



United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report May 1, 2013



Photo credit: Scott Koberg – Ada Soil & Water Conservation District

Ron Abramovich, NRCS Water Supply Specialist, and Rex Barrie, Watermaster for Boise River Water District 63, measure Mores Creek Summit snow course near Idaho City on April 30, 2013. Boise River irrigators should have a marginally adequate water supply this summer despite a disappointing snowpack this winter. Marginally adequate water supplies are also expected for the Snake River and Oakley water users. Other basins around the state are not as fortunate. Water shortages look likely for the irrigators in the Magic, Salmon Falls, Big Lost, and Little Lost River basins. Severity of impacts depends upon your water right and your water source.

Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, or to subscribe to this publication

Contact - - Your local county Natural Resources Conservation Service Office

or

**Natural Resources Conservation Service
Snow Surveys
9173 West Barnes Drive, Suite C
Boise, Idaho 83709-1574
(208) 378-5740**

Internet Web Address

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

To join a free email subscription list contact us by email at: IDBOISE-NRCS-SNOW@one.usda.gov

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 the snow 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 produce runoff forecasts. 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 uncertainty is in 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.

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at www.ascr.usda.gov, or write to: USDA, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410.

Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender. Persons with disabilities who require alternative means for communication of program information (e.g. Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

IDAHO WATER SUPPLY OUTLOOK REPORT

MAY 1, 2013

SUMMARY

Apparently, Mother Nature spent most of her snow budget during Christmas this year and forgot to save enough for the rest of winter. After a great start with abundant fall rains and snow, major storms avoided Idaho for the most part shortly after the winter solstice. Luckily, cold temperatures kept the snow in place and small storms added moisture to Idaho's mountains. April precipitation was similar to the trend established in the previous months with above average amounts in the northern part of Idaho, well below average in the Wood and Lost basins, and near average in select basins of southern Idaho and the Upper Snake. Below normal temperatures delayed snowmelt and allowed snowpack percentages to slowly creep higher. Keep in mind the percentages may increase in the spring from new snowfall but also when snowmelt is delayed and the median values start their annual retreat back to zero as the snow melts. This was the case last month as snow melt was delayed but several basins still increased from the April storms. May 1 snowpacks, as a "percent of median", are near normal in the Panhandle, Clearwater and Upper Snake basin. Basins in the 65-85% of median range include the Salmon, Payette, Boise, Big Wood, Big Lost, Little Lost, Willow, Portneuf, Goose, Salmon Falls, Bruneau and the Bear. Basins nearly melted out with less than 50% of median snowpack include: Rathdrum, Little Salmon, Weiser, Mores, Little Wood, Blackfoot and Owyhee. Even with the delayed melt, the current snow levels in most basins are only in the 50-85% of their seasonal peaks that occur in April. With these values below 100% means the higher elevation stations still have snow, but there is not a whole lot up there to sustain streamflows.

April streamflow volumes varied across the state like the spring weather. Volumes were in the 80-100% of average range from the Salmon River north and in the 60-80% range in the Weiser, Payette, Boise, Hailey, Big Lost, Little Lost, Henrys Fork, Heise, Salmon Falls, and Bruneau basins. April volumes were less than half of average in the Bear, below Magic Dam, Little Wood, and Owyhee basins. The streamflow forecasts switch from the April-July volumes to predicting the May-July volumes. This means you have to be careful when comparing acre-feet and percentages. In general, changes from last month's forecasts, in volumes or percentages, mirrored the April precipitation and delayed snowmelt. Forecasts increased slightly in the Panhandle, Clearwater and Upper Snake; but held steady in the Salmon and west-central mountain streams. Forecasted volumes decreased in the Wood and Lost basins because of the fourth consecutive month of below normal precipitation. Above normal April precipitation in the basins south of the Snake River and in the Bear River brought slight relief, but not enough to make any major improvements in their water supply.

Based on the Idaho Surface Water Supply Index (SWSI) which combines reservoir storage with projected runoff and uses thresholds to determine severity of shortages, shortages are likely for the Magic, Salmon Falls, Big Lost, and Little Lost irrigators. Big and Little Lost users may receive some benefit from the past years moisture that continues to provide good baseflows since April 2009. Water supplies are expected to be marginally adequate for the Boise, Snake River and Oakley users but allow them to squeeze through the season with wise conservation use of this resource. How severe impacts are for you depends on your use of water whether it be for irrigation, hydropower production, river running adventure seekers, reservoir power boaters, and how the remaining snow melts.

SNOWPACK

Northern Idaho continued to benefit from the storm track across southern Canada. The Northern Panhandle Region snowpack is 108% of median, decreases to 95% in the Spokane and back up to 101% in the Clearwater basin. The next highest snowpacks are 95% of median in the Upper Snake. Across the middle and southern Idaho, snowpacks vary but are 70-85% of median. The lowest snowpacks are remnants from the minimal snowpack in the lower elevation basins: Little Wood and Weiser at about 30% of median, and Owyhee at 16%. In general, snowpacks mirrors the April streamflow pattern mentioned earlier.

PRECIPITATION

April precipitation varied across the state like the spring weather in Idaho. The winners for April precipitation were the basins north of the Salmon River to the Canadian border with amounts in the 130-145% of average. The doughnut hole for the least amount of April precipitation received was centered over the Little Wood and Big Lost basins and received only 30% of average amounts. Radiating out from here, April amounts increased to 45-50% in the Little Lost and Mud Lake area, 65% in the Big Wood and Owyhee basins, 75% in the Salmon and Bruneau basins, 83% in the Boise and Payette, 93% in Henrys Fork, and 100-125% from Salmon Falls to the Bear River and Upper Snake basins in Wyoming. This unique pattern was probably associated with the higher winds during April and storm track that developed momentum and delivered more moisture into Utah and Colorado's Front Range and then moved up the Mississippi and Ohio river valleys. Water year to date totals do not reflect the lack of snow this year and are 85-100% of average with the exception of the basins bordering the Canadian border which are even higher.

RESERVOIRS

Reservoir storage remains near average for many of the reservoirs across the state. The exceptions are Magic at 43% of average, Oakley at 89%, and Salmon Falls and Owyhee at 65%. Palisades is 83% of average while Jackson Lake is 146% and storing more water in the upper part of the watershed. In terms of percent of capacity, only a handful of reservoirs are in the 90-100% full range: Mann Creek, Little Wood, Henrys Lake, Island Park and American Falls. The lowest reservoir storage levels compared to their capacities are Magic and Salmon Falls at 28%, Oakley at 40%, and Wildhorse, Owyhee and Palisades at 45-55% full. The Boise reservoir system is 70% full but is not likely to completely fill. The Payette reservoir system, Mackay and Dworshak reservoirs are 85% full and should fill. Bear Lake is 68% full, and will provide an adequate irrigation supply to its users and probably be one of the few reservoirs with carryover for next year.

STREAMFLOW

Cold temperatures delayed snowmelt in April keeping streams low and reservoir storage gains at a minimum. In addition, because of low natural flow for this time of year and low return flows in some rivers, water managers are delicately balancing delivering water based on inflows. As a result, water users are hopeful that the delayed melt in April will provide for more water in May when the temperatures do warm up. This seems logical and could allow for more runoff in a smaller time period; however it is difficult to say for sure because of other natural climate variability. The cold temperatures have delayed snowmelt, reduced irrigation, and produced snowmelt rates of half an inch per day or less that can be absorbed by the soil. What is certain and needed now to improve the runoff is rain. Cold and wet is better than just cold. Wet weather would reduce irrigation demand even more, allow farmers to utilize the spring precipitation to replace irrigation water and allow the water saved to be used later this summer when we know it will be dry. Another option to melt snow and increase efficiency or maximize the amount of water that reaches the reservoirs is to turn the heat up. This would increase snowmelt rates to 1-2 inches per day, exceeding maximum soil infiltration rates, allowing more water to reach the reservoirs. However, this option would not benefit natural streamflow water right holders as much, nor those with late summer river rafting trips. We'll soon see what weather blows in this spring, but hopefully either option brings less wind.

Note: The volumes referenced in these narratives are the 50% Chance of Exceeding Forecast, unless otherwise noted. Users may wish to use a different forecast to reduce their risk of having too much or too little water. Forecasts published in this report are produced by the NRCS with the exception of the NWS main-stem Snake River forecasts.

RECREATION

Snowmelt streamflow peaks have occurred in the Owyhee, Weiser, and Camas Creek near Fairfield along with other lower elevation watersheds. Cold temperatures and lack of rain near the end of April reduced snowmelt and kept streamflows at near record low levels in late April in the Payette, Boise, and Upper Snake. In contrast, streamflow levels in the Owyhee River and Camas Creek are approaching near record low because of the drought. On the positive side, snowmelt peak flows have not occurred yet on Salmon Falls Creek, Bruneau River and other higher elevation watersheds. Additional snowmelt streamflow relationship information is available on the Idaho NRCS Peak Streamflow Resources web page: <http://www.id.nrcs.usda.gov/snow/watersupply/peakflow.html>. This page includes streamflow recession graphs to view current trends, and a similar year that is based on the current snowpack, spring ENSO climatic conditions and analog years which are 2002, 1968 and 1963, or years with a similar flow pattern. Snow-streamflow comparison graphs are now automated and will be updated several times per week during the critical runoff season to provide guidance on snowmelt streamflow peaks.

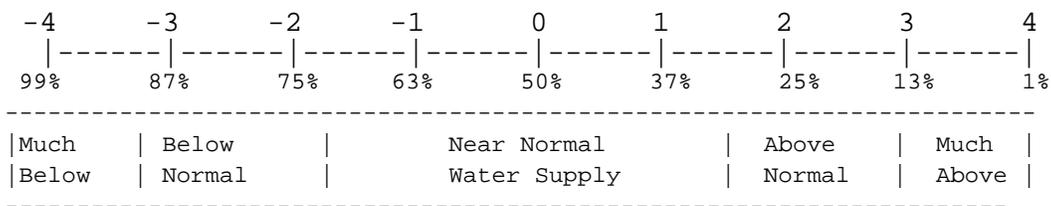
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) May 1, 2013

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1981 to present.

SWSI values provide a more comprehensive outlook of water availability by combining streamflow forecasts and reservoir storage where appropriate. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been determined for some basins to indicate the potential for agricultural irrigation water shortages.

| <i>BASIN or REGION</i> | <i>SWSI Value</i> | <i>Most Recent Year With Similar SWSI Value</i> | <i>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</i> |
|-------------------------------|--------------------------|--|---|
| Northern Panhandle | 0.5 | 1998 | NA |
| Spokane | -1.0 | 1998 | NA |
| Clearwater | 0.3 | 2004 | NA |
| Salmon | -1.5 | 2000 | NA |
| Weiser | -2.0 | 2004 | NA |
| Payette | -1.8 | 2002 | NA |
| Boise | -2.0 | 2005 | -2.4 |
| Big Wood | -2.3 | 2002 | -0.1 |
| Little Wood | -1.3 | 2000 | -2.1 |
| Big Lost | -1.3 | 2000 | -0.4 |
| Little Lost | -2.2 | 2000 | 1.1 |
| Teton | -0.8 | 2004 | -3.9 |
| Henry's Fork | -1.0 | 2003 | -3.0 |
| Snake (Heise) | -1.5 | 1991/1994 | -1.4 |
| Oakley | -0.3 | 2012 | -0.1 |
| Salmon Falls | -1.8 | 2008 | -1.1 |
| Bruneau | -0.8 | 2003 | NA |
| Owyhee | -3.3 | 1991/2003 | -3.2 |
| Bear River | 0.5 | 2001 | -3.4 |

