

# Washington Water Supply Outlook Report February 1, 2011



Photo by Corey Bonsen, NRCS Yakima, WA

Quartz Mountain, WA 3/28/11

# 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 2012

## General Outlook

January really turned it on at times with incredible snowfall totals which increased on-the-ground snowpack by about 20% overall. Statewide we surpassed all other states (except Alaska) in average snowpack. These increases also dramatically helped increase projected summer runoff to the point of being above average in some locations. However as we head into another drying trend, caused by a stubborn high pressure system to the north, we can expect to see a dramatic drop in average snowpack for most every day without snowfall in the mountains. Climate and weather forecasters are predicting a continuation of La Nina with below average temperatures and above average precipitation, though I have trouble drinking the Kool-aid as I look out at sunny and warm conditions.

## Snowpack

The February 1 statewide SNOTEL readings were 100% but vary greatly across the state. So far we have received about 67% of our annual total snowfall which is just about where we should be. The Sanpoil River snow survey data near Nespelem reported the lowest readings at 36% of average. Snow surveys from the Cedar River reported the highest at 121% of average. Westside averages from SNOTEL, and February 1 snow surveys, included the North Puget Sound river basins with 113% of average, the Central Puget river basins with 104%, and the Lewis-Cowlitz basins with 94% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 100% and the Wenatchee area with 91%. Snowpack in the Spokane River Basin was at 79% and the Walla Walla River Basin had 85% of average. Maximum snow cover in Washington was at Easy Pass, with water content of 78 inches. The 30-year average for Easy Pass on February 1 is 46.2 inches, coming in at 167% of average.

| BASIN             | PERCENT OF LAST YEAR | PERCENT OF AVERAGE |
|-------------------|----------------------|--------------------|
| Spokane           | 86                   | 79                 |
| Newman Lake       | 64                   | 84                 |
| Pend Oreille      | 83                   | 91                 |
| Okanogan          | 96                   | 88                 |
| Methow            | 117                  | 103                |
| Conconully Lake   | 99                   | 82                 |
| Wenatchee         | 134                  | 92                 |
| Chelan            | 137                  | 102                |
| Upper Yakima      | 149                  | 96                 |
| Lower Yakima      | 120                  | 105                |
| Ahtanum Creek     | 141                  | 102                |
| Walla Walla       | 106                  | 85                 |
| Lower Snake       | 98                   | 84                 |
| Cowlitz           | 113                  | 102                |
| Lewis             | 101                  | 87                 |
| White             | 113                  | 107                |
| Green             | 182                  | 97                 |
| Puyallup          | 140                  | 112                |
| Cedar             | 204                  | 121                |
| Snoqualmie        | 169                  | 98                 |
| Skykomish         | 149                  | 98                 |
| Skagit            | 133                  | 115                |
| Baker             | 132                  | 116                |
| Nooksack          | 123                  | 108                |
| Olympic Peninsula | 90                   | 98                 |

## Precipitation

During the month of January, the National Weather Service and Natural Resources Conservation Service climate stations reported near to above average precipitation totals throughout Washington river basins. The highest percent of average in the state was at Winthrop which reported 230% of average for a total of 4.6 inches. The average for Winthrop is 2.0 inches for January. The wettest spot in the state was reported at June Lake SNOTEL with a January accumulation of 25.4 inches, 105% of normal.

| RIVER<br>BASIN            | JANUARY<br>PERCENT OF AVERAGE | WATER YEAR<br>PERCENT OF AVERAGE |
|---------------------------|-------------------------------|----------------------------------|
| Spokane .....             | 100 .....                     | 70                               |
| Pend Oreille .....        | 95 .....                      | 88                               |
| Upper Columbia .....      | 89 .....                      | 84                               |
| Central Columbia .....    | 120 .....                     | 94                               |
| Upper Yakima .....        | 106 .....                     | 92                               |
| Lower Yakima .....        | 121 .....                     | 95                               |
| Walla Walla .....         | 125 .....                     | 81                               |
| Lower Snake .....         | 112 .....                     | 88                               |
| Lower Columbia .....      | 116 .....                     | 91                               |
| South Puget Sound .....   | 102 .....                     | 90                               |
| Central Puget Sound ..... | 106 .....                     | 91                               |
| North Puget Sound .....   | 128 .....                     | 99                               |
| Olympic Peninsula .....   | 125 .....                     | 99                               |

## 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 567,000-acre feet, 128% of average for the Upper Reaches and 163,000-acre feet or 134% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 116% of average for February 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 50,000 acre feet, 43% of average and 21% of capacity; Chelan Lake, 273,000-acre feet, 86% of average and 40% of capacity; and the Skagit River reservoirs at 102% of average and 73% 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<br>PERCENT OF AVERAGE |
|-------------------------|---------------------|--|
| Spokane .....           | 21 .....            | 43                                       |
| Pend Oreille .....      | 41 .....            | 85                                       |
| Upper Columbia .....    | 82 .....            | 116                                      |
| Central Columbia .....  | 40 .....            | 86                                       |
| Upper Yakima .....      | 68 .....            | 128                                      |
| Lower Yakima .....      | 70 .....            | 134                                      |
| Lower Snake .....       | 66 .....            | 98                                       |
| North Puget Sound ..... | 73 .....            | 102                                      |

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## Streamflow

Forecasts vary from 69% of average for Chamokane Creek near Long Lake to 106% of average for Skagit River at Newhalem. April-September forecasts for some Western Washington streams include the Cedar River near Cedar Falls, 99%; White River, 100%; and Dungeness River, 92%. Some Eastern Washington streams include the Yakima River near Parker, 93%; Wenatchee River at Plain, 89%; and Spokane River near Post Falls, 94%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. Caution should be used when using early season forecasts for critical water resource management decisions.

With near to above average rainfall along with some contributing snowmelt there were varying runoff amount recorded. The Similkameen River had the highest reported flows with 124% of average. The Spokane at Spokane with 46% of average was the lowest in the state however that could be due to reservoir control. Other streamflows were the following percentage of average as reported by the River Forecast Center: the Cowlitz at Castle Rock, 112%; the Lewis at Ariel, 118%; the Columbia below Rock Island Dam, 74%; and the Cle Elum near Roslyn, 79%.

| BASIN                     | PERCENT OF AVERAGE<br>(50 PERCENT CHANCE OF EXCEEDENCE) |
|---------------------------|---|
| Spokane .....             | 69-99   |
| Pend Oreille .....        | 85  |
| Upper Columbia .....      | 80-106  |
| Central Columbia .....    | 81-104  |
| Upper Yakima .....        | 87-97   |
| Lower Yakima .....        | 93-100  |
| Walla Walla .....         | 88-89   |
| Lower Snake .....         | 83-97   |
| Lower Columbia .....      | 87-96   |
| South Puget Sound .....   | 93-100  |
| Central Puget Sound ..... | 85-104  |
| North Puget Sound .....   | 93-106  |
| Olympic Peninsula .....   | 92  |

| STREAM                                     | PERCENT OF AVERAGE<br>JANUARY STREAMFLOWS |
|--|---|
| Pend Oreille Below Box Canyon .....        | 80  |
| Kettle at Laurier .....                    | 51  |
| Columbia at Birchbank .....                | 88  |
| Spokane at Long Lake .....                 | 50  |
| Similkameen at Nighthawk .....             | 124                                       |
| Okanogan at Tonasket .....                 | 96  |
| Methow at Pateros .....                    | 91  |
| Chelan at Chelan .....                     | 72  |
| Wenatchee at Pashastin .....               | 78  |
| Cle Elum near Roslyn .....                 | 79  |
| Yakima at Parker .....                     | 70  |
| Naches at Naches .....                     | 70  |
| Grande Ronde at Troy .....                 | 81  |
| Snake below Lower Granite Dam .....        | 78  |
| SF Walla Walla near Milton Freewater ..... | 118                                       |
| Columbia River at The Dalles .....         | 80  |
| Cowlitz below Mayfield Dam .....           | 107                                       |
| Skagit at Concrete .....                   | 103                                       |
| Dungeness near Sequim .....                | 98  |

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## Soil Moisture

Current soil moisture data is available from a limited number of SNOTEL sites scattered throughout each basin. As the effort continues to install additional sensors and more years of data are acquired this information will become invaluable to the streamflow forecasting community. Moderate fall precipitation helped bolster soil moisture profiles in most locations of the state. Storms in early and mid-January helped preserve soil moisture levels to near level conditions from last month.

| BASIN                     | ESTIMATED PERCENT SATURATION |
|---------------------------|------------------------------|
| Spokane .....             | 55                           |
| Pend Oreille .....        | 61                           |
| Upper Columbia .....      | 25                           |
| Central Columbia .....    | 50                           |
| Upper Yakima .....        | 60                           |
| Lower Yakima .....        | 73                           |
| Walla Walla .....         | 66                           |
| Lower Snake .....         | 66                           |
| Lower Columbia .....      | 77                           |
| South Puget Sound .....   | 81                           |
| Central Puget Sound ..... | N/A                          |
| North Puget Sound .....   | 87                           |
| Olympic Peninsula .....   | 38                           |

