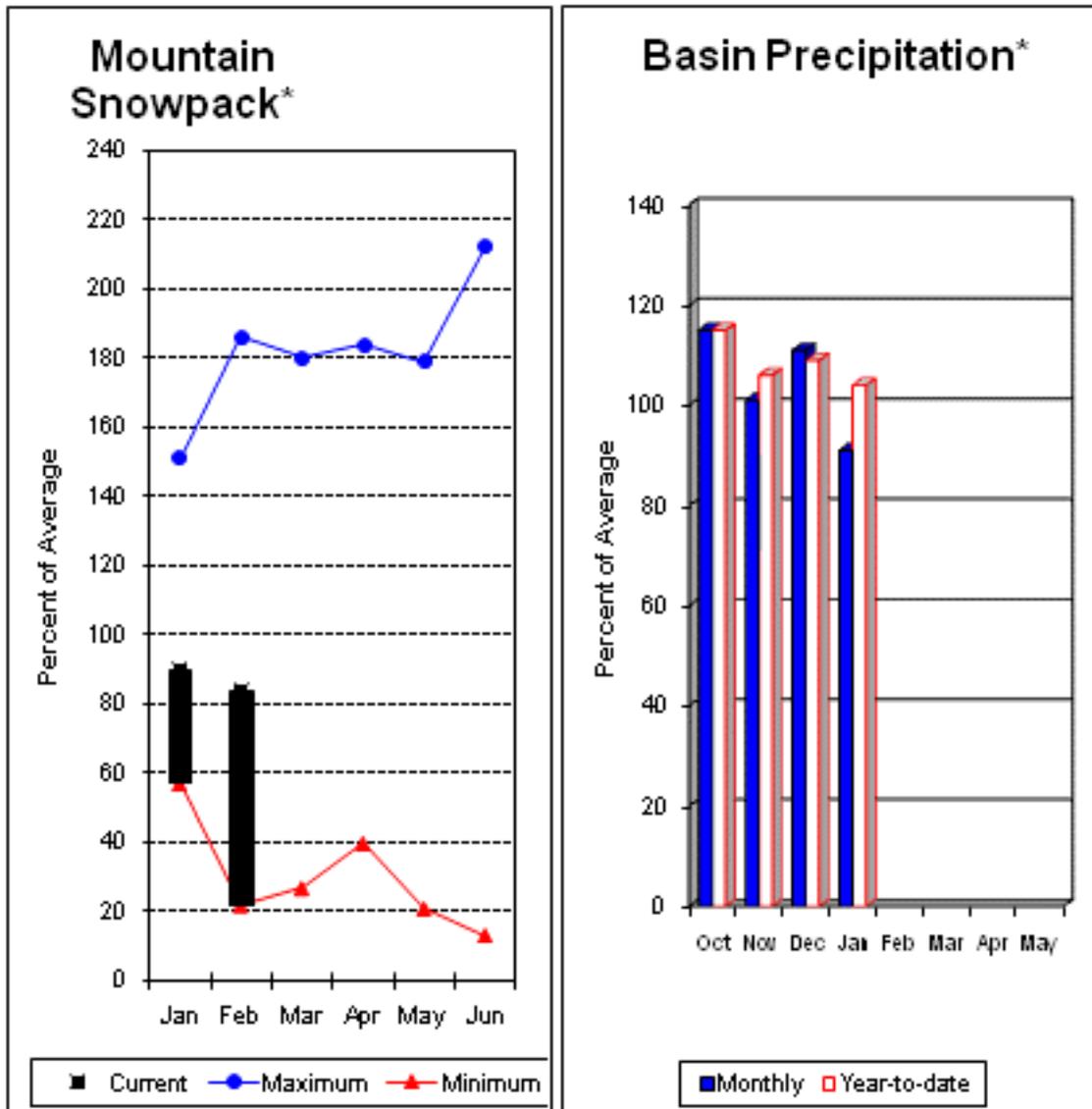
PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of January					PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
PEND OREILLE	1561.3	827.0	475.1	749.3	COLVILLE RIVER	0	113	0
PRIEST LAKE	119.3	53.2	55.0	55.5	PEND OREILLE RIVER	8	148	98
					KETTLE RIVER	3	93	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 1971-2000 base period.

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

Upper Columbia River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 88%, Similkameen River is 89%, Kettle River 95% and Methow River is 91%. February 1 snow cover on the Okanogan was 94% of average, Omak Creek was 91% and the Methow was 89%. January precipitation in the Upper Columbia was 91% of average, with precipitation for the water year at 104% of average. January streamflow for the Methow River was 161% of average, 102% for the Okanogan River and 141% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 6.4 inches. Average for this site is 7.5 inches on February 1. Combined storage in the Conconully Reservoirs was 21,000-acre feet, which is 88% of capacity and 124% of the February 1 average. Temperatures were 2-3 degrees above normal for January and 1-2 degrees above for the water year.

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

Upper Columbia River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)	Chance Of Exceeding *	
Colville R at Kettle Falls	APR-JUL	50	91	119	93	147	188	128
	APR-SEP	55	100	131	93	162	205	141
Kettle R nr Laurier	APR-JUL	1420	1640	1780	95	1920	2140	1870
	APR-SEP	1490	1710	1870	95	2030	2250	1970
Columbia R at Birchbank (1,2)	APR-JUL	29300	33300	35100	101	36900	40900	34900
	APR-SEP	36600	41500	43800	101	46100	51000	43500
Columbia R at Grand Coulee (2)	APR-JUL	44300	51500	54800	102	58100	65300	53800
	APR-SEP	52800	61400	65300	102	69200	77800	64000
Similkameen R nr Nighthawk (1)	APR-JUL	830	1080	1200	89	1320	1570	1350
	APR-SEP	915	1170	1290	89	1410	1660	1450
Okanogan R nr Tonasket (1)	APR-JUL	835	1220	1390	88	1560	1940	1580
	APR-SEP	945	1360	1550	88	1740	2150	1770
Okanogan R at Malott (1)	APR-JUL	845	1250	1430	88	1610	2020	1630
	APR-SEP	970	1410	1610	88	1810	2250	1830
Methow R nr Pateros	APR-SEP	725	830	900	91	970	1070	985
	APR-JUL	670	765	830	91	895	990	910

UPPER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of January					UPPER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
SALMON LAKE	10.5	8.6	5.7	8.4	OKANOGAN RIVER	5	108	94
CONCONULLY RESERVOIR	13.0	12.0	4.7	8.2	OMAK CREEK	3	85	91
					SANPOIL RIVER	1	108	58
					SIMILKAMEEN RIVER	0	0	0
					TOATS COULEE CREEK	1	83	81
					CONCONULLY LAKE	3	75	83
					METHOW RIVER	8	98	89

