United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
March 1, 2012

SKIP DICKSTEIN/ALBANY TIMES UNION

Happy Leap Day!

The March 1st snowpack and monthly precipitation values got a boost thanks to this year's leap day. A number of SNOTEL sites across Central Idaho and the Upper Snake Basin in Wyoming picked up a 6-12 inches of snow on February 29th. This storm accounted for 20-25% of February's monthly precipitation at many locations. Trinity Mountain SNOTEL in the Boise Mountains, recorded almost a foot of snowfall on leap day 2012. Historically leap days haven't produced much snow at this site. Since Trinity was installed in 1981 the only other February 29th snowfall occurred in 2000 when 2 inches were recorded.

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.

IDAHO WATER SUPPLY OUTLOOK REPORT

MARCH 1, 2012

SUMMARY

What an unexpected winter 2012 has been. High hopes for a repeat La Nina bringing above average snow to all corners of Idaho have been largely unfulfilled. Instead, sporadic moisture has helped some parts of the state maintain average snowpacks, while other areas have far less snow than is normal. February precipitation amounts ranged from only a third of normal in the Little Wood and Big Lost basins to normal in the Clearwater and Spokane basins. Idaho's populated valleys have seen very little snow and a number of relatively warm days. Rain falling on frozen soils in late February resulted in areas of flooding from Idaho Falls to St Anthony. Currently, the lowest snowpacks are about 60% of normal in the Big Lost and Owyhee basin and increase to 90-100% of average in the Upper Snake, Clearwater, Spokane and Panhandle regions. Streamflow forecasts range from only 25% of average in the Owyhee basin to near normal in the northern third of Idaho and the Upper Snake in Wyoming. Even with below normal snow in parts of southern Idaho, the overall water supply outlook is bright due to good reservoir storage across the state.

SNOWPACK

Idaho's mountain snowpack is an important indicator for the summer season's water supply. This year, there is a high degree of snowpack variability across the state. The highest snowpacks are near normal in the Upper Snake, Clearwater, Spokane and Northern Panhandle drainages. Across most of central Idaho, stretching from the Weiser to the Henrys Fork and Bear Lake, the snowpacks are 75-85% of average. However, a band of low snow ranging from 55-70% of average stretches from the Owyhee basin and northeast through the Little Wood, Big Lost, Little Lost, and Mud Lake area. The Owyhee aerial marker flight indicated that 4 out of 11 aerial markers were snow free, which illustrates the limited snow across this high rangeland. The daily snowpack as monitored by the 8 SNOTEL sites in the Owyhee basin shows the snowpack is 64% of average, however, when we combine these 8 SNOTEL sites and 11 aerial markers, which cover more of the lower elevations, the snowpack is only 58% of average. The lack of snow is less of a concern this year because of excellent carryover storage in Owyhee, Little Wood and Mackay reservoirs, and above average baseflows in the Big and Little Lost basins.

PRECIPITATION

If it wasn't for a handful of end of month stormy periods in December, January and February our mountain snowpack would be much less. In fact, monthly precipitation for February would look worse if it wasn't for the leap day storm on February 29. This extra day accounted for 20-25% of monthly precipitation totals at a number of central Idaho SNOTEL sites. February precipitation amounts ranged from 90-105% of average in the Spokane, Clearwater, Upper Snake, Salmon Falls and Bruneau basins. For the second consecutive month, the least amount of monthly precipitation fell in the Little Wood and Big Lost basins with a little less than 40% of average. The Big Wood basin was not far ahead, receiving 56% of average. Water year-to-date amounts remain encouraging with most of the state in the 80-100% of normal range. The exception is the area around the Albion Mountains south of Burley, which received twice the normal February precipitation amount and stands at 114% of average for the water year. Water users in the Wood and Lost basins should start watching the snowpack numbers closely if the

dry spell extends another month. One or two months of below normal precipitation generally does not hurt the water supply too much, but when winter precipitation is lacking for three or more months then the impacts become more noticeable. This year's dry impacts may be lessened by good reservoir storage and baseflows.

RESERVOIRS

Idaho's reservoirs continue to be in excellent shape. This will help water users if snowpacks and summer streamflow runoff volumes end up below normal. Ample stream baseflows continue in the Little Lost and Oakley basins. These winter time streamflows are increasing the water storage in Mackay Reservoir, which has the most end of February storage since 1983. With plenty of reservoir storage, streamflow runoff can be less than 50% of average this summer and surface water supplies should still be adequate to meet irrigation demand in the Bear, Oakley, Salmon Falls and Owyhee basins. Reservoir releases are being made in the Boise and Upper Snake reservoir systems to maintain flood control space as required by reservoir rule curves. These releases are a reflection of the good reservoir carryover levels and not because large amounts of flood control space are required at this time.

Note: NRCS reports reservoir information in terms of usable volumes, which includes both active, inactive and in some cases, dead storage. Other operators may report reservoir contents in different terms. For additional information, see the reservoir definitions in this report.

STREAMFLOW

Streamflow forecasts are the lowest in southwest Idaho. Just over the border in Oregon, Owyhee streams are forecast at only 25% of average. Other rivers in southern Idaho have better outlooks such as 62% for the Bruneau River and 55% for Salmon Falls and the Bear River. The Big Wood, Camas, Little Wood and Big Lost basins are forecast at 45-70% of average. The highest forecasts are predicted at near average in the Spokane, Clearwater and a few Snake River headwater streams in Wyoming. Elsewhere, forecasts for most streams fall in the 70-90% of average category. By combining these current volume forecasts with reservoir storage levels, Idaho's farmers and numerous water users in the state should have adequate water supplies.

Note: Forecasts published in this report are NRCS forecasts. NRCS uses timely SNOTEL data to provide streamflow forecasts. Jointly coordinated published forecasts by the USDA NRCS and the NOAA NWS are available from the joint west-wide Water Supply Outlook for the Western US at http://www.wcc.nrcs.usda.gov/wsf/westwide.html. Water users may wish to use a lesser exceedance forecast to reduce the risk of coming up water short or greater volume to mitigate high flow potential.

RECREATION

Blue skies between the monthly storms provided ideal powder and recreational opportunities for Idaho's winter recreationists. Determining when the winter recreation season will end and the river running season will begin depends on springtime weather. The spring of 2011 was the never-ending winter that let snow accumulate in the high country through May. The NOAA 90-day forecast for March through May calls for equal chances of above, below or normal precipitation and temperatures for Idaho, meaning there is no strong indicator of how the spring conditions will be. However, when looking at similar climatic years such as 2009, 1972 and 1968, the March precipitation and temperatures were near normal. April precipitation was also normal, but temperatures were several degrees cooler than normal in the western US. See this link for more detailed information on these trends: http://www.oregon.gov/ODA/NRD/docs/pdf/dlongrange.pdf?ga=t. Other predictive tools are leaning towards a cool spring. For example, the Boise State University long-term streamflow forecast for the Boise River calls for normal 3rd quarter flows (April, May and June) but well above average 4th quarter flows (July, August and September). For more information see this link: http://earth.boisestate.edu/people/graduate-students/mel-kunkel/. However, when considering floating on Idaho's desert rivers such as the Owyhee and the Bruneau River, it would be best to have your boats ready to go as soon as the warm temperatures arrive to catch the wave on these rivers. Otherwise, unless these basins receive more snow or spring rains, the peak will be early and short-lived. The rest of Idaho's rivers are in good shape for an enjoyable and extended river running season. Enjoy the ride.

NRCS and NWS COLLABORATIVE FORECAST RELATIONSHIP

For years, NRCS and NWS Northwest River Forecast Center (NWRFC) used statistically-based water supply forecast models to predict seasonal runoff volumes. The models were run on the first of each month and grew into production of mid-month forecasts. Forecasters would share information in order to come up with a single forecast value. These final coordinated forecast values became the "official" forecasts published by both agencies. This method is still used this year to coordinate forecasts in the Bear River basin.

