United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
February 1, 2011

Photo by Sara Magenheimer

Scientists, engineers, and technicians across the West gathered in McCall, Idaho the week of January 10 for the 62nd annual West Wide Snow Survey Training School. Training included snow sampling, avalanche recognition, outdoor survival, and emergency care to help them safely conduct snow surveys. Professional instructors from the "Learn to Return" Alaska survival school and the Alaska Avalanche School offered a wealth of knowledge and skills that formed the core of the course. As part of the training, students were required to build a snow cave and spend the night in it. The overnight snow bivouac gives participants the opportunity to practice their outdoor survival skills. Pictured above is Nick Studebaker, first time snow surveyor and new employee from the NRCS Sandpoint Field Office, in front of the snow shelter that he constructed and slept in. About 45 participants from NRCS, other federal and state agencies, private utility companies and Soil and Water Conservation Districts attended and all survived the night out. Snow fell throughout the bivouac day, with an additional 4 inches overnight, so it was a very realistic exercise.

This is only the third time the Snow School has been held in Idaho. The late Morley Nelson started the first session in 1950 in Ketchum and it was last held in Idaho in McCall in 1982. The most significant and beneficial change over the years is the increased number of women at the school. One-quarter of this year's group were women, compared to the 1982 school where only ONE of 49 participants was female. Women continue to make gains in the Snow Survey Program, and now participate at all levels including technical, professional, and management.

Basin Outlook Reports
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How forecasts are made

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

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

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

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IDAHO WATER SUPPLY OUTLOOK REPORT

February 1, 2011

SUMMARY

January's weather included a little bit of everything. Cold temperatures in early January preserved the snow that December brought. Temperatures increased changing the precipitation type to rain instead of snow. Rain was reported as high as 9,000 feet in the Boise basin. January precipitation was variable with amounts ranging from 139% of average in the Clearwater basin to 25% of average in the Little Wood and Big Lost basins. The warm temperatures and rain melted most of the low elevation snowpack below 5,000 feet along the western half of Idaho producing high streamflows in small streams and large increases in the Coeur d'Alene, Clearwater, Weiser, and Owyhee rivers. Inflow to reservoirs increased and now operators are watching and deciding if or when additional releases are needed. Despite the loss of the low elevation snowpack, Idaho's mountain snowpack is still in good shape. Current snowpacks range from a low of 84% of average in the upper Big Wood basin to 137% in the Bear River. Streamflow forecasts increased slightly in the Panhandle Region while others in southern Idaho decreased up 20 percentage points depending on precipitation and loss of snow. Overall, current streamflow forecasts range from near 85% of average in the central mountains to around 130% in the Bear River.

Questions still remaining regarding this winter include, what will the condition of Idaho's snowpack be at the end of the season on April 1? Without any more snow between now and April 1, the mountain snowpack will range from 55-80%. Secondly, will the high pressure ridge that is preventing storms from moving into Idaho and causing severe weather in the mid-west and east remain in place? Hopefully it will not. If the high pressure ridge does remain, the snowpack will decrease 1- 2 percentage points a day. Accordingly, water users will see a gradual decrease in their streamflow forecast as displayed in the daily streamflow forecasts on this page:
http://www.id.nrcs.usda.gov/snow/watersupply/daily_guidance.html

Overall, Idaho's water supply still looks promising. One month of isolated below average precipitation doesn't typically impact water supplies. History shows that 2-3 months of below average precipitation will start impacting Idaho's water supply. The challenge is observing this trend early enough to allow users to plan accordingly. Stay tuned to see what happens in the second half of winter here in Idaho, the Midwest, in the eastern half of the nation and around the world. Climatic variability is greater now than in the recent past and makes it more challenging to predict volumes for water managers and users.

SNOWPACK

Warm temperatures and rain may have melted most of Idaho's lower elevation snowpack in basins below 5,000 feet. However, Idaho's higher elevation snowpack remains in good shape, with the exception of the Owyhee basin. The higher elevation snowpack, which provides the majority of our runoff, was able to absorb most of the rainfall that fell as high as 9,000 feet last month. The Bear River continues to features the highest snowpack at 129% of average. The next highest snowpacks are in the Upper Snake, Bruneau and Little Lost at 110-115% of average. Overall, the majority of the state's snowpack is 90-105% of average, while the lowest snowpacks are 85-90% of average in the Big Wood, Little Wood and Goose basins.

PRECIPITATION

Idaho experienced extreme variability in January's precipitation amounts across the state. The beginning of the month brought isolated snowfall to both low and high elevations in the Panhandle region and Clearwater basin. An increase in temperatures in mid-January changed the precipitation to mostly rain. Rainfall melted much of the lower elevation snowpack while the thick snowpack in the upper elevations was able to absorb most of the rain. Some precipitation percolated through the snowpack and into the soil as was observed by an increase in soil moisture content at many sites across the state. This creates better conditions for producing runoff as low to mid-elevation soils are likely still saturated, while higher sites are now closer to saturation. January precipitation amounts ranged from a handful of sites in the Clearwater basin receiving 16 inches to a cluster of sites in the Little Wood and Big Lost basins receiving less than an inch of precipitation in January. January precipitation percentages ranged from near 140% of average in the Spokane and Clearwater basins to only 25% of average in the Little Wood and Big Lost basins. Across southern Idaho, January amounts ranged from 50% of average in the Owyhee and Big Wood basins, to 85% in the Upper Snake, Bear, Goose, Salmon Falls, and Salmon basins. Water year-to-date precipitation is average or better across the state, ranging from average in the Salmon, Payette, Big Wood, and Big Lost basins to 140% in the Bruneau and Bear basins.

RESERVOIRS

Idaho's reservoirs capitalized on January's thaw and rain-on-snow-event. Some reservoirs, such as Dworshak, increased outflows to keep storage levels on the reservoir operating rule curves; while others are watching closely to see if or when additional releases are needed. Owyhee Reservoir saw the greatest increase with storage levels increasing from 214,900 acre-feet December 31 (30% full, 54% of average) to 355,600 acre-feet (50% full, 81% of average). Most storage facilities are reporting near average levels, except for Owyhee Reservoir at 81% of average, Bear Lake at 59%, Oakley at 68% and Salmon Falls at 79%. The Surface Water Supply Index (SWSI) which combines reservoir storage and projected streamflow indicates that surface water supplies should be adequate across the state this season.