BASIN SUMMARY OF  
SNOW COURSE DATA

FEBRUARY 2012

| SNOW COURSE          | ELEVATION | DATE    | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 | KELLER RIDGE         | 3700      | 1/26/12 | 14         | 3.0           | 3.7       | --              |
|----------------------|-----------|---------|------------|---------------|-----------|-----------------|----------------------|-----------|---------|------------|---------------|-----------|-----------------|
|                      |           |         |            |               |           |                 | KELLOGG PEAK         | 5560      | 1/27/12 | 41         | 12.2          | 18.1      | 20.7            |
|                      |           |         |            |               |           |                 | SNOW COURSE          | ELEVATION | DATE    | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 |
| ABERDEEN LAKE CAN.   | 4000      | 2/01/12 | 17         | 3.5           | --        | 4.7             |                      |           |         |            |               |           |                 |
| AHTANUM R.S.         | 3100      | 1/30/12 | 10         | 4.8           | 4.4       | 7.1             |                      |           |         |            |               |           |                 |
| ALPINE MEADOWS       | 3500      | 1/26/12 | 69         | 22.8          | 15.9      | --              | KLESILKWA CAN.       | 3450      | 2/02/12 | 33         | 9.0           | 4.7       | 7.6             |
| ALPINE MEADOWS SNTL  | 3500      | 2/01/12 | 62         | 27.6          | 18.5      | 29.2            | KRAFT CREEK SNOTEL   | 4750      | 2/01/12 | 34         | 9.4           | 10.9      | 10.9            |
| ASHLEY DIVIDE        | 4820      | 1/27/12 | 20         | 4.4           | 7.4       | 5.1             | LAMB BUTTE           |           | 1/30/12 | 48         | 12.1          | 8.4       | --              |
| BADGER PASS SNOTEL   | 6900      | 2/01/12 | 76         | 24.6          | 22.0      | 22.3            | LOLO PASS SNOTEL     | 5240      | 2/01/12 | 81         | 20.8          | 21.3      | 20.9            |
| BAIRD #2             | 3220      | 1/25/12 | 19         | 7.0           | 6.6       | --              | LONE PINE SNOTEL     | 3930      | 2/01/12 | 60         | 21.9          | 24.2      | 24.1            |
| BARKER LAKES SNOTEL  | 8250      | 2/01/12 | 29         | 6.8           | 8.4       | 9.2             | LOOKOUT SNOTEL       | 5140      | 2/01/12 | 71         | 19.0          | 20.1      | 21.5            |
| BARNES CREEK CAN.    | 5320      | 2/01/12 | ---        | 12.8E         | --        | 14.4            | LOST HORSE MTN CAN.  | 6300      | 1/30/12 | 26         | 6.1           | 5.7       | 6.5             |
| BASIN CREEK SNOTEL   | 7180      | 2/01/12 | 17         | 3.5           | 5.1       | 4.9             | LOST HORSE SNOTEL    | 5120      | 2/01/12 | 42         | 13.3          | 8.9       | 13.1            |
| BEAVER CREEK TRAIL   | 2200      | 1/31/12 | 49         | 16.2          | 12.0      | 10.3            | LOST LAKE SNOTEL     | 6110      | 2/01/12 | 100        | 30.1          | 35.4      | 40.6            |
| BEAVER PASS          | 3680      | 1/30/12 | 72         | 27.2          | 17.9      | 19.3            | LOST LAKE            | 4070      | 2/01/12 | 19         | 3.4           | 4.9       | --              |
| BEAVER PASS SNOTEL   | 3630      | 2/01/12 | 98         | 35.6          | 24.3      | 26.2            | LOUP LOUP CAMPGROUND |           | 1/27/12 | 24         | 4.2           | 5.4       | --              |
| BLACK PINE SNOTEL    | 7100      | 2/01/12 | 32         | 8.3           | 8.9       | 8.0             | LUBRECHT FOREST NO 3 | 5450      | 1/30/12 | 20         | 4.2           | 5.8       | 4.6             |
| BLACKWALL PILL CAN.  | 6370      | 2/01/12 | 89         | 29.0          | 21.2      | 23.8            | LUBRECHT FOREST NO 4 | 4650      | 1/30/12 | 12         | 2.8           | 2.7       | 2.5             |
| BLEWETT PASS#2SNOTEL | 4240      | 2/01/12 | 31         | 11.6          | 7.1       | 12.4            | LUBRECHT FOREST NO 6 | 4040      | 1/30/12 | 22         | 5.0           | 5.4       | 2.8             |
| BONAUPART SOUTH      | 4660      | 2/01/12 | 17         | 3.2           | 3.2       | --              | LUBRECHT HYDROPLOT   | 4200      | 1/30/12 | 25         | 5.7           | 6.1       | 4.2             |
| BRENDA MINE CAN.     | 4450      | 2/01/12 | ---        | 8.6E          | --        | 8.9             | LUBRECHT SNOTEL      | 4680      | 2/01/12 | 25         | 6.5           | 5.0       | 4.2             |
| BROWN TOP AM         | 6000      | 1/30/12 | 140        | 46.7          | 39.4      | 42.5            | LYMAN LAKE SNOTEL    | 5980      | 2/01/12 | 127        | 40.3          | 34.4      | 43.4            |
| BROWNS PASS          |           | 1/30/12 | 9          | 2.0           | 2.5       | --              | LYNN LAKE            | 4000      | 2/01/12 | ---        | 18.4E         | 6.4       | 14.5            |
| BUCKINGHORSE SNOTEL  | 4870      | 2/01/12 | 105        | 41.5          | 43.3      | --              | LYNN LAKE SNOTEL     | 3900      | 2/01/12 | 52         | 18.4          | 6.4       | --              |
| BUMPING LAKE (NEW)   | 3400      | 1/31/12 | 48         | 13.9          | 12.2      | 13.3            | MARIAS PASS          | 5250      | 1/30/12 | 47         | 11.3          | 11.7      | 11.7            |
| BUMPING RIDGE SNOTEL | 4610      | 2/01/12 | 69         | 20.7          | 16.5      | 19.4            | MARTEN LAKE AM       | 3600      | 1/27/12 | 140        | 43.4          | 49.2      | 46.8            |
| BUNCHGRASS MDWSNOTEL | 5000      | 2/01/12 | 59         | 15.8          | 16.3      | 18.6            | MARTEN RIDGE SNOTEL  | 3520      | 2/01/12 | 109        | 42.3          | 35.1      | --              |
| BURNT MOUNTAIN PIL   | 4170      | 2/01/12 | 43         | 14.1          | 5.1       | 9.0             | MAZAMA               |           | 1/27/12 | 50         | 9.6           | 6.0       | --              |
| BUTTERMILK BUTTE     | 5250      | 1/27/12 | 44         | 9.4           | 9.1       | --              | MCCULLOCH CAN.       | 4200      | 1/30/12 | 22         | 4.6           | 5.4       | 4.9             |
| CALAMITY SNOTEL      | 2500      | 2/01/12 | 3          | 1.7           | .1        | --              | MEADOWS CABIN        | 1900      | 1/31/12 | 16         | 5.1           | 2.0       | 5.0             |
| CAYUSE PASS SNOTEL   | 5240      | 2/01/12 | 115        | 37.3          | 38.5      | --              | MEADOWS PASS SNOTEL  | 3230      | 2/01/12 | 65         | 25.3          | 13.4      | 19.1            |
| CHESSMAN RESERVOIR   | 6200      | 1/30/12 | 19         | 3.7           | 3.0       | 2.5             | METEOR               |           | 1/25/12 | 17         | 3.5           | 6.0       | --              |
| CHEWALAH #2          | 4930      | 1/30/12 | 44         | 11.8          | 11.2      | --              | M F NOOKSACK SNOTEL  | 4970      | 2/01/12 | 100        | 43.6          | 34.8      | 39.4            |
| CHICKEN CREEK        | 4060      | 1/26/12 | 41         | 8.2           | 13.2      | 11.5            | MICA CREEK SNOTEL    | 4510      | 2/01/12 | 55         | 14.7          | 14.6      | 18.3            |
| CITY CABIN           | 2390      | 1/26/12 | 42         | 14.0          | .0        | --              | MISSEZULA MTN CAN.   | 5080      | 1/30/12 | 27         | 6.0           | 5.6       | 6.5             |
| COLD CREEK STRIP     | 6020      | 1/31/12 | 26         | 5.4           | 4.5       | --              | MISSION CREEK CAN.   | 5840      | 2/01/12 | 38         | 10.7          | --        | 13.6            |
| COMBINATION SNOTEL   | 5600      | 2/01/12 | 15         | 3.8           | 3.8       | 3.4             | MORSE LAKE SNOTEL    | 5410      | 2/01/12 | 106        | 37.3          | 31.7      | 36.9            |
| COPPER BOTTOM SNOTEL | 5200      | 2/01/12 | 24         | 6.4           | 5.6       | 8.0             | MOSES MOUNTAIN (2)   | 4800      | 1/31/12 | 26         | 6.4           | 5.2       | 12.0            |
| COPPER MOUNTAIN      | 7700      | 2/01/12 | 23         | 5.0           | 6.1       | 7.0             | MOSES MTN SNOTEL     | 5010      | 2/01/12 | 28         | 7.2           | 8.2       | 10.4            |
| CORRAL PASS SNOTEL   | 5800      | 2/01/12 | 74         | 24.0          | 20.2      | 22.1            | MOSES PEAK           | 6650      | 1/31/12 | 37         | 10.1          | 15.6      | 9.6             |
| COUGAR MTN. SNOTEL   | 3200      | 2/01/12 | 31         | 13.5          | 5.0       | 13.7            | MOSQUITO RDG SNOTEL  | 5200      | 2/01/12 | 85         | 24.4          | 25.9      | 24.6            |
| COX VALLEY           | 4500      | 1/31/12 | 69         | 22.8          | 22.9      | 24.2            | MOULTON RESERVOIR    | 6850      | 1/26/12 | 19         | 3.8           | 5.8       | 5.2             |
| COYOTE HILL          | 4200      | 1/26/12 | 33         | 6.6           | 8.1       | 7.3             | MOUNT CRAG SNOTEL    | 3960      | 2/01/12 | 61         | 14.6          | 26.0      | 19.3            |
| DALY CREEK SNOTEL    | 5780      | 2/01/12 | 31         | 7.8           | 7.5       | 7.4             | MT. KOBAU CAN.       | 5500      | 1/28/12 | 25         | 5.2           | 6.5       | 7.9             |
| DEER PARK            | 5200      | 1/30/12 | 46         | 14.8          | 11.0      | 12.2            | MOUNT TOLMAN         | 2000      | 1/26/12 | 9          | 1.3           | 1.6       | 3.6             |
| DEVILS PARK          | 5900      | 1/30/12 | 119        | 37.2          | 27.3      | 30.7            | MOWICH SNOTEL        | 3160      | 2/01/12 | 1          | .5            | .0        | 1.2             |
| DISAUTEL PASS        |           | 1/30/12 | 14         | 3.0           | 3.4       | --              | MOUNT GARDNER        | 3300      | 1/26/12 | 38         | 11.6          | 8.0       | --              |
| DISCOVERY BASIN      | 7050      | 1/26/12 | 29         | 6.4           | 6.5       | 6.6             | MOUNT GARDNER SNOTEL | 2920      | 2/01/12 | 34         | 12.1          | 7.9       | 12.0            |
| DIX HILL             | 6400      | 1/29/12 | 36         | 9.9           | 7.9       | 7.6             | MUTTON CREEK #1      | 5700      | 1/26/12 | 45         | 9.4           | 8.0       | 9.4             |
| DOCK BUTTE AM        | 3800      | 1/27/12 | 110        | 34.1          | 28.8      | 37.2            | N.F. ELK CR SNOTEL   | 6250      | 2/01/12 | 37         | 8.8           | 10.3      | 8.0             |
| DOMMERIE FLATS       | 2200      | 1/30/12 | 25         | 7.6           | 3.3       | 6.4             | NEVADA RIDGE SNOTEL  | 7020      | 2/01/12 | 52         | 12.8          | 12.1      | 10.1            |
| DUNCAN RIDGE         | 5370      | 1/31/12 | 19         | 3.7           | 3.7       | --              | NEW HOZOMEEN LAKE    | 2800      | 1/30/12 | ---        | 4.5E          | 4.2       | 7.8             |
| DUNGENESS SNOTEL     | 4010      | 2/01/12 | 20         | 6.5           | 9.3       | 5.9             | NEZ PERCE CMP SNOTEL | 5650      | 2/01/12 | 41         | 9.4           | 10.0      | 9.9             |
| EASY PASS AM         | 5200      | 1/27/12 | 223        | 78.0          | 43.7      | 46.2            | NOISY BASIN SNOTEL   | 6040      | 2/01/12 | 64         | 16.9          | 44.5      | 27.0            |
| ELBOW LAKE SNOTEL    | 3200      | 2/01/12 | 73         | 25.4          | 20.1      | 24.5            | OLALLIE MDWS SNOTEL  | 4030      | 2/01/12 | 101        | 40.2          | 24.6      | 39.2            |
| EMERY CREEK SNOTEL   | 4350      | 2/01/12 | 27         | 7.8           | 13.5      | 10.5            | OPHIR PARK           | 7150      | 1/29/12 | 41         | 11.3          | 11.6      | 10.6            |
| FARRON CAN.          | 4000      | 2/02/12 | 28         | 5.9           | --        | 8.7             | OYAMA LAKE CAN.      | 4100      | 2/01/12 | 18         | 3.7           | 3.5       | 5.0             |
| FISH CREEK           | 8000      | 1/26/12 | 22         | 4.6           | 6.6       | 5.8             | PARADISE SNOTEL      | 5130      | 2/01/12 | 112        | 44.9          | 41.5      | 48.1            |
| FISH LAKE            | 3370      | 1/30/12 | 72         | 24.0          | 15.9      | 24.5            | PARK CK RIDGE SNOTEL | 4600      | 2/01/12 | 101        | 35.2          | 24.1      | 35.0            |
| FISH LAKE SNOTEL     | 3430      | 2/01/12 | 66         | 22.4          | 15.2      | 24.7            | PEPPER CREEK SNOTEL  | 2140      | 2/01/12 | 13         | 5.6           | 4.4       | --              |
| FLATTOP MTN SNOTEL   | 6300      | 2/01/12 | 103        | 28.8          | 33.6      | 31.8            | PETERSON MDW SNOTEL  | 7200      | 2/01/12 | 25         | 5.8           | 5.7       | 6.1             |
| FOURTH OF JULY SUM   | 3200      | 1/27/12 | 22         | 5.6           | 4.5       | 7.1             | PETTITJOHN CREEK     | 4300      | 2/01/12 | 22         | 4.0           | 3.7       | --              |
| FREEZEOUT CK. TRAIL  | 3500      | 1/30/12 | 47         | 12.0          | 7.1       | 8.8             | PIGTAIL PEAK SNOTEL  | 5800      | 2/01/12 | 116        | 40.3          | 31.7      | 34.3            |
| FROHNER MDWS SNOTEL  | 6480      | 2/01/12 | 26         | 6.8           | 5.4       | 5.0             | PIKE CREEK SNOTEL    | 5930      | 2/01/12 | 34         | 8.7           | 12.9      | 17.8            |
| FROST MEADOWS        | 4630      | 2/02/12 | 48         | 13.4          | 9.7       | --              | PIPESTONE PASS       | 7200      | 2/01/12 | 11         | 2.2           | 3.0       | 3.2             |
| GOAT CREEK           | 3600      | 1/31/12 | 16         | 3.8           | 4.6       | 5.1             | POPE RIDGE SNOTEL    | 3590      | 2/01/12 | 50         | 14.5          | 10.3      | 14.9            |
| GOLD MTN LOOKOUT     |           | 1/27/12 | 31         | 7.1           | 6.4       | --              | POSTILL LAKE CAN.    | 4200      | 1/31/12 | 22         | 5.7           | 5.2       | 5.8             |
| GRAVE CRK SNOTEL     | 4300      | 2/01/12 | 36         | 9.9           | 12.6      | 11.7            | POTATO HILL SNOTEL   | 4510      | 2/01/12 | 71         | 19.0          | 18.0      | 18.5            |
| GREEN LAKE SNOTEL    | 5920      | 2/01/12 | 60         | 18.2          | 12.5      | 15.4            | QUARTZ PEAK SNOTEL   | 4700      | 2/01/12 | 42         | 12.9          | 16.6      | 15.4            |
| GREYBACK RES CAN.    | 4700      | 1/31/12 | 23         | 6.1           | --        | 6.3             | RAGGED MOUNTAIN      | 4200      | 1/29/12 | 37         | 10.8          | 16.4      | 14.1            |
| GROUSE CAMP SNOTEL   | 5390      | 2/01/12 | 47         | 12.8          | 11.1      | 14.0            | RAGGED MTN SNOTEL    | 4210      | 2/01/12 | 39         | 13.3          | 16.1      | --              |
| HAMILTON HILL CAN.   | 4550      | 1/29/12 | 39         | 11.1          | 5.6       | 9.9             | RAGGED RIDGE         | 3330      | 1/27/12 | 11         | 2.2           | 4.8       | --              |
| HAND CREEK SNOTEL    | 5030      | 2/01/12 | 29         | 6.8           | 9.0       | 8.6             | RAINY PASS SNOTEL    | 4890      | 2/01/12 | 95         | 33.3          | 22.5      | 30.2            |
| HARTS PASS SNOTEL    | 6490      | 2/01/12 | 97         | 32.6          | 32.8      | 31.3            | RAINY PASS           | 4780      | 1/31/12 | 97         | 29.9          | 20.5      | 27.6            |
| HARTS PASS           | 6500      | 1/30/12 | 102        | 31.8          | 30.2      | 29.5            | REX RIVER SNOTEL     | 3810      | 2/01/12 | 72         | 29.8          | 12.2      | 21.7            |
| HELL ROARING DIVIDE  | 5770      | 1/31/12 | 62         | 17.4          | 25.3      | 20.7            | ROCKER PEAK SNOTEL   | 8000      | 2/01/12 | 38         | 9.0           | 10.3      | 9.1             |
| HERRIG JUNCTION      | 4850      | 1/26/12 | 55         | 13.2          | 18.8      | 18.1            | ROCKY CREEK AM       | 2100      | 1/27/12 | 68         | 21.8          | 18.9      | 20.2            |
| HIGH RIDGE SNOTEL    | 4920      | 2/01/12 | 61         | 16.6          | 18.3      | 16.9            | ROUND TOP MTN        | 4020      | 1/27/12 | 25         | 5.6           | 9.4       | --              |
| HOLBROOK             | 4530      | 2/01/12 | 21         | 5.5           | 6.7       | 7.2             | RUSTY CREEK          | 4000      | 1/26/12 | 18         | 2.9           | 3.6       | 4.9             |
| HOODOO BASIN SNOTEL  | 6050      | 2/01/12 | 106        | 29.5          | 31.1      | 30.1            | SF THUNDER CK AM     | 2200      | 1/27/12 | 50         | 16.0          | 1.6       | 5.9             |
| HUCKLEBERRY SNOTEL   | 2250      | 2/01/12 | 9          | 3.7           | .0        | 2.0             | SADDLE MTN SNOTEL    | 7900      | 2/01/12 | 66         | 16.2          | 20.2      | 17.3            |
| HUMBOLDT GLCH SNOTEL | 4250      | 2/01/12 | ---        | 11.4          | 8.6       | 9.5             | SALMON MDWS SNOTEL   | 4460      | 2/01/12 | 21         | 5.5           | 6.4       | 7.5             |
| HURRICANE            | 4500      | 1/26/12 | 42         | 9.0           | 10.7      | 11.7            | SASSE RIDGE SNOTEL   | 4340      | 2/01/12 | 73         | 23.5          | 17.6      | 23.8            |
| INDIAN ROCK SNOTEL   | 5360      | 2/01/12 | 62         | 22.5          | 22.1      | --              | SATUS PASS           | 4030      | 1/30/12 | 24         | 8.0           | 8.2       | 8.7             |
| INTERGAARD           | 6450      | 1/29/12 | 20         | 5.8           | 4.8       | 4.8             | SAVAGE PASS SNOTEL   | 6170      | 2/01/12 | 68         | 18.9          | 19.4      | 17.6            |
| IRENE'S CAMP         | 5530      | 1/31/12 | 33         | 7.2           | 5.3       | --              | SAWMILL RIDGE SNOTEL | 4640      | 2/01/12 | 93         | 32.5          | 22.2      | --              |
| ISINTOK LAKE CAN.    | 5100      | 1/27/12 | 24         | 4.3           | 4.1       | 5.2             | SCHREIBERS MDW AM    | 3400      | 1/27/12 | 96         | 31.7          | 27.0      | 32.4            |
| JUNE LAKE SNOTEL     | 3440      | 2/01/12 | 59         | 23.4          | 25.0      | 28.4            | SENTINEL BT SNOTEL   | 4680      | 2/01/12 | 20         | 3.7           | 6.5       | 6.1             |

| SNOW COURSE          | ELEVATION | DATE    | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 |
|----------------------|-----------|---------|------------|---------------|-----------|-----------------|
| SHEEP CANYON SNOTEL  | 3990      | 2/01/12 | 61         | 22.0          | 22.7      | 23.9            |
| SHERWIN SNOTEL       | 3200      | 2/01/12 | ---        | 8.4           | 7.7       | 8.4             |
| SILVER STAR MTN CAN. | 5600      | 1/29/12 | 53         | 15.6          | 20.7      | 20.0            |
| SKALKAHO SNOTEL      | 7260      | 2/01/12 | 60         | 15.7          | 17.2      | 16.0            |
| SKOOKUM CREEK SNOTEL | 3310      | 2/01/12 | 50         | 23.6          | 8.1       | 20.2            |
| SKOOKUM LAKES        | 4230      | 1/26/12 | 32         | 7.4           | 9.8       | --              |
| SOURDOUGH GUL SNOTEL | 4000      | 2/01/12 | 3          | 1.5           | .0        | --              |
| SOUTH BALDY          | 4920      | 1/26/12 | 45         | 11.3          | 14.8      | --              |
| SPENCER MDW SNOTEL   | 3400      | 2/01/12 | 45         | 17.2          | 15.0      | 21.9            |
| SPIRIT LAKE SNOTEL   | 3520      | 2/01/12 | 5          | 4.8           | .3        | 5.1             |
| SPOTTED BEAR MTN.    | 7000      | 2/03/12 | 41         | 9.4           | 10.2      | 10.1            |
| SPRUCE SPGS SNOTEL   | 5700      | 2/01/12 | 40         | 9.6           | 4.8       | 13.0            |
| STARVATION MOUNTAIN  | 6750      | 1/28/12 | 46         | 12.0          | 12.2      | 13.0            |
| STAHL PEAK SNOTEL    | 6030      | 2/01/12 | 69         | 19.2          | 30.3      | 24.1            |
| STAMPEDE PASS SNOTEL | 3850      | 2/01/12 | 75         | 25.3          | 15.6      | 31.0            |
| STEVENS PASS SNOTEL  | 3950      | 2/01/12 | 90         | 28.0          | 18.2      | 30.2            |
| STORM LAKE           | 7780      | 1/26/12 | 31         | 7.8           | 7.1       | 8.3             |
| STRYKER BASIN        | 6180      | 1/26/12 | 60         | 14.7          | 24.9      | 21.3            |
| STUART MOUNTAIN      | 7400      | 2/03/12 | 74         | 22.1          | 31.3      | --              |
| SUMMERLAND RES CAN.  | 4200      | 1/27/12 | 31         | 5.8           | 7.1       | 6.9             |
| SUMMIT G.S. #2       | 4600      | 1/31/12 | 22         | 4.3           | 6.9       | 6.3             |
| SUNSET SNOTEL        | 5540      | 2/01/12 | ---        | 13.0          | 16.5      | 20.9            |
| SURPRISE LKS SNOTEL  | 4290      | 2/01/12 | 85         | 29.2          | 27.7      | 32.2            |
| SWAMP CREEK SNOTEL   | 3930      | 2/01/12 | 62         | 18.9          | 11.6      | 13.9            |
| SWIFT CREEK SNOTEL   | 4440      | 2/01/12 | 86         | 34.9          | 36.3      | 38.5            |
| TEN MILE LOWER       | 6600      | 1/31/12 | 26         | 5.8           | 4.3       | 4.7             |
| TEN MILE MIDDLE      | 6800      | 1/30/12 | 31         | 7.0           | 6.2       | 7.1             |
| THUNDER BASIN SNOTEL | 4320      | 2/01/12 | 63         | 22.9          | 18.2      | 24.3            |
| THUNDER BASIN        | 4200      | 1/31/12 | 55         | 16.4          | 10.8      | 14.5            |
| THOMPSON CREEK       | 2500      | 1/27/12 | 8          | 1.9           | 4.6       | --              |