This year, the NWRFC is using their hydrologic simulation models to produce volume forecasts. Because NWRFC models are so different from NRCS statistical models, a new paradigm was needed to replace the coordination process. The new approach is a collaborative process where information is still shared. However, a single unified forecast value is not produced. NRCS will publish forecasts from the NWRFC for the following points; these will usually reflect the forecast value on the first working day of the month. The rest of the forecasts published in the Idaho Water Supply Report are provided by the NRCS. For additional questions, please contact Ron Abramovich.

Kootenai River at Leonia	Clark Fork at Whitehorse Rapids
Spokane River at Spokane	Spokane River at Long Lake
Pend Oreille Lake Inflow	Salmon River at White Bird
Clearwater River at Orofino	Clearwater River at Spalding
Dworshak Reservoir Inflow.	

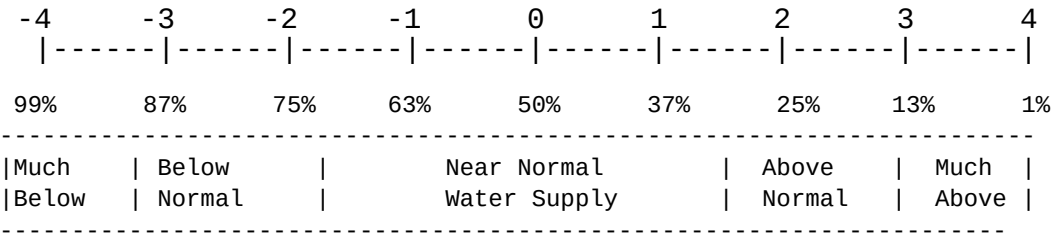
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) March 1, 2012

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 1971 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.

BASIN or REGION	*SWSI Value*	*Most Recent Year With Similar SWSI Value*	*Agricultural Water Supply Shortages Occur When SWSI is Less Than*
Northern Panhandle	**0.1**	**2008**	**NA**
Spokane	**0.1**	**2006**	**NA**
Clearwater	**1.7**	**2009**	**NA**
Salmon	**-0.4**	**2003**	**NA**
Weiser	**-1.7**	**2009**	**NA**
Payette	**-0.9**	**2002**	**NA**
Boise	**1.2**	**2000**	**-1.3 to -1.6**
Big Wood	**0.1**	**2010**	**0.6 to 0.0**
Little Wood	**0.1**	**2009**	**-1.6 to -2.6**
Big Lost	**-0.4**	**2010**	**0.5 to -0.2**
Little Lost	**0.0**	**2010**	**1.5 to 0.7**
Teton	**0.3**	**2010**	**-3.7 to -3.9**
Henrys Fork	**0.0**	**2010**	**-3.4 to -3.6**
Snake (Heise)	**1.4**	**2009**	**-1.3 to -1.6**
Oakley	**1.7**	**2011**	**0.3 to -0.5**
Salmon Falls	**1.4**	**1996**	**-0.8 to -1.3**
Bruneau	**-0.7**	**2008**	**NA**
Owyhee	**-0.7**	**2007**	**-3.0 to -3.5**
Bear River	**2.0**	**2011**	**-3.0 to -3.4**

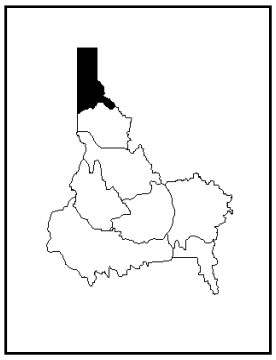
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

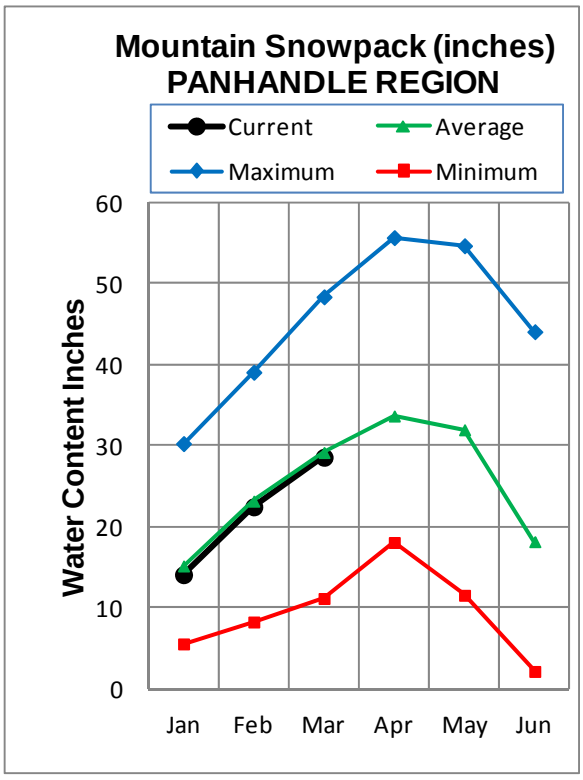


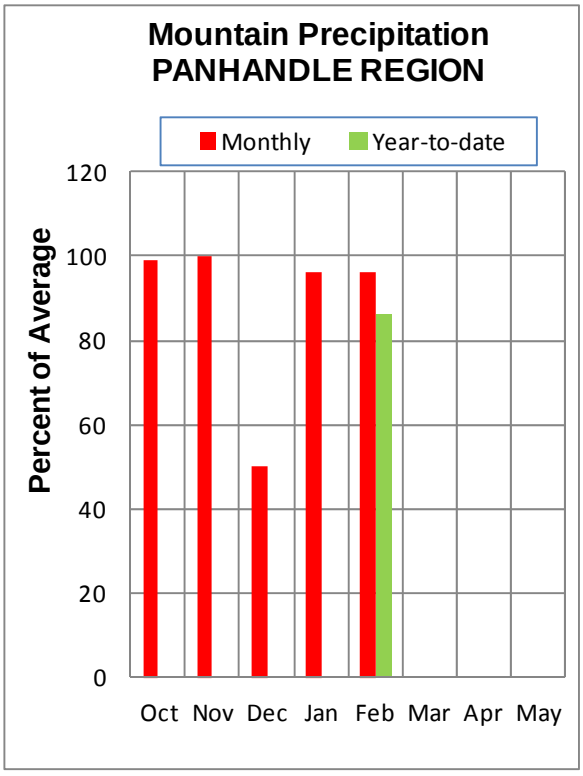
NA = Not Applicable, Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 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

MARCH 1, 2012







WATER SUPPLY OUTLOOK

The Panhandle region March 1 snowpack is near average and nearly the same as last year at this time. The northern basins in Idaho's Panhandle have maintained these near normal snowpacks most of the season, whereas the rest of Idaho and including parts of the Spokane basin, have lagged behind. The peak snow water content for the snowpack generally occurs in mid-April in this region, and if the snow stopped falling today, the snowpack would end the season at 85% of average. Hopefully, winter will stick around for another month and continue to keep the snowpack at average levels. February precipitation varied with isolated storms and ranged from 66-145% of average at individual SNOTEL sites. Reservoir storage in Pend Oreille, Coeur d'Alene and Priest Lake ranges from about 60-100% of average. The Panhandle Region also hosts some of the highest streamflow forecasts in the state with the Spokane River forecast at 108% of average. The lowest forecast in the region is for Priest River at 80% of average, which will still provide ample summer water supplies.