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

River ice gave way to abundant rain-induced streamflows which resulted in above average January volumes across most of the state, especially in the lower elevation drainages. The above average low elevation snowpack, frozen soils, rain and warm temperatures set the stage for producing rapid runoff during the January 15-21 period. January runoff volumes ranged from near average to 200-300% of average in the Spokane drainage and Idaho's southern streams. Actual volumes depended on the proportion of low, mid and high elevation zones in the watershed. The high flows flushed the river ice out and to the sides of steams as observed along Mores Creek near Idaho City. Streams have since receded, but most are still flowing at above average levels. Soils remain saturated or near saturated and will help to provide better runoff when the remaining snow melts. With the loss of only the low elevation snowpack, streamflow forecasts remain similar to last month, with the exception of the Owyhee basin. The Owyhee Reservoir inflow is now forecast at 110% for the February-July period. The Bear River remains the highest forecast at 130% of average. Elsewhere, with the near average or better snowpacks, streams are forecast in the 85-110% of average range.

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

Idaho's winter recreation season is in full swing with a near average or better snowpack across most of the state. However, glorious powder days still remain elusive as of recently. Still, the snowpack base is well established and is greater than last year's conditions. High runoff volumes produced river running opportunities for the resilient in January. The Owyhee River near Rome peaked January 18 at 12,000 cfs. There will still be another peak from the remaining snow, but this second peak will not exceed the previous peak without additional snow or rain. The Owyhee basin will be the tough one to forecast this year, as so much of the snow below 6,000 feet has melted, but there is still more snow to melt. Other similar years that had an almost identical January runoff event include 1956 in southern Idaho and 1974 in northern Idaho. These years are also similar climatic index analog years for the current year. With about two-thirds of the snow accumulation season now behind us, the near average February 1 snowpack covering Idaho's mountains sets the stage for a good river running season whether you like high peak flows or gentler family friendly floating levels in the summer months.

IDAHO SURFACE WATER SUPPLY INDEX (SWSI) February 1, 2011

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 Shortage May Occur When SWSI is Less Than***
Spokane	1.2	2000	NA
Clearwater	1.4	1990	NA
Salmon	0.0	1981	NA
Weiser	-0.4	2003	NA
Payette	0.2	2009	NA
Boise	0.8	1995	-1.8
Big Wood	0.2	2000	0.1
Little Wood	0.4	2009	-1.9
Big Lost	0.0	2010	0.0
Little Lost	0.2	2010	0.6
Teton	0.6	2009	NA
Henrys Fork	0.7	2008	-3.3
Snake (Heise)	1.4	2009	-1.8
Oakley	0.2	2000	-0.6
Salmon Falls	1.2	1999	-1.4
Bruneau	1.8	2005	NA
Owyhee	0.6	1993	-3.5
Bear River	-0.6	2001	-2.8

SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

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-4      -3      -2      -1       0       1       2       3       4
 |------|------|------|------|------|------|------|------|------|

99%     87%     75%     63%     50%     37%     25%     13%      1%
 ---------------------------------------------------------------------
 |Much    | Below      |        Near Normal      |  Above    |  Much  |
 |Below   | Normal     |        Water Supply     |  Normal   |  Above |
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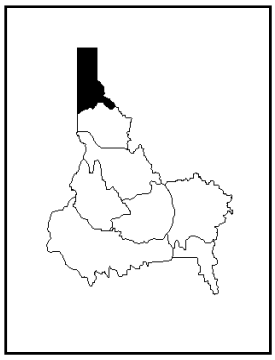
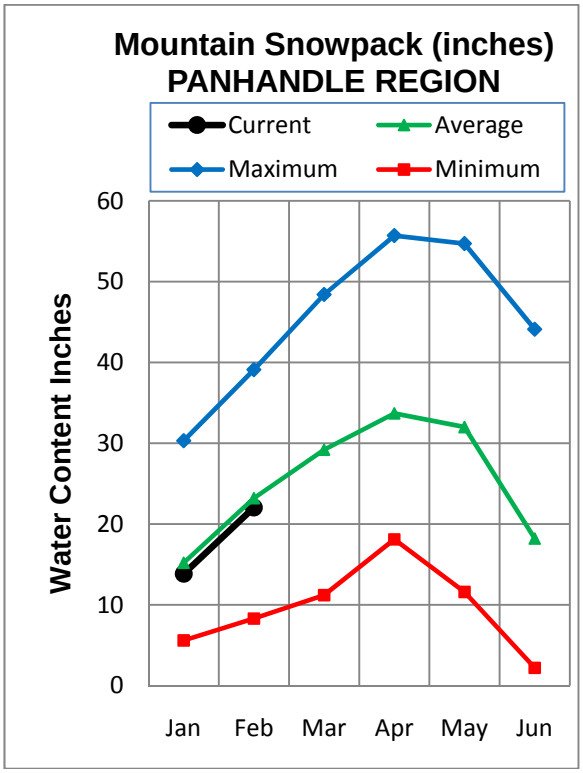
NA = Not Applicable

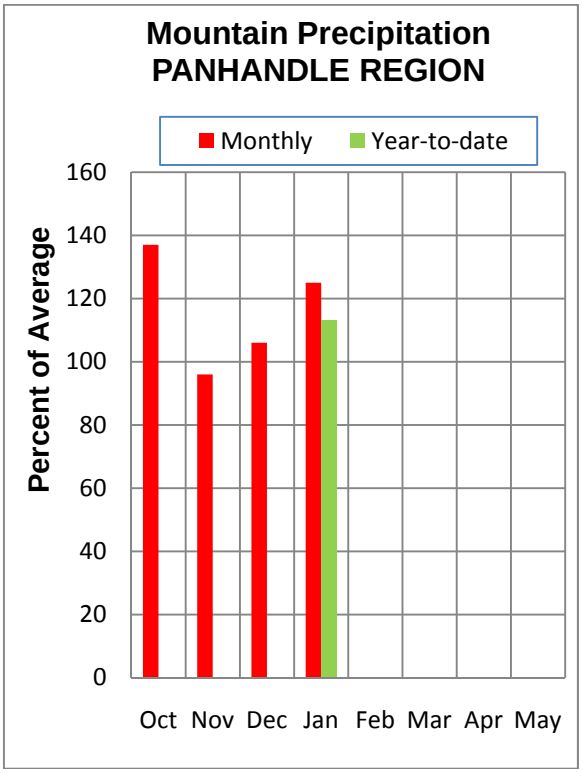
Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and 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