| SNOW COURSE          | ELEVATION | DATE    | SNOW DEPTH | WATER CONTENT | LAST YEAR | AVERAGE 1971-00 |
|----------------------|-----------|---------|------------|---------------|-----------|-----------------|
| THOMPSON RIDGE       | 4650      | 1/27/12 | 45         | 8.4           | 7.3       | --              |
| TINKHAM CREEK SNOTEL | 2990      | 2/01/12 | 67         | 24.3          | 15.8      | 22.7            |
| TOATS COULEE         | 2850      | 1/31/12 | 11         | 1.9           | 2.1       | 2.6             |
| TOUCHET SNOTEL       | 5530      | 2/01/12 | 62         | 18.1          | 14.5      | 23.8            |
| TRINKUS LAKE         | 6100      | 2/03/12 | 80         | 23.7          | 38.5      | 26.6            |
| TROUGH #2 SNOTEL     | 5480      | 2/01/12 | 25         | 7.1           | 6.8       | 7.5             |
| TRUMAN CREEK         | 4060      | 1/27/12 | 16         | 4.4           | 4.8       | 3.5             |
| TUNNEL AVENUE        | 2450      | 2/01/12 | 46         | 15.2          | 11.5      | 14.8            |
| TV MOUNTAIN          | 6800      | 2/03/12 | 43         | 10.5          | 17.4      | 11.8            |
| TWELVEMILE SNOTEL    | 5600      | 2/01/12 | 54         | 15.1          | 10.6      | 12.8            |
| TWIN LAKES SNOTEL    | 6400      | 2/01/12 | 95         | 25.8          | 28.5      | 27.5            |
| TWIN SPIRIT DIVIDE   | 3480      | 1/29/12 | 15         | 3.9           | 5.2       | 10.5            |
| UPPER HOLLAND LAKE   | 6200      | 2/03/12 | 70         | 19.4          | 24.8      | 23.7            |
| UPPER WHEELER SNOTEL | 4330      | 2/01/12 | 21         | 6.3           | 6.6       | 9.2             |
| VASEUX CREEK CAN.    | 4250      | 2/01/12 | 13         | 3.5           | --        | 4.3             |
| VULCAN MTN           | 4660      | 1/31/12 | 24         | 5.8           | 7.3       | --              |
| VULCAN ROAD          | 3840      | 1/31/12 | 19         | 4.0           | 5.8       | --              |
| WARM SPRINGS SNOTEL  | 7800      | 2/01/12 | 54         | 13.6          | 15.5      | 13.8            |
| WATSON LAKES AM      | 4500      | 1/27/12 | 100        | 35.0          | 24.5      | 35.6            |
| WATERHOLE SNOTEL     | 5010      | 2/01/12 | 72         | 26.8          | 25.5      | 23.2            |
| WEASEL DIVIDE        | 5450      | 1/30/12 | 73         | 20.2          | 23.2      | 21.5            |
| WELLS CREEK SNOTEL   | 4030      | 2/01/12 | 74         | 23.8          | 20.7      | 22.0            |
| WHITE PASS ES SNOTEL | 4440      | 2/01/12 | 54         | 19.1          | 12.6      | 17.1            |
| WHITE ROCKS MTN CAN. | 7200      | 1/27/12 | 46         | 11.6          | 14.1      | 15.7            |



Natural Resources Conservation Service

Washington State  
Snow, Water and Climate Services

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## Helpful Internet Addresses

### NRCS Snow Survey and Climate Services Homepages

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

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

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

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

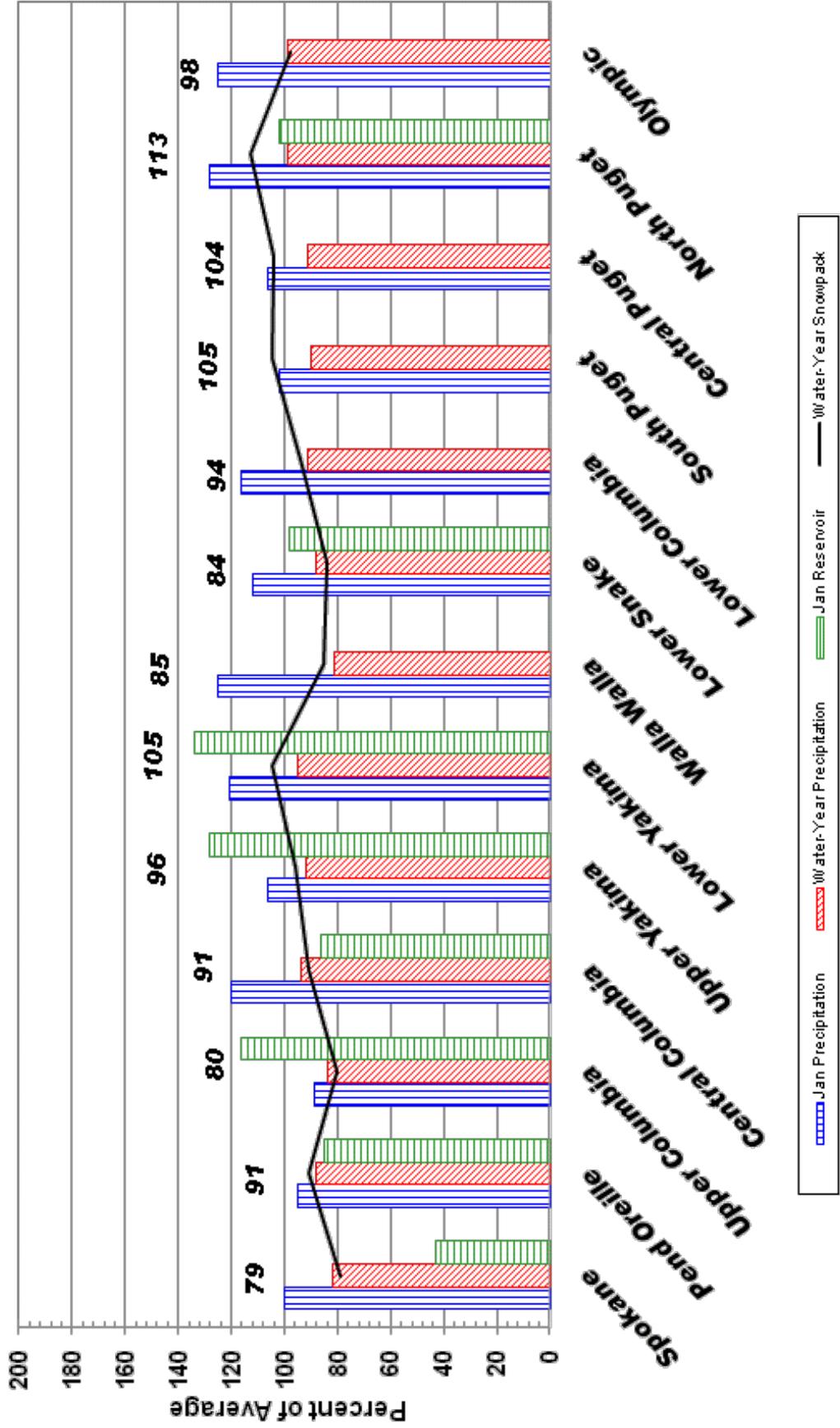
### USDA-NRCS Agency Homepages

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

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

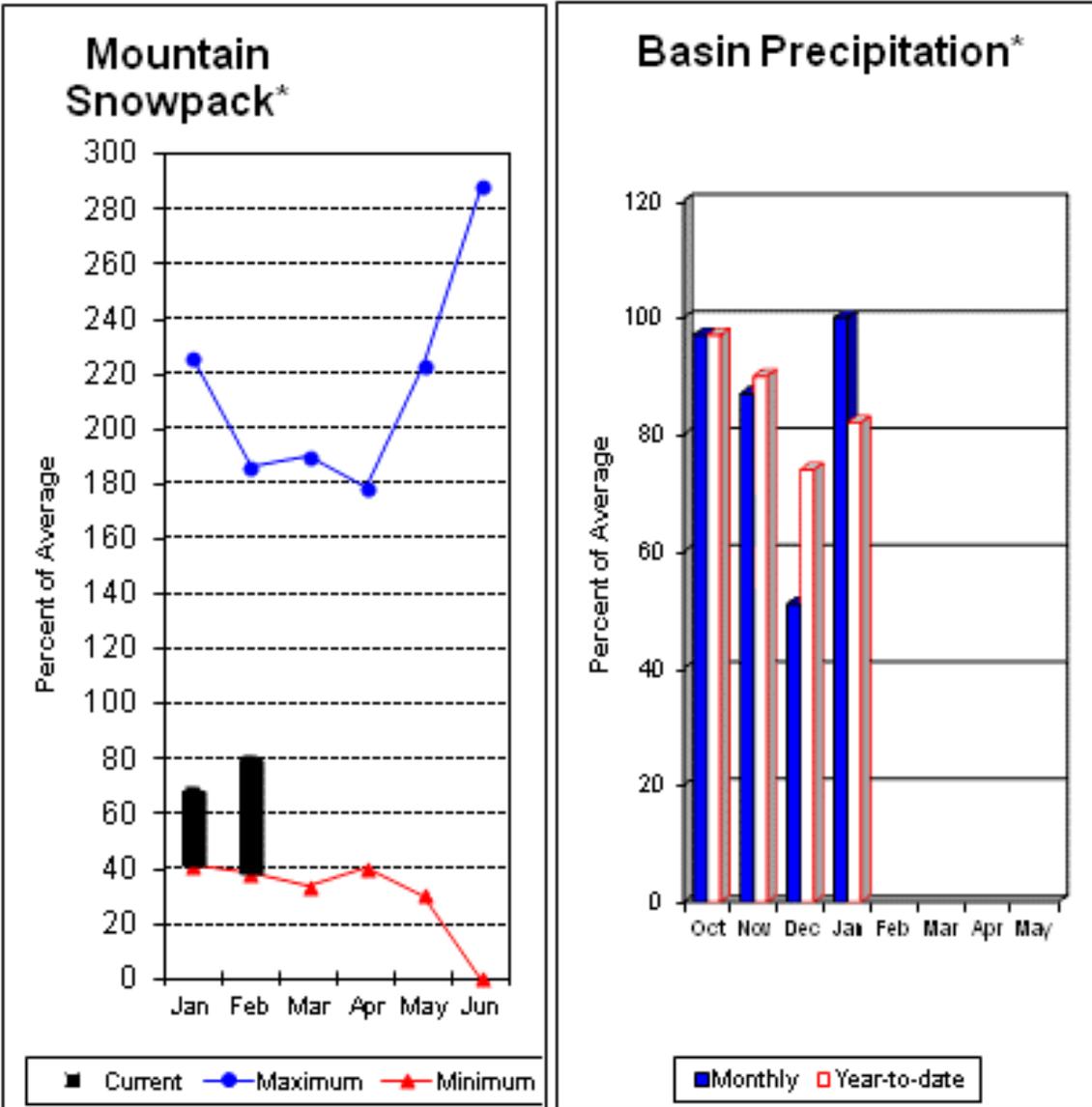
## February 1, 2012 - Snowpack, Precipitation and Reservoir Conditions at a Glance

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



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# Spokane River Basin



\*Based on selected stations

The February 1 forecasts for summer runoff within the Spokane River Basin are 94% of average near Post Falls and 99% at Long Lake. The Chamokane River near Long Lake forecasted to have 69% of average flows for the May-August period. The forecast is based on a basin snowpack that is 79% of average and precipitation that is 82% of average for the water year. Precipitation for January was normal. Streamflow on the Spokane River at Long Lake was 50% of average for January. February 1 storage in Coeur d'Alene Lake was 50,000acre feet, 43% of average and 21% of capacity. Snowpack at Quartz Peak SNOTEL site was 84% of average with 12.9 inches of water content. Average temperatures in the Spokane basin were 1-3 degrees above normal for January and slightly above normal for the water year.

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

# Spokane River Basin

## Streamflow Forecasts - February 1, 2012

| Forecast Point              | Forecast Period | Future Conditions     |                 |                 |                 | 30-Yr Avg.<br>(1000AF) |      |      |
|-----------------------------|-----------------|-----------------------|-----------------|-----------------|-----------------|------------------------|------|------|
|                             |                 | Drier                 |                 | Wetter          |                 |                        |      |      |
|                             |                 | 90%<br>(1000AF)       | 70%<br>(1000AF) | 50%<br>(1000AF) | 10%<br>(1000AF) |                        |      |      |
|                             |                 | Chance Of Exceeding * |                 |                 |                 |                        |      |      |
|                             |                 |                       |                 | 50%<br>(% AVG.) |                 |                        |      |      |
| Spokane R nr Post Falls (2) | APR-JUL         | 1800                  | 2150            | 2400            | 94              | 2650                   | 2800 | 2550 |
|                             | APR-SEP         | 1880                  | 2250            | 2500            | 94              | 2750                   | 2910 | 2650 |
| Spokane R at Long Lake (2)  | APR-JUL         | 2140                  | 2540            | 2820            | 99              | 3100                   | 3500 | 2850 |
|                             | APR-SEP         | 2350                  | 2760            | 3040            | 99              | 3320                   | 3730 | 3070 |
| Chamokane Ck nr Long Lake   | MAY-AUG         | 1.3                   | 4.7             | 7.0             | 69              | 9.3                    | 12.7 | 10.2 |