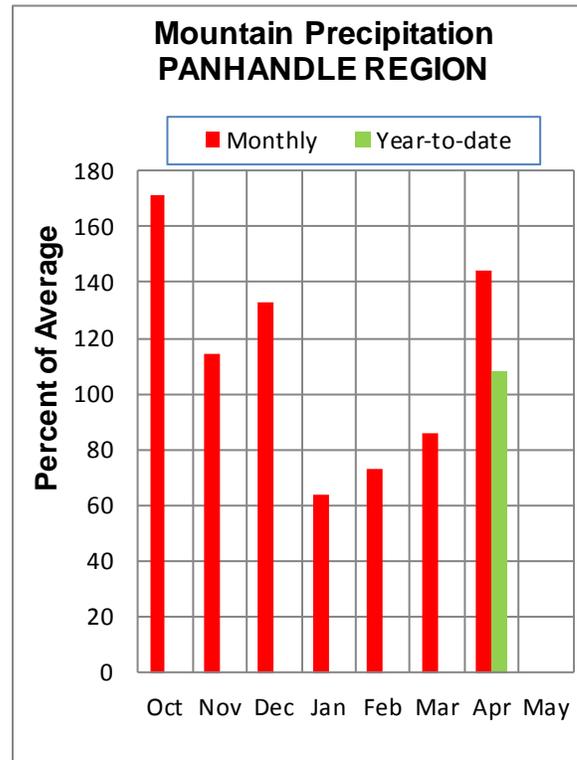
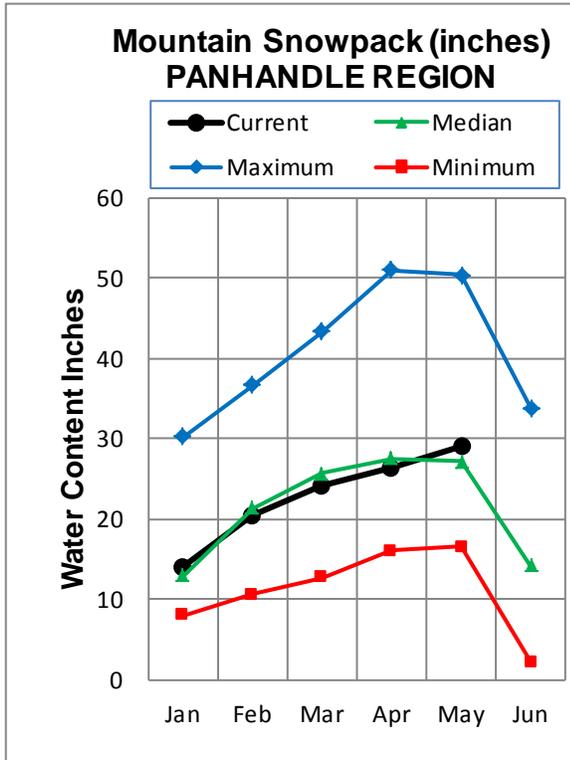
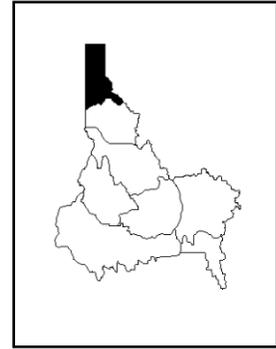
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION



NA=Not Available / Not Applicable; Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION

MAY 1, 2013



WATER SUPPLY OUTLOOK

A couple extra weeks of winter weather in April helped the Northern Panhandle snowpack reach a near normal peak snow amount. Panhandle precipitation has been the best in Idaho for the last two months. April precipitation was 144% of average, which helped make up for three below average months from January to March. Water year precipitation since October 1st is 108% of average, highest in the state. After a brief period of snowmelt in early April, snow accumulation resumed for the middle two weeks of the month allowing the Northern Panhandle to reach the new normal snow water amount. The Spokane basin's snowpack only reached about 90% of its normal peak amount this year. As of May 1, across the region, the snow is 107% of normal. The region's lake levels are rising but the snowmelt peak inflows are still to come. Pend Oreille is 60% full which is average for May 1. Lake Coeur d'Alene is 84% full, 87% of average. Priest Lake is 78% full, 91% of average. This month the streamflow forecasts period shortens from April-July to May-July. Forecasts are lower to the south and higher to the north. Looking at the major rivers the Spokane River near Post Falls is forecast at 90% of average, St. Joe River at 92%, Pend Oreille inflow at 105%, and Priest River at 106%. Overall, water supplies this year continue to be very good thanks to a near average snowpack. So far the runoff has been relatively well behaved due to seasonally cool temperatures delaying snowmelt. Weather forecasts are for above normal temperatures in May, but also predicting less than normal precipitation. The warm temperatures could drive rapid snowmelt, but without additional rain the rivers should rise and recede without damaging peak flows. If the skies remain clear, watch for nighttime temperatures above freezing to produce increases in streamflow.

PANHANDLE REGION
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<----- Drier ----- Future Conditions ----- Wetter ----->> | | | | | | 30-Yr Avg. (1000AF) |
|------------------------------------|-----------------|--|-----------------|-----------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| Kootenai R at Leonia (1,2) | MAY-JUL | 4449 | 5371 | 5790 | 101 | 6209 | 7131 | 5730 |
| | MAY-SEP | 5653 | 6517 | 6910 | 103 | 7303 | 8167 | 6730 |
| Moyie R at Eastport | MAY-JUL | 240 | 280 | 310 | 103 | 340 | 380 | 300 |
| | MAY-SEP | 250 | 295 | 325 | 103 | 355 | 400 | 315 |
| Boundary Ck nr Porthill | MAY-JUL | 72 | 85 | 94 | 98 | 103 | 116 | 96 |
| | MAY-SEP | 76 | 90 | 99 | 98 | 108 | 122 | 101 |
| Clark Fork at Whitehorse Rpd (1,2) | MAY-JUL | 7350 | 8620 | 9190 | 105 | 9760 | 11000 | 8740 |
| | MAY-SEP | 8120 | 9550 | 10200 | 105 | 10900 | 12300 | 9760 |
| Pend Oreille Lake Inflow (2) | MAY-JUL | 8600 | 9550 | 10200 | 105 | 10800 | 11800 | 9690 |
| | MAY-SEP | 9370 | 10500 | 11200 | 105 | 11900 | 13000 | 10700 |
| Priest R nr Priest River (1,2) | MAY-JUL | 505 | 570 | 615 | 106 | 660 | 725 | 580 |
| | MAY-SEP | 540 | 615 | 665 | 106 | 715 | 790 | 630 |
| NF Coeur d'Alene R at Enaville | MAY-JUL | 180 | 295 | 370 | 91 | 445 | 560 | 405 |
| | MAY-SEP | 210 | 325 | 405 | 91 | 485 | 600 | 445 |
| St. Joe R at Calder | MAY-JUL | 530 | 630 | 700 | 92 | 770 | 870 | 765 |
| | MAY-SEP | 585 | 690 | 760 | 92 | 830 | 935 | 830 |
| Spokane R nr Post Falls (2) | MAY-JUL | 925 | 1200 | 1380 | 90 | 1560 | 1840 | 1530 |
| | MAY-SEP | 965 | 1260 | 1460 | 90 | 1660 | 1960 | 1620 |
| Spokane R at Long Lake (2) | MAY-JUL | 1060 | 1390 | 1610 | 94 | 1830 | 2160 | 1710 |
| | MAY-SEP | 1230 | 1570 | 1810 | 93 | 2050 | 2390 | 1950 |

| PANHANDLE REGION Reservoir Storage (1000 AF) - End of April | | | | | PANHANDLE REGION Watershed Snowpack Analysis - May 1, 2013 | | | |
|--|-----------------|------------------------|-----------|--------|---|----------------------|-------------------|--------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| HUNGRY HORSE | 3451.0 | 2690.6 | 2805.0 | 2188.0 | Kootenai ab Bonners Ferry | 18 | 83 | 116 |
| FLATHEAD LAKE | | NO REPORT | | | Moyie River | 7 | 79 | 99 |
| NOXON RAPIDS | 335.0 | 310.8 | 329.8 | 307.4 | Priest River | 4 | 77 | 119 |
| Pend Oreille | 1561.3 | 936.3 | 1248.5 | 931.7 | Pend Oreille River | 69 | 93 | 107 |
| Coeur d'Alene | 238.5 | 199.3 | 488.9 | 228.0 | Rathdrum Creek | 2 | 45 | 50 |
| Priest Lake | 119.3 | 93.1 | 134.9 | 101.9 | Coeur d'Alene River | 6 | 73 | 105 |
| | | | | | St. Joe River | 4 | 81 | 96 |
| | | | | | Spokane River | 12 | 75 | 97 |
| | | | | | Palouse River | 2 | 30 | 90 |

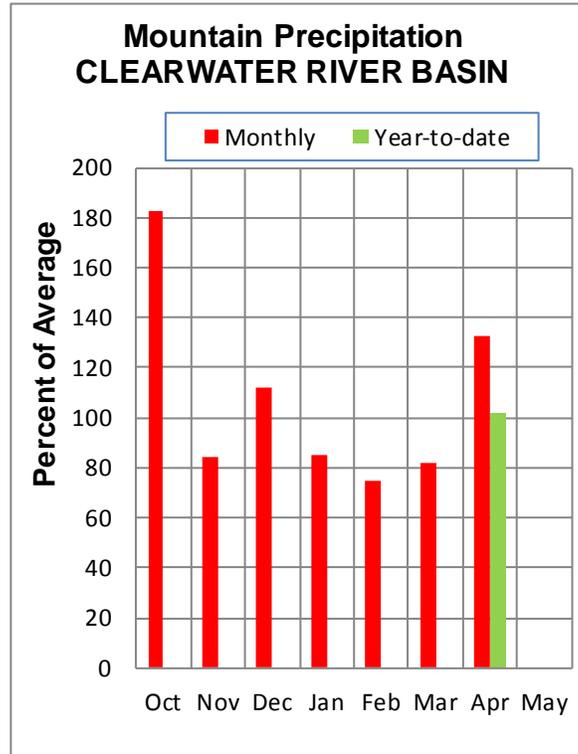
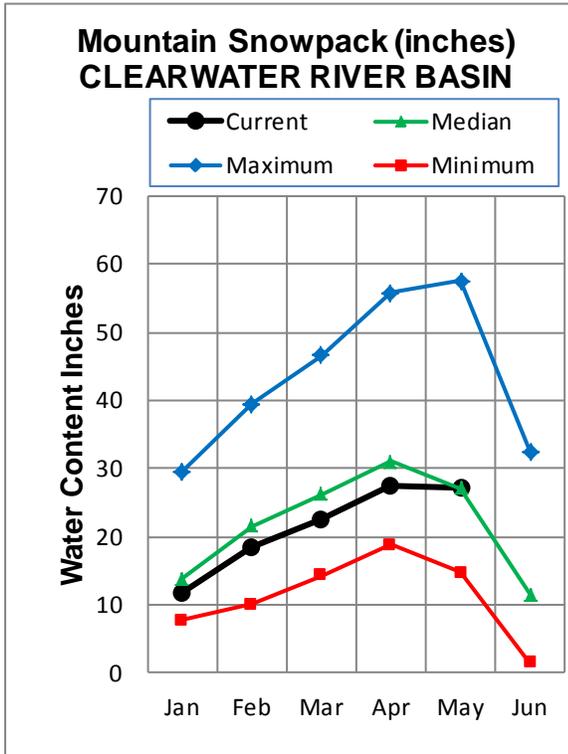
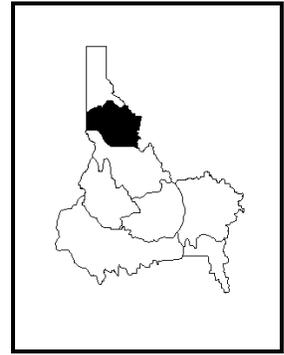
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

CLEARWATER RIVER BASIN

MAY 1, 2013



WATER SUPPLY OUTLOOK

Finally a month with above normal precipitation! After three months with below normal precipitation April recorded 133% of its normal amount. Water year to date precipitation since October 1 is 102% of average. The Clearwater basin snowpack peaked in late April at about 90% of its normal amount. If not for a warm period at the start of April that caused early snowmelt, this year's snowpack would have been closer to its new normal peak. Despite not reaching its normal peak amount, the Clearwater snowpack is currently near normal for May 1. Dworshak Reservoir is 108% of average, which is 83% full. Dworshak inflow was near average in April, as was April streamflow for the Clearwater River at Spaulding. This month the streamflow forecast period shortens from April-July to May-July. Near average May-July streamflow is expected for Dworshak inflow and for the Clearwater River at Spaulding. The Selway and Lochsa rivers are also forecast at near normal volumes and should provide ideal river running opportunities. Long range forecasts call for warmer than normal temperatures in May, but below normal precipitation. That combination could produce nice boating and a more predictable hydrograph. To track current snow and stream conditions check out the snow-stream graphs which are updated a few times a week at:

<http://www.id.nrcs.usda.gov/snow/watersupply/peakflow.html>. These show that 1985 is a comparative year for the Selway River based on Twin Lakes SNOTEL data, while 1995 had similar snow and precipitation at Lolo Pass SNOTEL, a good index for the Lochsa River. Stay safe and enjoy the whitewater this spring and summer.