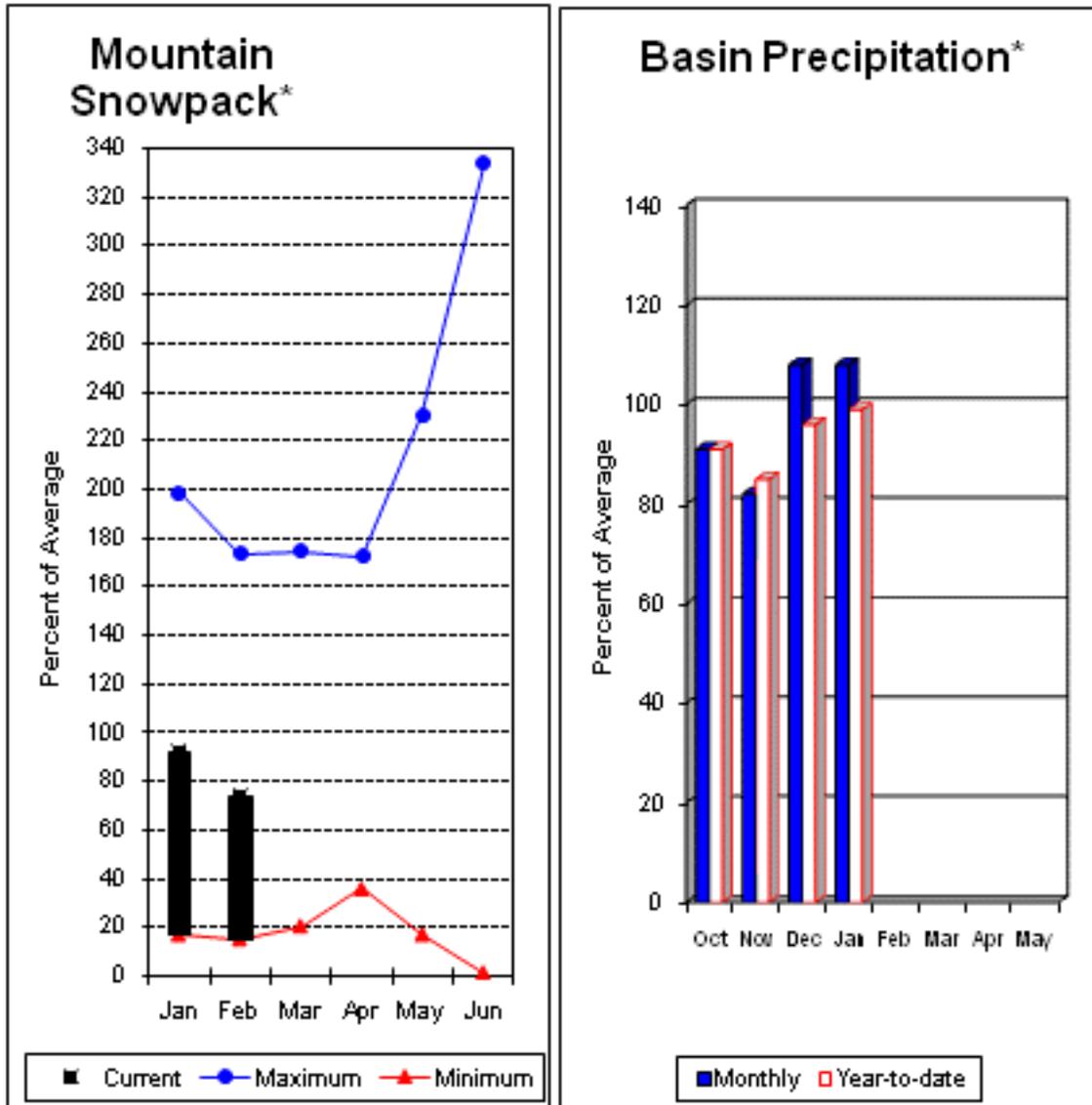
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

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

Central Columbia River Basins



*Based on selected stations

Precipitation during January was 108% of average in the basin and 99% for the year-to-date. Runoff for Entiat River is forecast to be 80% of average for the summer. The February-September average forecast for Chelan River is 87%, Wenatchee River at Plain is 85%, Stehekin River is 89% and Icicle Creek is 77%. January average streamflows on the Chelan River were 206% and on the Wenatchee River 226%. February 1 snowpack in the Wenatchee River Basin was 68% of average; the Chelan, 75%; the Entiat, 69%; Stemilt Creek, 71% and Colockum Creek, 84%. Reservoir storage in Lake Chelan was 290,000-acre feet, 92% of February 1 average and 43% of capacity. Lyman Lake SNOTEL had the most snow water with 34.4 inches of water. This site would normally have 43.4 inches on February 1. Temperatures were 1-3 degrees above normal for January and 3-4 degrees above for the water year.

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

Central Columbia River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
Stehekin R at Stehekin	APR-JUL	490	580	645	92	710	800	700
	APR-SEP	595	695	765	92	835	935	830
Chelan R at Chelan (2)	APR-JUL	735	855	935	89	1020	1140	1050
	APR-SEP	820	965	1060	89	1160	1300	1190
Entiat R nr Ardenvoir	APR-JUL	128	162	185	86	210	240	215
	APR-SEP	144	180	205	85	230	265	240
Wenatchee R at Plain	APR-JUL	700	850	950	89	1050	1200	1070
	APR-SEP	775	940	1050	89	1160	1320	1180
Icicle Ck nr Leavenworth	APR-JUL	193	235	260	84	285	325	310
	APR-SEP	215	255	285	84	315	355	340
Wenatchee R at Peshastin	APR-JUL	995	1190	1330	90	1470	1670	1480
	APR-SEP	1100	1320	1470	90	1620	1840	1630
Columbia R bl Rock Island Dam (2)	APR-JUL	42600	50500	55900	95	61300	69200	59000
	APR-SEP	50100	59400	65800	95	72200	81500	69500

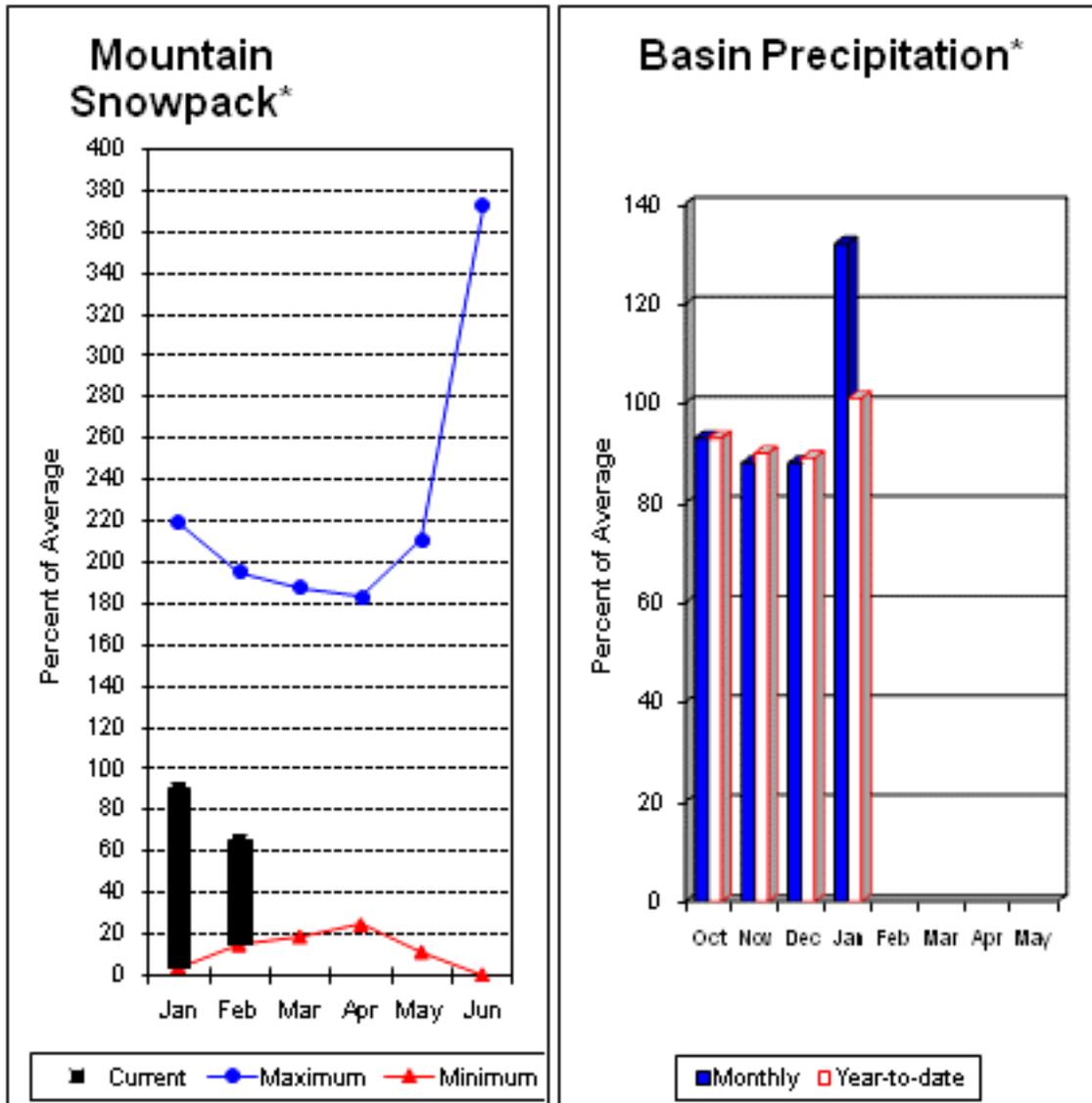
CENTRAL COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of January					CENTRAL COLUMBIA RIVER BASINS Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	322.8	449.6	396.9	CHELAN LAKE BASIN	3	93	74
					ENTIAT RIVER	1	112	77
					WENATCHEE RIVER	7	109	82
					STEMILT CREEK	1	146	102
					COLOCKUM CREEK	1	135	125