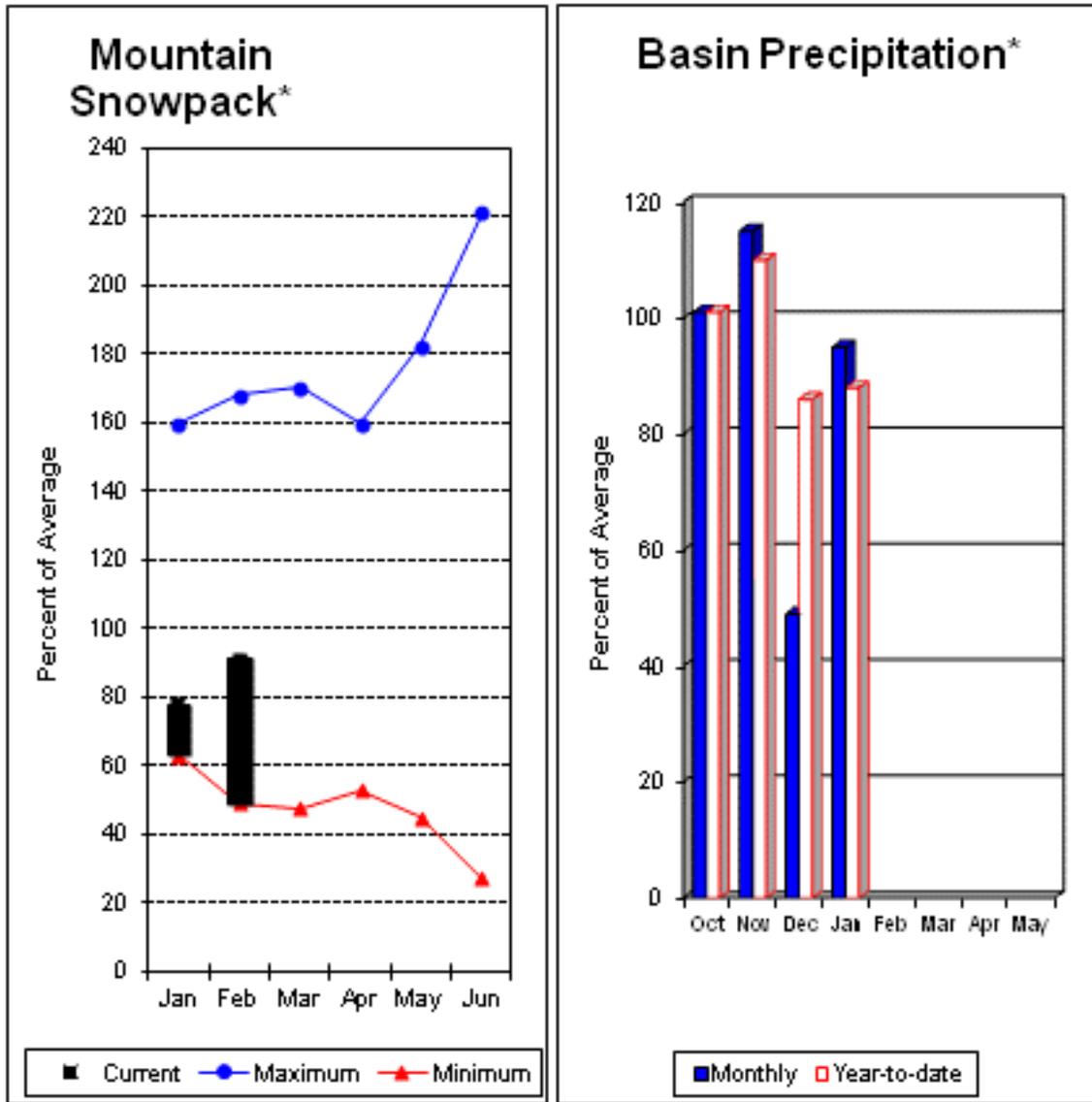
| SPOKANE RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | SPOKANE RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|---|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |       | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg   |   |                      | Last Yr           | Average |
| COEUR D'ALENE   | 238.5           | 49.6                   | 210.8     | 115.6 | SPOKANE RIVER   | 12                   | 86                | 79      |
|   |                 |                        |           |       | NEWMAN LAKE   | 1                    | 64                | 84      |

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

The average is computed for the 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 72% and the Pen Orielle below Box Canyon is 85%. January streamflow was 80% of average on the Pend Oreille River and 88% on the Columbia Birchbank. February 1 snow cover was 91% of average in the Pend Oreille Basin River Basin. Bunchgrass Meadows SNOTEL site had 15.8 inches of snow water on the snow pillow. Normally Bunchgrass would have 18.6 inches on February 1. Precipitation during January was 95% of average, bringing the year-to-date precipitation to 88% of average. Reservoir storage in the basin, including Lake Pend Oreille and Priest Lake was 85% of normal. Average temperatures were 1-3 degrees above normal for January and near normal for the water year.

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

# Pend Oreille River Basins

## Streamflow Forecasts - February 1, 2012

| Forecast Point                   | Forecast Period | Future Conditions |                 |                 |                 |   | 30-Yr Avg.<br>(1000AF) |
|----------------------------------|-----------------|-------------------|-----------------|-----------------|-----------------|---|------------------------|
|                                  |                 | Drier             |                 | Wetter          |                 | Chance Of Exceeding *<br>50%<br>(1000AF) (% AVG.) |                        |
|                                  |                 | 90%<br>(1000AF)   | 70%<br>(1000AF) | 30%<br>(1000AF) | 10%<br>(1000AF) |   |                        |
| Pend Oreille Lake Inflow (2)     | APR-JUL         | 8770              | 9960            | 10800           | 85              | 11600   | 12700                  |
|                                  | APR-SEP         | 9810              | 10900           | 11800           | 85              | 12700   | 13900                  |
| Pend Oreille R bl Box Canyon (2) | APR-JUL         | 8780              | 10000           | 10900           | 85              | 11800   | 12900                  |
|                                  | APR-SEP         | 9770              | 11100           | 12000           | 85              | 12900   | 14100                  |

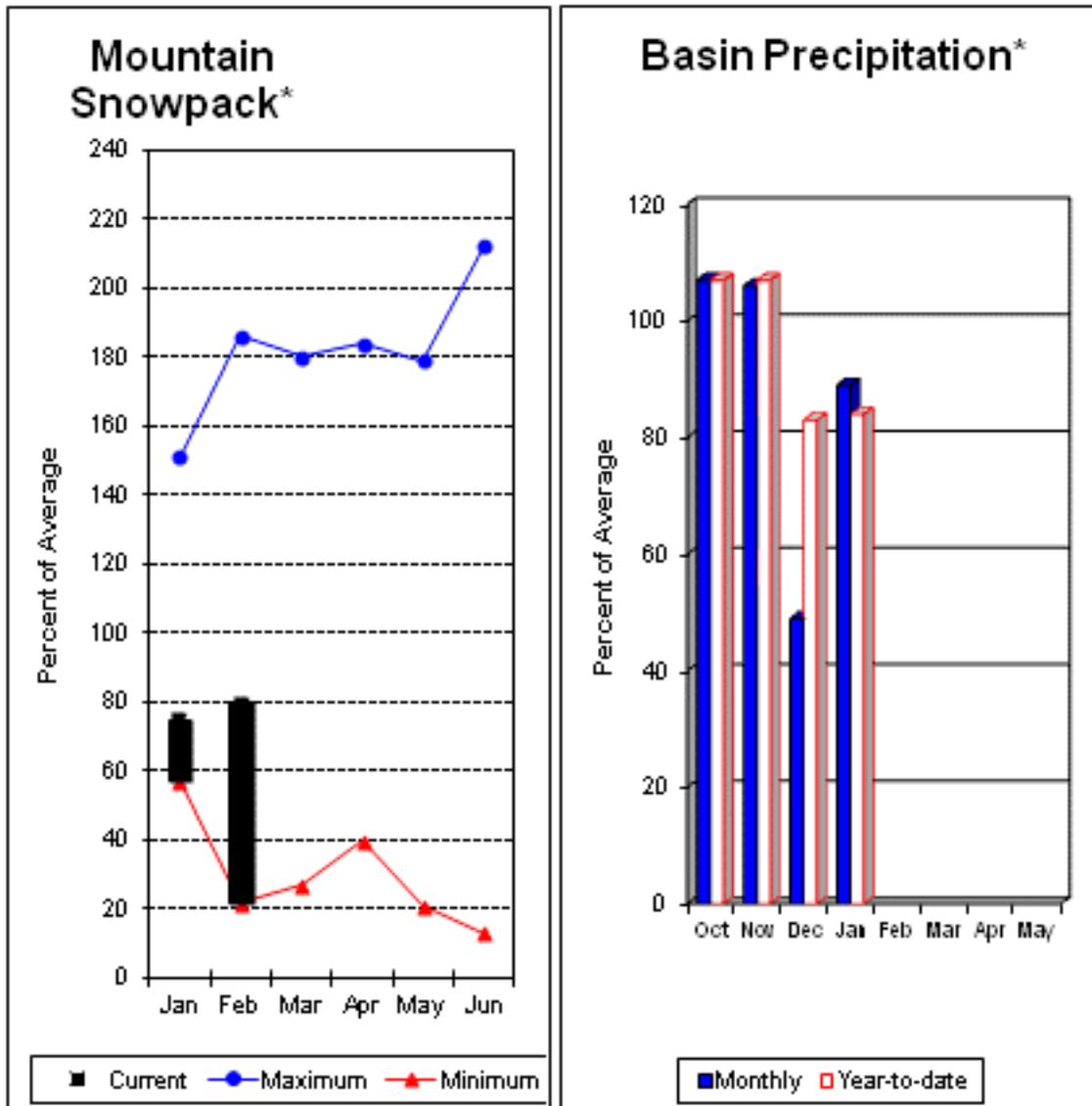
| PEND OREILLE RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | PEND OREILLE RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|---|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |       | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg   |   |                      | Last Yr           | Average |
| PEND OREILLE  | 1561.3          | 632.2                  | 827.0     | 749.3 | COLVILLE RIVER  | 0                    | 106               | 0       |
| PRIEST LAKE   | 119.3           | 55.5                   | 53.2      | 55.5  | PEND OREILLE RIVER  | 8                    | 92                | 92      |
|   |                 |                        |           |       | KETTLE RIVER  | 3                    | 69                | 67      |

\* 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 93%, Similkameen River is 106%, Kettle River 80% and Methow River is 94%. February 1 snow cover on the Okanogan was 88% of average, Omak Creek was 74% and the Methow was 103%. January precipitation in the Upper Columbia was 89% of average, with precipitation for the water year at 84% of average. January streamflow for the Methow River was 91% of average, 96% for the Okanogan River and 124% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL was 5.5 inches. Average for this site is 7.5 inches on February 1. Combined storage in the Conconully Reservoirs was 19,000-acre feet, which is 82% of capacity and 116% of the February 1 average. Temperatures were slightly below normal for January and near average for the water year.

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

# Upper Columbia River Basins

## Streamflow Forecasts - February 1, 2012

| Forecast Point                 | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |                 |                          |     |                 |                 | 30-Yr Avg.<br>(1000AF) |
|--------------------------------|-----------------|--|-----------------|--------------------------|-----|-----------------|-----------------|------------------------|
|                                |                 | Chance Of Exceeding *                                      |                 |                          |     |                 |                 |                        |
|                                |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50%<br>(1000AF) (% AVG.) |     | 30%<br>(1000AF) | 10%<br>(1000AF) |                        |
| Colville R at Kettle Falls     | APR-JUL         | 35   | 76              | 104                      | 81  | 132             | 173             | 128                    |
|                                | APR-SEP         | 38   | 83              | 114                      | 81  | 145             | 190             | 141                    |
| Kettle R nr Laurier            | APR-JUL         | 1140   | 1360            | 1500                     | 80  | 1640            | 1860            | 1870                   |
|                                | APR-SEP         | 1200   | 1420            | 1580                     | 80  | 1740            | 1960            | 1970                   |
| Columbia R at Birchbank (1,2)  | APR-JUL         | 30300  | 33400           | 34400                    | 99  | 35400           | 39700           | 34900                  |
|                                | APR-SEP         | 38500  | 42700           | 43800                    | 101 | 44900           | 50200           | 43500                  |
| Columbia R at Grand Coulee (2) | APR-JUL         | 44700  | 46800           | 50100                    | 93  | 53400           | 57400           | 53800                  |
|                                | APR-SEP         | 54800  | 57300           | 61200                    | 96  | 65100           | 69400           | 64000                  |
| Similkameen R nr Nighthawk (1) | APR-JUL         | 1070   | 1320            | 1440                     | 107 | 1560            | 1810            | 1350                   |
|                                | APR-SEP         | 1170   | 1420            | 1540                     | 106 | 1660            | 1910            | 1450                   |
| Okanogan R nr Tonasket (1)     | APR-JUL         | 915  | 1300            | 1470                     | 93  | 1640            | 2020            | 1580                   |
|                                | APR-SEP         | 1040   | 1450            | 1640                     | 93  | 1830            | 2240            | 1770                   |
| Okanogan R at Malott (1)       | APR-JUL         | 935  | 1340            | 1520                     | 93  | 1700            | 2110            | 1630                   |
|                                | APR-SEP         | 1050   | 1490            | 1690                     | 92  | 1890            | 2330            | 1830                   |
| Methow R nr Pateros            | APR-SEP         | 740  | 845             | 915                      | 93  | 985             | 1090            | 985                    |
|                                | APR-JUL         | 695  | 790             | 855                      | 94  | 920             | 1020            | 910                    |

| UPPER COLUMBIA RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |     | UPPER COLUMBIA RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|---|-----------------|------------------------|-----------|-----|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |     | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg |   |                      | Last Yr           | Average |
| SALMON LAKE   | 10.5            | 8.3                    | 8.6       | 8.4 | OKANOGAN RIVER  | 5                    | 108               | 101     |
| CONCONULLY RESERVOIR  | 13.0            | 11.0                   | 12.0      | 8.2 | OMAK CREEK  | 3                    | 82                | 74      |
|   |                 |                        |           |     | SANPOIL RIVER   | 1                    | 84                | 36      |
|   |                 |                        |           |     | SIMILKAMEEN RIVER   | 0                    | 0                 | 0       |
|   |                 |                        |           |     | TOATS COULEE CREEK  | 1                    | 117               | 73      |
|   |                 |                        |           |     | CONCONULLY LAKE   | 3                    | 99                | 82      |
|   |                 |                        |           |     | METHOW RIVER  | 8                    | 117               | 103     |

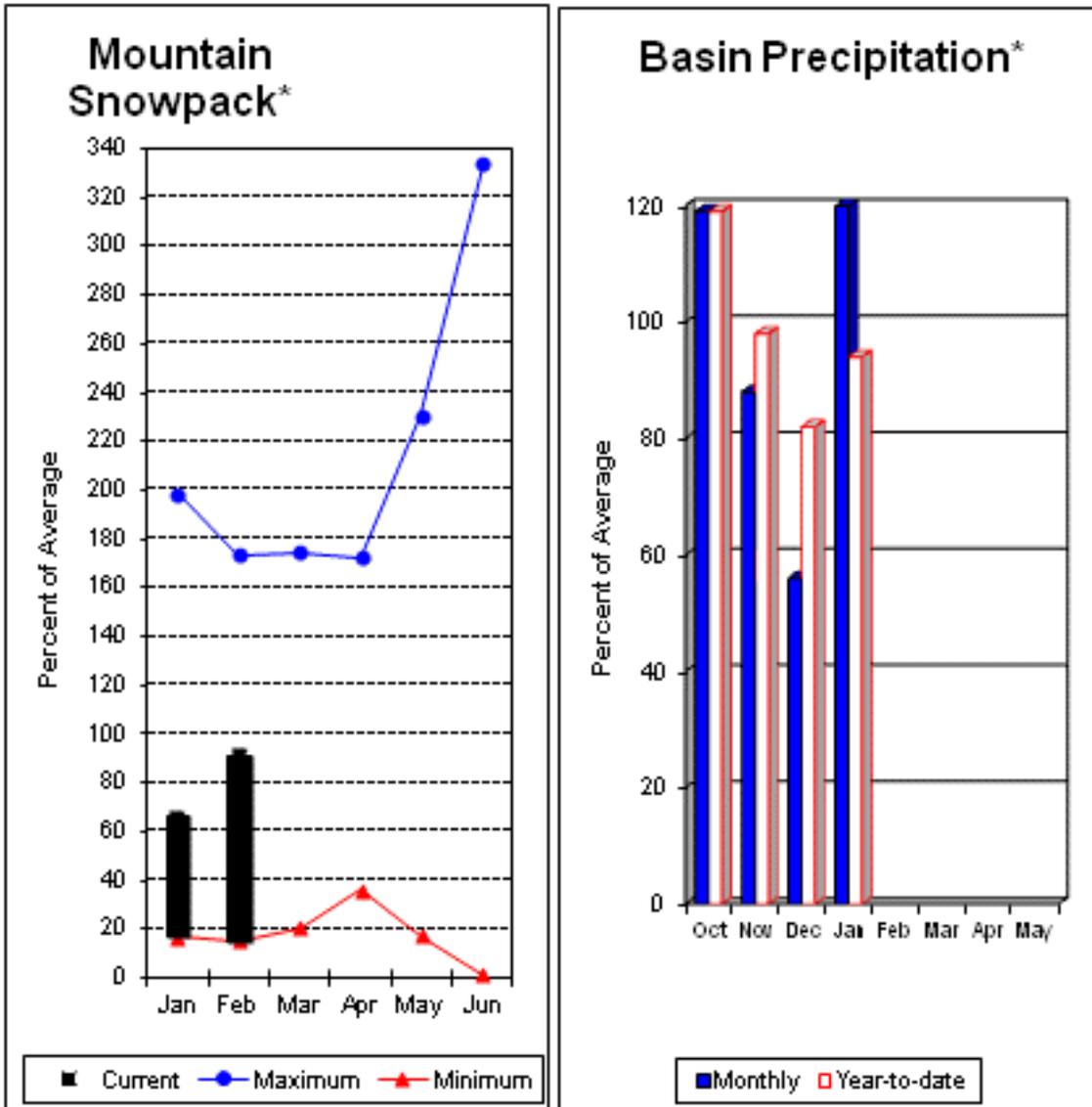
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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.