FEBRUARY 1, 2011







WATER SUPPLY OUTLOOK

The rain on snow event that occurred in mid-January trumps the current snowpack in the news. The warm January rain washed away the lower elevation snow and caused both the St. Joe and the Spokane rivers to peak at over 20,000 cfs. The peaks on these rivers were greater than last year's spring snowmelt peaks. Even with potent storms during the month of January that resulted in 125% of average precipitation, the overall Panhandle region snowpack is only 95% of average. The snow water content at SNOTEL sites in the Panhandle region has been hovering slightly below average all winter although there is a lot of variability within individual watersheds. For instance, the Pend Oreille River basin has the best snowpack in the region at 110% of average. However, a few sites in Montana are as low as 70% of average, while others are close to twice the normal average in the basin. Even though the snowpack may be lagging at certain sites, fall precipitation provided good antecedent soil moisture conditions and the cumulative water year-to-date precipitation is 113% of average. The seasonal streamflow forecasts increased slightly from last month owing to the above average January precipitation. The 50% exceedance forecasts call for about 95% of average flows for the Kootenai, Moyie and Boundary Creek and average for the Priest River. The St. Joe, Spokane, Clark Fork and Pend Oreille rivers are forecast to be above average for the same period. Coeur d'Alene and Pend Oreille lakes are above average and storing more water than last year, while Priest Lake is near average and similar to last year. Overall, the water supply picture is decent given the generous soil moisture from fall rains, average reservoir storage and a near normal snowpack at high elevations.

PANHANDLE REGION
Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Kootenai R at Leonia (1,2)	APR-JUL	5680	6520	6900	98	7280	8120	7040
	APR-SEP	6780	7580	7950	98	8320	9120	8120
Moyie River at Eastport	APR-JUL	295	345	380	94	415	465	405
	APR-SEP	305	360	395	94	430	485	420
Smith Ck nr Porthill	APR-JUL	86	104	117	95	130	148	123
	APR-SEP	88	109	123	95	137	158	129
Boundary Ck nr Porthill	APR-JUL	93	107	117	95	127	141	123
	APR-SEP	98	113	123	95	133	148	129
Clark Fork at Whitehorse Rpds (1,2)	APR-JUL	10200	11900	12700	112	13500	15200	11300
	APR-SEP	11352	13173	14000	112	14827	16648	12500
Pend Oreille Lake Inflow (2)	APR-JUL	12123	13360	14200	112	15040	16277	12700
	APR-SEP	13410	14714	15600	112	16486	17790	13900
Priest R nr Priest River (1,2)	APR-JUL	601	748	815	100	882	1029	815
	APR-SEP	637	797	870	100	943	1103	870
NF Coeur d'Alene R at Enaville	APR-JUL	585	715	800	108	885	1020	740
	APR-SEP	630	755	845	108	935	1060	780
St. Joe R at Calder	APR-JUL	1010	1140	1230	108	1320	1450	1140
	APR-SEP	1080	1210	1300	108	1390	1520	1200
Spokane R nr Post Falls (2)	APR-JUL	2130	2500	2750	108	3000	3370	2550
	APR-SEP	2250	2620	2870	108	3120	3490	2650
Spokane R at Long Lake (2)	APR-JUL	2410	2810	3090	108	3370	3770	2850
	APR-SEP	2640	3050	3330	109	3610	4020	3070

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE		NO REPORT		
FLATHEAD LAKE		NO REPORT		
NOXON RAPIDS		NO REPORT		
PEND OREILLE	1561.3	827.0	475.1	749.3
COEUR D'ALENE	238.5	210.8	54.9	115.6
PRIEST LAKE	119.3	53.2	55.0	55.5

PANHANDLE REGION
Watershed Snowpack Analysis - February 1, 2011

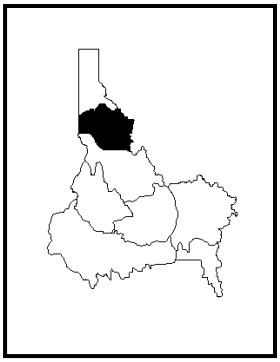
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	18	126	99
Moyie River	6	119	96
Priest River	4	137	99
Pend Oreille River	61	152	110
Rathdrum Creek	3	151	96
Hayden Lake	0	0	0
Coeur d'Alene River	6	172	90
St. Joe River	4	169	91
Spokane River	13	167	91
Palouse River	1	183	92

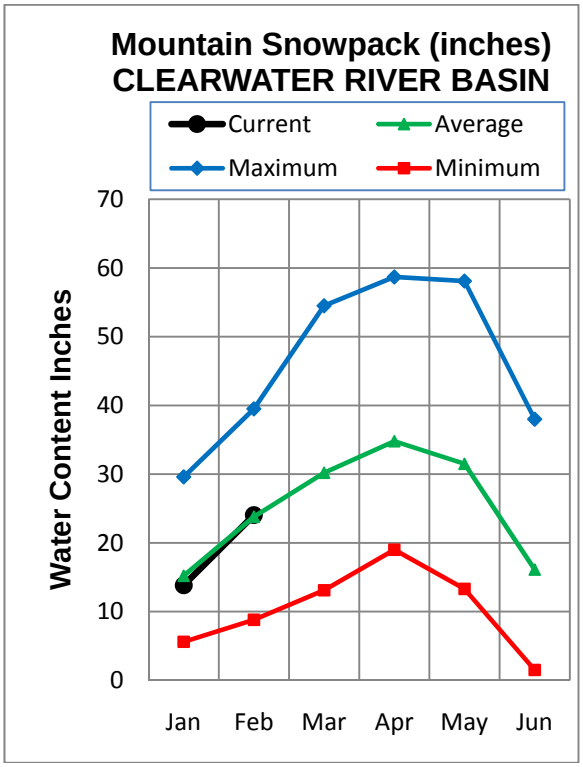
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