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

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

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

Upper Yakima River Basin



*Based on selected stations

February 1 reservoir storage for the Upper Yakima reservoirs was 633,000-acre feet, 142% of average. Forecasts for the Yakima River at Cle Elum are 84% of average and the Teanaway River near Cle Elum is at 81%. Lake inflows are all forecasted to be slightly below this summer as well. January streamflows within the basin were Yakima at Cle Elum at 243% and Cle Elum River near Roslyn at 264%. February 1 snowpack was 65% based upon 10 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 132% of average for January and 101% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Upper Yakima River Basin

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		Drier		Wetter		Chance Of Exceeding * 50% (1000AF) (% AVG.)		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)			
Keechelus Reservoir Inflow (2)	APR-JUL APR-SEP	69 78	89 98	102 112	84 84	115 126	135 146	121 133
Kachess Reservoir Inflow (2)	APR-JUL APR-SEP	66 74	82 90	93 101	84 84	104 112	120 128	111 120
Cle Elum Lake Inflow (2)	APR-JUL APR-SEP	270 295	315 345	345 380	84 84	375 415	420 465	410 450
Yakima R at Cle Elum (2)	APR-JUL APR-SEP	480 520	600 655	680 745	83 83	760 835	880 970	820 900
Teanaway R bl Forks nr Cle Elum	APR-JUL APR-SEP	77 79	100 102	116 118	81 81	132 134	155 157	143 146

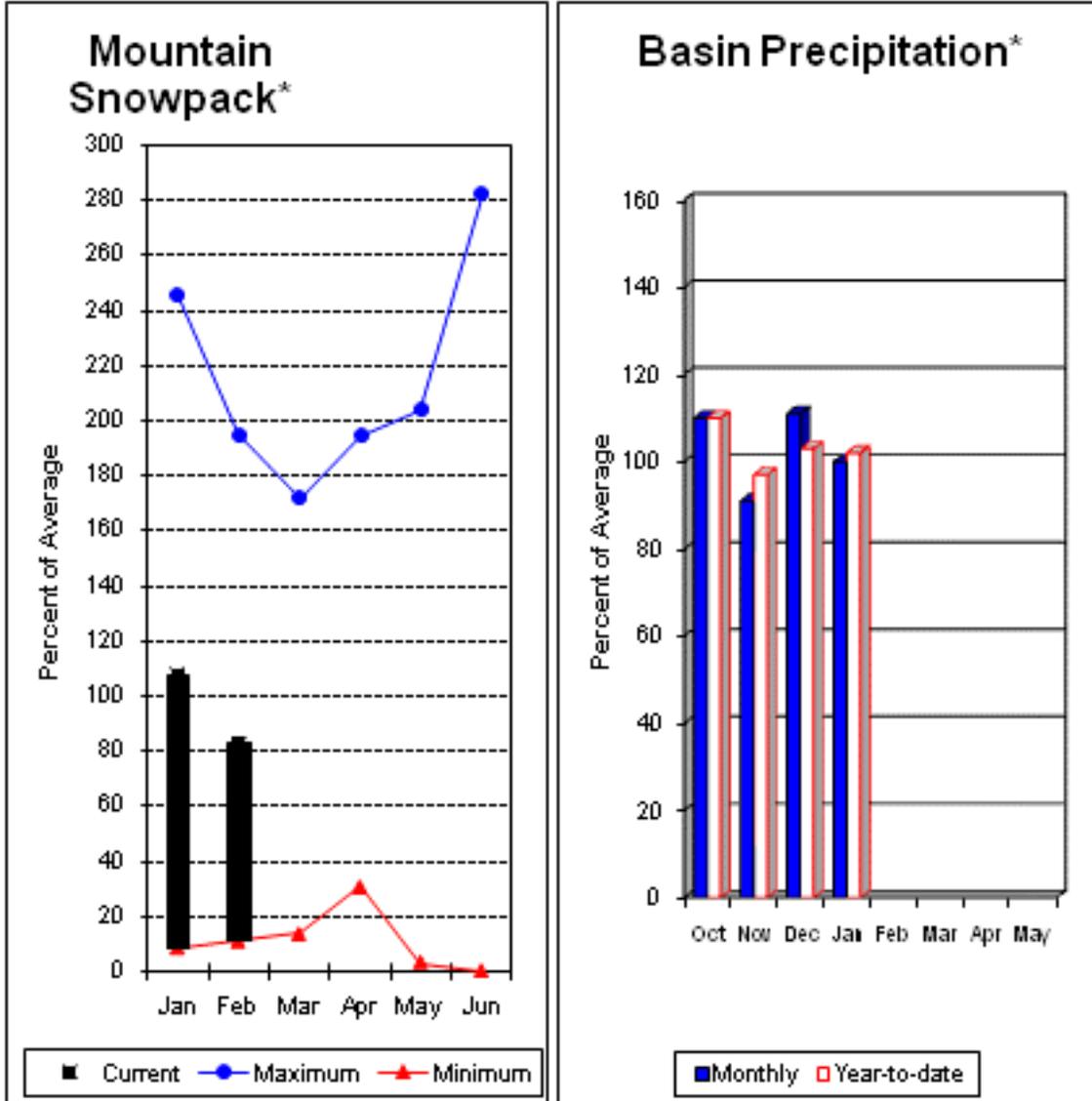
UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of January					UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	128.1	81.6	89.9	UPPER YAKIMA RIVER	10	93	65
KACHESS	239.0	193.4	142.6	139.4				
CLE ELUM	436.9	311.2	163.4	215.4				

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

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

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

Lower Yakima River Basin



*Based on selected stations

January average streamflows within the basin were: Yakima River near Parker, 228%; Naches River near Naches, 241%; and Yakima River at Kiona, 150%. February 1 reservoir storage for Bumping and Rimrock reservoirs was 184,000-acre feet, 151% of average. Forecast averages for Yakima River near Parker are 84%; American River near Nile, 92%; Ahtanum Creek, 84%; and Klickitat River near Glenwood, 100%. February 1 snowpack was 83% based upon 8 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 73% of average. Precipitation was 100% of average for January and 102% year-to-date for water. Temperatures were near normal for January and slightly above for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they February differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