PANHANDLE REGION
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Kootenai R at Leonia (1,2)	APR-JUL	5750	6490	6830	97	7170	7910	7040
	APR-SEP	6760	7490	7820	96	8160	8890	8120
Moyie R at Eastport	APR-JUL	280	330	365	90	400	450	405
	APR-SEP	295	345	380	91	415	465	420
Smith Ck nr Porthill	APR-JUL	85	104	117	95	130	149	123
	APR-SEP	87	109	123	95	137	159	129
Boundary Ck nr Porthill	APR-JUL	94	106	115	94	124	136	123
	APR-SEP	98	111	120	93	129	142	129
Clark Fork at Whitehorse Rpds (1,2)	APR-JUL	8580	10200	11000	97	11800	13400	11300
	APR-SEP	9620	11400	12300	98	13100	14900	12500
Pend Oreille Lake Inflow (2)	APR-JUL	10000	11300	12100	95	12900	14200	12700
	APR-SEP	11100	12400	13300	96	14200	15500	13900
Priest R nr Priest River (1,2)	APR-JUL	505	590	650	80	710	795	815
	APR-SEP	540	630	695	80	760	850	870
NF Coeur d'Alene R at Enaville	APR-JUL	510	650	745	101	840	980	740
	APR-SEP	550	690	785	101	880	1020	780
St. Joe R at Calder	APR-JUL	835	970	1060	93	1150	1290	1140
	APR-SEP	900	1040	1130	94	1220	1360	1200
Spokane R nr Post Falls (2)	APR-JUL	1920	2340	2620	103	2900	3320	2550
	APR-SEP	2010	2430	2720	103	3010	3430	2650
Spokane R at Long Lake (2)	APR-JUL	2320	2770	3080	108	3390	3840	2850
	APR-SEP	2540	3010	3320	108	3630	4100	3070

PANHANDLE REGION
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Pend Oreille	1561.3	562.1	835.9	778.8
Coeur d'Alene	238.5	82.5	87.1	144.9
Priest Lake	119.3	56.0	48.9	56.8

PANHANDLE REGION
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	12	88	100
Moyie River	1	97	110
Priest River	3	101	104
Pend Oreille River	84	85	97
Rathdrum Creek	3	108	82
Coeur d'Alene River	9	96	96
St. Joe River	5	94	93
Spokane River	16	95	92
Palouse River	2	97	99

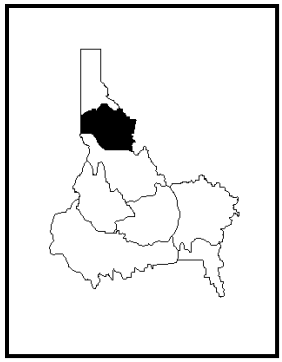
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

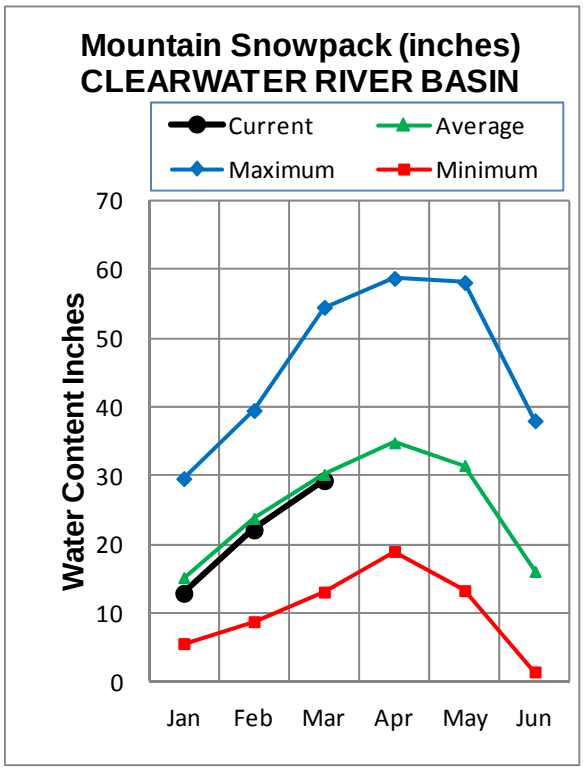
The average is computed for the 1971-2000 base period.

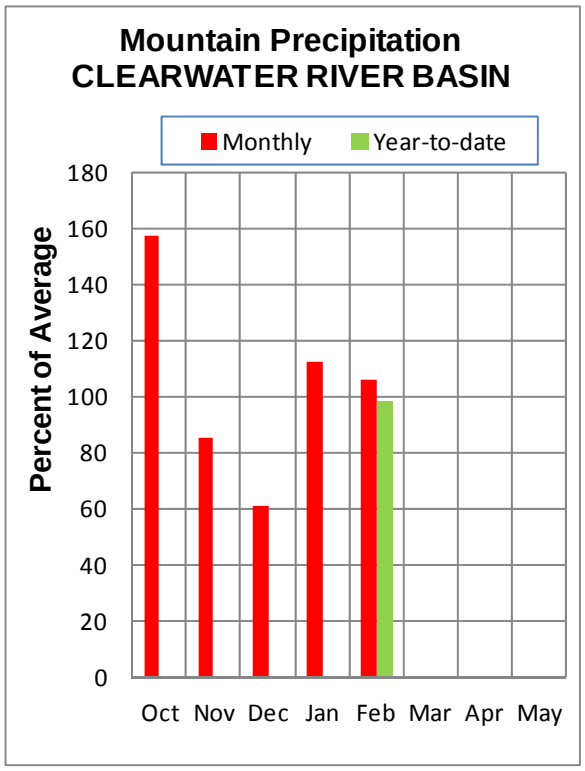
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

CLEARWATER RIVER BASIN

MARCH 1, 2012







WATER SUPPLY OUTLOOK

Winter has brought a similar trend all season, which has been a dry one with a few exceptionally potent storms. These few but powerful storms produced just enough snow to sustain the snowpack at near average levels for March 1. Besides the Idaho Panhandle region, the Clearwater basin is the only region with an average snowpack in the state and is just slightly behind where it was last year at this time. The last few March and April's stayed cool allowing more snow accumulation though early spring. Hopefully this March will follow suit and preserve the snowpack at average levels. Streamflow forecasts range from 95-105% of average volumes for the April through July period. With decent streamflow predicted, the Lochsa and Selway should not only have a long floating season, but a potentially exciting peak depending on spring temperatures and precipitation. Given that the Clearwater has a near normal snowpack and that near normal streamflow is predicted, water supplies and river recreation opportunities should be plentiful during the summer.

CLEARWATER RIVER BASIN
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	APR-JUL	1800	2010	2150	104	2290	2500	2060
	APR-SEP	1890	2110	2260	104	2410	2630	2170
Lochsa R nr Lowell	APR-JUL	1270	1440	1560	102	1680	1850	1530
	APR-SEP	1330	1510	1630	101	1750	1930	1610
Clearwater R at Orofino (1)	APR-JUL	3340	4410	4900	105	5390	6460	4650
	APR-SEP	3610	4680	5170	106	5650	6720	4900
Dworshak Res Inflow	APR-JUL	1650	2220	2470	94	2730	3290	2640
	APR-SEP	1750	2350	2620	94	2890	3490	2800
Clearwater R at Spalding (1,2)	APR-JUL	5100	6750	7500	101	8250	9900	7430
	APR-SEP	5570	7220	7970	102	8720	10400	7850

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Dworshak	3468.0	2362.2	2043.4	2281.7

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	88	94
Lochsa River	2	95	101
Selway River	5	101	103
Clearwater Basin Total	17	91	97

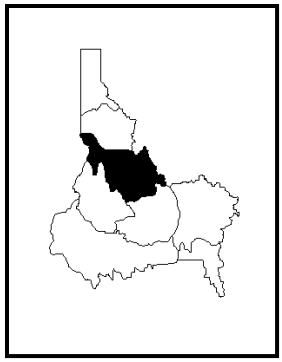
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

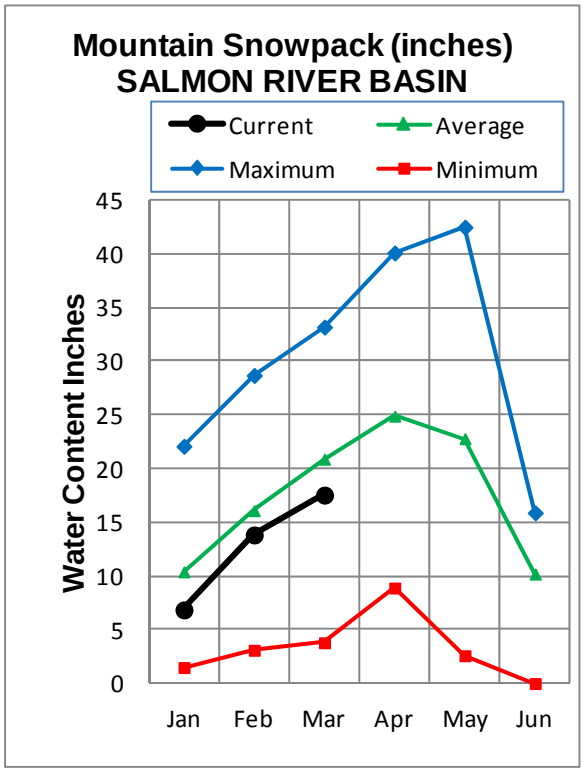
The average is computed for the 1971-2000 base period.