CLEARWATER RIVER BASIN
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> | | | | | | 30-Yr Avg. (1000AF) |
|--------------------------------|-----------------|--|-----------------|-----------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| Selway R nr Lowell | MAY-JUL | 1360 | 1500 | 1600 | 102 | 1700 | 1840 | 1570 |
| | MAY-SEP | 1420 | 1590 | 1700 | 102 | 1810 | 1980 | 1670 |
| Lochsa R nr Lowell | MAY-JUL | 955 | 1050 | 1110 | 98 | 1170 | 1260 | 1130 |
| | MAY-SEP | 1010 | 1110 | 1180 | 98 | 1250 | 1350 | 1210 |
| Dworshak Res Inflow | MAY-JUL | 1170 | 1490 | 1630 | 92 | 1770 | 2090 | 1770 |
| | MAY-SEP | 1280 | 1620 | 1780 | 93 | 1940 | 2280 | 1920 |
| Clearwater R at Orofino (1) | MAY-JUL | 2660 | 3180 | 3410 | 100 | 3640 | 4160 | 3400 |
| | MAY-SEP | 2850 | 3400 | 3650 | 101 | 3900 | 4450 | 3630 |
| Clearwater R at Spalding (1,2) | MAY-JUL | 3940 | 4740 | 5100 | 97 | 5460 | 6260 | 5260 |
| | MAY-SEP | 4240 | 5100 | 5490 | 97 | 5880 | 6740 | 5640 |

CLEARWATER RIVER BASIN
Reservoir Storage (1000 AF) - End of April

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - May 1, 2013

| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|-----------|-----------------|------------------------|-----------|--------|------------------------|----------------------|-------------------|--------|
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| Dworshak | 3468.0 | 2868.5 | 2401.0 | 2646.0 | North Fork Clearwater | 9 | 86 | 99 |
| | | | | | Lochsa River | 2 | 95 | 105 |
| | | | | | Selway River | 4 | 95 | 105 |
| | | | | | Clearwater Basin Total | 16 | 87 | 101 |

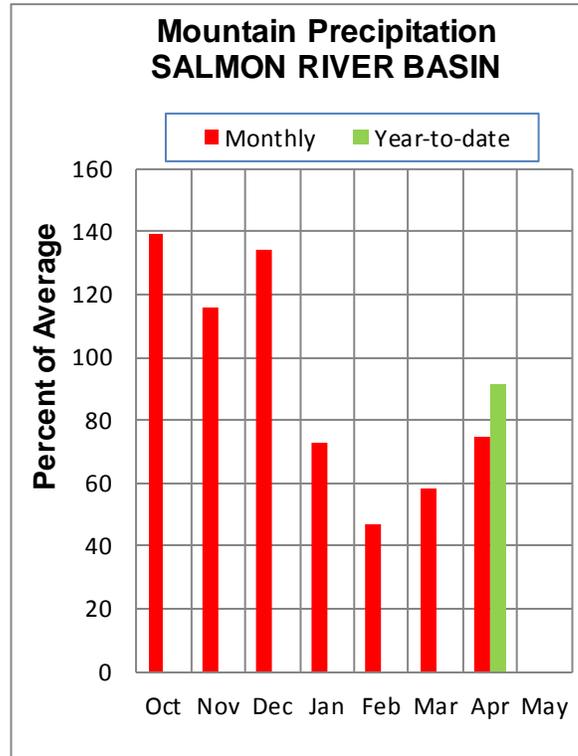
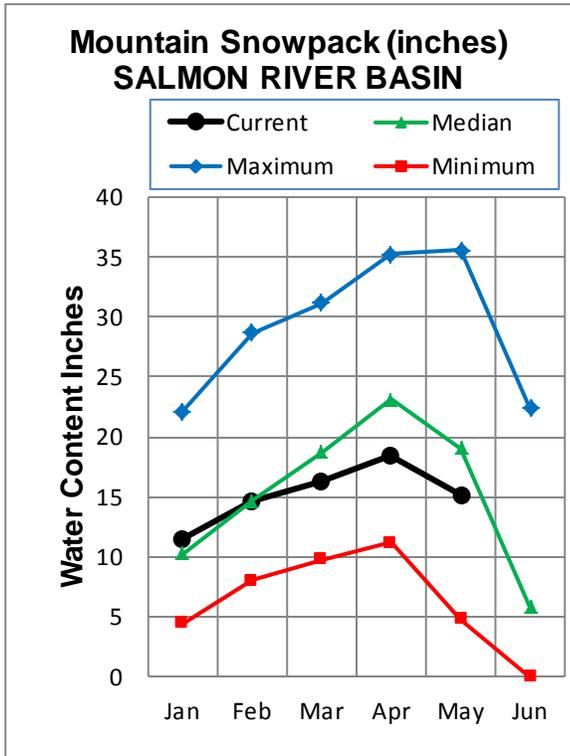
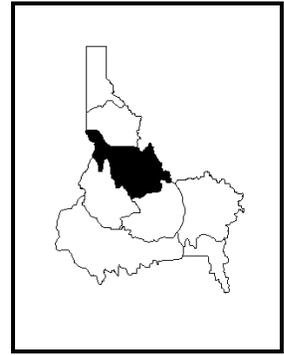
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

SALMON RIVER BASIN

MAY 1, 2013



WATER SUPPLY OUTLOOK

Four months and counting - that is how long it's been since the Salmon basin had an above average amount of precipitation. Just to the north all SNOTELs in the Clearwater basin got more than their usual April precipitation, but the wet zone stopped just inside the Salmon basin. Only Mountain Meadows SNOTEL site, the Salmon basin's most northern site, had above average precipitation for the month. Basin-wide precipitation was 75% of average in April, leaving water year to date precipitation at 91% of average. The Salmon basin snowpack peaked at about 80% of the 1981-2010 normal peak amount. Despite being less than normal this season's snow remained near its peak amount from late March through late April thanks to melt during warm periods being balanced by additional accumulation during cool, stormy periods. Snowmelt in early April and again during the last week of the month produced two moderate streamflow peaks. There is still plenty of snow left to fuel another snow-melt driven peak. For the MF Salmon expect that peak to occur when the snow at Banner Summit SNOTEL is half melted, which this year will occur when 10 inches of snow water remains. 2007 had a similar snowpack and the MF Salmon had twin peaks in the 5500-6000 cfs range. If the weather stays warm this year's snowmelt peak could occur by mid-May. Use the snow-stream graphs to track this year's snowmelt and runoff: <http://www.id.nrcs.usda.gov/snow/watersupply/peakflow.html>. Depending on the weather, rain can always produce a later peak especially if it occurs before the snow is gone. Streamflow forecasts percentages decreased for the Lemhi from last month, but remained steady for most other points. The May-July streamflow forecasts range from 56% of average for the Lemhi to 80% for the SF Salmon. The MF Salmon is forecast for 80%, while the Salmon at Salmon's forecast is 70%.

SALMON RIVER BASIN
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> | | | | | | 30-Yr Avg. (1000AF) |
|----------------------------|-----------------|--|-----------------|-----------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| Salmon R at Salmon (1) | MAY-JUL | 280 | 415 | 475 | 70 | 535 | 670 | 680 |
| | MAY-SEP | 330 | 495 | 570 | 71 | 645 | 810 | 805 |
| Lemhi R nr Lemhi | MAY-JUL | 19.7 | 28 | 34 | 56 | 41 | 52 | 61 |
| | MAY-SEP | 27 | 36 | 43 | 57 | 51 | 63 | 76 |
| MF Salmon R at MF Lodge | MAY-JUL | 325 | 415 | 480 | 80 | 545 | 635 | 600 |
| | MAY-SEP | 357 | 466 | 540 | 80 | 614 | 723 | 675 |
| SF Salmon R nr Krassel RS | MAY-JUL | 133 | 161 | 180 | 80 | 199 | 225 | 225 |
| | MAY-SEP | 154 | 180 | 197 | 80 | 215 | 240 | 245 |
| Johnson Ck at Yellow Pine | MAY-JUL | 102 | 123 | 137 | 80 | 151 | 172 | 172 |
| | MAY-SEP | 110 | 132 | 147 | 80 | 162 | 184 | 184 |
| Salmon R at White Bird (1) | MAY-JUL | 2290 | 3110 | 3480 | 75 | 3850 | 4670 | 4660 |
| | MAY-SEP | 2590 | 3530 | 3950 | 76 | 4370 | 5310 | 5220 |

| SALMON RIVER BASIN Reservoir Storage (1000 AF) - End of April | | | | | SALMON RIVER BASIN Watershed Snowpack Analysis - May 1, 2013 | | | |
|--|-----------------|------------------------|-----------|-----|---|----------------------|-------------------|--------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| | | | | | Salmon River ab Salmon | 8 | 83 | 82 |
| | | | | | Lemhi River | 6 | 136 | 89 |
| | | | | | Middle Fork Salmon River | 3 | 79 | 88 |
| | | | | | South Fork Salmon River | 3 | 76 | 86 |
| | | | | | Little Salmon River | 4 | 55 | 58 |
| | | | | | Salmon Basin Total | 23 | 88 | 83 |

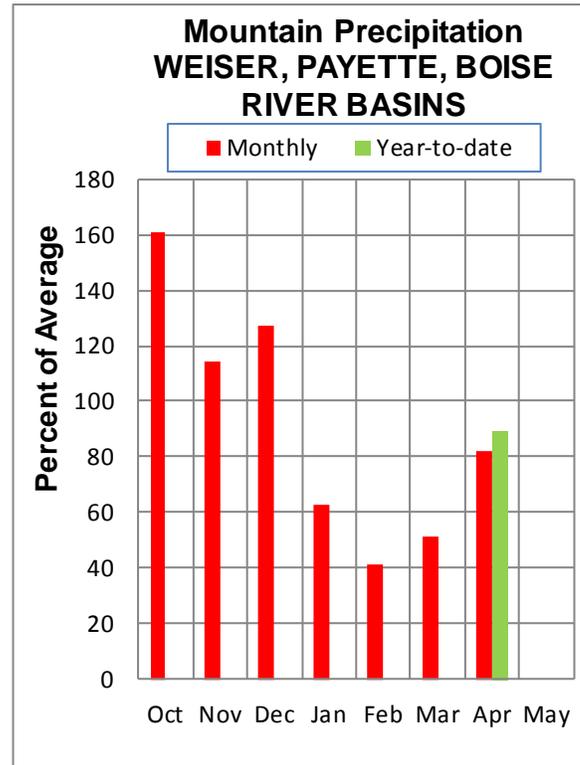
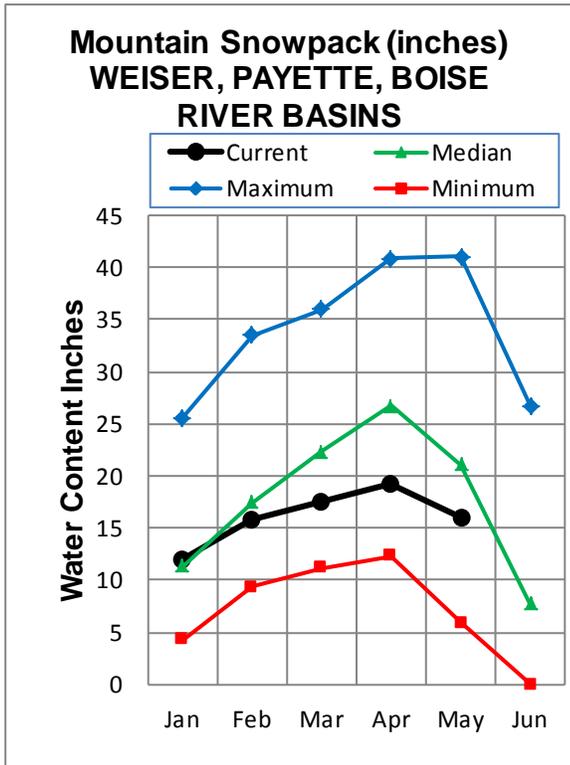
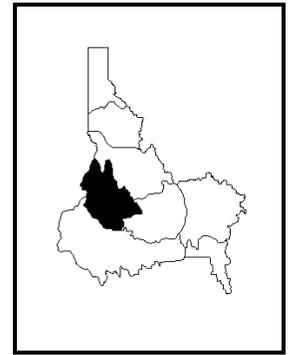
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