Lower Yakima River Basin

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	10% (1000AF)	Chance Of Exceeding * (% AVG.)		
Bumping Lake Inflow (2)	APR-JUL	93	107	116	95	125	139	122
	APR-SEP	100	115	125	95	135	150	132
American R nr Nile	APR-JUL	79	91	99	92	107	119	108
	APR-SEP	86	100	109	92	118	132	118
Rimrock Lake Inflow (2)	APR-JUL	164	179	189	92	199	215	205
	APR-SEP	189	205	220	92	235	250	240
Naches R nr Naches (2)	APR-JUL	560	635	690	96	745	820	720
	APR-SEP	600	690	750	96	810	900	780
Ahtanum Ck at Union Gap	APR-JUL	15.4	21	25	83	29	35	30
	APR-SEP	17.3	23	27	84	31	37	32
Yakima R nr Parker (2)	APR-JUL	1190	1380	1510	84	1640	1830	1800
	APR-SEP	1320	1530	1670	84	1810	2020	1980
Klickitat R nr Glenwood	APR-JUL	104	117	126	100	135	148	126
	APR-SEP	137	153	163	100	173	189	163
Klickitat R nr Pitt	APR-JUL	380	430	460	100	490	540	460
	APR-SEP	455	510	550	100	590	645	550

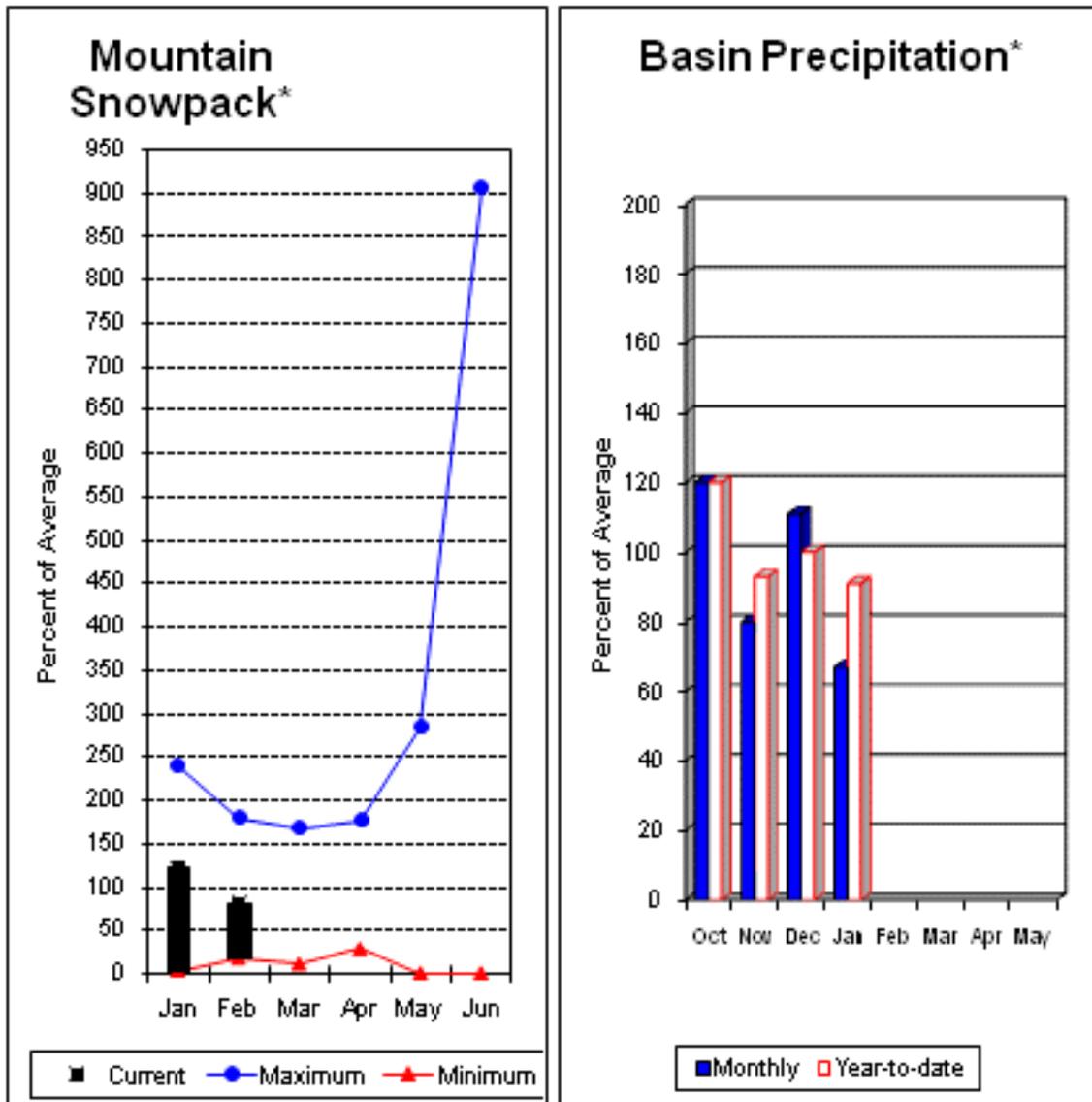
LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of January					LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BUMPING LAKE	33.7	21.0	12.2	9.9	LOWER YAKIMA RIVER	8	105	84
RIMROCK	198.0	162.5	91.6	111.8	AHTANUM CREEK	3	79	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 1971-2000 base period.

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

Walla Walla River Basin



*Based on selected stations

January precipitation was 67% of average, maintaining the year-to-date precipitation at 91% of average. Snowpack in the basin was 81% of average. Streamflow forecasts are 96% of average for Mill Creek and 108% for the SF Walla Walla near Milton-Freewater. January streamflow was 220% of average for the SF Walla Walla River. Average temperatures were slightly near normal for January but 3-4 degrees above for the water year.

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

Walla Walla River Basin

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<==== Drier =====>		50%		==== Wetter =====>		
		90% (1000AF)	70% (1000AF)	(1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
SF Walla Walla R nr Milton-Freewater	MAR-SEP	73	81	87	107	93	101	81
	APR-JUL	47	54	58	107	62	69	54
	APR-SEP	60	67	72	108	77	84	67
Mill Ck nr Walla Walla	APR-JUL	16.8	20	23	96	26	29	24
	APR-SEP	20	24	27	96	30	34	28