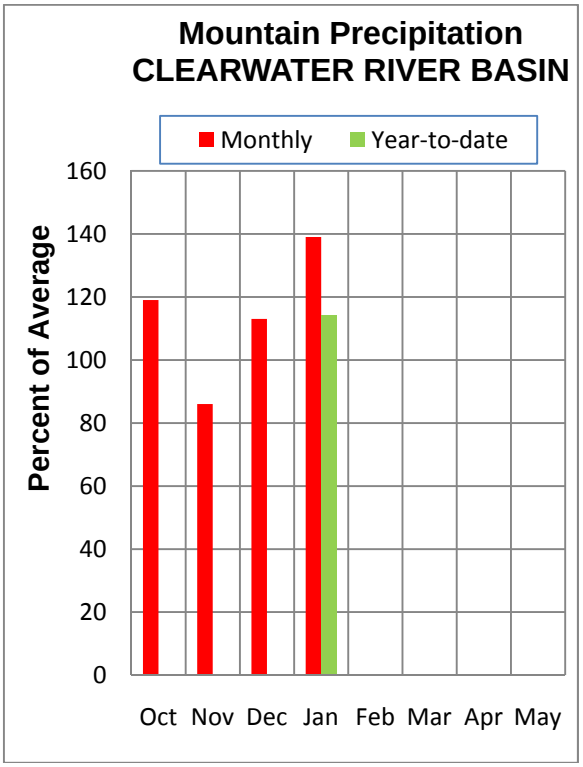
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

CLEARWATER RIVER BASIN

FEBRUARY 1, 2011







WATER SUPPLY OUTLOOK

The mountains in the Clearwater Basin received the best precipitation in the state during the month of January at 139% of average. From January 12-23, some of the SNOTEL sites in the area received over 11 inches of precipitation and in some cases, more rain fell than snow. As a result, the low elevation snow melted and caused a sharp rise in the rivers in the basin. For example, the Selway River went from a dormant frozen state on January 14th to 10,600 cfs on the 18th. Even with the ample precipitation, the mountains are holding on to an average snowpack, but there is a lot of variability in these basins. Lost Lake SNOTEL, located on the North Fork Clearwater and St. Joe divide has a February 1 snowpack of 87% of average, while Crater Meadows, located in the North Fork Clearwater drainage has a snowpack of 120% of average. Overall, the snowpack is healthier now than last year when it was 58% of average on February 1. Streamflow forecasts in the Clearwater basin improved from last month. The 50% exceedance forecasts call slightly above average runoff volumes for the Selway, Lochsa, Dworshak Reservoir inflow and the Clearwater rivers during the April-July period. Dworshak Reservoir is 67% of capacity and 100% of average for this time of year and is storing more water than last year. Given the current conditions and forecasts and with more than a third of winter still to come, water users and recreationalists should be satisfied this year.

CLEARWATER RIVER BASIN
Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	APR-JUL	1754	1978	2130	103	2282	2506	2060
	APR-SEP	1865	2094	2250	104	2406	2635	2170
Lochsa R nr Lowell	APR-JUL	1287	1455	1570	103	1685	1853	1530
	APR-SEP	1363	1534	1650	103	1766	1937	1610
Dworshak Res Inflow (1,2)	APR-JUL	1947	2458	2690	102	2922	3433	2640
	APR-SEP	2107	2625	2860	102	3095	3613	2800
Clearwater R at Orofino (1)	APR-JUL	3577	4397	4770	103	5143	5963	4650
	APR-SEP	3793	4657	5050	103	5443	6307	4900
Clearwater R at Spalding (1,2)	APR-JUL	5744	7055	7650	103	8245	9556	7430
	APR-SEP	6076	7461	8090	103	8719	10104	7850

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	2326.8	2167.4	2324.3

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - February 1, 2011

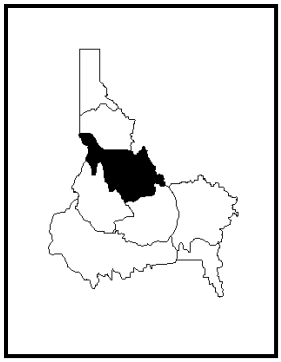
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	174	102
Lochsa River	4	162	102
Selway River	5	165	102
Clearwater Basin Total	17	171	102

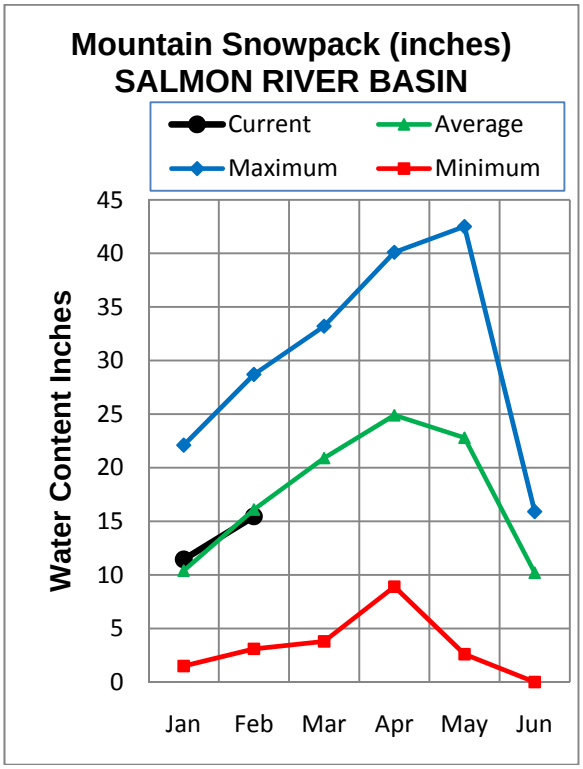
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