WEISER, PAYETTE, BOISE RIVER BASINS

MAY 1, 2013



WATER SUPPLY OUTLOOK

Boise water supplies continue to be marginally adequate despite a fourth month with drier than normal conditions. April precipitation was the best in four months in the west central mountains, but totals were less than average for the month. The Boise basin was the wettest at 89% of average in April, followed by the Payette with 84% and the Weiser with 68%. Water year precipitation since October 1 shows a reverse trend with the Weiser leading the way at 95% of average, Payette with 92% and Boise with 84%. April's weather brought additional snow accumulation at times and helped preserve the below normal snowpacks. Snowpacks across the region reached their peak in late March. The Boise and Weiser basins reached only 60% of normal peak amount, while the Payette was closer to 70% of its normal peak. As of May 1, snowpacks are 34% of median in the Weiser basin, and near 65% in the Payette and Boise basins. Most sites below 6,000 feet are either melted out or will be in a week or so. Reservoir storage in the Boise system is near average at 70% full. The Payette system is 119% of average, 84% full. The streamflow forecast period shortens this month from April-July to May-July. Due to cool temperatures delaying snowmelt, April streamflow in this region was 60-70% of normal. May-July streamflow forecasts are about 70% of average in this region. Adding the Boise River's 50% exceedance forecast to April 30 reservoir storage shows the total surface water supply is 1,446,000 acre-feet. At this point in the season Boise water users need at least 1,300,000 acre-feet for an adequate surface water supply, so current conditions should be adequate. Cool temperature and any additional spring precipitation will help to stretch this year's water supply. If conditions remain dry, the Boise's 70% exceedance forecast combined with current reservoir storage shows supplies will be tight and shortages are possible depending upon your water right.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<----- Drier ----- Future Conditions ----- Wetter ----->> | | | | | | 30-Yr Avg. (1000AF) |
|--------------------------------------|-----------------|--|-----------------|-----------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| Weiser R nr Weiser (1) | MAY-JUL | 59 | 111 | 140 | 60 | 172 | 255 | 235 |
| | MAY-SEP | 72 | 128 | 159 | 60 | 193 | 280 | 265 |
| SF Payette R at Lowman | MAY-JUL | 187 | 210 | 230 | 68 | 250 | 275 | 340 |
| | MAY-SEP | 220 | 250 | 270 | 68 | 290 | 325 | 395 |
| Deadwood Resv Inflow (1,2) | MAY-JUL | 45 | 62 | 69 | 66 | 76 | 93 | 104 |
| | MAY-SEP | 46 | 65 | 74 | 66 | 83 | 102 | 112 |
| Lake Fork Payette R nr McCall | MAY-JUL | 43 | 49 | 53 | 76 | 57 | 64 | 70 |
| | MAY-SEP | 45 | 51 | 55 | 75 | 59 | 66 | 73 |
| NF Payette R at Cascade (1,2) | MAY-JUL | 157 | 230 | 260 | 68 | 290 | 365 | 380 |
| | MAY-SEP | 153 | 235 | 270 | 68 | 305 | 385 | 395 |
| NF Payette R nr Banks (2) | MAY-JUL | 205 | 270 | 310 | 65 | 350 | 415 | 475 |
| | MAY-SEP | 210 | 280 | 325 | 66 | 370 | 440 | 495 |
| Payette R nr Horseshoe Bend (1,2) | MAY-JUL | 540 | 710 | 785 | 68 | 860 | 1030 | 1160 |
| | MAY-SEP | 610 | 790 | 875 | 67 | 960 | 1140 | 1310 |
| Boise R nr Twin Springs (1) | MAY-JUL | 171 | 255 | 295 | 64 | 335 | 420 | 460 |
| | MAY-SEP | 194 | 285 | 330 | 65 | 375 | 465 | 510 |
| SF Boise R at Anderson Ranch Dam (1, | MAY-JUL | 132 | 215 | 250 | 68 | 285 | 370 | 370 |
| | MAY-SEP | 143 | 230 | 270 | 67 | 310 | 395 | 405 |
| Mores Ck nr Arrowrock Dam | MAY-JUL | 15.5 | 25 | 32 | 47 | 40 | 54 | 68 |
| | MAY-SEP | 17.2 | 27 | 35 | 49 | 44 | 59 | 72 |
| Boise R nr Boise (1,2) | MAY-JUL | 410 | 550 | 615 | 65 | 680 | 820 | 950 |
| | MAY-SEP | 465 | 615 | 685 | 65 | 755 | 905 | 1050 |

WEISER, PAYETTE, BOISE RIVER BASINS
Reservoir Storage (1000 AF) - End of April

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - May 1, 2013

| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
|-------------------------|-----------------|------------------------|-----------|-------|---------------------------|----------------------|-------------------|--------|
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| Mann Creek | 11.1 | 10.9 | 11.0 | 10.7 | Mann Creek | 1 | 45 | 45 |
| Cascade | 693.2 | 606.2 | 585.2 | 501.5 | Weiser River | 4 | 34 | 34 |
| Deadwood | 161.9 | 115.7 | 133.0 | 105.1 | North Fork Payette | 9 | 73 | 69 |
| Anderson Ranch | 450.2 | 305.0 | 435.1 | 284.9 | South Fork Payette | 5 | 69 | 79 |
| Arrowrock | 272.2 | 183.1 | 259.4 | 189.0 | Payette Basin Total | 16 | 70 | 66 |
| Lucky Peak | 293.2 | 218.0 | 227.2 | 219.8 | Middle & North Fork Boise | 5 | 69 | 70 |
| Lake Lowell (Deer Flat) | 165.2 | 125.6 | 130.1 | 125.6 | South Fork Boise River | 7 | 80 | 82 |
| | | | | | Mores Creek | 5 | 39 | 26 |
| | | | | | Boise Basin Total | 14 | 68 | 63 |
| | | | | | Canyon Creek | 1 | 0 | 0 |

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

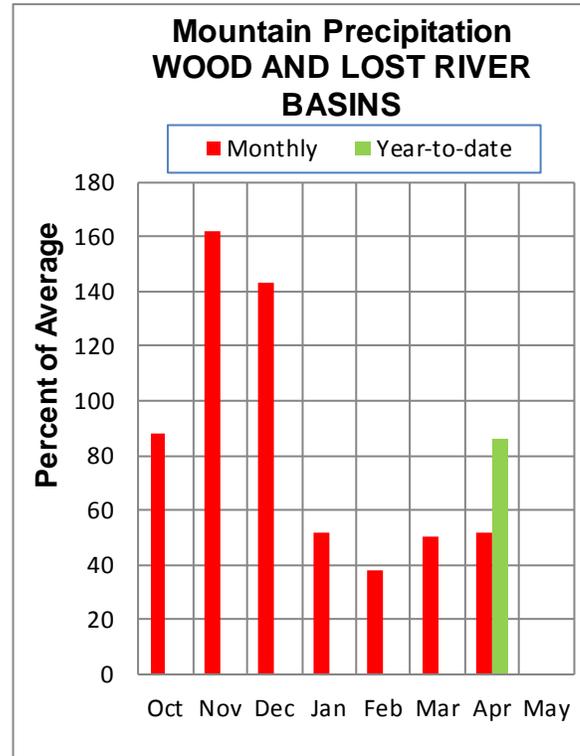
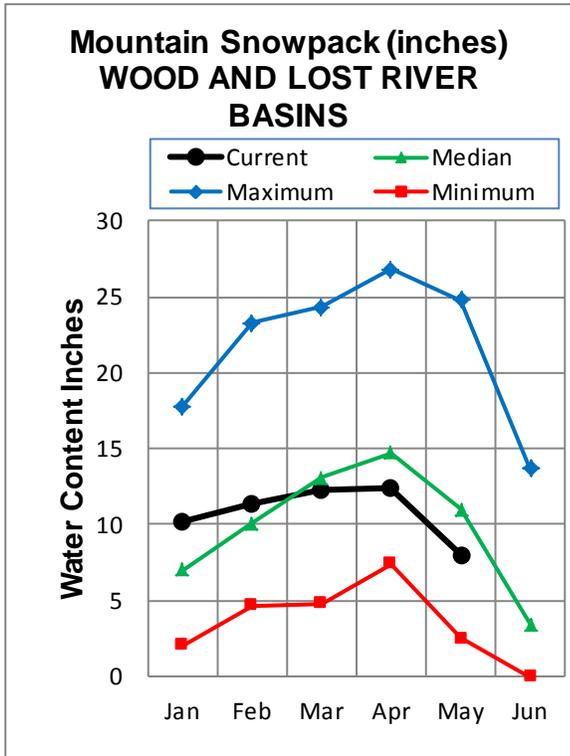
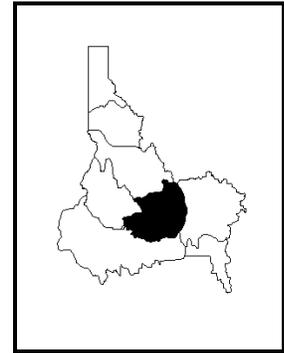
The average is computed for the 1981-2010 base period.