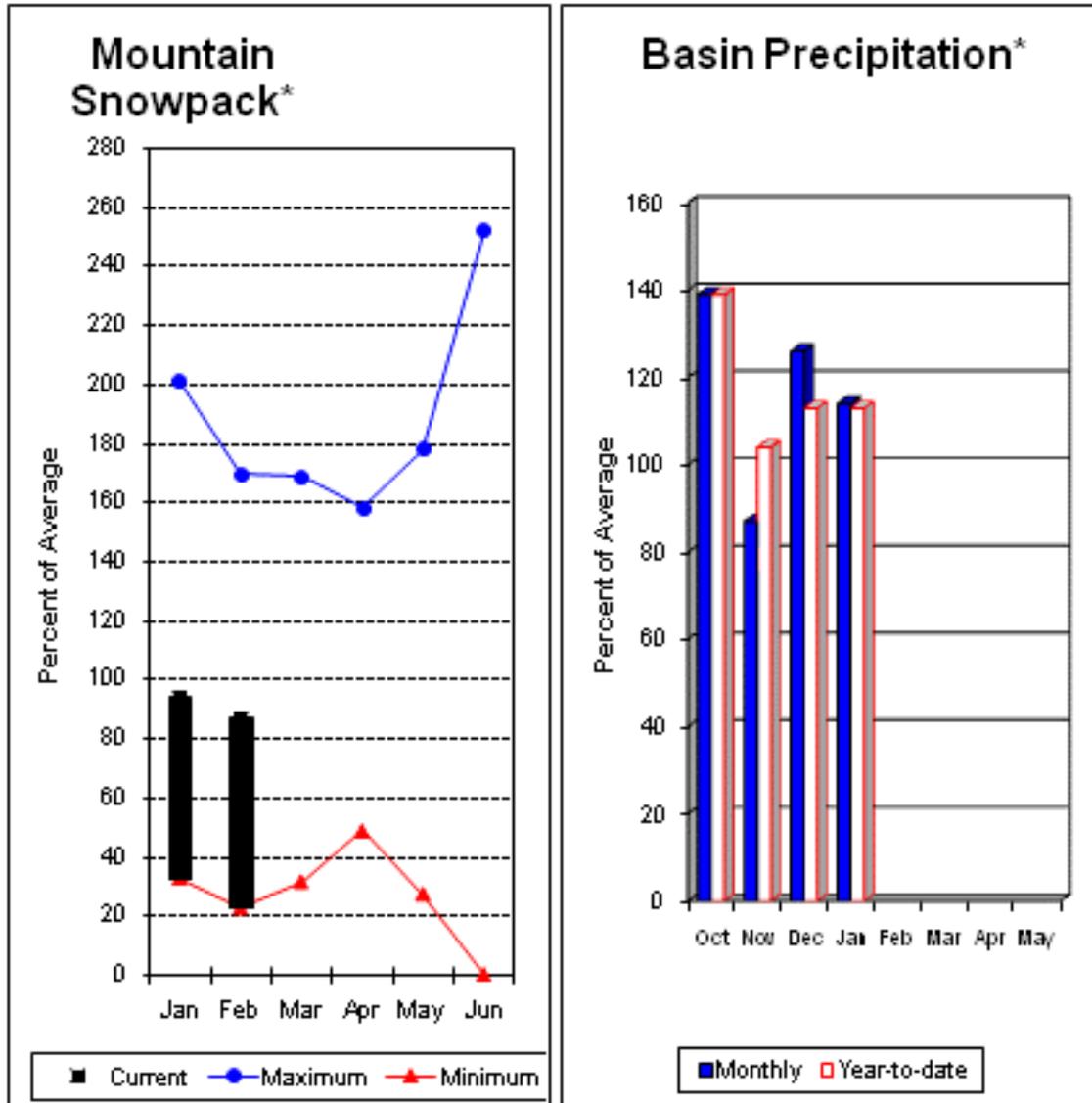
WALLA WALLA RIVER BASIN					WALLA WALLA RIVER BASIN			
Reservoir Storage (1000 AF) - End of January					Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	110	81

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

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

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

Lower Snake River Basin



*Based on selected stations

The April - September forecast is for 104% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 103% and 101% of normal respectively. A newly developed forecast point for Asotin Creek at Asotin predicts 86% of average flows for the April – July runoff period. January precipitation was 114% of average, bringing the year-to-date precipitation to 113% of average. February 1 snowpack readings averaged 87% of average. January streamflow was 126% of average for Snake River below Lower Granite Dam and 128% for Grande Ronde River near Troy. Dworshak Reservoir on the Clearwater River is at 100% of average. Average temperatures were 1-2 degrees above normal for January and 3-4 degrees above for the water year.

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

Lower Snake River Basin

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)				
		90%		70%		50%			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)	(1000AF)		(1000AF)	(1000AF)	(1000AF)	(1000AF)
Grande Ronde R at Troy (1)	MAR-JUL	1180	1470	1600	101	1730	2020	1580				
	APR-SEP	970	1250	1380	101	1510	1790	1370				
Asotin Ck at Asotin	APR-JUL	14.8	24	30	86	36	45	35				
Clearwater R at Spalding (1,2)	APR-JUL	5790	7100	7700	104	8300	9610	7430				
	APR-SEP	6150	7530	8160	104	8790	10200	7850				
Snake R bl Lower Granite Dam (1,2)	APR-JUL	12900	19300	22200	103	25100	31500	21600				
	APR-SEP	14400	21600	24900	103	28200	35400	24100				

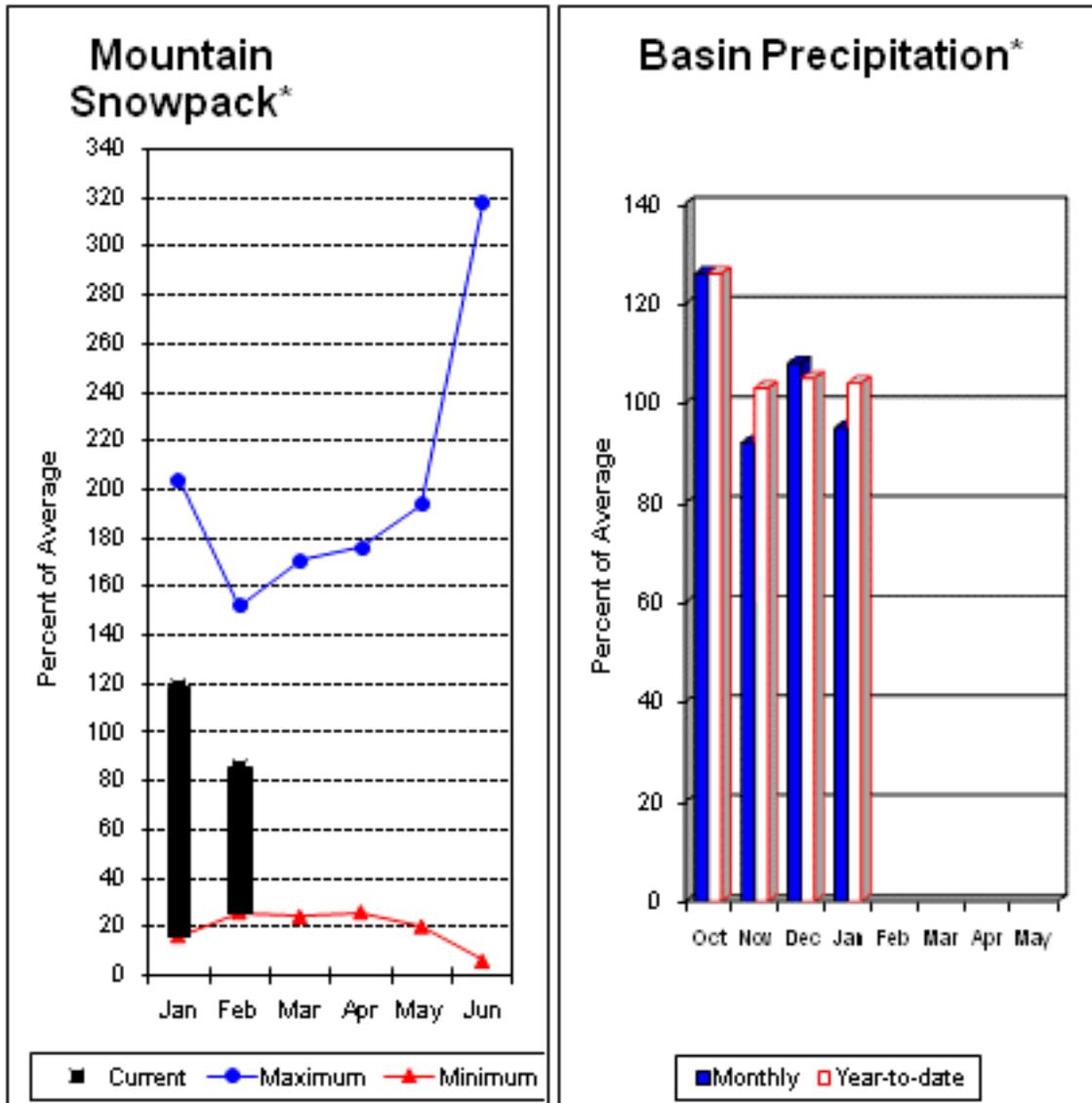
LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of January					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DWORSHAK	3468.0	2326.8	2167.4	2324.3	LOWER SNAKE, GRANDE RONDE	16	121	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 1971-2000 base period.