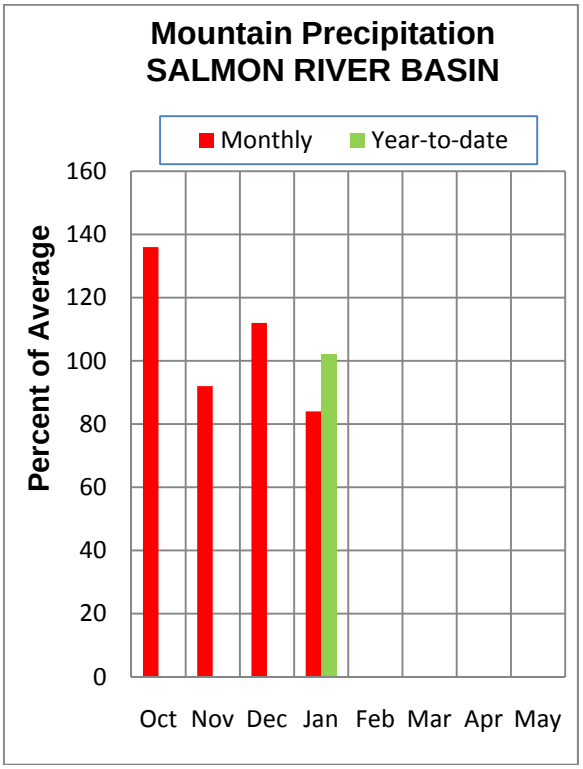
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SALMON RIVER BASIN

FEBRUARY 1, 2011







WATER SUPPLY OUTLOOK

The mountains in this basin only received 84% of average January moisture, but the precipitation since the water year began on October 1 is 102% of average. The average water year precipitation helps explain why the higher elevations in the Salmon Basin are holding on to a 99% of average snowpack on February 1 even though January was dry. The current snowpack is 93% of average in the Middle Fork Salmon drainage, 89% in the Little Salmon and up to 112% in the Lemhi drainage. For comparison, last February 1 the snowpack was only 69% of average in the Salmon basin, but a cool and rainy spring improved the water supply picture. This year, the snowpack has a much better base and the streamflow forecasts are looking much better. In general, the main Salmon River, the Lemhi River and the Middle Fork of the Salmon River are expected to see about 95% of average streamflow volumes from April through July. There are two new forecasts in this month's report that were requested: the South Fork Salmon River near Krassel Ranger Station and Johnson Creek at Yellow Pine, both of which are also expected to flow at about 95% of average. Overall, water supplies are in good shape for the recreationalist and water users with the near average snowpacks and streamflow forecasts.

SALMON RIVER BASIN
Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Salmon R at Salmon (1)	APR-JUL	461	694	800	94	906	1139	855
	APR-SEP	553	826	950	95	1074	1347	1000
Lemhi R nr Lemhi	APR-JUL	46	65	80	93	96	123	86
	APR-SEP	58	80	97	92	115	146	105
MF Salmon R at MF Lodge	APR-JUL	476	636	745	95	854	1014	785
	APR-SEP	520	699	820	94	941	1120	875
SF Salmon R nr Krassel RS	APR-JUL	212	256	285	98	314	358	291
	APR-SEP	227	270	300	96	330	373	312
Johnson Ck at Yellow Pine	APR-JUL	148	176	195	96	215	240	204
	APR-SEP	157	186	205	95	225	255	217
Salmon R at White Bird (1)	APR-JUL	3640	5002	5620	96	6238	7600	5850
	APR-SEP	4030	5536	6220	96	6904	8410	6480

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

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

SALMON RIVER BASIN
Watershed Snowpack Analysis - February 1, 2011

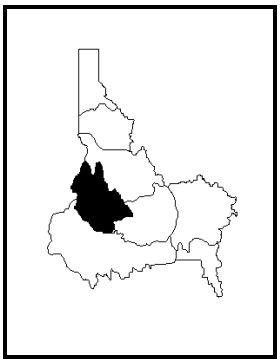
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	8	141	92
Lemhi River	6	136	112
Middle Fork Salmon River	3	153	93
South Fork Salmon River	3	150	96
Little Salmon River	4	123	89
Salmon Basin Total	23	144	99

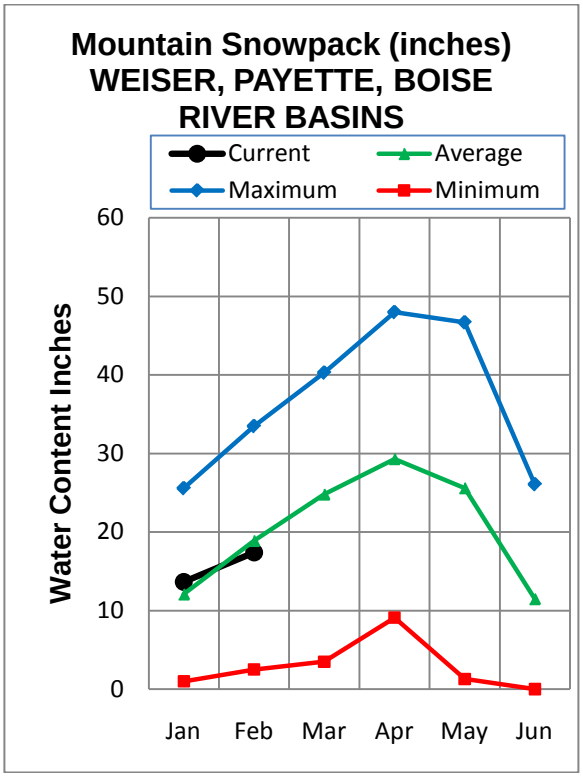
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