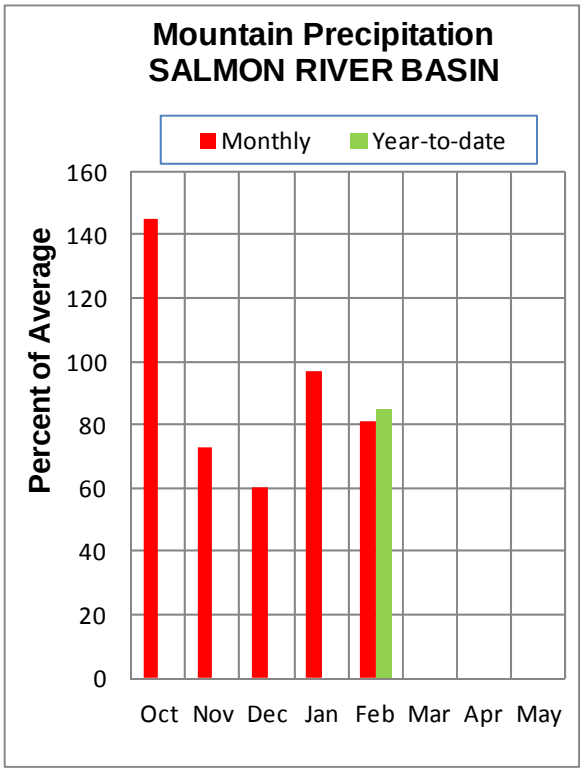
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SALMON RIVER BASIN

MARCH 1, 2012







WATER SUPPLY OUTLOOK

Location, location, location: The best snow in the basin can be found along the Salmon and Clearwater divide and near Lost Trail Pass area. The mountains above Salmon have the best snow at 90% of average, while the South Fork Salmon drainage is only 77%. After another dry spell during the first part of February, warm temperatures and rain boosted streamflows and cracked the river ice. Immediately following, was a delivery of knee deep powder at ski areas and natural avalanches in the backcountry. The new snow didn't boost the water supplies overall from last month, though. Any new snow that fell during February was just enough to sustain the snowpack at 86% of average on March 1, which was nearly the same percentage as last month. Given the steadiness of the snowpack, the streamflow forecasts haven't changed much from last month either. Most streams are forecast at 65-80% of average for the April-July period. Below average streamflow does not always mean low streamflow peaks. Exciting rivers can result from a rapid warm up or rain during snowmelt; especially since base-streamflow levels have been average or better all winter. 2010 was a lower snow year than the current, but the Middle Fork Salmon River jumped to dangerous levels during a heavy rain on melting snow event. If this March is anything like the last few, March and April weather may not only preserve the snowpack but improve it.

SALMON RIVER BASIN
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Salmon R at Salmon (1)	APR-JUL	405	595	680	80	765	955	855
	APR-SEP	475	695	795	80	895	1120	1000
Lemhi R nr Lemhi	APR-JUL	24	38	50	58	63	86	86
	APR-SEP	31	48	61	58	76	101	105
MF Salmon R at MF Lodge	APR-JUL	400	545	645	82	745	890	785
	APR-SEP	455	615	725	83	835	995	875
SF Salmon R nr Krassel RS	APR-JUL	112	157	188	65	220	265	290
	APR-SEP	127	170	200	65	230	275	310
Johnson Ck at Yellow Pine	APR-JUL	90	119	139	68	159	188	205
	APR-SEP	96	126	146	68	166	196	215
Salmon R at White Bird (1)	APR-JUL	3040	4220	4760	81	5300	6480	5850
	APR-SEP	3360	4680	5280	82	5880	7200	6480

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

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

SALMON RIVER BASIN
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	10	103	90
Lemhi River	10	82	84
Middle Fork Salmon River	3	93	79
South Fork Salmon River	3	85	77
Little Salmon River	4	95	83
Salmon Basin Total	28	92	86

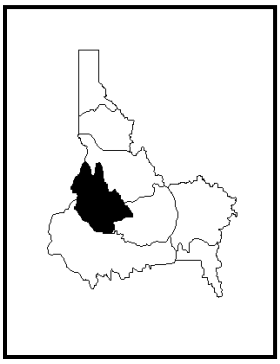
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

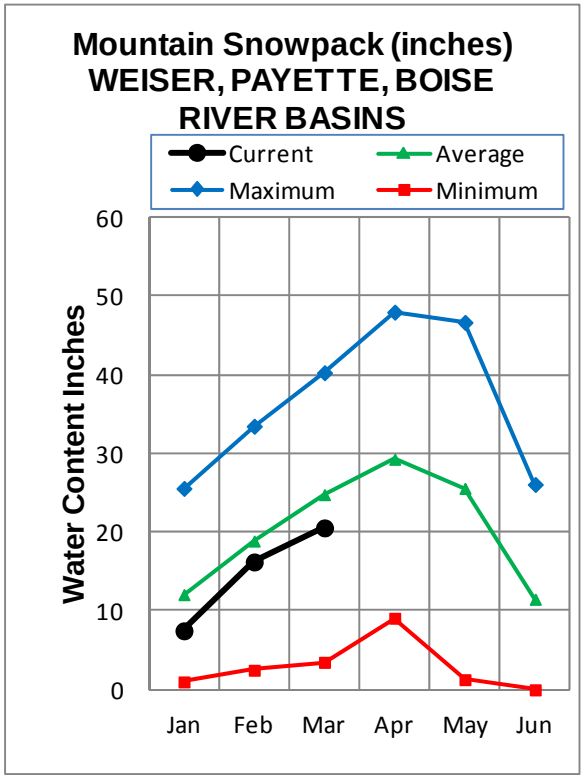
The average is computed for the 1971-2000 base period.

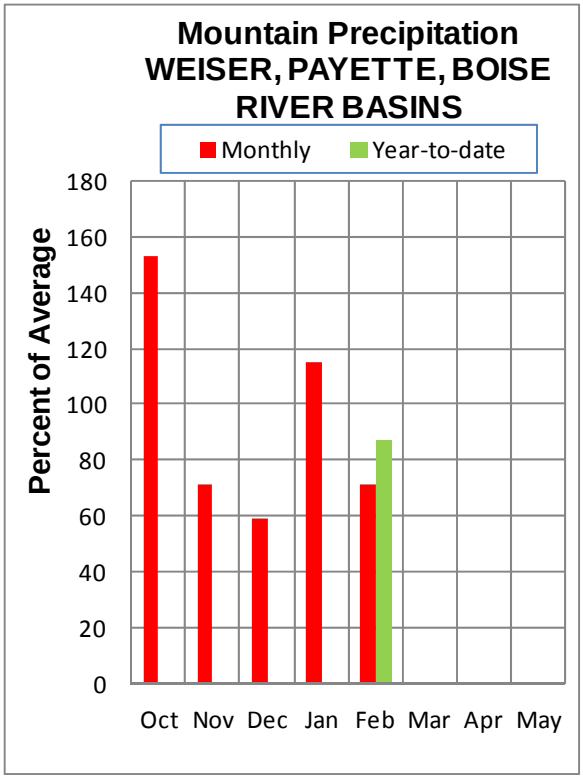
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS