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

Lower Columbia River Basins



*Based on selected stations

Forecasts for April – September streamflows within the basin are Lewis River at Ariel, 88% and Cowlitz River at Castle Rock, 91% of average. The Columbia at The Dalles is forecasted to have 99% of average flows this summer. January average streamflow for Cowlitz River was 162%. The Columbia River at The Dalles was 144% of average. January precipitation was 95% of average and the water-year average was 104%. February 1 snow cover for Cowlitz River was 87%, and Lewis River was 86% of average. Average temperatures were near normal during January and 1-2 degrees above for the water year.

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

Lower Columbia River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
Columbia R at The Dalles (2)	APR-JUL	69100	78000	84100	99	90200	99100	84600				
	APR-SEP	80500	90900	98000	99	105000	115000	98600				
Klickitat R nr Glenwood	APR-JUL	104	117	126	100	135	148	126				
	APR-SEP	137	153	163	100	173	189	163				
Klickitat R nr Pitt	APR-JUL	380	430	460	100	490	540	460				
	APR-SEP	455	510	550	100	590	645	550				
Lewis R at Ariel (2)	APR-JUL	620	795	910	88	1030	1200	1031				
	APR-SEP	730	915	1040	88	1160	1350	1176				
Cowlitz R bl Mayfield Dam (2)	APR-JUL	1200	1400	1540	91	1680	1880	1689				
	APR-SEP	1350	1580	1740	91	1900	2130	1922				
Cowlitz R at Castle Rock (2)	APR-JUL	1700	1930	2090	91	2250	2480	2295				
	APR-SEP	2190	2310	2390	91	2470	2590	2639				

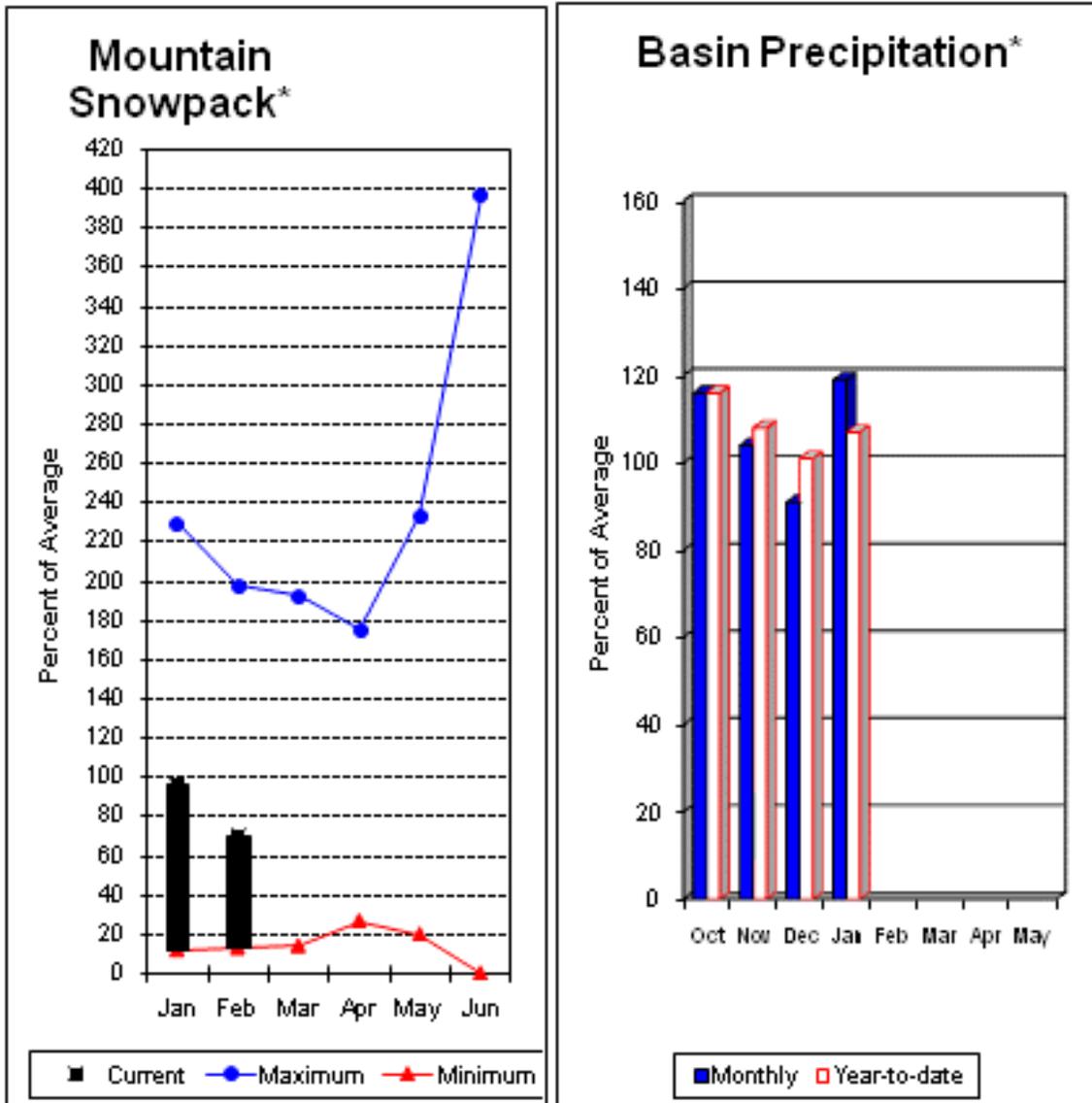
LOWER COLUMBIA RIVER BASINS Reservoir Storage (1000 AF) - End of January					LOWER COLUMBIA RIVER BASINS Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MOSSYROCK	0.0	1386.5	1187.7	---	LEWIS RIVER	5	113	86
SWIFT		NO REPORT			COWLITZ RIVER	6	119	88
YALE		NO REPORT						
MERWIN		NO REPORT						

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

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

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



*Based on selected stations

Summer runoff is forecast to be 82% of normal for the Green River below Howard Hanson Dam and 97% for the White River near Buckley. February 1 snowpack was 85% of average for the White River, 80 % for Puyallup River and 45% in the Green River Basin. Water content on February 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 20.2 inches. This site has a February 1 average of 22.1 inches. January precipitation was 119% of average, bringing the water year-to-date to 107% of average for the basins. Average temperatures in the area were near normal for January and slightly above for the water-year.

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

South Puget Sound River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		Drier		Wetter		Chance Of Exceeding * 50% (1000AF) (% AVG.)		
		90% (1000AF)	70% (1000AF)	30% (1000AF)	10% (1000AF)			
White R nr Buckley (1)	APR-JUL APR-SEP	315 390	390 480	425 520	97 97	460 560	535 650	440 534
Green R bl Howard Hanson Dam (1,2)	APR-JUL APR-SEP	104 123	170 190	200 220	82 82	230 250	295 315	245 268