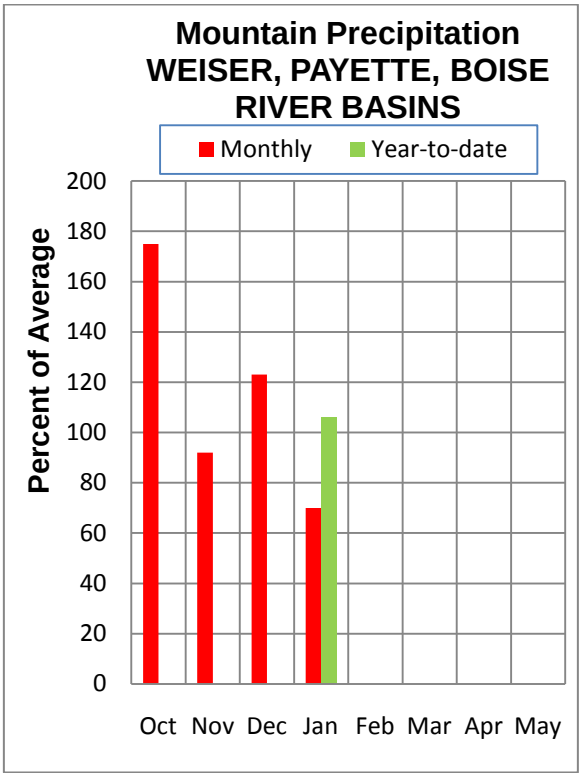
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WEISER, PAYETTE, BOISE RIVER BASINS

FEBRUARY 1, 2011







WATER SUPPLY OUTLOOK

With the exception of one good storm during mid-January, this region has experienced more sunny days than was previously expected. However, the one strong storm was nothing to scoff at. Warm, moist air moved in during Martin Luther King Jr. holiday weekend. The snow-line on the ground receded above 5,000 feet, river ice broke up causing streams to swell and roads were closed due to mudslides. Even though the event brought 2-5 inches of rain in the mountains, the monthly precipitation for this grouped region ended up at 70% of average. The overall snowpack decreased from 113% of average on January 1 to 92% on February 1. The lack of low elevation snow creates an illusion that the higher elevation snowpack is in worse shape than it is. Last year, the overall snowpack was only 58% of normal, but the water supplies were saved by a cool and wet spring. This year, the snowpack has a much better base and as soon as the weather brings snow again, powder hounds, river recreationalists and water users will be delighted. Streamflow forecasts dropped from slightly above average to about 90-95% of average. The best forecast is for the Boise River near Twin Springs at 98% of average and the lowest forecast is for 89% of average for the NF Payette River at Banks. The reservoir systems are average or above for this time of year and are storing similar amounts of water when compared to last year. The only exception is Lucky Peak Reservoir, which is currently at 91% of average due to operational maintenance. The Surface Water Supply Index (SWSI), which is based on the combination of current conditions and forecasts, suggests that water supplies should be adequate for water users in the Boise, Weiser and Payette basins.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser (1)	FEB-JUL	274	485	600	92	728	1052	650
	APR-JUL	163	290	360	92	438	635	390
	APR-SEP	182	317	390	93	471	676	420
SF Payette R at Lowman	APR-JUL	299	357	400	91	445	516	440
	APR-SEP	337	402	450	91	500	579	495
Deadwood Res Inflow (1,2)	APR-JUL	89	117	130	97	143	171	134
	APR-SEP	93	124	138	97	152	183	142
Lake Fk Payette R nr McCall	APR-JUL	62	71	78	92	85	97	85
	APR-SEP	65	75	82	92	90	102	89
NF Payette R at Cascade (1,2)	APR-JUL	292	414	470	90	526	648	520
	APR-SEP	297	426	485	90	544	673	540
NF Payette R nr Banks (2)	APR-JUL	430	531	600	89	669	770	675
	APR-SEP	434	545	620	89	695	806	700
Payette R nr Horseshoe Bend (1,2)	APR-JUL	1033	1354	1500	92	1646	1967	1640
	APR-SEP	1038	1425	1600	91	1775	2162	1760
Boise R nr Twin Springs (1)	APR-JUL	413	555	620	98	685	827	635
	APR-SEP	453	606	675	98	744	897	690
SF Boise R at Anderson Ranch (1,2)	APR-JUL	286	426	490	91	554	694	540
	APR-SEP	312	458	525	91	592	738	580
Mores Ck nr Arrowrock Dam	APR-JUL	75	103	125	95	149	188	131
	APR-SEP	78	107	130	95	155	196	137
Boise R nr Boise (1,2)	APR-JUN	862	1101	1210	96	1319	1558	1260
	APR-JUL	836	1176	1330	94	1484	1824	1410
	APR-SEP	904	1273	1440	94	1607	1976	1530

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	4.3	1.5	4.3
CASCADE	693.2	453.9	437.9	448.4
DEADWOOD	161.9	101.1	93.7	86.3
ANDERSON RANCH	450.2	328.4	303.4	283.6
ARROWROCK	272.2	216.0	201.2	201.1
LUCKY PEAK	293.2	96.7	81.4	106.6
LAKE LOWELL (DEER FLAT)	165.2	122.0	114.4	101.7

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - February 1, 2011

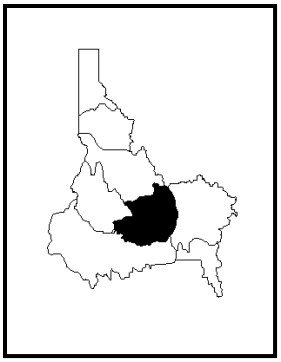
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	95	104
Weiser River	3	104	90
North Fork Payette	7	129	98
South Fork Payette	5	139	98
Payette Basin Total	12	133	98
Middle & North Fork Boise	5	129	95
South Fork Boise River	9	113	91
Mores Creek	4	117	108
Boise Basin Total	15	114	94
Canyon Creek	2	73	97