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

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

WOOD and LOST RIVER BASINS

MAY 1, 2013



WATER SUPPLY OUTLOOK

A water short growing season is likely for Big Wood, Big Lost and Little Lost water users. The Wood and Lost basins saw little precipitation for the fourth month in a row. April brought most of Idaho the best precipitation since conditions turned dry in January, but the Wood and Lost basins only had half the normal amount. The Little Wood and Big Lost basins were the driest receiving only one third of the normal April amount. Water year precipitation across this region is 86% of average. Nearly three quarters of this season's snow fell by January 1st and snowpacks reached their peak at the end of March. The Big Wood and Little Wood basin's snow topped out at about 80% of the 1981-2010 normal peak amount, while the Big Lost and Little Lost snow was closer to 90% of its normal peak amount. As of May 1 snowpacks are 25% of normal in the Little Wood, 71% of normal in the Big Lost and about 80% of normal in the Big Wood and Little Lost. Reservoir storage is varied: Little Wood is 115% of average, 96% full; Mackay is 117% of average, 86% full, and Magic is 43% of average, 29% full. April streamflow was 20% of normal for the Big Wood River below Magic, 35% for the Little Wood near Carey, 75% for the Big Wood at Hailey, and 86% for the Little Lost. This month the streamflow forecast period shortens from April-July to May-July. Streamflow forecasts range from 38-68% of average. Combining the May-September 50% streamflow forecasts and current reservoir storage indicates Big Wood users should expect 146,000 acre-feet of water which is 129,000 acre-feet short of an adequate supply. The Big Wood Canal Company notified users that 140,000 acre-feet is enough water for a 90-100 day water supply, far below the amount needed to grow long season crops. Using the same math, Big Lost users should expect 125,000 acre-feet of water, 35,000 acre-feet short of an adequate amount. Little Lost users should expect 20,000 acre-feet for the May-September period, about 15,000 acre-feet short based on the 50% exceedance forecast. Presently, it looks like only the Little Wood users will have an adequate water supply, based on the 50% exceedance forecasts.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<----- Drier ----- Future Conditions ----- Wetter ----->> | | | | | | 30-Yr Avg. (1000AF) |
|-------------------------------|-----------------|--|-----------------|-----------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| Big Wood R at Hailey (1) | MAY-JUL | 58 | 110 | 133 | 65 | 156 | 210 | 205 |
| | MAY-SEP | 67 | 126 | 153 | 65 | 180 | 240 | 235 |
| Big Wood R ab Magic Res | MAY-JUL | 2.0 | 43 | 71 | 48 | 99 | 140 | 147 |
| | MAY-SEP | 14.0 | 52 | 77 | 48 | 102 | 140 | 159 |
| Camas Ck nr Blaine | MAY-JUL | 1.7 | 7.3 | 13.3 | 38 | 21 | 36 | 35 |
| | MAY-SEP | 1.9 | 7.7 | 13.8 | 38 | 22 | 37 | 36 |
| Big Wood R bl Magic Dam (2) | MAY-JUL | 14.0 | 57 | 87 | 49 | 117 | 160 | 176 |
| | MAY-SEP | 14.0 | 60 | 91 | 48 | 122 | 168 | 191 |
| Little Wood R ab High Five Ck | MAY-JUL | 13.2 | 20 | 26 | 50 | 32 | 43 | 52 |
| | MAY-SEP | 14.8 | 23 | 29 | 50 | 36 | 48 | 58 |
| Little Wood R near Carey (2) | MAY-JUL | 8.7 | 19.6 | 27 | 49 | 34 | 45 | 55 |
| | MAY-SEP | 10.4 | 22 | 30 | 49 | 38 | 50 | 61 |
| Big Lost R at Howell Ranch | MAY-JUL | 61 | 84 | 100 | 68 | 116 | 139 | 148 |
| | MAY-SEP | 69 | 96 | 114 | 68 | 132 | 159 | 169 |
| Big Lost R Below Mackay Res | MAY-JUL | 25 | 49 | 66 | 60 | 83 | 107 | 111 |
| | MAY-SEP | 37 | 67 | 87 | 63 | 107 | 137 | 138 |
| Little Lost R nr Howe | MAY-JUL | 10.9 | 13.9 | 16.2 | 68 | 18.7 | 23 | 24 |
| | MAY-SEP | 13.3 | 17.1 | 20 | 67 | 23 | 28 | 30 |
| Camas Ck at Camas | MAY-JUL | 0.3 | 7.9 | 13.4 | 54 | 18.9 | 27 | 25 |

| WOOD AND LOST RIVER BASINS Reservoir Storage (1000 AF) - End of April | | | | | WOOD AND LOST RIVER BASINS Watershed Snowpack Analysis - May 1, 2013 | | | |
|--|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|--------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| Magic | 191.5 | 55.1 | 187.6 | 128.0 | Big Wood ab Hailey | 7 | 87 | 80 |
| Little Wood | 30.0 | 28.7 | 29.2 | 25.0 | Camas Creek | 3 | 0 | 0 |
| Mackay | 44.4 | 38.4 | 44.2 | 32.8 | Big Wood Basin Total | 10 | 87 | 75 |
| | | | | | Fish Creek | 0 | 0 | 0 |
| | | | | | Little Wood River | 3 | 67 | 25 |
| | | | | | Big Lost River | 4 | 131 | 62 |
| | | | | | Little Lost River | 3 | 139 | 83 |
| | | | | | Birch-Medicine Lodge Cree | 2 | 142 | 100 |
| | | | | | Camas-Beaver Creeks | 2 | 0 | 55 |

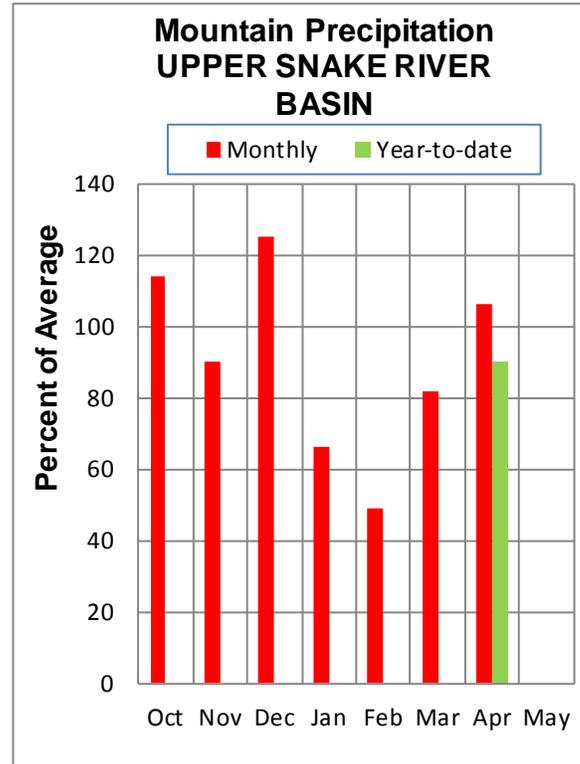
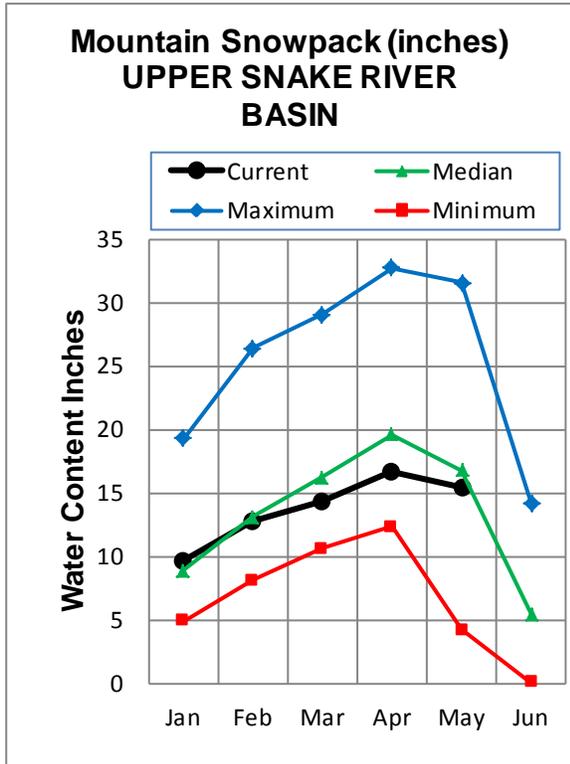
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

UPPER SNAKE BASIN

MAY 1, 2013



WATER SUPPLY OUTLOOK

A cool and wet month was just what Snake River water users were hoping for to improve water supplies. April precipitation in the Upper Snake in Wyoming was 113% of normal for the month, good but not enough to solve water supply concerns. Water year to date precipitation is now 90% of average, a few percentage points higher than last month. April temperatures were cold enough that most SNOTEL sites continued to gain snow through the third week of the month. Basin-wide snowpacks peaked on April 23 at 88% of the 1981-2010 seasonal peak. Snow at four of the five SNOTEL sites above Jackson Lake peaked above the normal seasonal peak amount. Warmer temperatures at month's end, caused snowmelt to begin and streams to begin their annual rise from the winter snowfall. Reservoir storage on the Henrys Fork, which includes Henrys Lake, Grassy Lake and Island Park reservoirs, is 230,000 acre feet, 104% of average, 95% of capacity. Combined storage in Jackson Lake and Palisades is 1,406,000 acre-feet; that system is 63% full, 104% of average. April streamflow was about 75% of normal for the month due to minimal snowmelt. At times American Falls and Palisades reservoir storage declined due to canal diversions exceeding natural flows. The streamflow forecast period shortens this month from April-July to May-July. With the good precipitation and additional snow, streamflow forecast percentages went up this month and are now 75-98% of average. Water supplies improved slightly but another wet month is needed to provide adequate water. Adding Heise's 50% exceedance forecast to the April 30 reservoir storage levels in Jackson Lake and Palisades provides a total available surface water supply of 4,196,000 acre-feet. Water users need 4,300,000 acre-feet for an adequate surface water supply, so the 50% forecast is over 100,000 acre-feet short. The 30% exceedance forecast would provide enough water to meet demand, but it will take cool, wet late season conditions such as 2011 for that to occur. Unfortunately, long range weather forecasts point towards May being warmer and drier than normal.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<----- Drier ----- Future Conditions ----- Wetter ----->> | | | | | | 30-Yr Avg. (1000AF) |
|-------------------------------|-----------------|--|-----------------|-----------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| Henrys Fork nr Ashton (2) | MAY-JUL | 240 | 285 | 320 | 77 | 355 | 415 | 415 |
| | MAY-SEP | 355 | 415 | 460 | 77 | 505 | 575 | 595 |
| Henrys Fork nr Rexburg (2) | MAY-JUL | 805 | 910 | 980 | 84 | 1050 | 1150 | 1170 |
| | MAY-SEP | 1130 | 1250 | 1330 | 85 | 1410 | 1530 | 1560 |
| Falls R nr Ashton (2) | MAY-JUL | 210 | 240 | 265 | 84 | 290 | 330 | 315 |
| | MAY-SEP | 255 | 290 | 320 | 83 | 350 | 395 | 385 |
| Teton R nr Driggs | MAY-JUL | 80 | 95 | 105 | 78 | 116 | 133 | 134 |
| | MAY-SEP | 104 | 123 | 137 | 79 | 152 | 174 | 173 |
| Teton R nr St. Anthony | MAY-JUL | 199 | 230 | 255 | 80 | 280 | 320 | 320 |
| | MAY-SEP | 245 | 285 | 315 | 81 | 345 | 390 | 390 |
| Snake R at Flagg Ranch | MAY-JUL | 350 | 390 | 415 | 98 | 440 | 480 | 425 |
| | MAY-SEP | 380 | 425 | 455 | 97 | 485 | 530 | 470 |
| Snake R nr Moran (1,2) | MAY-JUL | 480 | 580 | 625 | 89 | 670 | 770 | 700 |
| | MAY-SEP | 535 | 650 | 700 | 90 | 750 | 865 | 775 |
| Pacific Ck At Moran | MAY-JUL | 102 | 128 | 145 | 95 | 162 | 188 | 152 |
| | MAY-SEP | 109 | 135 | 153 | 95 | 171 | 197 | 161 |
| Buffalo Fork ab Lava nr Moran | MAY-JUL | 198 | 225 | 245 | 93 | 265 | 290 | 265 |
| | MAY-SEP | 198 | 225 | 245 | 93 | 265 | 290 | 265 |
| Snake R nr Alpine (1,2) | MAY-JUL | 1290 | 1530 | 1640 | 84 | 1750 | 1990 | 1960 |
| | MAY-SEP | 1430 | 1730 | 1860 | 82 | 1990 | 2290 | 2280 |
| Greys R Nr Alpine | MAY-JUL | 190 | 215 | 235 | 89 | 255 | 280 | 265 |
| | MAY-SEP | 225 | 260 | 280 | 89 | 300 | 335 | 315 |
| Salt R Nr Etna | MAY-JUL | 131 | 178 | 210 | 86 | 240 | 290 | 245 |
| | MAY-SEP | 174 | 230 | 270 | 87 | 310 | 365 | 310 |
| Snake R nr Irwin (1,2) | MAY-JUL | 1830 | 2100 | 2230 | 84 | 2360 | 2630 | 2660 |
| | MAY-SEP | 2140 | 2460 | 2600 | 83 | 2740 | 3060 | 3150 |
| Snake R nr Heise (2) | MAY-JUL | 2030 | 2230 | 2370 | 84 | 2510 | 2710 | 2840 |
| | MAY-SEP | 2400 | 2630 | 2790 | 82 | 2950 | 3180 | 3390 |
| Willow Ck nr Ririe (2) | MAY-JUL | 0.9 | 12.8 | 25 | 58 | 37 | 55 | 43 |
| Blackfoot R ab Res nr Henry | MAY-JUN | 8.9 | 17.5 | 25 | 60 | 34 | 49 | 42 |
| Snake R nr Blackfoot (1,2) | MAY-JUL | 75 | 1100 | 1570 | 94 | 2040 | 3060 | 1670 |
| | MAY-SEP | 76 | 865 | 1440 | 94 | 2010 | 3280 | 1530 |
| Portneuf R at Topaz | MAY-JUL | 25 | 32 | 36 | 72 | 41 | 48 | 50 |
| | MAY-SEP | 35 | 43 | 48 | 72 | 54 | 63 | 67 |
| Snake R at Neeley (1,2) | MAY-JUL | 405 | 1500 | 1990 | 95 | 2480 | 3570 | 2100 |
| | MAY-SEP | 1110 | 1820 | 2150 | 95 | 2480 | 3190 | 2260 |