MARCH 1, 2012







WATER SUPPLY OUTLOOK

Procrastination is this winter's pattern in the Weiser, Payette and Boise basins. Each month since November has started off dry and ended with a burst of precipitation. February followed the trend and like many last minute tasks, the result was mediocre. Monthly precipitation in February was 65-80% of normal across the region despite an extra day of snowfall on February 29. The Boise basin recorded the best monthly precipitation, 80%, while the Payette and Weiser basins saw the least, about 65%. Water year-to-date precipitation since October 1st is near normal in the Boise basin and 80-84% in the Payette and Weiser basins. Similarly, the snowpack in the Boise basin, at 86% of normal, is better than the Payette and Weiser basins, which are about 80% of normal. The Boise reservoir system is 126% of average, 74% of capacity. Managers have increased outflow to the Boise River to adjust the reservoir contents back to their management guidelines. These releases are a good sign for water users because they indicate that more than enough snow water exists to fill the reservoirs this spring. Cascade and Deadwood reservoirs are also storing above average amounts. Streamflow forecasts range from 75-90% of normal. With such good reservoir storage and decent streamflow predictions, water users can expect an adequate supply this summer even if March brings more second-rate precipitation amounts.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser (1)	MAR-JUL	187	330	410	74	495	720	555
	APR-JUL	120	225	285	73	350	520	390
	APR-SEP	137	250	310	74	380	555	420
SF Payette R at Lowman	APR-JUL	290	335	370	84	405	465	440
	APR-SEP	330	380	420	85	460	525	495
Deadwood Resv Inflow (1,2)	APR-JUL	67	94	106	79	118	145	134
	APR-SEP	71	100	113	80	126	155	142
Lake Fork Payette R nr McCall	APR-JUL	49	58	65	77	72	83	85
	APR-SEP	50	60	67	75	74	86	89
NF Payette R at Cascade (1,2)	APR-JUL	205	330	385	74	440	565	520
	APR-SEP	225	345	400	74	455	575	540
NF Payette R nr Banks (2)	APR-JUL	330	420	485	72	550	640	675
	APR-SEP	340	435	505	72	575	670	700
Payette R nr Horseshoe Bend (1,2)	APR-JUL	855	1130	1260	77	1390	1670	1640
	APR-SEP	870	1210	1360	77	1510	1850	1760
Boise R nr Twin Springs (1)	APR-JUL	405	525	580	91	635	755	635
	APR-SEP	440	570	630	91	690	820	690
SF Boise R at Anderson Ranch Dam (1,	APR-JUL	265	385	435	81	485	605	540
	APR-SEP	290	410	465	80	520	640	580
Mores Ck nr Arrowrock Dam	APR-JUL	61	85	104	79	125	158	131
	APR-SEP	64	89	108	79	129	164	137
Boise R nr Boise (1,2)	APR-JUN	795	985	1070	85	1160	1350	1260
	APR-JUL	785	1070	1200	85	1330	1610	1410
	APR-SEP	885	1170	1300	85	1430	1710	1530

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Mann Creek	11.1	3.6	6.2	6.1
Cascade	693.2	497.2	465.3	438.3
Deadwood	161.9	98.0	102.1	88.5
Anderson Ranch	450.2	378.1	331.4	268.0
Arrowrock	272.2	256.5	222.7	210.4
Lucky Peak	293.2	120.9	137.1	120.4
Lake Lowell (Deer Flat)	165.2	118.6	120.1	109.1

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	81	75
Weiser River	4	83	78
North Fork Payette	8	81	76
South Fork Payette	5	95	79
Payette Basin Total	15	86	77
Middle & North Fork Boise	5	103	86
South Fork Boise River	7	106	88
Mores Creek	6	97	83
Boise Basin Total	15	104	86
Canyon Creek	2	98	79

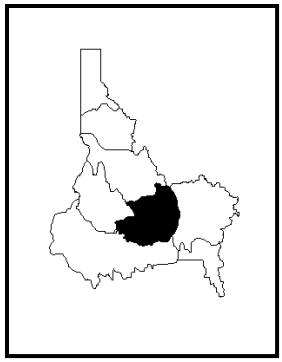
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

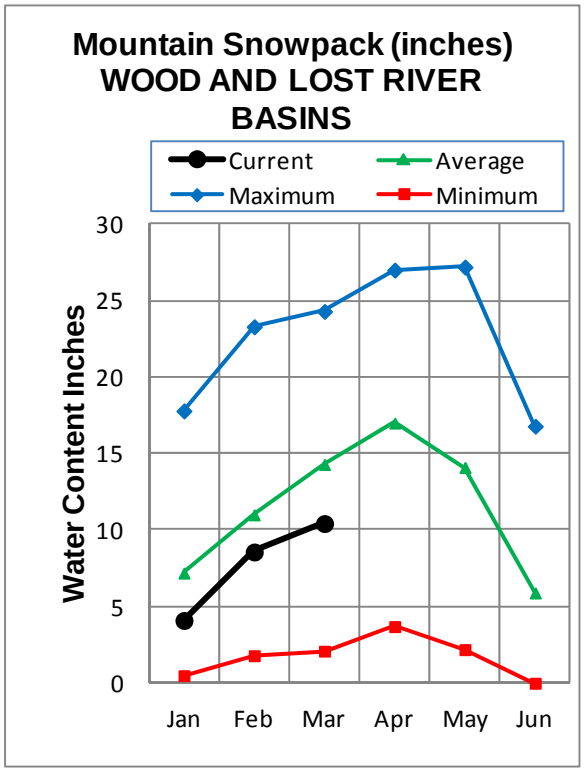
The average is computed for the 1971-2000 base period.

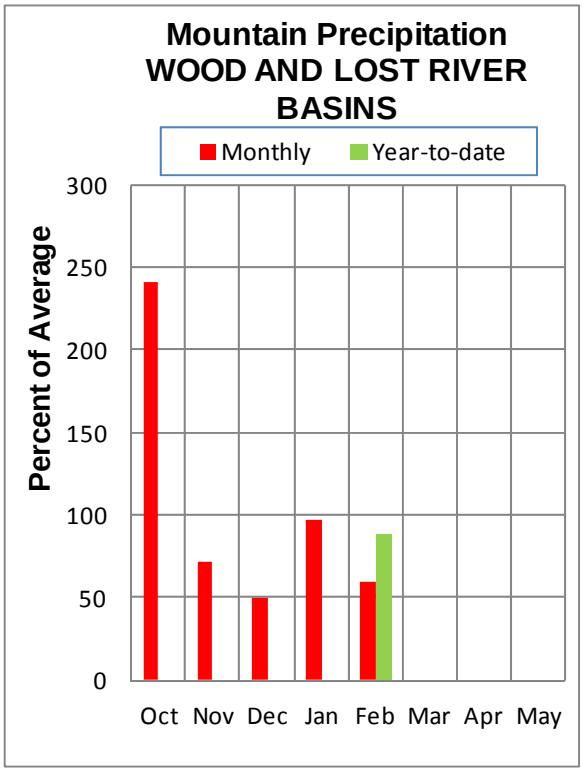
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

WOOD and LOST RIVER BASINS

MARCH 1, 2012







WATER SUPPLY OUTLOOK

The Wood and Lost basins were the driest in Idaho in February. Monthly precipitation was 35-40% of normal in the Little Wood and Big Lost basins and 56% of normal in the Big Wood basin. The Little Lost and Birch basins had 83% of normal February precipitation, an amount more representative of the rest of the state. Water year-to-date precipitation since October 1 is down from last month, but still respectable, ranging from 87-94% of normal. Since a large amount of the year's precipitation fell as rain in October, the snowpack percentages do not relate to the water year precipitation as well this year. The snowpack in the Little Wood and Big Lost, at 59% and 55% of normal respectively, are the lowest in the state. Conditions are better in the Little Lost 72% of normal snow. The best snow lies in the Big Wood and Birch basins at 77% of average. Reservoirs in these basins are storing about 130-150% their normal amount for this date. Streamflow forecasts range from 45% of average for Camas Creek near Blaine to 85% for the Little Lost River. Fortunately, Little Wood and Mackay reservoirs are all about 90% full so it won't take much runoff to top them off this spring. Baseflows have remained near average all winter in ice-free streams; this indicates that groundwater levels remain high. Combining current reservoir storage with streamflow forecasts indicate the water supplies in these basins could be tight. Hopefully a cool, wet spring will allow the snowpack to climb closer to average in March and April. Additionally, above average baseflows will hopefully help water supplies.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Big Wood R at Hailey (1)	APR-JUL	56	142	181	71	220	305	255
	APR-SEP	64	161	205	71	250	345	290
Big Wood R ab Magic Res	APR-JUL	43	68	89	47	114	160	190
	APR-SEP	39	69	97	47	132	196	205
Camas Ck nr Blaine	APR-JUL	15.0	31	45	45	62	91	100
	APR-SEP	16.0	32	46	46	63	92	101
Big Wood R bl Magic Dam (2)	APR-JUL	11.0	84	134	46	184	255	290
	APR-SEP	15.0	91	143	47	195	270	305
Little Wood R ab High Five Ck	MAR-JUL	22	37	50	59	65	90	85
	MAR-SEP	23	40	54	59	70	97	92
Little Wood R near Carey (2)	MAR-JUL	26	46	59	62	72	92	96
	MAR-SEP	29	50	64	62	78	99	104
Big Lost R at Howell Ranch	APR-JUL	65	95	118	68	144	187	173
	APR-SEP	74	108	135	69	165	215	197
Big Lost R bl Mackay Res	APR-JUL	23	59	83	59	107	143	141
	APR-SEP	30	73	103	60	133	176	172
Little Lost R nr Howe	APR-JUL	15.8	22	26	84	31	39	31
	APR-SEP	20	27	33	85	39	49	39
Camas Ck at Camas	APR-JUL	0.8	3.0	11.0	37	19.0	31	30