# Central Columbia River Basins



\*Based on selected stations

Precipitation during January was 120% of average in the basin and 94% for the year-to-date. Runoff for Entiat River is forecast to be 88% of average for the summer. The February-September average forecast for Chelan River is 97%, Wenatchee River at Plain is 89%, Stehekin River is 104% and Icicle Creek is 81%. January average streamflows on the Chelan River were 72% and on the Wenatchee River 78%. February 1 snowpack in the Wenatchee River Basin was 92% of average; the Chelan, 102%; the Entiat, 97%; Stemilt Creek, 68% and Colockum Creek, 95%. Reservoir storage in Lake Chelan was 273,000-acre feet, 86% of February 1 average and 40% of capacity. Lyman Lake SNOTEL had the most snow water with 40.3 inches of water. This site would normally have 43.4 inches on February 1. Temperatures were slightly above normal for January and near normal for the water year.

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

# Central Columbia River Basins

## Streamflow Forecasts - February 1, 2012

| Forecast Point                    | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> |       |                 |     |   |       | 30-Yr Avg.<br>(1000AF) |                 |  |                 |  |
|-----------------------------------|-----------------|--|-------|-----------------|-----|---|-------|------------------------|-----------------|--|-----------------|--|
|                                   |                 | 90%<br>(1000AF)  |       | 70%<br>(1000AF) |     | Chance Of Exceeding *<br>50%<br>(1000AF) (% AVG.) |       |                        | 30%<br>(1000AF) |  | 10%<br>(1000AF) |  |
|                                   |                 |  |       |                 |     |   |       |                        |                 |  |                 |  |
| Stehekin R at Stehekin            | APR-JUL         | 630  | 695   | 740             | 106 | 785   | 850   | 700                    |                 |  |                 |  |
|                                   | APR-SEP         | 745  | 815   | 860             | 104 | 905   | 975   | 830                    |                 |  |                 |  |
| Chelan R at Chelan (2)            | APR-JUL         | 910  | 975   | 1020            | 97  | 1070  | 1130  | 1050                   |                 |  |                 |  |
|                                   | APR-SEP         | 1010   | 1090  | 1150            | 97  | 1210  | 1290  | 1190                   |                 |  |                 |  |
| Entiat R nr Ardenvoir             | APR-JUL         | 160  | 178   | 190             | 88  | 200   | 220   | 215                    |                 |  |                 |  |
|                                   | APR-SEP         | 177  | 197   | 210             | 88  | 225   | 245   | 240                    |                 |  |                 |  |
| Wenatchee R at Plain              | APR-JUL         | 840  | 915   | 965             | 90  | 1020  | 1090  | 1070                   |                 |  |                 |  |
|                                   | APR-SEP         | 900  | 990   | 1050            | 89  | 1110  | 1200  | 1180                   |                 |  |                 |  |
| Icicle Ck nr Leavenworth          | APR-JUL         | 220  | 235   | 250             | 81  | 265   | 280   | 310                    |                 |  |                 |  |
|                                   | APR-SEP         | 235  | 260   | 275             | 81  | 290   | 315   | 340                    |                 |  |                 |  |
| Wenatchee R at Peshastin          | APR-JUL         | 1150   | 1250  | 1320            | 89  | 1390  | 1490  | 1480                   |                 |  |                 |  |
|                                   | APR-SEP         | 1220   | 1340  | 1430            | 88  | 1520  | 1640  | 1630                   |                 |  |                 |  |
| Columbia R bl Rock Island Dam (2) | APR-JUL         | 48800  | 50200 | 54000           | 92  | 57800   | 63300 | 59000                  |                 |  |                 |  |
|                                   | APR-SEP         | 59200  | 61500 | 66000           | 95  | 70500   | 75700 | 69500                  |                 |  |                 |  |

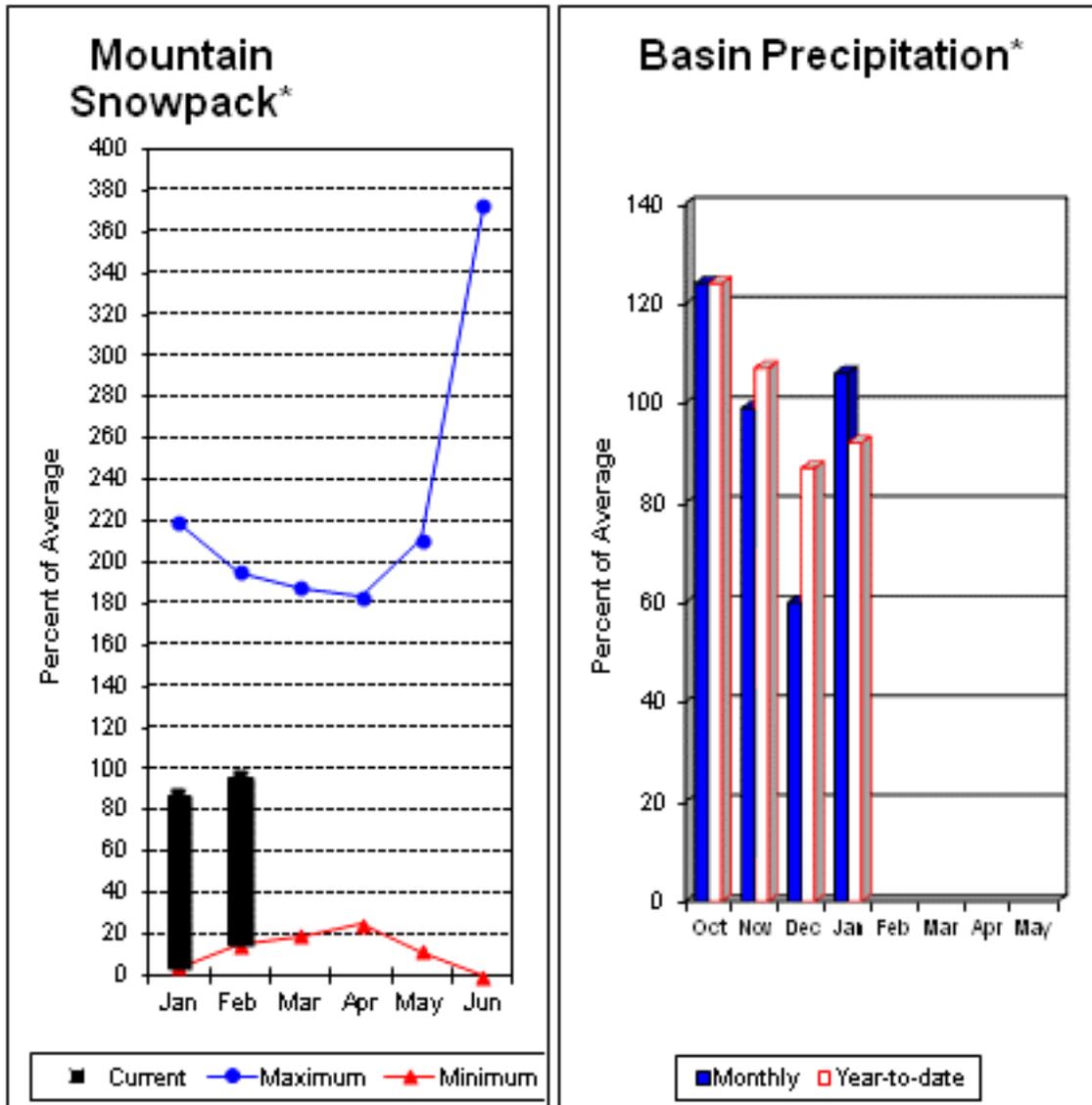
| CENTRAL COLUMBIA RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | CENTRAL COLUMBIA RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|---|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |       | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg   |   |                      | Last Yr           | Average |
| CHELAN LAKE   | 676.1           | 272.6                  | 289.6     | 315.5 | CHELAN LAKE BASIN   | 4                    | 137               | 102     |
|   |                 |                        |           |       | ENTIAT RIVER  | 1                    | 141               | 97      |
|   |                 |                        |           |       | WENATCHEE RIVER   | 7                    | 134               | 92      |
|   |                 |                        |           |       | STEMILT CREEK   | 1                    | 95                | 68      |
|   |                 |                        |           |       | COLOCKUM CREEK  | 1                    | 104               | 95      |

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

The average is computed for the 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 567,000-acre feet, 128% of average. Forecasts for the Yakima River at Cle Elum are 91% of average and the Teanaway River near Cle Elum is at 87%. Lake inflows are all forecasted to be slightly below this summer. January streamflows within the basin were Cle Elum River near Roslyn at 79%. February 1 snowpack was 96% based upon 9 snow course and SNOTEL readings within the Upper Yakima Basin. Precipitation was 106% of average for January and 92% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

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

# Upper Yakima River Basin

## Streamflow Forecasts - February 1, 2012

| Forecast Point                  | Forecast Period    | Future Conditions |                 |                 |                 |   | 30-Yr Avg.<br>(1000AF) |            |
|---------------------------------|--------------------|-------------------|-----------------|-----------------|-----------------|---|------------------------|------------|
|                                 |                    | Drier             |                 | Wetter          |                 | Chance Of Exceeding *<br>50%<br>(1000AF) (% AVG.) |                        |            |
|                                 |                    | 90%<br>(1000AF)   | 70%<br>(1000AF) | 30%<br>(1000AF) | 10%<br>(1000AF) |   |                        |            |
| Keechelus Reservoir Inflow (2)  | APR-JUL<br>APR-SEP | 84<br>95          | 104<br>115      | 117<br>129      | 97<br>97        | 130<br>143  | 150<br>163             | 121<br>133 |
| Kachess Reservoir Inflow (2)    | APR-JUL<br>APR-SEP | 78<br>86          | 94<br>102       | 105<br>113      | 95<br>94        | 116<br>124  | 132<br>140             | 111<br>120 |
| Cle Elum Lake Inflow (2)        | APR-JUL<br>APR-SEP | 310<br>335        | 355<br>385      | 385<br>420      | 94<br>93        | 415<br>455  | 460<br>505             | 410<br>450 |
| Yakima R at Cle Elum (2)        | APR-JUL<br>APR-SEP | 545<br>590        | 665<br>725      | 745<br>815      | 91<br>91        | 825<br>905  | 945<br>1040            | 820<br>900 |
| Teanaway R bl Forks nr Cle Elum | APR-JUL<br>APR-SEP | 86<br>88          | 109<br>111      | 125<br>127      | 87<br>87        | 141<br>143  | 164<br>166             | 143<br>146 |

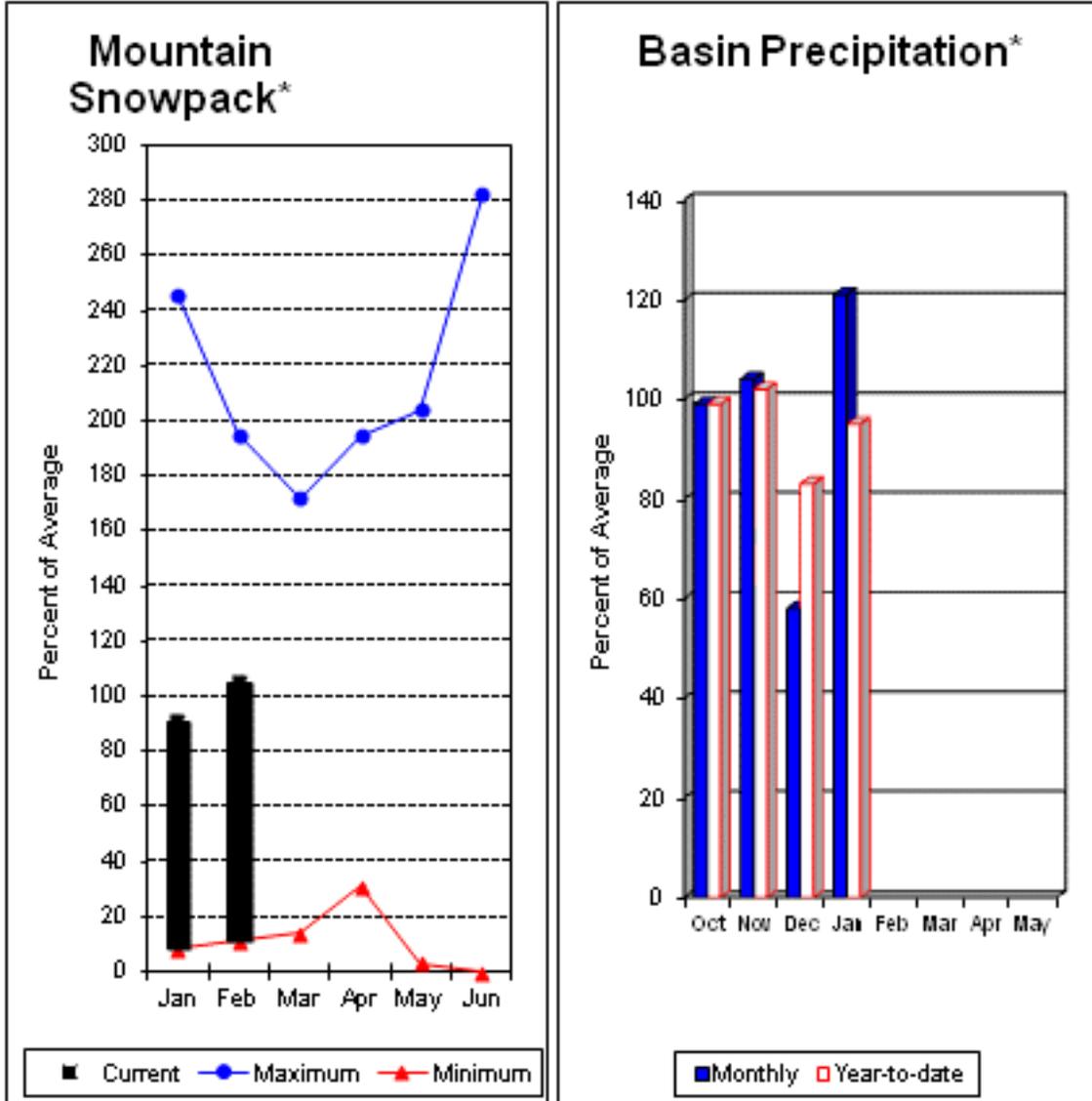
| UPPER YAKIMA RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | UPPER YAKIMA RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|--|-----------------|------------------------|-----------|-------|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |       | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg   |  |                      | Last Yr           | Average |
| KEECHELUS  | 157.8           | 102.4                  | 128.1     | 89.9  | UPPER YAKIMA RIVER   | 9                    | 150               | 96      |
| KACHESS  | 239.0           | 158.6                  | 193.4     | 139.4 |  |                      |                   |         |
| CLE ELUM   | 436.9           | 306.2                  | 311.2     | 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, 70%; Naches River near Naches, 70%; and Yakima River at Kiona, 60%. February 1 reservoir storage for Bumping and Rimrock reservoirs was 163,000-acre feet, 134% of average. Forecast averages for Yakima River near Parker are 93%; American River near Nile, 93%; Ahtanum Creek, 97%; and Klickitat River near Glenwood, 95%. February 1 snowpack was 105% based upon 8 snow course and SNOTEL readings within the Lower Yakima Basin and Ahtanum Creek reported in at 102% of average. Precipitation was 121% of average for January and 95% year-to-date. Temperatures were near normal for January and 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, 2012