| UPPER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of April | | | | | UPPER SNAKE RIVER BASIN Watershed Snowpack Analysis - May 1, 2013 | | | |
|---|-----------------|------------------------|-----------|--------|--|----------------------|-------------------|--------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| Henrys Lake | 90.4 | 90.1 | 90.4 | 83.5 | Henrys Fork-Falls River | 7 | 103 | 89 |
| Island Park | 135.2 | 126.4 | 136.1 | 123.8 | Teton River | 8 | 128 | 77 |
| Grassy Lake | 15.2 | 13.3 | 13.2 | 12.8 | Henrys Fork above Rexburg | 15 | 113 | 83 |
| Jackson Lake | 847.0 | 649.4 | 729.7 | 445.7 | Snake above Jackson Lake | 6 | 104 | 96 |
| Palisades | 1400.0 | 756.7 | 1047.5 | 911.7 | Pacific Creek | 2 | 99 | 108 |
| Ririe | 80.5 | 62.0 | 79.4 | 58.7 | Gros Ventre River | 3 | 139 | 93 |
| Blackfoot | 348.7 | 247.9 | 322.1 | 211.3 | Hoback River | 5 | 161 | 82 |
| American Falls | 1672.6 | 1574.5 | 1673.2 | 1528.0 | Greys River | 4 | 117 | 104 |
| | | | | | Salt River | 5 | 220 | 126 |
| | | | | | Snake above Palisades | 22 | 130 | 98 |
| | | | | | Willow Creek | 7 | 212 | 74 |
| | | | | | Blackfoot River | 3 | 0 | 43 |
| | | | | | Portneuf River | 6 | 509 | 70 |
| | | | | | Snake abv American Falls | 38 | 133 | 93 |

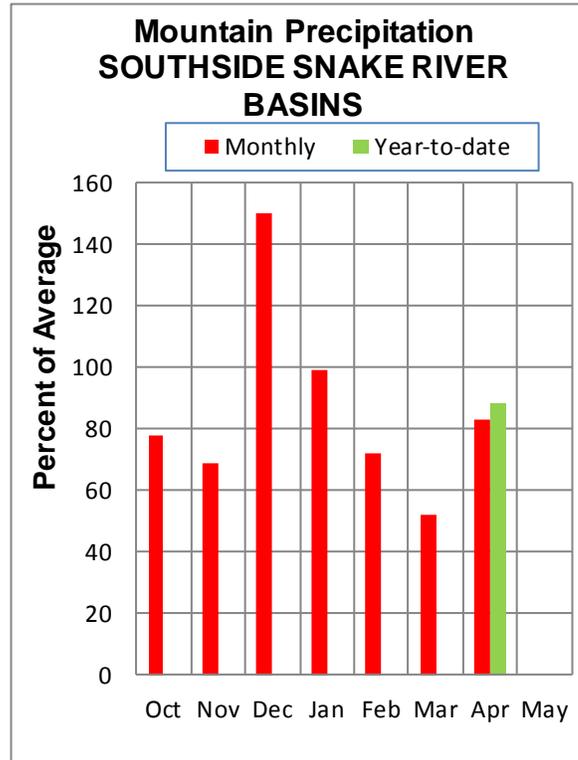
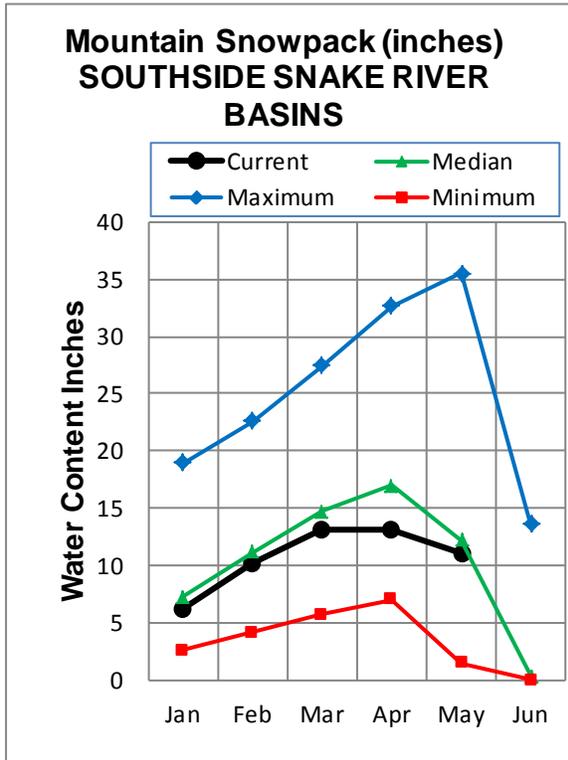
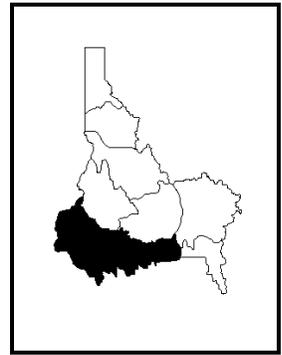
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

SOUTHSIDE SNAKE RIVER BASINS

MAY 1, 2013



WATER SUPPLY OUTLOOK

April was another dry month in the Owyhee and Bruneau watersheds, the fourth consecutive month with below average precipitation and sixth of seven since October 1! Summer streamflow in these basins is projected to be near record low in the Owyhee and just slightly better in the Bruneau. Only the highest elevation SNOTEL sites above 7,000 feet have remaining snow, but they represent a small area of the watershed so the melt season will be short. The Owyhee near Rome May-July forecast is just 18% of average while the observed March and April runoff was a meager 28%! Even so, water users with rights in Owyhee Reservoir should have enough water. Owyhee Reservoir is currently about half full holding 353,000 acre-feet. This storage combined with the Owyhee below Owyhee Dam 50% forecast (73,000 acre-feet) equals a total water supply of 426,000 acre-feet, just above the 400,000 acre-feet needed for a full irrigation supply. The Bruneau May-July forecast is 71% (99,000 acre-feet) but that is probably optimistic due to the lack of any low and mid-elevation snow. Water users should consider using the 70% chance of exceedance or lower forecast in a year like this. April precipitation was 100-150% of average in the Salmon Falls and Oakley basins, but was too little, too late. The rain gave irrigators a reprieve on the demand side, but supply side water shortages are still projected. On average, May precipitation accounts for only 10% of the yearly total; so even a very wet May will not make much difference in the overall outlook but helps by extending the irrigation season. The May-July (50% chance of exceedance) forecasts are 88% of average for Oakley and 63% for Salmon Falls. Adding to the picture, Salmon Falls and Oakley Reservoirs are only 69% and 89% of average, respectively. The Surface Water Supply Index (SWSI), which represents reservoir stored water and future runoff as the total water available for the season, indicates Oakley's water supply will be at least 2,000 acre-feet short and Salmon Falls 15,000 acre-feet short based on the 50% exceedance forecasts. Shortages will be greater based on the 70% forecasts. Water users should carefully monitor the weather and their water use to make the most of the limited supplies this year.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<===== Drier ===== Future Conditions ===== Wetter =====>> | | | | | | 30-Yr Avg. (1000AF) | | | | |
|------------------------------------|-----------------|--|----------|----------|----------|----------|----------|------------------------|----------|----------|----------|----------|
| | | 90% | | 70% | | 50% | | | 30% | | 10% | |
| | | (1000AF) | (1000AF) | (1000AF) | (% AVG.) | (1000AF) | (1000AF) | | (1000AF) | (1000AF) | (1000AF) | (1000AF) |
| Goose Ck ab Trapper Ck nr Oakley | MAY-JUL | 3.9 | 8.4 | 11.4 | 86 | 14.4 | 18.9 | 13.2 | | | | |
| | MAY-SEP | 4.4 | 9.2 | 12.5 | 86 | 15.8 | 21 | 14.5 | | | | |
| Trapper Ck nr Oakley | MAY-JUL | 2.3 | 3.0 | 3.4 | 92 | 3.8 | 4.5 | 3.7 | | | | |
| | MAY-SEP | 3.2 | 4.0 | 4.5 | 92 | 5.0 | 5.8 | 4.9 | | | | |
| Oakley Res Inflow (2) | MAY-JUL | 6.3 | 11.4 | 14.8 | 88 | 18.2 | 23 | 16.9 | | | | |
| | MAY-SEP | 7.7 | 13.3 | 17.0 | 88 | 21 | 26 | 19.4 | | | | |
| Salmon Falls Ck nr San Jacinto | MAY-JUL | 15.4 | 24 | 31 | 63 | 39 | 52 | 49 | | | | |
| | MAY-SEP | 18.5 | 28 | 35 | 66 | 43 | 57 | 53 | | | | |
| Bruneau R nr Hot Springs | MAY-JUL | 52 | 78 | 99 | 71 | 122 | 161 | 140 | | | | |
| | MAY-SEP | 57 | 84 | 106 | 72 | 130 | 171 | 148 | | | | |
| Reynolds Ck at Tollgate | MAY-JUL | 0.3 | 0.8 | 1.5 | 29 | 2.2 | 3.4 | 5.1 | | | | |
| Owyhee R nr Gold Ck (2) | MAY-JUL | 0.0 | 0.0 | 0.5 | 5 | 2.5 | 11.0 | 9.6 | | | | |
| | MAY-SEP | 0.0 | 0.0 | 0.1 | 1 | 1.3 | 8.7 | 8.3 | | | | |
| Owyhee R nr Rome | MAY-JUL | 15.0 | 20 | 33 | 18 | 74 | 135 | 188 | | | | |
| | MAY-SEP | 16.0 | 23 | 43 | 21 | 85 | 146 | 205 | | | | |
| Owyhee R bl Owyhee Dam (2) | MAY-JUL | 16.0 | 34 | 51 | 24 | 71 | 106 | 210 | | | | |
| | MAY-SEP | 29 | 53 | 73 | 30 | 97 | 137 | 240 | | | | |
| Snake R at King Hill (1,2) | MAY-JUL | 435 | 1040 | 1320 | 70 | 1600 | 2200 | 1900 | | | | |
| Snake R nr Murphy (1,2) | MAY-JUL | 335 | 980 | 1270 | 68 | 1560 | 2200 | 1870 | | | | |
| Snake R at Weiser (1,2) | MAY-JUL | 535 | 1610 | 2100 | 60 | 2590 | 3670 | 3530 | | | | |
| Snake R at Hells Canyon Dam (1,2) | MAY-JUL | 460 | 1660 | 2200 | 54 | 2740 | 3940 | 4070 | | | | |
| Snake R bl Lower Granite Dam (1,2) | MAY-JUL | 7710 | 9972 | 11000 | 72 | 12028 | 14290 | 15280 | | | | |

| SOUTHSIDE SNAKE RIVER BASINS Reservoir Storage (1000 AF) - End of April | | | | | SOUTHSIDE SNAKE RIVER BASINS Watershed Snowpack Analysis - May 1, 2013 | | | |
|--|-----------------|------------------------|-----------|--------|---|----------------------|-------------------|--------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| Oakley | 75.6 | 30.5 | 43.8 | 34.3 | Raft River | 1 | 167 | 101 |
| Salmon Falls | 182.6 | 49.5 | 102.3 | 71.6 | Goose-Trapper Creeks | 3 | 0 | 77 |
| WILDHORSE RESERVOIR | 71.5 | 32.2 | 57.6 | 49.4 | Salmon Falls Creek | 5 | 587 | 85 |
| OWYHEE | 715.0 | 352.9 | 631.0 | 533.1 | Bruneau River | 5 | 401 | 84 |
| Brownlee | 1420.0 | 1123.2 | 930.4 | 1161.0 | Reynolds Creek | 6 | 37 | 22 |
| | | | | | Owyhee Basin Total | 7 | 0 | 16 |
| | | | | | Owyhee Basin SNOTEL | 7 | 0 | 16 |