WOOD AND LOST RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Magic	191.5	127.7	90.5	89.7
Little Wood	30.0	26.1	22.1	17.7
Mackay	44.4	39.8	37.5	30.8

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	8	98	77
Camas Creek	3	96	78
Big Wood Basin Total	11	97	77
Fish Creek	3	53	54
Little Wood River	7	66	59
Big Lost River	6	63	55
Little Lost River	4	74	72
Birch-Medicine Lodge Cree	2	74	77
Camas-Beaver Creeks	4	70	63

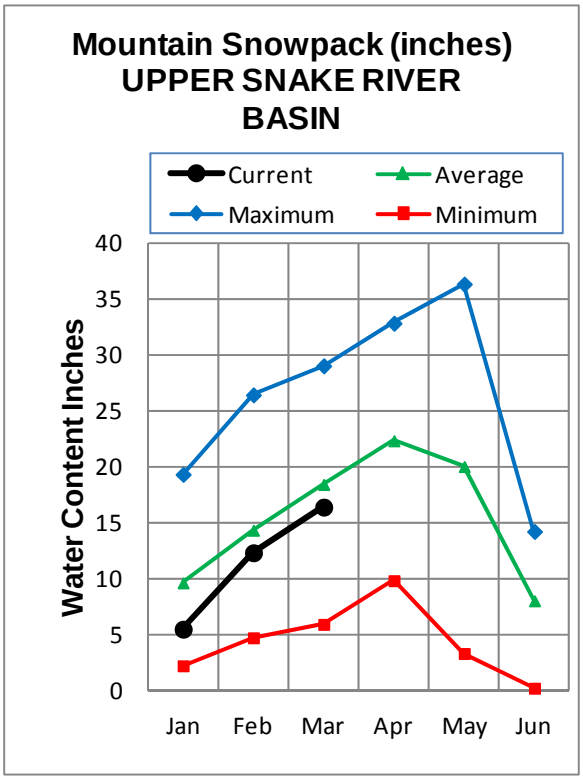
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

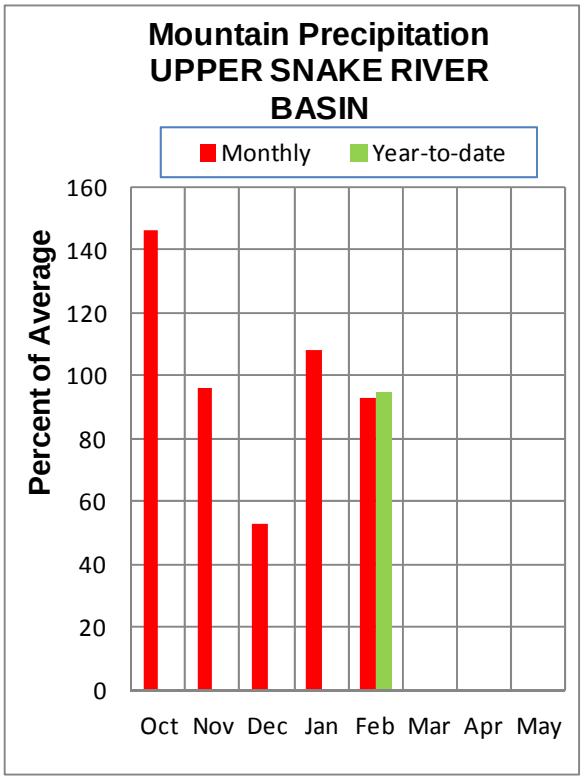
The average is computed for the 1971-2000 base period.

(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 SNAKE BASIN

MARCH 1, 2012





WATER SUPPLY OUTLOOK

The Upper Snake's water supply outlook is better than the outlook for the rest of southern Idaho. The Upper Snake basin above Palisades Reservoir benefitted from normal precipitation in February. Monthly amounts were 80-85% of normal in the Willow, Blackfoot, Portneuf, Henrys Fork and Teton basins. Water year-to-date precipitation since October 1 for the entire Upper Snake basin is 96% of average. Snowpacks are about 85-95% of normal on both the east and west sides of the Idaho-Wyoming state line. Snow amounts are a 75-85% in the Willow, Blackfoot and Portneuf drainages. Reservoir storage is slightly above average in Henrys Lake, Island Park, Grassy Lake and American Falls. Palisades Reservoir contains 118% of average while Jackson Lake, Ririe and Blackfoot are holding about 130%. The eight major reservoirs in the basin are storing 81% of the system's capacity when lumped together. Streamflow forecasts range from 85-105% of normal for most streams. The Snake River at Heise is forecast at 92% of normal for the April–July period. Combining reservoir storage with the forecasted streamflow volumes indicates that surface irrigation supplies will be adequate as long as the Snake River at Heise April-September streamflow is above 60% of average. This should be an easy goal to beat since the March 1 snowpack has already reached 74% of its average April peak value; so even if no more snow falls there should be enough snowmelt to produce adequate runoff.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Henrys Fork nr Ashton (2)	APR-JUL	350	415	465	82	515	595	570
	APR-SEP	500	580	635	83	695	790	765
Falls R nr Ashton (2)	APR-JUL	270	310	340	90	370	415	380
	APR-SEP	325	370	405	90	440	495	450
Teton R nr Driggs	APR-JUL	106	130	147	89	166	195	165
	APR-SEP	132	163	185	88	210	245	210
Teton R nr St. Anthony	APR-JUL	265	320	360	89	405	470	405
	APR-SEP	320	380	430	90	480	560	480
Henrys Fork nr Rexburg (2)	APR-JUL	1070	1230	1340	86	1450	1610	1560
	APR-SEP	1420	1600	1720	86	1840	2020	2010
Snake R at Flagg Ranch	APR-JUL	425	480	515	104	550	605	495
	APR-SEP	465	525	565	104	605	665	545
Snake R nr Moran (1,2)	APR-JUL	640	765	820	101	875	1000	815
	APR-SEP	695	840	905	100	970	1110	905
Pacific Ck At Moran	APR-JUL	149	176	194	114	210	240	171
	APR-SEP	153	181	200	112	220	245	178
Buffalo Fork ab Lava nr Moran	APR-JUL	260	290	315	105	340	370	301
	APR-SEP	295	335	360	105	385	425	344
Gros Ventre R at Kelly	APR-JUL	157	191	215	108	240	275	200
	APR-SEP	192	230	260	107	290	330	244
Snake R nr Alpine (1,2)	APR-JUL	1730	2070	2230	94	2390	2730	2370
	APR-SEP	1970	2380	2560	94	2740	3150	2730
Greys R Nr Alpine	APR-JUL	240	280	305	90	330	370	340
	APR-SEP	280	325	355	90	385	430	395
Salt R Nr Etna	APR-JUL	179	250	295	87	340	410	340
	APR-SEP	225	310	365	87	420	505	420
Snake R nr Irwin (1,2)	APR-JUL	2430	2870	3070	92	3270	3710	3330
	APR-SEP	2860	3350	3570	92	3790	4280	3870
Snake R nr Heise (2)	APR-JUL	2730	3060	3280	92	3500	3830	3560
	APR-SEP	3210	3580	3830	92	4080	4450	4160
Willow Ck nr Ririe (2)	MAR-JUL	48	69	83	94	97	118	88
Blackfoot R ab Res nr Henry	APR-JUN	30	45	57	78	70	93	73
Snake R nr Blackfoot (1,2)	APR-JUL	3490	4100	4370	95	4650	5250	4600
	APR-SEP	4260	5000	5340	95	5680	6420	5620
Portneuf R at Topaz	MAR-JUL	44	54	61	69	69	81	89
	MAR-SEP	55	66	75	69	84	98	109
Snake R at Neeley (1,2)	APR-JUL	1690	2510	2880	89	3250	4070	3240
	APR-SEP	1830	2720	3120	89	3520	4410	3510