| Forecast Point          | Forecast Period | Future Conditions |                 |                 |                 |  | 30-Yr Avg.<br>(1000AF) |      |
|-------------------------|-----------------|-------------------|-----------------|-----------------|-----------------|--|------------------------|------|
|                         |                 | Drier             |                 | Wetter          |                 | Chance Of Exceeding *<br>50%<br>(% AVG.) |                        |      |
|                         |                 | 90%<br>(1000AF)   | 70%<br>(1000AF) | 30%<br>(1000AF) | 10%<br>(1000AF) |  |                        |      |
| Bumping Lake Inflow (2) | APR-JUL         | 98                | 112             | 121             | 99              | 130                                      | 144                    | 122  |
|                         | APR-SEP         | 106               | 121             | 131             | 99              | 141                                      | 156                    | 132  |
| American R nr Nile      | APR-JUL         | 82                | 94              | 102             | 94              | 110                                      | 122                    | 108  |
|                         | APR-SEP         | 87                | 101             | 110             | 93              | 119                                      | 133                    | 118  |
| Rimrock Lake Inflow (2) | APR-JUL         | 173               | 188             | 198             | 97              | 210                                      | 225                    | 205  |
|                         | APR-SEP         | 199               | 215             | 230             | 96              | 245                                      | 260                    | 240  |
| Naches R nr Naches (2)  | APR-JUL         | 590               | 665             | 720             | 100             | 775                                      | 850                    | 720  |
|                         | APR-SEP         | 630               | 720             | 780             | 100             | 840                                      | 930                    | 780  |
| Ahtanum Ck at Union Gap | APR-JUL         | 19.4              | 25              | 29              | 97              | 33                                       | 39                     | 30   |
|                         | APR-SEP         | 21                | 27              | 31              | 97              | 35                                       | 41                     | 32   |
| Yakima R nr Parker (2)  | APR-JUL         | 1360              | 1550            | 1680            | 93              | 1810                                     | 2000                   | 1800 |
|                         | APR-SEP         | 1500              | 1710            | 1850            | 93              | 1990                                     | 2200                   | 1980 |
| Klickitat R nr Glenwood | APR-JUL         | 99                | 112             | 121             | 96              | 130                                      | 143                    | 126  |
|                         | APR-SEP         | 129               | 145             | 155             | 95              | 165                                      | 181                    | 163  |
| Klickitat R nr Pitt     | APR-JUL         | 360               | 410             | 440             | 96              | 470                                      | 520                    | 460  |
|                         | APR-SEP         | 435               | 490             | 530             | 96              | 570                                      | 625                    | 550  |

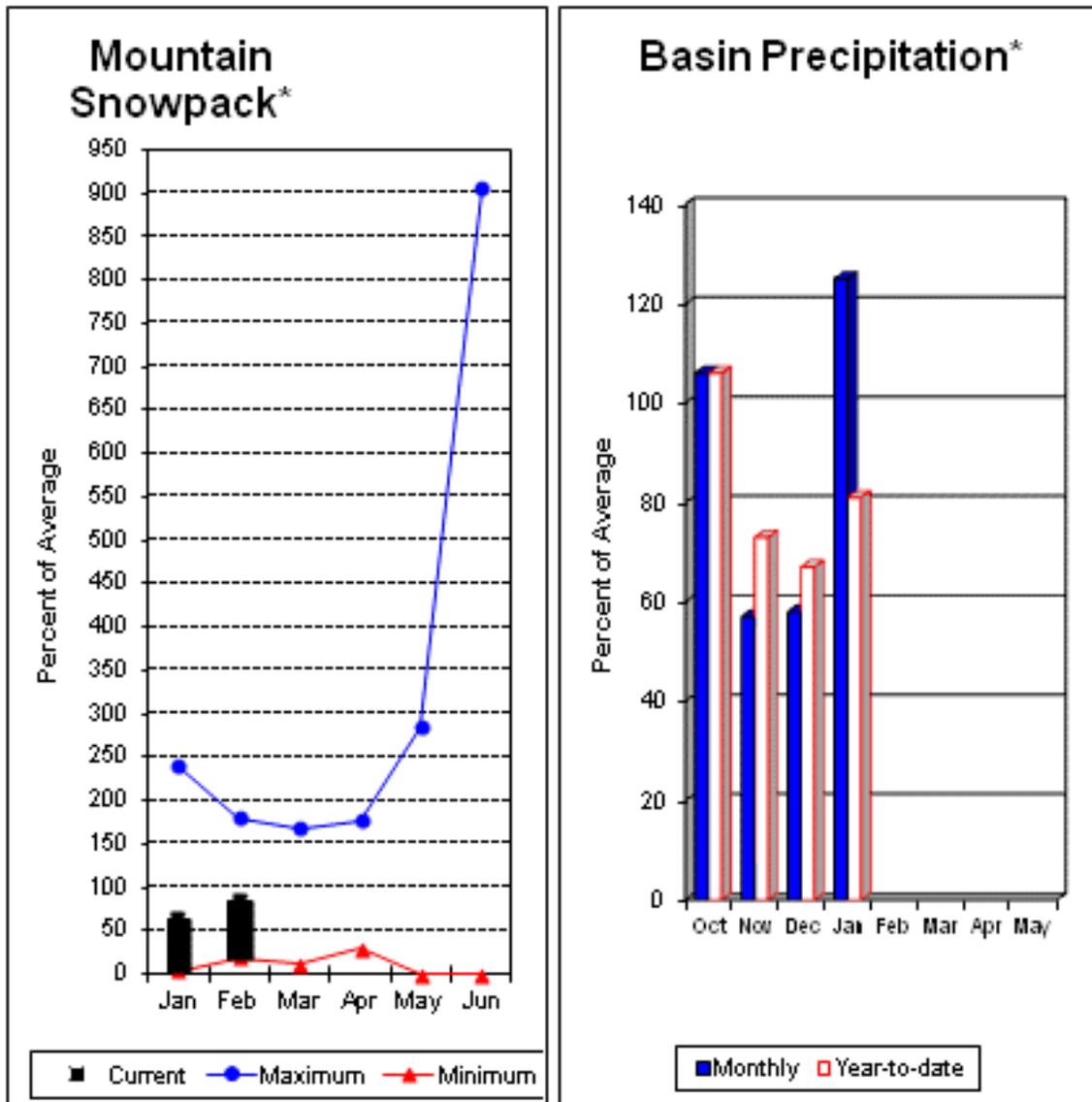
| LOWER YAKIMA RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | LOWER YAKIMA RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|--|-----------------|------------------------|-----------|-------|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |       | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg   |  |                      | Last Yr           | Average |
| BUMPING LAKE   | 33.7            | 20.5                   | 21.0      | 9.9   | LOWER YAKIMA RIVER   | 7                    | 120               | 105     |
| RIMROCK  | 198.0           | 142.1                  | 162.5     | 111.8 | AHTANUM CREEK  | 3                    | 141               | 102     |

\* 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 125% of average, maintaining the year-to-date precipitation at 81% of average. Snowpack in the basin was 85% of average. Streamflow forecasts are 89% of average for Mill Creek and 88% for the SF Walla Walla near Milton-Freewater. January streamflow was 118% of average for the SF Walla Walla River. Average temperatures were 204 degrees above normal for January and 1-2 above for the water year.

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

# Walla Walla River Basin

## Streamflow Forecasts - February 1, 2012

| Forecast Point                       | Forecast Period | <<==== Drier ===== Future Conditions ===== Wetter =====>> |          |          |          |          |          | 30-Yr Avg.<br>(1000AF) |          |          |          |          |
|--------------------------------------|-----------------|---|----------|----------|----------|----------|----------|------------------------|----------|----------|----------|----------|
|                                      |                 | 90%   |          | 70%      |          | 50%      |          |                        | 30%      |          | 10%      |          |
|                                      |                 | (1000AF)  | (1000AF) | (1000AF) | (1000AF) | (1000AF) | (1000AF) |                        | (1000AF) | (1000AF) | (1000AF) | (1000AF) |
| SF Walla Walla R nr Milton-Freewater | MAR-SEP         | 58  | 66       | 72       | 89       | 78       | 86       | 81                     |          |          |          |          |
|                                      | APR-JUL         | 36  | 43       | 47       | 87       | 51       | 58       | 54                     |          |          |          |          |
|                                      | APR-SEP         | 47  | 54       | 59       | 88       | 64       | 71       | 67                     |          |          |          |          |
| Mill Ck nr Walla Walla               | APR-JUL         | 14.8  | 18.5     | 21       | 88       | 24       | 27       | 24                     |          |          |          |          |
|                                      | APR-SEP         | 18.4  | 22       | 25       | 89       | 28       | 32       | 28                     |          |          |          |          |

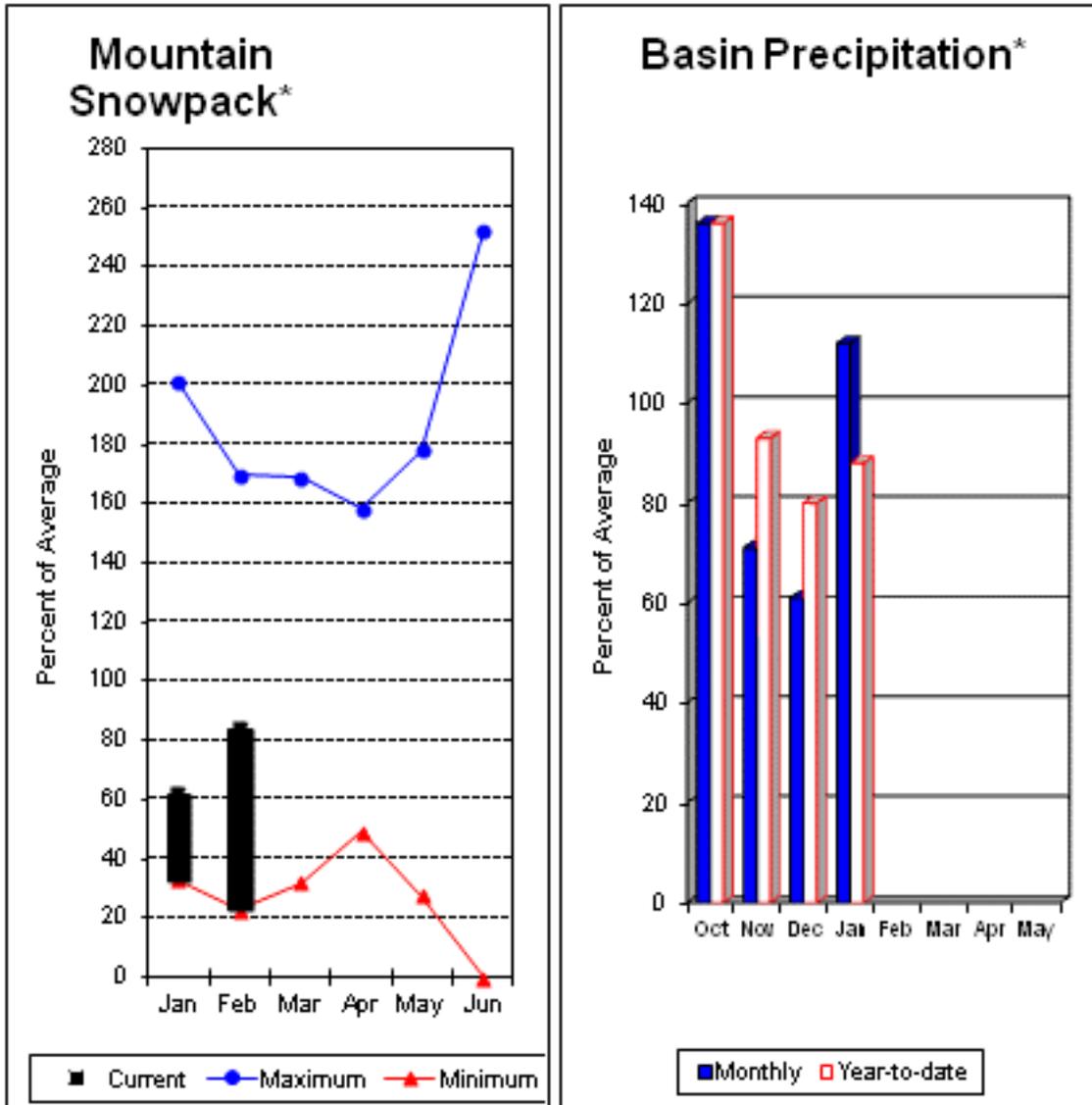
| WALLA WALLA RIVER BASIN                      |                 |                        |           |     | WALLA WALLA RIVER BASIN                        |                      |                   |         |
|--|-----------------|------------------------|-----------|-----|--|----------------------|-------------------|---------|
| Reservoir Storage (1000 AF) - End of January |                 |                        |           |     | Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
| Reservoir                                    | Usable Capacity | *** Usable Storage *** |           |     | Watershed                                      | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg |  |                      | Last Yr           | Average |
|  |                 |                        |           |     | WALLA WALLA RIVER                              | 2                    | 106               | 85      |

\* 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 89% for Clearwater River at Spalding. The Snake and Grande Ronde rivers can expect summer flows to be about 85% and 83% of normal respectively. The forecast for Asotin Creek at Asotin predicts 97% of average flows for the April – July runoff period. January precipitation was 112% of average, bringing the year-to-date precipitation to 88% of average. February 1 snowpack readings averaged 84% of average. January streamflow was 78% of average for Snake River below Lower Granite Dam and 81% for Grande Ronde River near Troy. Dworshak Reservoir storage was 98% of average. Average temperatures were 2-4 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.*

# Lower Snake River Basin

## Streamflow Forecasts - February 1, 2012

| Forecast Point                     | Forecast Period | <<==== Drier ===== Future Conditions ===== Wetter =====>> |       |                 |    |   |       | 30-Yr Avg.<br>(1000AF) |
|------------------------------------|-----------------|---|-------|-----------------|----|---|-------|------------------------|
|                                    |                 | 90%<br>(1000AF)   |       | 70%<br>(1000AF) |    | Chance Of Exceeding *<br>50%<br>(1000AF) (% AVG.) |       |                        |
|                                    |                 | 30%<br>(1000AF)   |       | 10%<br>(1000AF) |    |   |       |                        |
| Grande Ronde R at Troy (1)         | MAR-JUL         | 895   | 1180  | 1310            | 83 | 1440  | 1730  | 1580                   |
|                                    | APR-SEP         | 720   | 1000  | 1130            | 83 | 1260  | 1540  | 1370                   |
| Asotin Ck at Asotin                | APR-JUL         | 18.8  | 28    | 34              | 97 | 40  | 49    | 35                     |
| Clearwater R at Spalding (1,2)     | APR-JUL         | 5120  | 5700  | 6630            | 89 | 7560  | 7830  | 7430                   |
|                                    | APR-SEP         | 5420  | 6070  | 7000            | 89 | 7930  | 8250  | 7850                   |
| Snake R bl Lower Granite Dam (1,2) | APR-JUL         | 14600   | 15400 | 18300           | 85 | 21200   | 21600 | 21550                  |
|                                    | APR-SEP         | 16800   | 17300 | 20600           | 85 | 23900   | 24300 | 24140                  |