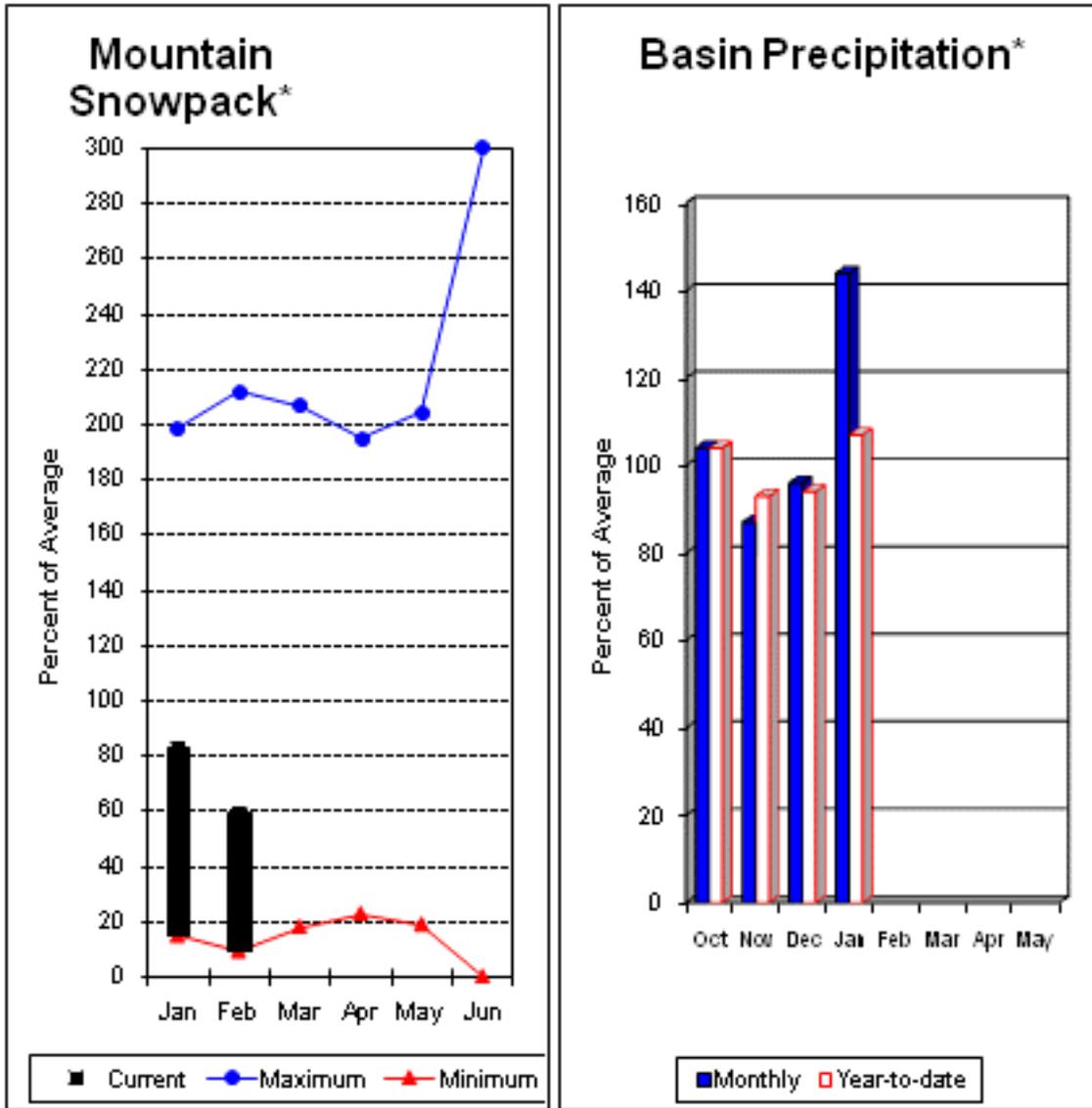
SOUTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of January					SOUTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WHITE RIVER	3	111	85
					GREEN RIVER	4	95	45
					PUYALLUP RIVER	5	103	80

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

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

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- (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: 90% for Cedar River near Cedar Falls; 89% for Rex River; 90% for South Fork of the Tolt River; 92% for Taylor Creek near Selleck, and 89% for Cedar River at Cedar Falls. Basin-wide precipitation for January was 144% of average, bringing water-year-to-date to 107% of average. February 1 average snow cover in Cedar River Basin was 65%, Tolt River Basin was 54%, Snoqualmie River Basin was 56%, and Skykomish River Basin was 62%. Olallie Meadows SNOTEL site, at 3960 feet, had 24.6 inches of water content. Average February 1 water content is 39.2 inches at Olallie Meadows. Temperatures were near normal for January and slightly above for the water-year.

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

Central Puget Sound River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		Drier		Wetter				
		90% (1000AF)	70% (1000AF)	50% (1000AF)	30% (1000AF)	10% (1000AF)	Chance Of Exceeding * (% AVG.)	
Cedar R nr Cedar Falls	APR-JUL	48	59	66	90	73	84	73
	APR-SEP	53	64	72	90	80	91	80
Rex R nr Cedar Falls	APR-JUL	5.3	15.3	22	88	29	39	25
	APR-SEP	8.0	18.1	25	89	32	42	28
Cedar R at Cedar Falls (2)	APR-JUL	36	54	66	89	78	96	74
	APR-SEP	33	52	65	89	78	97	73
Taylor Ck nr Selleck	APR-JUL	13.3	16.3	18.4	92	20	23	20
	APR-SEP	16.6	19.8	22	92	24	27	24
SF Tolt R nr Index	APR-JUL	9.3	11.6	13.2	90	14.8	17.1	14.7
	APR-SEP	11.0	13.5	15.2	90	16.9	19.4	16.9

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

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

CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - February 1, 2011

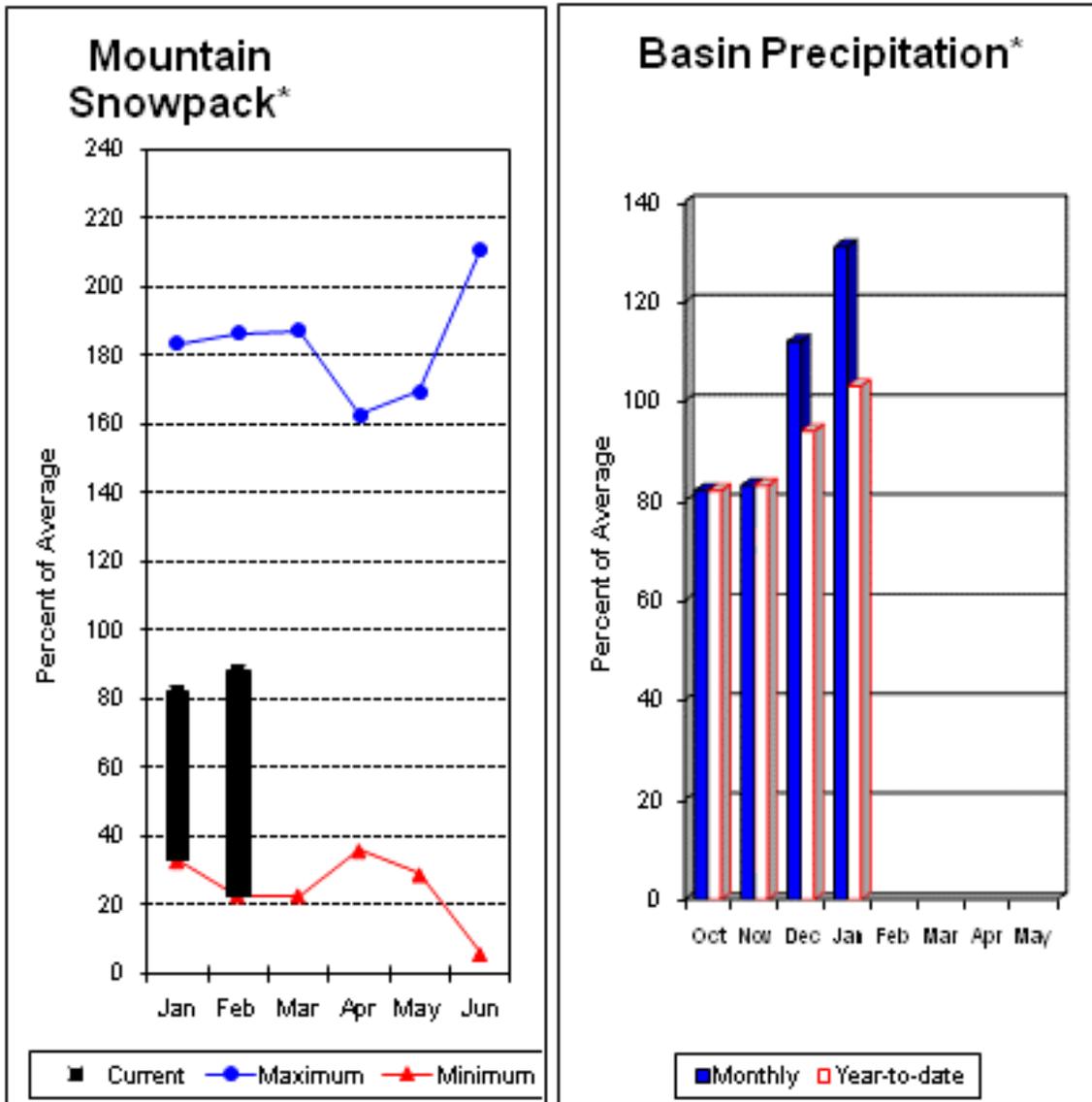
Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
CEDAR RIVER	4	137	65
TOLT RIVER	2	157	54
SNOQUALMIE RIVER	4	116	56
SKYKOMISH RIVER	2	108	62