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Henrys Lake	90.4	87.8	88.7	84.4
Island Park	135.2	110.4	97.0	107.1
Grassy Lake	15.2	12.3	13.2	12.0
Jackson Lake	847.0	640.0	656.6	494.0
Palisades	1400.0	1223.5	875.7	1033.1
Ririe	80.5	48.5	44.7	38.5
Blackfoot	348.7	289.8	214.0	224.7
American Falls	1672.6	1320.0	1203.7	1271.1

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Henrys Fork-Falls River	9	84	84
Teton River	8	88	86
Henrys Fork above Rexburg	17	86	85
Snake above Jackson Lake	9	99	101
Pacific Creek	3	111	117
Gros Ventre River	4	77	88
Hoback River	5	82	87
Greys River	4	80	90
Salt River	5	82	89
Snake above Palisades	28	89	95
Willow Creek	7	77	81
Blackfoot River	5	87	84
Portneuf River	7	72	75
Snake abv American Falls	47	85	90

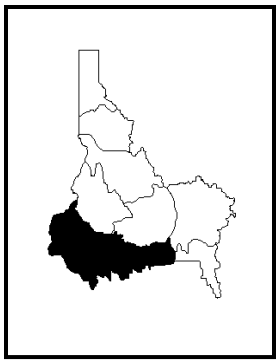
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

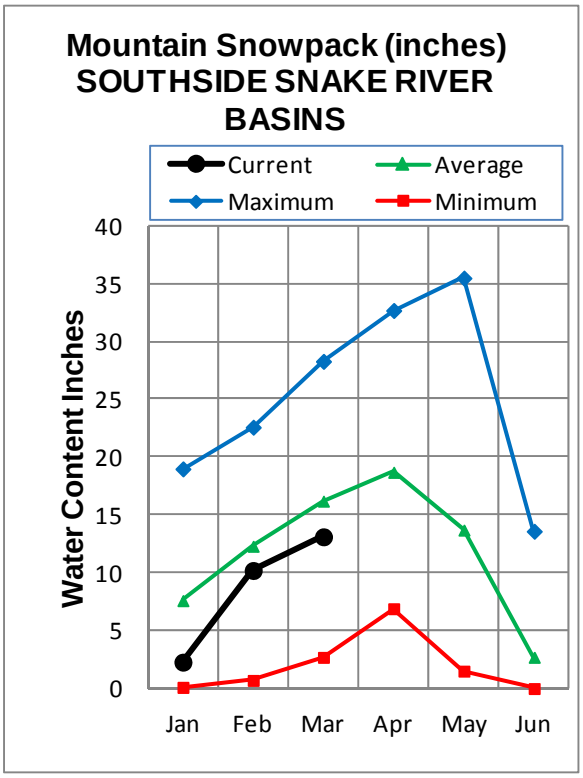
The average is computed for the 1971-2000 base period.

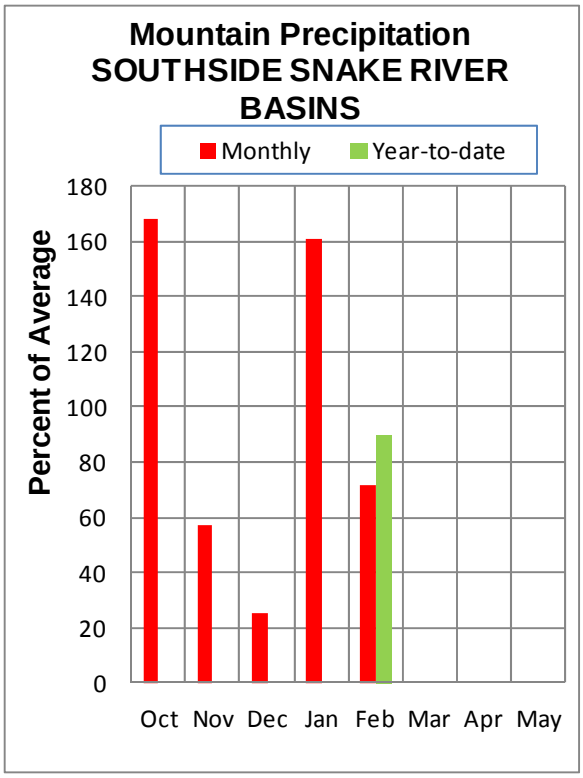
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS

MARCH 1, 2012







WATER SUPPLY OUTLOOK

A spectrum of conditions is present in the basins south of the Snake River. Conditions are better to the east and not as good to the west. Goose, Salmon Falls and Bruneau basins all received 80-90% of normal precipitation in February. The Owyhee basin was the outlier and received only 60% of its normal amount. Water year-to-date precipitation since October 1st is above average in the Goose basin and decreases to 81% of normal in the Owyhee basin. Snowpacks are 86% of average in the Goose Creek drainage, 75% in Salmon Falls basin, 69% in the Bruneau basin and lowest in the Owyhee basin at 58% of normal. The aerial marker survey in the Owyhee basin revealed large snow free areas. Streamflow forecasts range from 25% of average in the Owyhee basin to 80% of average for Oakley Reservoir inflow. One consistency from east to west is above normal reservoir storage. Wildhorse, Owyhee and Brownlee reservoirs are the closest to full and are storing 70%, 77% and 80% of their respective capacities; 104-124% of average. Oakley and Salmon Falls reservoirs are about half full and 117% and 149% of average for March 1, respectively. The current snowpack in these basins should be adequate to meet the water user's needs even if conditions are dry during the rest of the winter. Owyhee Reservoir needs 45% of average runoff to fill the reservoir. Since runoff in the Owyhee basin often depends more on spring rain than snowmelt, the low snowpack is not as much of a concern as getting enough rain in the coming months.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Goose Ck ab Trapper Ck nr Oakley	MAR-JUL	10.4	16.7	21	81	25	32	26
	MAR-SEP	11.5	18.4	23	77	28	34	30
Trapper Ck nr Oakley	MAR-JUL	4.0	5.0	5.7	79	6.4	7.4	7.2
	MAR-SEP	5.1	6.2	6.9	79	7.6	8.7	8.7
Oakley Res Inflow	MAR-JUL	13.9	21	27	79	34	44	34
	MAR-SEP	15.8	24	30	81	37	49	37
Salmon Falls Ck nr San Jacinto	MAR-JUN	27	39	48	54	58	76	89
	MAR-JUL	28	41	51	55	62	81	93
	MAR-SEP	30	43	54	55	66	85	98
Bruneau R nr Hot Springs	MAR-JUL	78	115	145	62	178	230	235
	MAR-SEP	82	121	152	61	186	245	250
Reynolds Ck at Tollgate	MAR-JUL	3.0	4.2	5.2	54	6.3	8.1	9.7
Owyhee R nr Gold Ck (2)	MAR-JUL	5.6	9.1	12.2	38	16.0	23	32
	MAR-SEP	4.9	7.8	10.3	33	13.3	18.7	31
Owyhee R nr Rome	MAR-JUL	20	56	145	25	235	365	580
	MAR-SEP	24	63	153	26	245	375	600
	APR-SEP	16.0	41	126	32	210	335	400
Owyhee R bl Owyhee Dam (2)	MAR-JUL	57	114	163	27	220	325	615
	MAR-SEP	67	125	174	27	230	330	645
	APR-SEP	49	102	150	35	205	305	430
Snake R at King Hill (1,2)	APR-JUL	1450	2170	2500	82	2830	3550	3045
Snake R nr Murphy (1,2)	APR-JUL	1540	2310	2660	86	3010	3780	3090
Snake R at Weiser (1,2)	APR-JUL	2280	3930	4680	81	5430	7080	5770
Snake R at Hells Canyon Dam (1,2)	APR-JUL	2240	3920	4680	72	5440	7120	6490
Snake R bl Lower Granite Dam (1,2)	APR-JUL	11300	16300	18500	86	20800	25800	21550