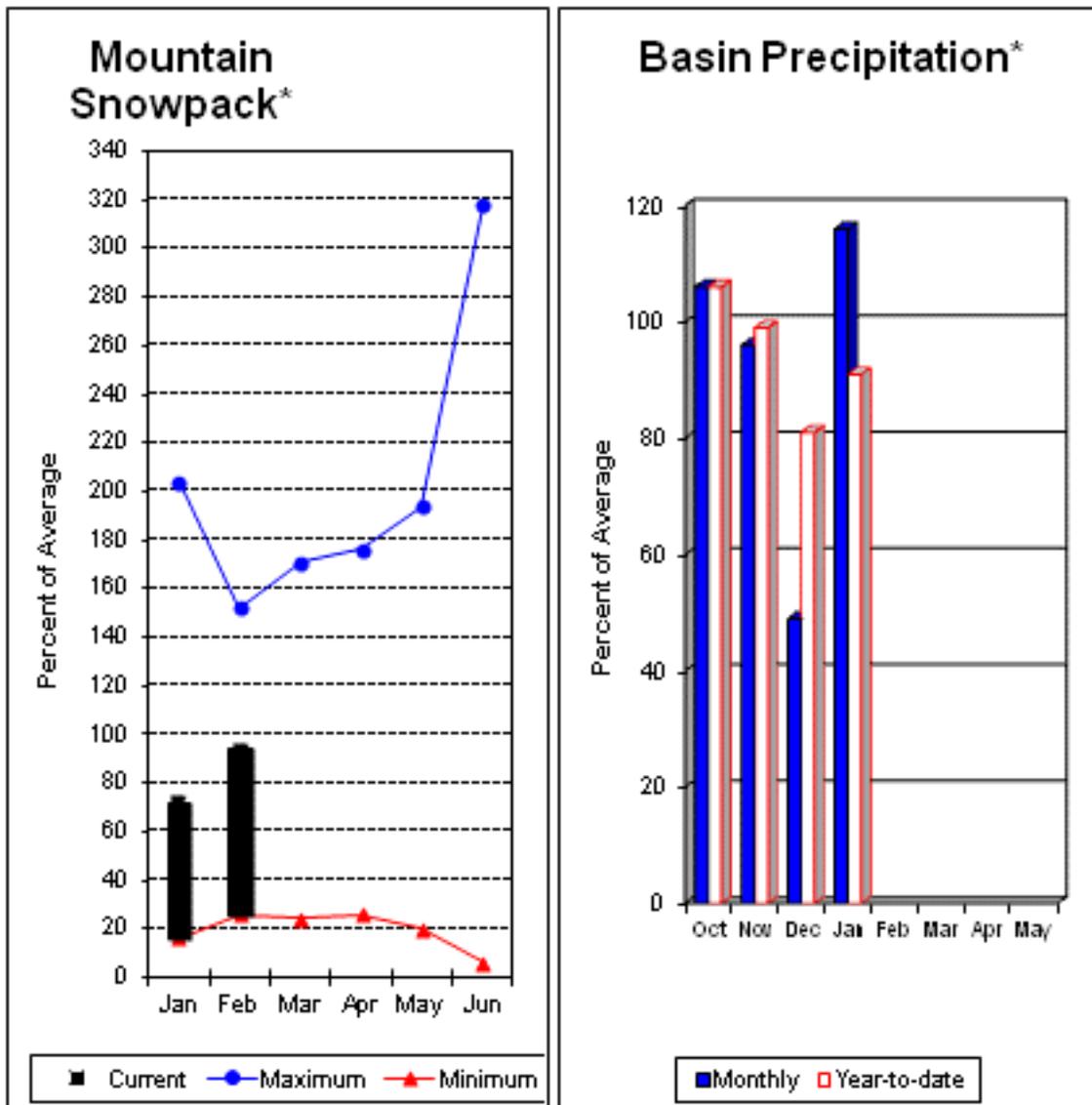
| LOWER SNAKE RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |        | LOWER SNAKE RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|---|-----------------|------------------------|-----------|--------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |        | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg    |   |                      | Last Yr           | Average |
| DWORSHAK  | 3468.0          | 2288.9                 | 2326.8    | 2324.3 | LOWER SNAKE, GRANDE RONDE   | 11                   | 98                | 84      |

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

The average is computed for the 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, 87% and Cowlitz River at Castle Rock, 94% of average. The Columbia at The Dalles is forecasted to have 92% of average flows this summer. January average streamflow for Cowlitz River was 107%. The Columbia River at The Dalles was 80% of average. January precipitation was 116% of average and the water-year average was 91%. June Lake SNOTEL had the highest rainfall total in the basin with 27.6 inches which is 105% of average. February 1 snow cover for Cowlitz River was 102%, and Lewis River was 87% of average. Temperatures were near normal during January and slightly below for the water year.

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

# Lower Columbia River Basins

## Streamflow Forecasts - February 1, 2012

| Forecast Point                | Forecast Period | <<==== Drier ===== Future Conditions ===== Wetter =====>> |       |                 |    |   |        | 30-Yr Avg.<br>(1000AF) |                 |  |                 |  |
|-------------------------------|-----------------|---|-------|-----------------|----|---|--------|------------------------|-----------------|--|-----------------|--|
|                               |                 | 90%<br>(1000AF)   |       | 70%<br>(1000AF) |    | Chance Of Exceeding *<br>50%<br>(1000AF) (% AVG.) |        |                        | 30%<br>(1000AF) |  | 10%<br>(1000AF) |  |
|                               |                 |   |       |                 |    |   |        |                        |                 |  |                 |  |
| Columbia R at The Dalles (2)  | APR-JUL         | 66000   | 69300 | 75400           | 89 | 81500   | 87500  | 84600                  |                 |  |                 |  |
|                               | APR-SEP         | 80300   | 83300 | 90400           | 92 | 97500   | 102000 | 98600                  |                 |  |                 |  |
| Klickitat R nr Glenwood       | APR-JUL         | 99  | 112   | 121             | 96 | 130   | 143    | 126                    |                 |  |                 |  |
|                               | APR-SEP         | 129   | 145   | 155             | 95 | 165   | 181    | 163                    |                 |  |                 |  |
| Klickitat R nr Pitt           | APR-JUL         | 360   | 410   | 440             | 96 | 470   | 520    | 460                    |                 |  |                 |  |
|                               | APR-SEP         | 435   | 490   | 530             | 96 | 570   | 625    | 550                    |                 |  |                 |  |
| Lewis R at Ariel (2)          | APR-JUL         | 605   | 780   | 895             | 87 | 1010  | 1180   | 1031                   |                 |  |                 |  |
|                               | APR-SEP         | 710   | 895   | 1020            | 87 | 1140  | 1330   | 1176                   |                 |  |                 |  |
| Cowlitz R bl Mayfield Dam (2) | APR-JUL         | 1210  | 1410  | 1550            | 92 | 1690  | 1890   | 1689                   |                 |  |                 |  |
|                               | APR-SEP         | 1380  | 1610  | 1770            | 92 | 1930  | 2160   | 1922                   |                 |  |                 |  |
| Cowlitz R at Castle Rock (2)  | APR-JUL         | 1770  | 2000  | 2160            | 94 | 2320  | 2550   | 2295                   |                 |  |                 |  |
|                               | APR-SEP         | 2280  | 2400  | 2480            | 94 | 2560  | 2680   | 2639                   |                 |  |                 |  |

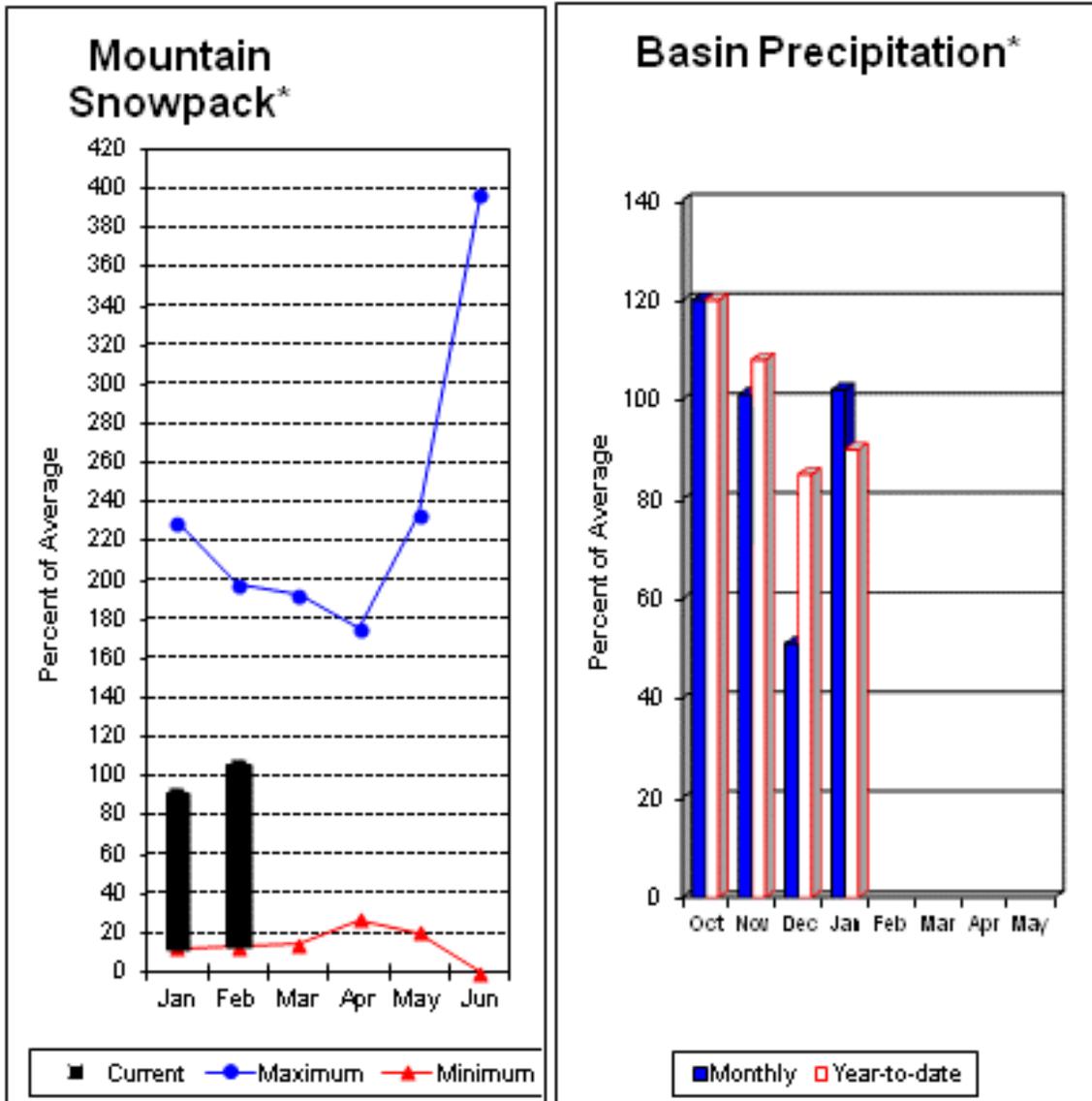
| LOWER COLUMBIA RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |     | LOWER COLUMBIA RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|---|-----------------|------------------------|-----------|-----|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |     | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg |   |                      | Last Yr           | Average |
| MOSSYROCK   | 0.0             | 1277.4                 | 1386.5    | --- | LEWIS RIVER   | 5                    | 101               | 87      |
| SWIFT   | 0.0             | 661.6                  | 738.8     | --- | COWLITZ RIVER   | 6                    | 113               | 102     |
| YALE  | 0.0             | 394.0                  | 365.7     | --- |   |                      |                   |         |
| MERWIN  | 0.0             | 412.3                  | 394.4     | --- |   |                      |                   |         |

\* 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.

# South Puget Sound River Basins



\*Based on selected stations

Summer runoff is forecast to be 93% of normal for the Green River below Howard Hanson Dam and 100% for the White River near Buckley. February 1 snowpack was 107% of average for the White River, 112% for Puyallup River and 97% in the Green River Basin. Water content on February 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 24 inches. This site has a February 1 average of 22.1 inches. January precipitation was 102% of average, bringing the water year-to-date to 90% of average for the basins. Average temperatures in the area were near normal for January and slightly below for the water-year.

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

# South Puget Sound River Basins

## Streamflow Forecasts - February 1, 2012

| Forecast Point                     | Forecast Period | Future Conditions |                 |                 |                 |                       |          | 30-Yr Avg.<br>(1000AF) |
|------------------------------------|-----------------|-------------------|-----------------|-----------------|-----------------|-----------------------|----------|------------------------|
|                                    |                 | Drier             |                 | Wetter          |                 | Chance Of Exceeding * |          |                        |
|                                    |                 | 90%<br>(1000AF)   | 70%<br>(1000AF) | 30%<br>(1000AF) | 10%<br>(1000AF) | 50%<br>(1000AF)       | (% AVG.) |                        |
| White R nr Buckley (1)             | APR-JUL         | 335               | 410             | 445             | 101             | 480                   | 555      | 440                    |
|                                    | APR-SEP         | 405               | 495             | 535             | 100             | 575                   | 665      | 534                    |
| Green R bl Howard Hanson Dam (1,2) | APR-JUL         | 134               | 200             | 230             | 94              | 260                   | 325      | 245                    |
|                                    | APR-SEP         | 153               | 220             | 250             | 93              | 280                   | 345      | 268                    |

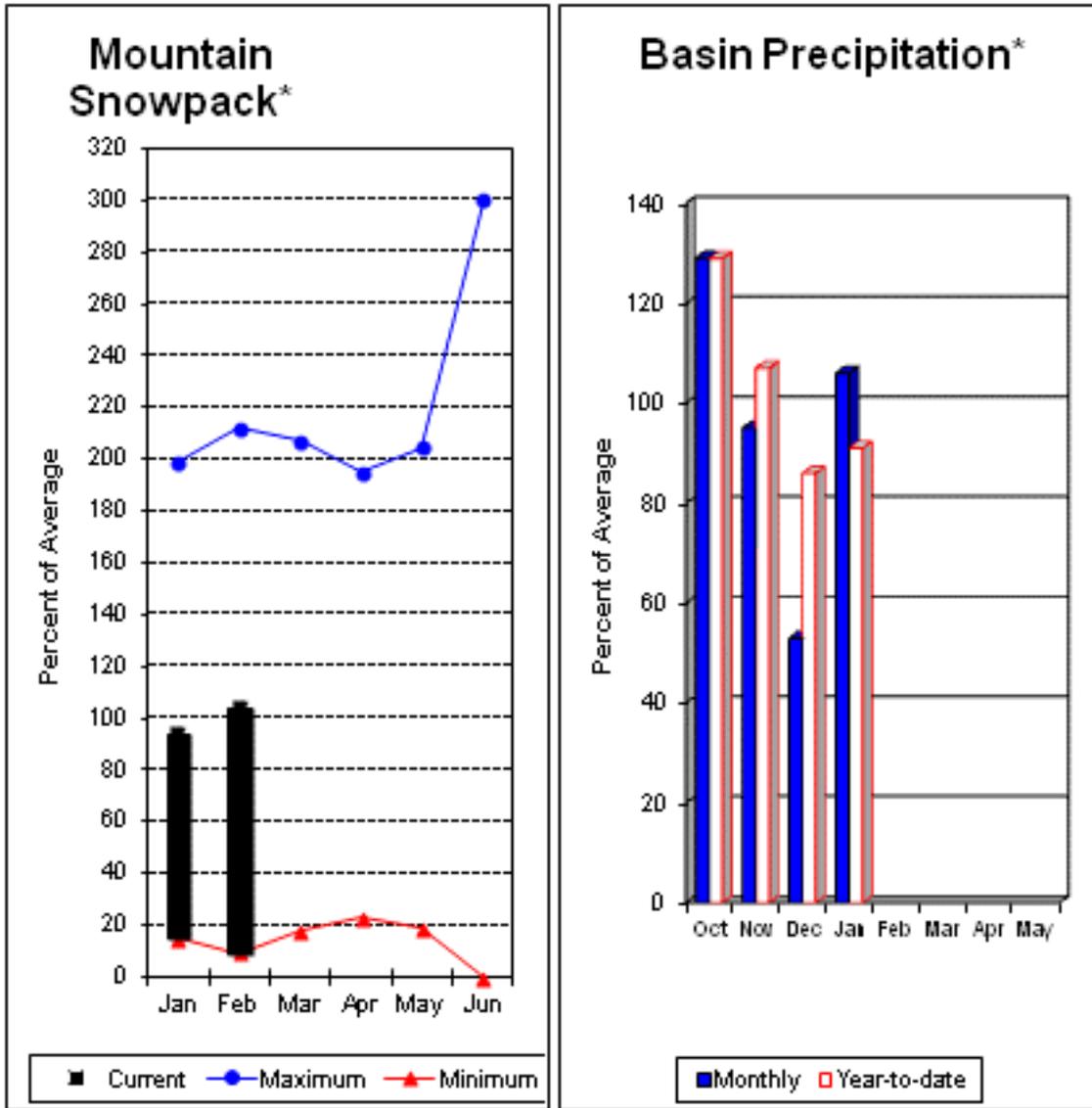
| SOUTH PUGET SOUND RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |     | SOUTH PUGET SOUND RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|--|-----------------|------------------------|-----------|-----|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |     | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg |  |                      | Last Yr           | Average |
|  |                 |                        |           |     | WHITE RIVER  | 3                    | 113               | 107     |
|  |                 |                        |           |     | GREEN RIVER  | 3                    | 182               | 97      |
|  |                 |                        |           |     | PUYALLUP RIVER   | 5                    | 140               | 112     |

\* 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 Puget Sound River Basins



\*Based on selected stations

Forecast for spring and summer flows are: 99% for Cedar River near Cedar Falls; 104% for Rex River; 85% for South Fork of the Tolt River; 100% for Taylor Creek near Selleck, and 95% for Cedar River at Cedar Falls. Basin-wide precipitation for January was 106% of average, bringing water-year-to-date to 91% of average. February 1 average snow cover in Cedar River Basin was 121%, Tolt River Basin was 104%, Snoqualmie River Basin was 98%, and Skykomish River Basin was 94%. Olallie Meadows SNOTEL site, at 3960 feet, had 40.2 inches of water content. Average February 1 water content is 39.2 inches at Olallie Meadows. Temperatures were near normal for January and 1 degree below for the water-year.