* 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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North Puget Sound River Basins



*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 95% of average for the spring and summer period. January streamflow in Skagit River was 159% of average. Other forecast points included Baker River at 92% and Thunder Creek at 93% of average. Basin-wide precipitation for January was 131% of average, bringing water-year-to-date to 103% of average. February 1 average snow cover in Skagit River Basin was 87%, Nooksack River Basin was 88% and Baker River Basin was 90% of average. Rainy Pass SNOTEL, at 4,780 feet, had 20.5 inches of water content. Average February 1 water content is 30.2 inches at Rainy Pass. February 1 Skagit River reservoir storage was 111% of average and 79% of capacity. Average temperatures for January were slightly below normal for the basin and near average for the water year.

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

North Puget Sound River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
Thunder Ck nr Newhalem	APR-JUL	190	210	220	94	230	250	234				
	APR-SEP	275	295	310	93	325	345	333				
Skagit R at Newhalem (2)	APR-JUL	1550	1690	1790	96	1890	2030	1864				
	APR-SEP	1830	2000	2110	95	2220	2390	2217				
Baker R nr Concrete (2)	APR-JUL	620	705	760	92	815	900	828				
	APR-SEP	815	910	970	92	1030	1120	1050				

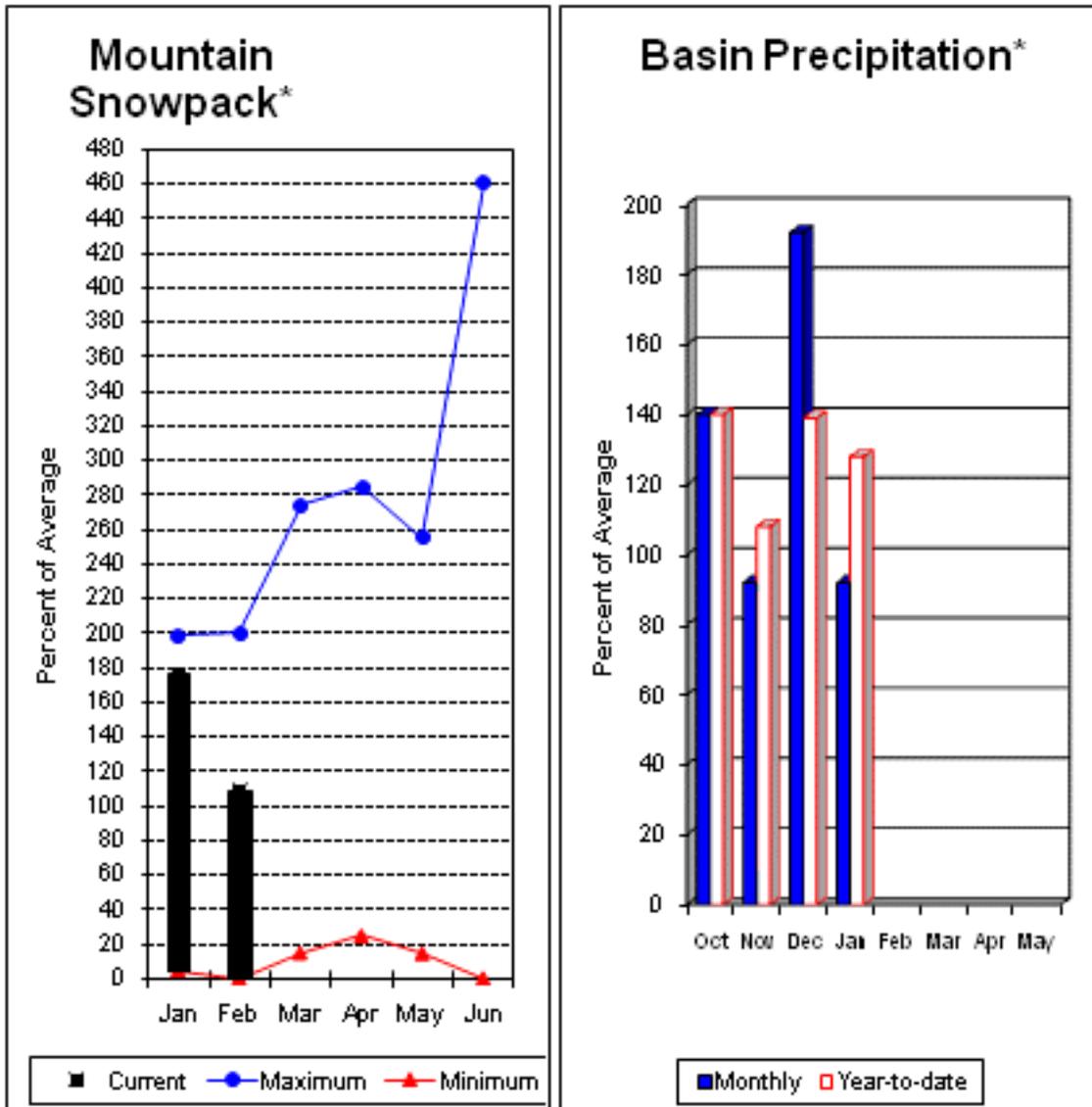
NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of January					NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
ROSS	1404.1	1092.6	1078.6	978.3	SKAGIT RIVER	15	111	87
DIABLO RESERVOIR	90.6	87.2	86.0	85.5	BAKER RIVER	8	137	90
					NOOKSACK RIVER	3	121	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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Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 103% and Elwha River is 97%. January runoff in the Dungeness River was 117% of normal. Big Quilcene and Wynoochee rivers should expect near average runoff this summer also. January precipitation was 92% of average. Precipitation has accumulated at 128% of average for the water year. January precipitation at Quillayute was 17.58 inches. The thirty-year average for January is 13.65 inches. Olympic Peninsula snowpack averaged 123% of normal on February 1. Temperatures were near average for January and for the water year.

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

Olympic Peninsula River Basins

Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (1000AF) (% AVG.)			30% (1000AF)		10% (1000AF)	
Dungeness R nr Sequim	APR-JUL	103	118	128	103	138	153	124				
	APR-SEP	123	143	157	103	171	191	152				
Elwha R at McDonald Bridge	APR-JUL	330	375	405	97	435	480	419				
	APR-SEP	390	450	490	97	530	590	503				

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of January					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - February 1, 2011			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					OLYMPIC PENINSULA	6	103	109

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

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

Issued by

Dave White
Chief
Natural Resources Conservation Service
U.S. Department of Agriculture

Released by

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

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

Canada	Ministry of Sustainable Resources Snow Survey, River Forecast Centre, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs Recourse Conservation & Development Councils
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County Kalispel Tribe of Indians Spokane Indian Tribe Jamestown S'klallum Tribe
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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Mount Vernon, WA 98273-2873



Washington Water Supply Outlook Report

Natural Resources Conservation Service
Spokane, WA