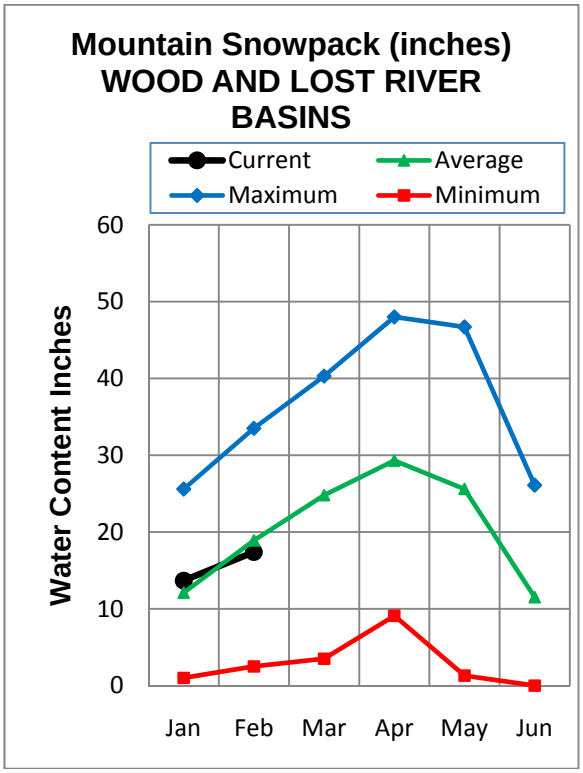
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

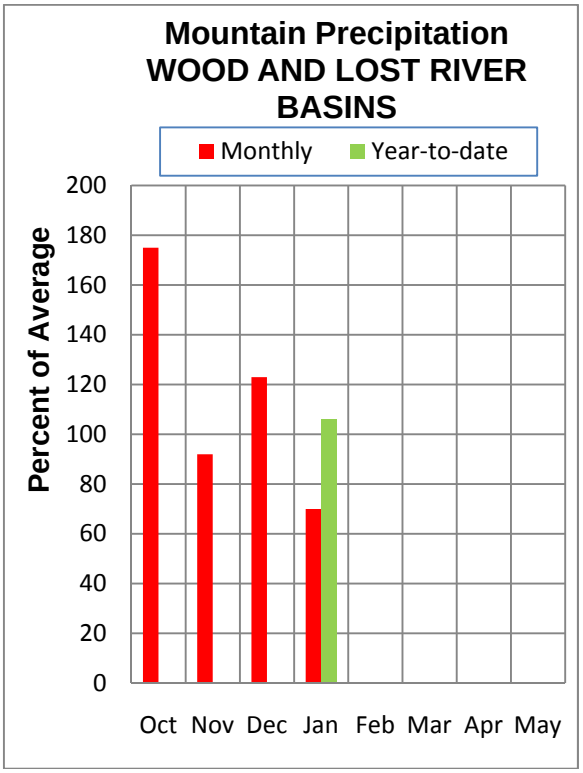
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WOOD and LOST RIVER BASINS

FEBRUARY 1, 2011







WATER SUPPLY OUTLOOK

January in the Wood and Lost River basins were the driest area in the state! NRCS SNOTEL sites in the region recorded monthly precipitation amounts ranging from less than 20% to barely 50% of the normal monthly amounts, except for the Moonshine and Meadow Lake sites near the Lemhi Mountains which received 100% and 90%, respectively. Overall, these basins averaged just 49%. Fortunately, the previous three months were all above normal, so the water year-to-date precipitation is still above average at 105%. The lack of precipitation this past month leaves the snowpack depth and water content practically the same as a month ago; however, this produced a huge drop of nearly 30 percentage points. The basin snowpack in general dropped from 117% of average on January 1st to 89% on February 1st and now ranks lowest in the state. That is quite a turnabout, but there are two bright spots. Soil moisture, as measured at six SNOTEL sites, is near field capacity down to the 20 inch depth due to the abundant fall precipitation and the reservoirs are holding above normal amounts for this time of year. With the snowpack percentages dropping to below normal levels, the seasonal runoff volume estimates follow suit and are now projected in the 85-95% of average range. The favorable soil moisture under the snowpack should result in a rather quick stream response when melt season arrives and may actually improve the efficiency of the overall contribution of snowpack to streamflow. With about one-third of the snow accumulation season still to come, a second dry month in a row would not help the outlook as more snow is needed to maintain the 50% Chance of Exceedance Forecasts.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Big Wood R at Hailey (1)	APR-JUL	82	180	225	88	270	368	255
	APR-SEP	94	205	255	88	305	416	290
Big Wood R ab Magic Res	APR-JUL	80	140	180	95	220	280	190
	APR-SEP	88	152	195	95	238	302	205
Camas Ck nr Blaine	APR-JUL	32	61	85	85	113	163	100
	APR-SEP	33	62	86	85	114	164	101
Big Wood R bl Magic Dam (2)	APR-JUL	108	201	265	91	329	422	290
	APR-SEP	119	215	280	92	345	441	305
Little Wood R ab High Five Ck	MAR-JUL	28	51	70	82	93	131	85
	MAR-SEP	31	55	76	83	100	142	92
Little Wood R nr Carey (2)	MAR-JUL	46	66	80	83	94	114	96
	MAR-SEP	48	70	85	82	100	122	104
Big Lost R at Howell Ranch	APR-JUL	79	118	148	86	182	238	173
	APR-SEP	90	133	168	85	207	271	197
Big Lost R bl Mackay Res	APR-JUL	57	95	120	85	145	183	141
	APR-SEP	73	119	150	87	181	227	172
Little Lost R nr Howe	APR-JUL	19.3	25	30	97	35	43	31
	APR-SEP	24	31	37	95	43	53	39

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	86.0	78.4	85.0
LITTLE WOOD	30.0	19.4	21.7	16.3
MACKAY	44.4	35.4	36.1	27.7

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - February 1, 2011

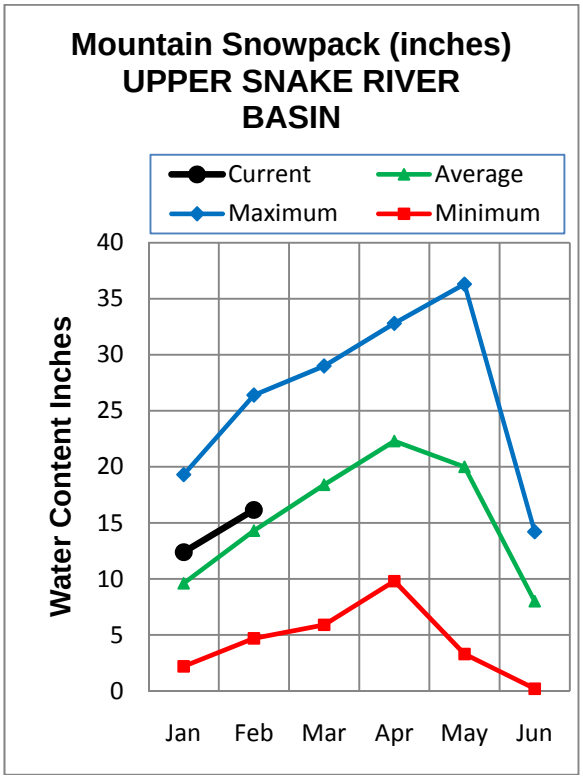
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	8	124	84
Camas Creek	5	100	92
Big Wood Basin Total	13	115	87
Fish Creek	3	134	113
Little Wood River	8	126	95
Big Lost River	6	139	92
Little Lost River	3	157	103
Birch-Medicine Lodge Cree	2	136	110
Camas-Beaver Creeks	4	141	103