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

# Central Puget Sound River Basins

## Streamflow Forecasts - February 1, 2012

| Forecast Point            | Forecast Period | Future Conditions <<==== Drier ===== Wetter =====>> |      |                 |     |   |      | 30-Yr Avg.<br>(1000AF) |
|---------------------------|-----------------|---|------|-----------------|-----|---|------|------------------------|
|                           |                 | 90%<br>(1000AF)                                     |      | 70%<br>(1000AF) |     | Chance Of Exceeding *<br>50%<br>(1000AF) (% AVG.) |      |                        |
|                           |                 | 30%<br>(1000AF)                                     |      | 10%<br>(1000AF) |     |   |      |                        |
| Cedar R nr Cedar Falls    | APR-JUL         | 54  | 65   | 72              | 99  | 79  | 90   | 73                     |
|                           | APR-SEP         | 60  | 71   | 79              | 99  | 87  | 98   | 80                     |
| Rex R nr Cedar Falls      | APR-JUL         | 17.7  | 23   | 26              | 104 | 29  | 34   | 25                     |
|                           | APR-SEP         | 21  | 26   | 29              | 104 | 32  | 37   | 28                     |
| Cedar R At Cedar Falls    | APR-JUL         | 39  | 57   | 70              | 95  | 83  | 101  | 74                     |
|                           | APR-SEP         | 40  | 57   | 69              | 95  | 81  | 98   | 73                     |
| Taylor Creek Near Selleck | APR-JUL         | 14.6  | 17.7 | 19.8            | 99  | 22  | 25   | 20                     |
|                           | APR-SEP         | 18.4  | 22   | 24              | 100 | 26  | 30   | 24                     |
| SF Tolt R nr Index        | APR-JUL         | 8.6   | 10.9 | 12.5            | 85  | 14.1  | 16.4 | 14.7                   |
|                           | APR-SEP         | 10.2  | 12.7 | 14.4            | 85  | 16.1  | 18.6 | 16.9                   |

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

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

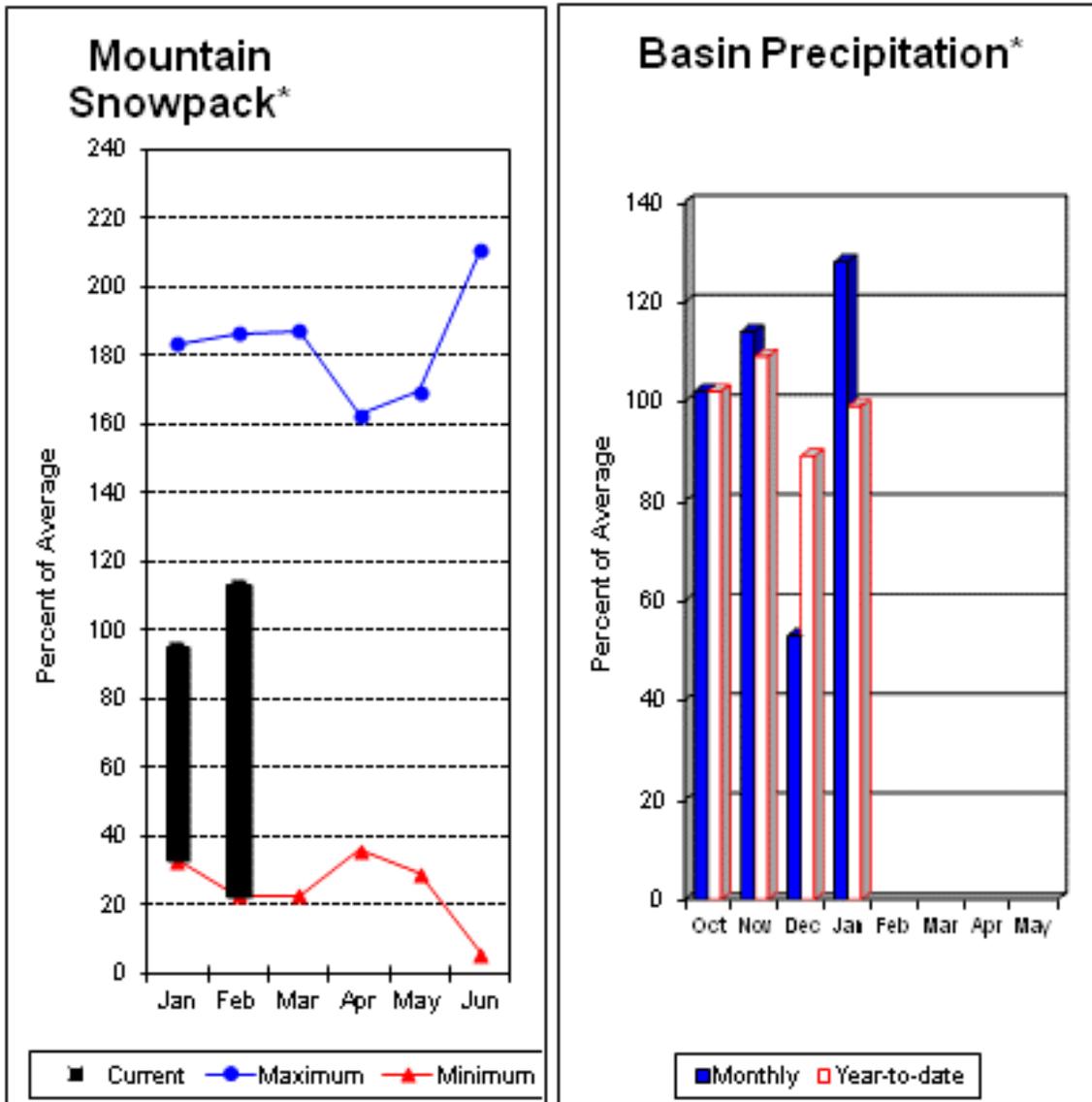
| Reservoir | Usable Capacity | *** Usable Storage *** |           |     | Watershed        | Number of Data Sites | This Year as % of |         |
|-----------|-----------------|------------------------|-----------|-----|------------------|----------------------|-------------------|---------|
|           |                 | This Year              | Last Year | Avg |                  |                      | Last Yr           | Average |
|           |                 |                        |           |     | CEDAR RIVER      | 4                    | 204               | 121     |
|           |                 |                        |           |     | TOLT RIVER       | 2                    | 174               | 104     |
|           |                 |                        |           |     | SNOQUALMIE RIVER | 4                    | 169               | 98      |
|           |                 |                        |           |     | SKYKOMISH RIVER  | 2                    | 149               | 94      |

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

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

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

# North Puget Sound River Basins



\*Based on selected stations

Forecast for Skagit River streamflow at Newhalem is 106% of average for the spring and summer period. January streamflow in Skagit River was 103% of average. Other forecast points included Baker River at 93% and Thunder Creek at 104% of average. Basin-wide precipitation for January was 128% of average, bringing water-year-to-date to 99% of average. February 1 average snow cover in Skagit River Basin was 115%, Nooksack River Basin was 108% and Baker River Basin was 116% of average. Rainy Pass SNOTEL, at 4,780 feet, had 33.3 inches of water content. Average February 1 water content is 30.2 inches at Rainy Pass. February 1 Skagit River reservoir storage was 102% of average and 73% of capacity. Average temperatures for January were slightly below normal for the basin and for the water year.

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

# North Puget Sound River Basins

## Streamflow Forecasts - February 1, 2012

| Forecast Point          | Forecast Period | <<----- Drier ----->> |                 | Future Conditions |                 | ----- Wetter ----->> |                 | 30-Yr Avg.<br>(1000AF) |
|-------------------------|-----------------|-----------------------|-----------------|-------------------|-----------------|----------------------|-----------------|------------------------|
|                         |                 | 90%<br>(1000AF)       | 70%<br>(1000AF) | 50%<br>(1000AF)   | 50%<br>(% AVG.) | 30%<br>(1000AF)      | 10%<br>(1000AF) |                        |
| Thunder Ck Nr Newhalem  | APR-JUL         | 215                   | 235             | 245               | 105             | 255                  | 275             | 234                    |
|                         | APR-SEP         | 310                   | 330             | 345               | 104             | 360                  | 380             | 333                    |
| Skagit R At Newhalem    | APR-JUL         | 1740                  | 1880            | 1970              | 106             | 2060                 | 2200            | 1864                   |
|                         | APR-SEP         | 2080                  | 2240            | 2340              | 106             | 2440                 | 2600            | 2217                   |
| Baker R nr Concrete (2) | APR-JUL         | 630                   | 715             | 770               | 93              | 825                  | 910             | 828                    |
|                         | APR-SEP         | 825                   | 920             | 980               | 93              | 1040                 | 1130            | 1050                   |

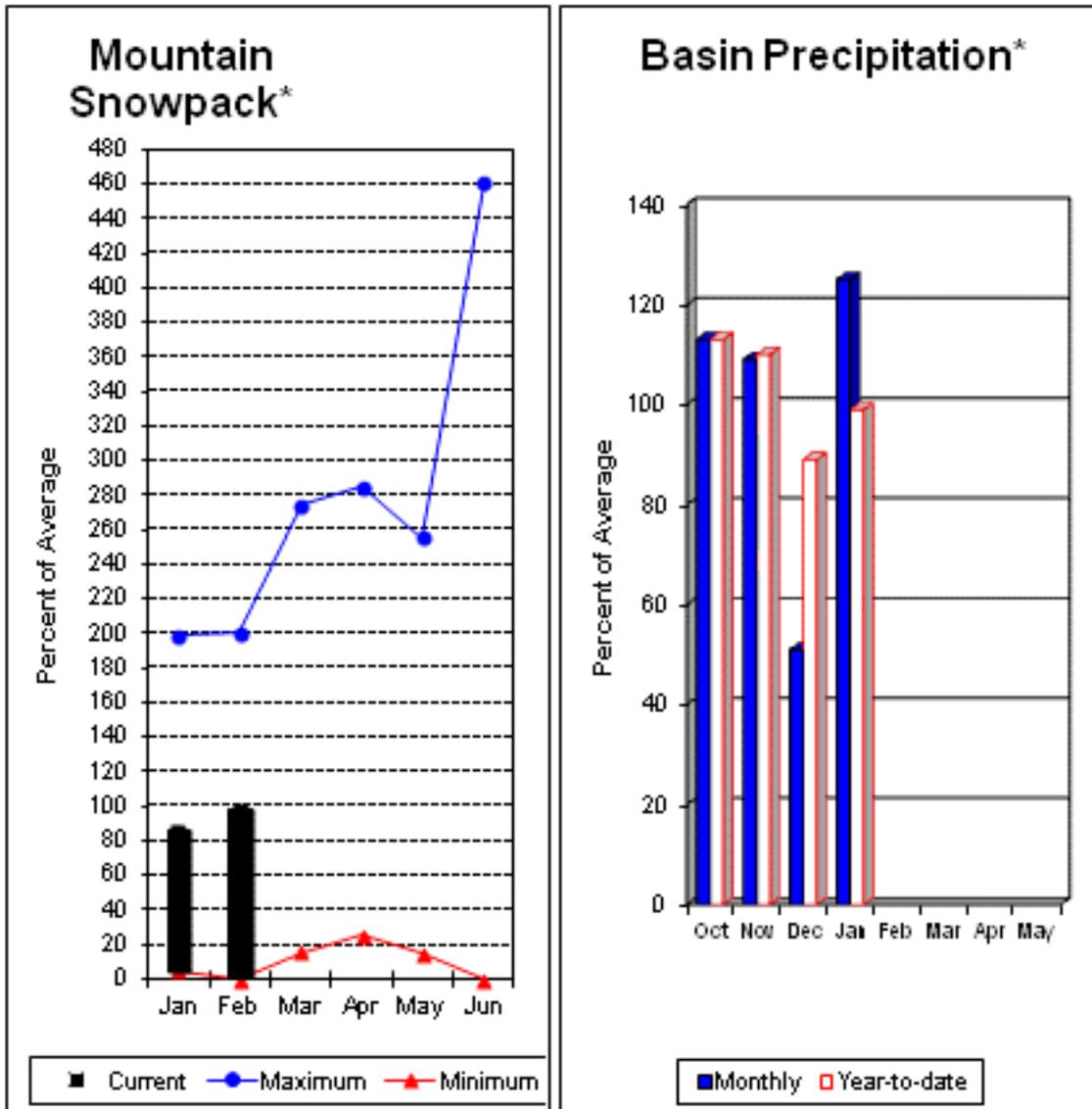
| NORTH PUGET SOUND RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | NORTH PUGET SOUND RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|--|-----------------|------------------------|-----------|-------|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |       | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg   |  |                      | Last Yr           | Average |
| ROSS   | 1404.1          | 1003.9                 | 1092.6    | 978.3 | SKAGIT RIVER   | 15                   | 132               | 115     |
| DIABLO RESERVOIR   | 90.6            | 85.7                   | 87.2      | 85.5  | BAKER RIVER  | 7                    | 132               | 116     |
|  |                 |                        |           |       | NOOKSACK RIVER   | 3                    | 123               | 108     |

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# Olympic Peninsula River Basins



\*Based on selected stations

Forecasted average runoff for streamflow for the Dungeness River is 92% and Elwha River is 92%. January runoff in the Dungeness River was 98% of normal. Big Quilcene and Wynoochee rivers should expect slightly below average runoff this summer as well. January precipitation was 125% of average. Precipitation has accumulated at 99% of average for the water year. January precipitation at Quillayute was 15.59 inches. The thirty-year average for January is 13.65 inches. Olympic Peninsula snowpack averaged 98% 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, 2012

| Forecast Point             | Forecast Period | <<==== Drier ===== Future Conditions ===== Wetter =====>> |          |          |          |          |          | 30-Yr Avg.<br>(1000AF) |          |          |          |          |
|----------------------------|-----------------|---|----------|----------|----------|----------|----------|------------------------|----------|----------|----------|----------|
|                            |                 | 90%   |          | 70%      |          | 50%      |          |                        | 30%      |          | 10%      |          |
|                            |                 | (1000AF)  | (1000AF) | (1000AF) | (1000AF) | (1000AF) | (1000AF) |                        | (1000AF) | (1000AF) | (1000AF) | (1000AF) |
| Dungeness R Nnr Sequim     | APR-JUL         | 95  | 107      | 115      | 93       | 123      | 135      | 124                    |          |          |          |          |
|                            | APR-SEP         | 114   | 130      | 140      | 92       | 150      | 166      | 152                    |          |          |          |          |
| Elwha R At Mcdonald Bridge | APR-JUL         | 315   | 355      | 385      | 92       | 415      | 455      | 419                    |          |          |          |          |
|                            | APR-SEP         | 380   | 425      | 460      | 92       | 495      | 540      | 503                    |          |          |          |          |

| OLYMPIC PENINSULA RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |     | OLYMPIC PENINSULA RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2012 |                      |                   |         |
|--|-----------------|------------------------|-----------|-----|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |     | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg |  |                      | Last Yr           | Average |
|  |                 |                        |           |     | OLYMPIC PENINSULA  | 6                    | 90                | 98      |

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

*Issued by*

**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**

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

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