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

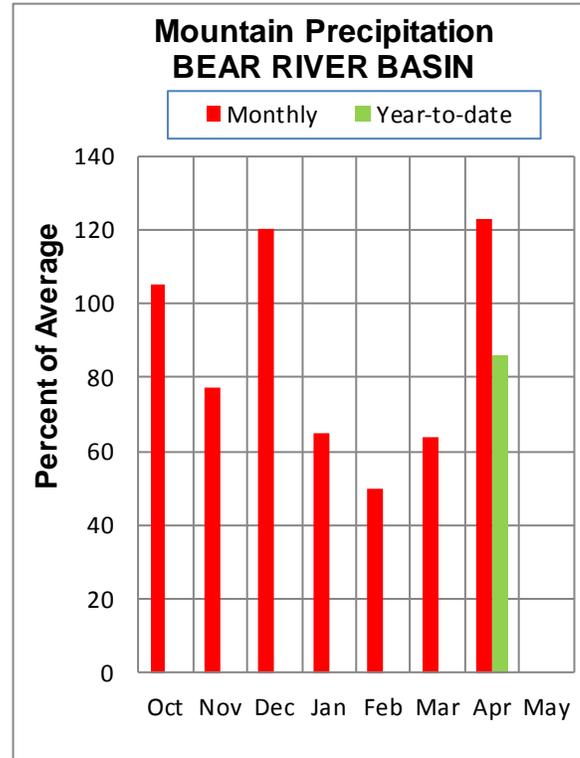
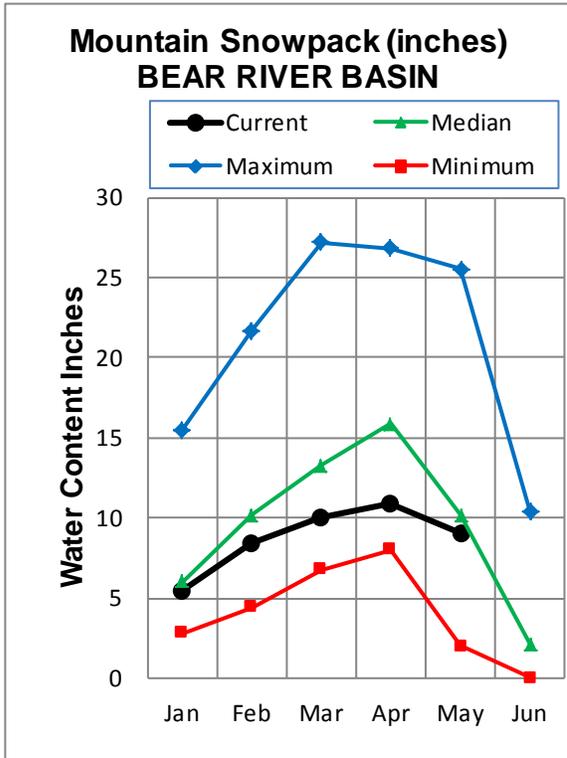
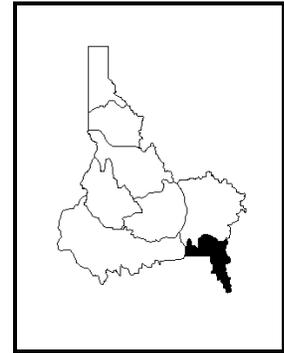
The average is computed for the 1981-2010 base period.

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

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

BEAR RIVER BASIN

MAY 1, 2013



WATER SUPPLY OUTLOOK

April precipitation in the Bear River area reversed the dry trend of the previous three months. Overall the basin received 123% of average for the month, but the water year total since October is just 86%. The seasonal water supply outlook remains the same - well below normal especially for the natural flow water users. While the snowpack seems reasonable at 91% of normal for May 1, it was more a result of cold weather and less snowmelt than significant increases in snowfall. Most of the low and mid-elevation snow was already gone, and when combined with the cold April it kept streamflow for the month below average. The remaining May–July runoff volume will not be able to compensate completely, but the overall seasonal forecasts for the total April–July period did improve a bit since last month. Nonetheless, the projections range from just 19% of average below Stewart Dam to only 63% in the upper basin above the WY-UT state line. With the lack of mid-elevation snow and two previous dry years, the runoff season will be quick and short once the warm weather sets in – streams will quickly recede to baseflow levels without heavy rainfall during the melt period. Water users with storage rights from Bear Lake should have an adequate supply with the reservoir at 68% of useable storage, 125% of average. Other water users dependent only on the natural streamflow may face potentially critical shortages if the weather trends hot and dry. Wet and cool conditions this spring and into the summer will help mitigate drought impacts and provide more carryover storage in Bear Lake for next year.

BEAR RIVER BASIN
Streamflow Forecasts - May 1, 2013

| Forecast Point | Forecast Period | <<----- Drier ----- Future Conditions ----- Wetter ----->> | | | | | | 30-Yr Avg. (1000AF) |
|----------------------------|-----------------|--|-----------------|-----------------|----------|-----------------|-----------------|------------------------|
| | | Chance Of Exceeding * | | | | | | |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| Bear R nr UT-WY State Line | APR-JUL | 47 | 61 | 70 | 63 | 79 | 93 | 112 |
| | MAY-JUL | 43 | 56 | 64 | 62 | 72 | 85 | 104 |
| | APR-SEP | 51 | 66 | 76 | 62 | 86 | 101 | 123 |
| | MAY-SEP | 47 | 61 | 70 | 60 | 79 | 93 | 116 |
| Bear R ab Res nr Woodruff | APR-JUL | 29 | 47 | 60 | 50 | 73 | 91 | 121 |
| | MAY-JUL | 21 | 38 | 50 | 48 | 62 | 79 | 105 |
| | APR-SEP | 32 | 50 | 63 | 49 | 76 | 94 | 128 |
| | MAY-SEP | 24 | 41 | 53 | 48 | 65 | 82 | 111 |
| Big Ck nr Randolph | APR-JUL | 0.5 | 0.9 | 1.5 | 40 | 2.1 | 2.9 | 3.8 |
| | MAY-JUL | 0.1 | 0.6 | 1.2 | 39 | 1.8 | 2.6 | 3.1 |
| Smiths Fk nr Border | APR-JUL | 42 | 50 | 55 | 62 | 60 | 68 | 89 |
| | APR-SEP | 46 | 55 | 62 | 60 | 69 | 78 | 104 |
| | MAY-JUL | 36 | 44 | 49 | 61 | 54 | 62 | 80 |
| | MAY-SEP | 40 | 49 | 56 | 59 | 63 | 72 | 95 |
| Bear R bl Stewart Dam | APR-JUL | 2.0 | 9.0 | 35 | 19 | 70 | 122 | 183 |
| | APR-SEP | 2.0 | 8.0 | 35 | 17 | 72 | 127 | 205 |
| | MAY-JUL | 1.0 | 9.0 | 28 | 19 | 56 | 97 | 146 |
| | MAY-SEP | 2.0 | 5.0 | 29 | 17 | 62 | 111 | 169 |
| Little Bear R at Paradise | APR-JUL | 0.8 | 8.7 | 15.0 | 37 | 21 | 31 | 41 |
| | MAY-JUL | 0.8 | 4.1 | 10.0 | 36 | 15.9 | 25 | 28 |
| Logan R nr Logan | APR-JUL | 27 | 41 | 50 | 45 | 59 | 73 | 111 |
| | MAY-JUL | 20 | 34 | 43 | 45 | 52 | 66 | 96 |
| Blacksmith Fork nr Hyrum | APR-JUL | 3.5 | 16.3 | 25 | 58 | 34 | 47 | 43 |
| | MAY-JUL | 0.3 | 9.1 | 17.0 | 55 | 25 | 37 | 31 |

| BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of April | | | | | BEAR RIVER BASIN Watershed Snowpack Analysis - May 1, 2013 | | | |
|--|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|--------|
| Reservoir | Usable Capacity | *** Usable Storage *** | | | Watershed | Number of Data Sites | This Year as % of | |
| | | This Year | Last Year | Avg | | | Last Yr | Median |
| Bear Lake | 1421.0 | 961.1 | 1187.3 | 770.7 | Smiths & Thomas Forks | 4 | 156 | 104 |
| Montpelier Creek | 4.0 | 2.8 | 4.1 | 2.7 | Bear River ab WY-ID line | 12 | 224 | 93 |
| | | | | | Montpelier Creek | 2 | 152 | 102 |
| | | | | | Mink Creek | 1 | 268 | 65 |
| | | | | | Cub River | 1 | 198 | 68 |
| | | | | | Bear River ab ID-UT line | 20 | 230 | 91 |
| | | | | | Malad River | 1 | 0 | 0 |

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

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

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

Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report: Streamflow forecasts are projections of runoff volumes that would occur without influences from upstream reservoirs or diversions. These values are referred to as natural, unregulated or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. **(Revised Dec 2011).**

Panhandle River Basins

Kootenai R at Leonia, MT

+ Lake Koocanusa storage change

Moyie R at Eastport – no corrections

Smith Creek nr Porthill – no corrections

Boundary Ck nr Porthill – no corrections

Clark Fork R at Whitehorse Rapids

+ Hungry Horse storage change

+ Flathead Lake storage change

+ Noxon Rapids Res storage change

Pend Oreille Lake Inflow

+ Pend Oreille R at Newport, WA

+ Hungry Horse storage change

+ Flathead Lake storage change

+ Noxon Rapids storage change

+ Pend Oreille Lake storage change

+ Priest Lake storage change

Priest R nr Priest R

+ Priest Lake storage change

NF Coeur d'Alene R at Enaville - no corrections

St. Joe R at Calder- no corrections

Spokane R nr Post Falls

+ Coeur d'Alene Lake storage change

Spokane R at Long Lake, WA

+ Coeur d'Alene Lake storage change

+ Long Lake, WA storage change

Clearwater River Basin

Selway R nr Lowell - no corrections

Lochsa R nr Lowell - no corrections

Dworshak Res Inflow

+ Clearwater R nr Peck

- Clearwater R at Orofino

+ Dworshak Res storage change

Clearwater R at Orofino - no corrections

Clearwater R at Spalding

+ Dworshak Res storage change

Salmon River Basin

Salmon R at Salmon - no corrections

Lemhi R nr Lemhi – no corrections

MF Salmon R at MF Lodge – no corrections

SF Salmon R nr Krassel Ranger Station – no corrections

Johnson Creek at Yellow pine – no corrections

Salmon R at White Bird - no corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser - no corrections

SF Payette R at Lowman - no corrections

Deadwood Res Inflow

+ Deadwood R bl Deadwood Res nr Lowman

+ Deadwood Res storage change

Lake Fork Payette R nr McCall – no corrections

NF Payette R at Cascade

+ Cascade Res storage change

+ Payette Lake storage change

NF Payette R nr Banks

+ Cascade Res storage change

+ Payette Lake storage change

Payette R nr Horseshoe Bend

+ Cascade Res storage change

+ Deadwood Res storage change

+ Payette Lake storage change

Boise R nr Twin Springs - no corrections

SF Boise R at Anderson Ranch Dam

+ Anderson Ranch Res storage change

Mores Ck nr Arrowrock Dam – no corrections

Boise R nr Boise

+ Anderson Ranch Res storage change

+ Arrowrock Res storage change

+ Lucky Peak Res storage change

Wood and Lost River Basins

Big Wood R at Hailey - no corrections

Big Wood R ab Magic Res

+ Big Wood R at Stanton Crossing nr Bellevue

+ Willow Ck

Camas Ck nr Blaine – no corrections

Big Wood R bl Magic Dam nr Richfield

+ Magic Res storage change

Little Wood R ab High Five Ck – no corrections

Little Wood R nr Carey

+ Little Wood Res storage change

Big Lost R at Howell Ranch - no corrections

Big Lost R bl Mackay Res nr Mackay

+ Mackay Res storage change

Little Lost R bl Wet Ck nr Howe - no corrections

Upper Snake River Basin

Henrys Fork nr Ashton

+ Henrys Lake storage change

+ Island Park Res storage change

Falls R nr Ashton

+ Grassy Lake storage change

+ Diversions from Falls R ab nr Ashton

Teton R nr Driggs - no corrections

Teton R nr St. Anthony

- Cross Cut Canal into Teton R

+ Sum of Diversions for Teton R ab St. Anthony

+ Teton Dam for water year 1976 only

- Henry Fork nr Rexburg
 - + Henrys Lake storage change
 - + Island Park Res storage change
 - + Grassy Lake storage change
 - + 7 Diversions from Henrys Fk btw Ashton to St. Anthony
 - + 21 Diversions from Henrys Fk btw St. Anthony to Rexburg
 - + 3 Diversions from Falls R ab Ashton
 - + 6 Diversions from Falls R nr Ashton to Chester

Snake R nr Flagg Ranch, WY – no corrections

Snake R nr Moran, WY

- + Jackson Lake storage change

Pacific Ck at Moran, WY - no corrections

Buffalo Fork ab Lava nr Moran, WY - no corrections

Gros Ventre R at Kelly, WY - no corrections

Snake R ab Res nr Alpine, WY

- + Jackson Lake storage change

Greys R nr Alpine, WY - no corrections

Salt R R nr Etna, WY - no corrections

Snake R nr Irwin

- + Jackson Lake storage change

- + Palisades Res storage change

Snake R nr Heise

- + Jackson Lake storage change

- + Palisades Res storage change

Willow Ck nr Ririe

- + Ririe Res storage change

The forecasted natural volume for Willow Creek nr Ririe does not include an adjustment for Grays Lake water diverted from Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.