SOUTHSIDE SNAKE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Oakley	75.6	36.7	21.6	31.4
Salmon Falls	182.6	89.0	49.2	59.8
WILDHORSE RESERVOIR	71.5	49.9	33.3	40.1
OWYHEE	715.0	549.7	403.8	489.1
Brownlee	1420.0	1134.7	1007.4	1090.5

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	6	69	79
Goose-Trapper Creeks	6	91	86
Salmon Falls Creek	8	75	75
Bruneau River	8	68	69
Reynolds Creek	6	91	79
Owyhee Basin Total	19	58	58
Owyhee Basin SNOTEL	8	69	64

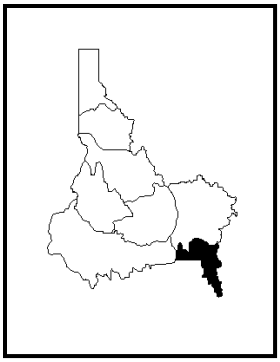
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

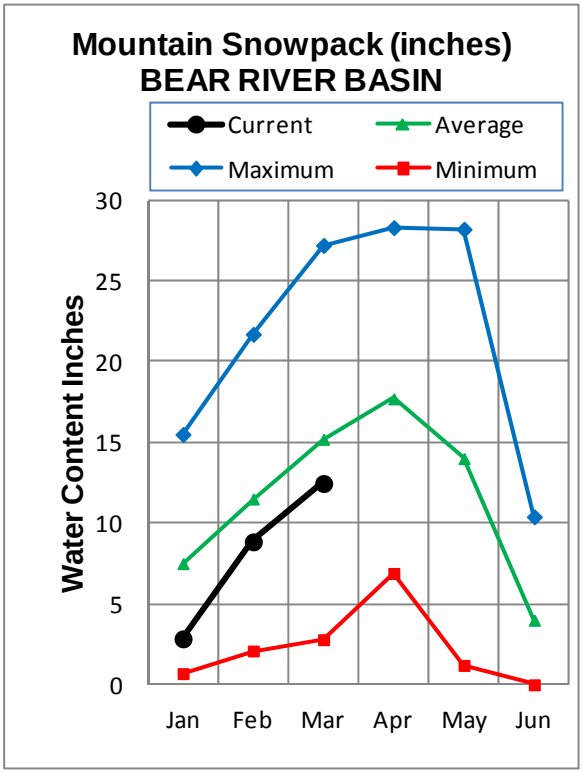
The average is computed for the 1971-2000 base period.

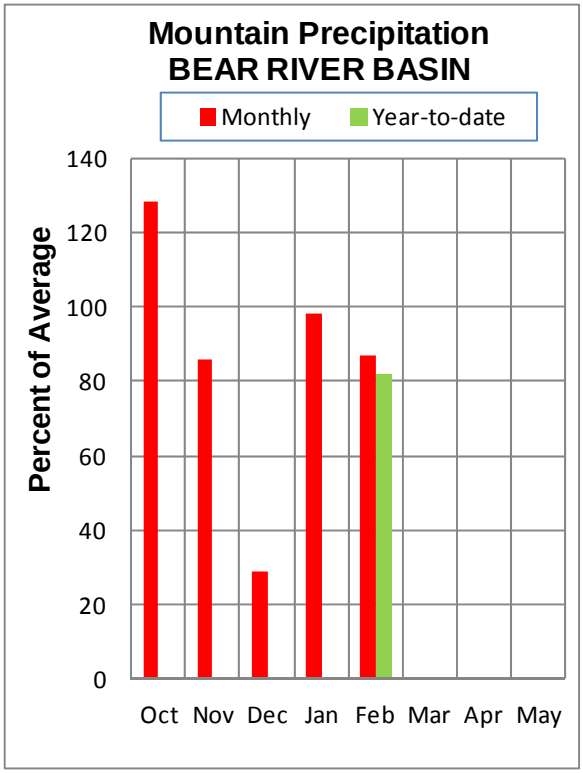
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

BEAR RIVER BASIN

MARCH 1, 2012







WATER SUPPLY OUTLOOK

The main message is that the water supply conditions have improved slightly since last month. The snowpack on February 1 was 72% of average and as of March 1 it's 82% for the Bear River as whole. This winter's precipitation pattern has also been consistently bringing extended dry spells during the first half of each month and potent storms during the latter half. Precipitation for February was 87% of average and stands at 82% for the water year. Last year at this time, the snowpack was 125% of average and that snow is responsible for today's 122% of average carryover storage in Bear Lake. Summer streamflow forecasts remain in the 55-70% of average range. Water users that depend on Bear Lake storage will have adequate water supplies this season and probably next year too.

BEAR RIVER BASIN
Streamflow Forecasts - March 1, 2012

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	50	69	82	73	95	114	113
	APR-SEP	53	75	90	72	105	127	125
Bear R ab Res nr Woodruff	APR-JUL	31	59	78	57	97	125	136
	APR-SEP	33	61	81	57	101	129	142
Big Ck nr Randolph	APR-JUL	1.3	2.4	3.2	65	4.0	5.2	4.9
Smiths Fk nr Border	APR-JUL	38	54	65	63	76	92	103
	APR-SEP	55	73	86	71	99	117	121
Bear R bl Stewart Dam	APR-JUL	14.0	83	130	56	177	245	234
	APR-SEP	17.0	96	150	57	205	285	262
Little Bear R at Paradise	APR-JUL	10.4	23	32	70	41	54	46
Logan R nr Logan	APR-JUL	48	67	80	64	93	112	126
Blacksmith Fork nr Hyrum	APR-JUL	5.9	20	30	63	40	54	48

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
Bear Lake	1421.0	1112.7	545.8	910.7
Montpelier Creek	4.0	3.4	2.4	1.7

BEAR RIVER BASIN
Watershed Snowpack Analysis - March 1, 2012

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	4	70	86
Bear River ab WY-ID line	11	58	75
Montpelier Creek	2	61	71
Mink Creek	4	58	68
Cub River	3	59	78
Bear River ab ID-UT line	25	61	76
Malad River	3	78	72

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

The average is computed for the 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.

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

Henrys 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)**

Basin/ Reservoir	Dead Storage	Inactive Storage	Active Storage	Surcharge Storage	NRCS Capacity	NRCS Capacity Includes
Panhandle Region						
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
Clearwater Basin						
Dworshak	Unknown	1452.00	2016.00	---	3468.0	Inactive + Active
Weiser/Boise/Payette Basins						
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
Wood/Lost Basins						
Magic	Unknown	---	191.50	---	191.5	Active
Little Wood	Unknown	---	30.00	---	30.0	Active
Mackay	0.13	---	44.37	---	44.4	Active
Upper Snake Basin						
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
Southside Snake Basins						
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
Bear River Basin						
Bear Lake	5000.00	119.00	1302.00	---	1421.0 includes 119	Active + Inactive: 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 * 90% (1000AF)	70% (1000AF)	50% (1000 AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (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

USDA Natural Resources Conservation Service
9173 West Barnes Drive, Suite C
Boise ID 83709-1574

OFFICIAL BUSINESS

Issued by
Dave White, Chief
Natural Resources Conservation Service
Washington, DC

Released by
Jeff Burwell, State Conservationist
Rob Sampson, State Conservation Engineer
Natural Resources Conservation Service
Boise, Idaho

Prepared by
Idaho Snow Survey Staff
Ron Abramovich, Water Supply Specialist
Philip Morrisey, Data Collection Officer
Jeff Anderson, Hydrologist
Julie Koeberle, Hydrologist
Jeff Graham, Electronics Technician
Chad Gipson, 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.