Blackfoot R ab Res nr Henry

- + Blackfoot Res storage change

The forecasted Blackfoot Reservoir Inflow includes Grays Lake water diverted from the Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.

Portneuf R at Topaz - no corrections

Snake R at Neeley

- + Jackson Lake storage change

- + Palisades Res storage change

- + American Falls storage change

- + Teton Dam for water year 1976 only

Southside Snake River Basins

Goose Ck nr Oakley - no adjustments

Trapper Ck nr Oakley - no adjustments

Oakley Res Inflow - *flow does not include Birch Creek*

- + Goose Ck

- + Trapper Ck

Salmon Falls Ck nr San Jacinto, NV - no corrections

Bruneau R nr Hot Springs - no corrections

Reynolds Ck at Tollgate - no corrections

Owyhee R nr Gold Ck, NV

- + Wildhorse Res storage change

Owyhee R nr Rome, OR – no Corrections

Owyhee R bl Owyhee Dam, OR

- + Owyhee Res storage change

- + Diversions to North and South Canals

Bear River Basin

Bear R nr UT-WY Stateline, UT- no corrections

Bear R abv Res nr Woodruff, UT- no corrections

Big Ck nr Randolph, UT - no corrections

Smiths Fork nr Border, WY - no corrections

Bear R bl Stewart Dam nr Montpelier

- + Bear R bl Stewart Dam

- + Rainbow Inlet Canal

Little Bear R at Paradise, UT - no corrections

Logan R nr Logan, UT - no corrections

Blacksmith Fk nr Hyrum, UT - no corrections

Reservoir Capacity Definitions (Units in 1,000 Acre-Feet, KAF)

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists these volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current reservoir storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. **(Revised Dec 2011)**

| <u>Basin/ Reservoir</u> | <u>Dead Storage</u> | <u>Inactive Storage</u> | <u>Active Storage</u> | <u>Surcharge Storage</u> | <u>NRCS Capacity</u> | <u>NRCS Capacity Includes</u> |
|---|-------------------------|-----------------------------|---------------------------|------------------------------|--------------------------|---|
| <u>Panhandle Region</u> | | | | | | |
| Hungry Horse | 39.73 | --- | 3451.00 | --- | 3451.0 | Active |
| Flathead Lake | Unknown | --- | 1791.00 | --- | 1791.0 | Active |
| Noxon Rapids | Unknown | --- | 335.00 | --- | 335.0 | Active |
| Pend Oreille | 406.20 | 112.40 | 1042.70 | --- | 1561.3 | Dead + Inactive + Active |
| Coeur d'Alene | Unknown | 13.50 | 225.00 | --- | 238.5 | Inactive + Active |
| Priest Lake | 20.00 | 28.00 | 71.30 | --- | 119.3 | Dead + Inactive + Active |
| <u>Clearwater Basin</u> | | | | | | |
| Dworshak | Unknown | 1452.00 | 2016.00 | --- | 3468.0 | Inactive + Active |
| <u>Weiser/Boise/Payette Basins</u> | | | | | | |
| Mann Creek | 1.61 | 0.24 | 11.10 | --- | 11.1 | Active |
| Cascade | Unknown | 46.70 | 646.50 | --- | 693.2 | Inactive + Active |
| Deadwood | Unknown | --- | 161.90 | --- | 161.9 | Active |
| Anderson Ranch | 24.90 | 37.00 | 413.10 | --- | 450.1 | Inactive + Active |
| Arrowrock | Unknown | --- | 272.20 | --- | 272.2 | Active |
| Lucky Peak | Unknown | 28.80 | 264.40 | 13.80 | 293.2 | Inactive + Active |
| Lake Lowell | 7.90 | 5.80 | 159.40 | --- | 165.2 | Inactive + Active |
| <u>Wood/Lost Basins</u> | | | | | | |
| Magic | Unknown | --- | 191.50 | --- | 191.5 | Active |
| Little Wood | Unknown | --- | 30.00 | --- | 30.0 | Active |
| Mackay | 0.13 | --- | 44.37 | --- | 44.4 | Active |
| <u>Upper Snake Basin</u> | | | | | | |
| Henrys Lake | Unknown | --- | 90.40 | --- | 90.4 | Active |
| Island Park | 0.40 | --- | 127.30 | 7.90 | 135.2 | Active + Surcharge |
| Grassy Lake | Unknown | --- | 15.18 | --- | 15.2 | Active |
| Jackson Lake | Unknown | --- | 847.00 | --- | 847.0 | Active |
| Palisades | 44.10 | 155.50 | 1200.00 | --- | 1400.0 | Dead + Inactive+Active |
| Ririe | 4.00 | 6.00 | 80.54 | 10.00 | 80.5 | Active |
| Blackfoot | Unknown | --- | 348.73 | --- | 348.7 | Active |
| American Falls | Unknown | --- | 1672.60 | --- | 1672.6 | Active |
| <u>Southside Snake Basins</u> | | | | | | |
| Oakley | 0.00 | --- | 75.60 | --- | 75.6 | Active |
| Salmon Falls | 48.00 | 5.00 | 182.65 | --- | 182.6 | Active + Inactive |
| Wildhorse | Unknown | --- | 71.50 | --- | 71.5 | Active |
| Owyhee | 406.83 | --- | 715.00 | --- | 715.0 | Active |
| Brownlee | 0.45 | 444.70 | 975.30 | --- | 1420.0 | Inactive + Active |
| <u>Bear River Basin</u> | | | | | | |
| Bear Lake | 5000.00 | 119.00 | 1302.00 | --- | 1421.0 | Active + Inactive: includes 119 that can be released |
| Montpelier Creek | 0.21 | --- | 3.84 | --- | 4.0 | Dead + Active |

Interpreting Water Supply Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

90 Percent Chance of Exceedance Forecast. There is a 90 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 10 percent chance that the actual streamflow volume will be less than this forecast value.

70 Percent Chance of Exceedance Forecast. There is a 70 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 30 percent chance that the actual streamflow volume will be less than this forecast value.

50 Percent Chance of Exceedance Forecast. There is a 50 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 50 percent chance that the actual streamflow volume will be less than this forecast value. Generally, this forecast is the middle of the range of possible streamflow volumes that can be produced given current conditions.

30 Percent Chance of Exceedance Forecast. There is a 30 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 70 percent chance that the actual streamflow volume will be less than this forecast value.

10 Percent Chance of Exceedance Forecast. There is a 10 percent chance that the actual streamflow volume will exceed this forecast value, and there is a 90 percent chance that the actual streamflow volume will be less than this forecast value.

*Note: There is still a 20 percent chance that actual streamflow volumes will fall either below the 90 percent exceedance forecast or above the 10 percent exceedance forecast.

These forecasts represent the uncertainty inherent in making streamflow predictions. This uncertainty may include sources such as: unknown future weather conditions, uncertainties associated with the various prediction methodologies, and the spatial coverage of the data network in a given basin.

30-Year Average. The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1971-2000. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

AF - Acre-feet, forecasted volume of water are typically in thousands of acre-feet.

These forecasts are given to users to help make risk-based decisions. Users can select the forecast corresponding to the level of risk they are willing to accept in order to minimize the negative impacts of having more or less water than planned for.

To Decrease the Chance of Having Less Water than Planned for

A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive less than this amount). To reduce the risk of having less water than planned for, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded such as the 90 or 70 percent exceedance forecasts.

To Decrease the Chance of Having More Water than Planned for

A user might determine that making decisions based on a 50 percent chance of exceedance forecast is too much risk to take (there is still a 50% chance that the user will receive more than this amount). To reduce the risk of having more water than planned for, users can base their operational decisions on one of the forecasts with a lesser chance of being exceeded such as the 30 or 10 percent exceedance forecasts.

Using the forecasts - an Example

Using the 50 Percent Exceedance Forecast. Using the example forecasts shown below, there is a 50% chance that actual streamflow volume at the Boise River near Twin Springs will be less than 685 KAF between April 1 and July 31. There is also a 50% chance that actual streamflow volume will be greater than 685 KAF.

Using the 90 and 70 Percent Exceedance Forecasts. If an unexpected shortage of water could cause problems (such as irrigated agriculture), users might want to plan on receiving 610 KAF (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 610 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 443 KAF (from the **90** percent exceedance forecast). There is 10% chance of receiving less than 443 KAF.

Using the 30 or 10 Percent Exceedance Forecasts. If an unexpected excess of water could cause problems (such as operating a flood control reservoir), users might plan on receiving 760 KAF (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 760 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 927 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 927 KAF.

Users could also choose a volume in between any of these values to reflect their desired risk level.

| Weiser, Payette, Boise River Basins Streamflow Forecasts – January 2006 | | | | | | | | |
|--|-----------------|-----------------------|-----------------|------------------|----------|-----------------|-----------------|------------------------|
| Forecast Point | Forecast Period | Chance of Exceeding * | | | | | | 30-Yr Avg. (1000AF) |
| | | 90% (1000AF) | 70% (1000AF) | 50% (1000 AF) | (% AVG.) | 30% (1000AF) | 10% (1000AF) | |
| SF PAYETTE RIVER at Lowman | APR-JUL | 329 | 414 | 471 | 109 | 528 | 613 | 432 |
| | APR-SEP | 369 | 459 | 521 | 107 | 583 | 673 | 488 |
| BOISE RIVER near Twin Springs (1) | APR-JUL | 443 | 610 | 685 | 109 | 760 | 927 | 631 |
| | APR-SEP | 495 | 670 | 750 | 109 | 830 | 1005 | 690 |

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

OFFICIAL BUSINESS



Issued by

Jason Weller, Acting Chief
Natural Resources Conservation Service
Washington, DC

Released by

Jeff Burwell, State Conservationist
Brian Henneman, Acting State Conservation Engineer
Natural Resources Conservation Service
Boise, Idaho

Prepared by

Idaho Snow Survey Staff
Ron Abramovich, Water Supply Specialist
Philip Morrissey, Data Collection Officer
Jeff Anderson, Hydrologist
Jeff Graham, Electronics Technician
Alex Rebentisch, Electronics Technician

Forecasts and Assistance provided by

Rashawn Tama, Forecast Hydrologist
Jolyne Lea, Forecast Hydrologist
NRCS, National Water and Climate Center, Portland, Oregon

Numerous other groups and agencies provide funding and/or cooperative support for the collection, operation and maintenance of the Cooperative Idaho Snow Survey Program. Their cooperation is greatly appreciated.