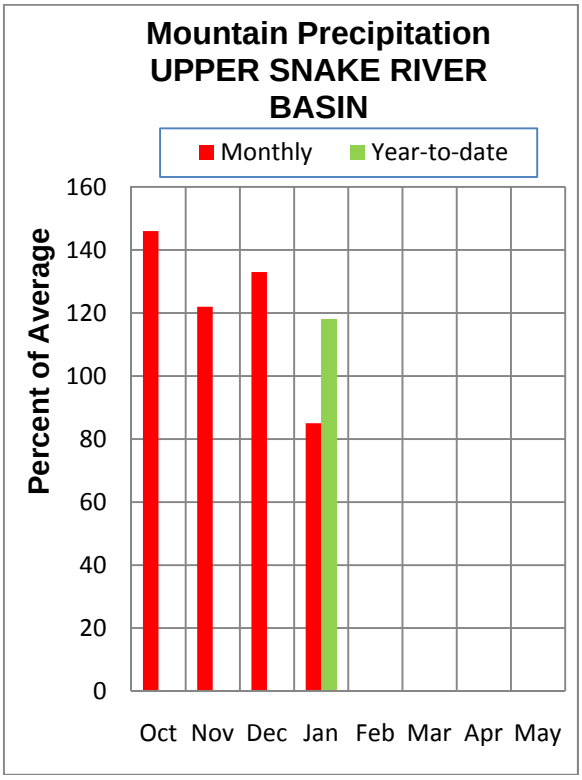
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

UPPER SNAKE BASIN

FEBRUARY 1, 2011





WATER SUPPLY OUTLOOK

The watersheds of the upper Snake River received widely varying amounts of precipitation during the month of January due to dynamic atmospheric conditions driving storms from various directions either toward or away from different areas. Monthly amounts at the 28 SNOTEL sites in the region ranged from just 50% to 129% of the January normal! Generally, the trend was lesser amounts in the north like Henrys Fork and Yellowstone National Park and higher amounts in the south and southwest areas like the Salt, Greys and Portneuf basins. Henrys Fork and Teton basins had 74% of the monthly average for January, while the Snake above Palisades had 82% and Willow, Blackfoot, Portneuf combined had 92%. Overall, the region received 85% for January, but the water year-to-date total is still well above average at 118%. The decrease in snowpack percent from a month ago generally reflects the precipitation pattern, although much of the precipitation in the lower elevations was in the form of rain. The Willow, Blackfoot, Portneuf area snowpack dropped 27 points, while the Henrys Fork - higher elevation with less precipitation - only dropped 12 points, making for an interesting month indeed. Still, the snowpack in this region remains well above average, ranging from 109% in the Snake basin above Jackson Lake to 124% in the Greys River drainage. The combined storage for the eight primary reservoirs in the upper Snake is right at the average level. This, along with the well above average snowpack, should ensure adequate surface irrigation water supplies this summer. NRCS streamflow forecasts for the April–September period project 111% of average for the Snake River near Heise where the snowpack sits at 115%. Other forecasts in the area range from 99% for the Henrys Fork to 130% for the Salt River. Conditions can of course change with two months remaining (at least) in the snow accumulation phase. But in 19 of the last 50 years with February snowpack above Palisades at 100% or more, only ONE of those years did NOT reach 100% by April!

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Henrys Fk nr Ashton (2)	APR-JUL	434	513	570	100	630	724	570
	APR-SEP	598	692	760	99	831	942	765
Henrys Fork nr Rexburg (2)	APR-JUL	1272	1438	1550	99	1662	1828	1560
	APR-SEP	1666	1853	1980	99	2107	2294	2010
Falls R nr Ashton (2)	APR-JUL	305	348	380	100	413	464	380
	APR-SEP	363	414	450	100	488	547	450
Teton R nr Driggs	APR-JUL	132	160	180	109	202	236	165
	APR-SEP	163	199	225	107	253	297	210
Teton R nr St. Anthony	APR-JUL	310	373	420	104	469	547	405
	APR-SEP	372	446	500	104	557	647	480
Snake R at Flagg Ranch	APR-JUL	433	491	530	107	569	627	495
	APR-SEP	476	538	580	106	622	684	545
Snake R nr Moran (1,2)	APR-JUL	695	822	880	108	938	1065	815
	APR-SEP	762	905	970	107	1035	1178	905
Pacific Ck at Moran	APR-JUL	138	163	180	105	197	222	171
	APR-SEP	146	172	190	107	208	234	178
Buffalo Fork ab Lava nr Moran	APR-JUL	262	296	320	106	344	378	301
	APR-SEP	304	343	370	108	397	436	344
Gros Ventre R at Kelly	APR-JUL	168	205	230	115	255	292	200
	APR-JUL	168	205	230	115	255	292	200
Snake R ab Res nr Alpine (1,2)	APR-JUL	1973	2342	2510	106	2678	3047	2370
	APR-SEP	2250	2676	2870	105	3064	3490	2730
Greys R nr Alpine	APR-JUL	312	364	400	118	436	488	340
	APR-SEP	372	434	475	120	516	578	395
Salt R nr Etna	APR-JUL	299	383	440	129	497	581	340
	APR-SEP	384	483	550	131	617	716	420
Snake R nr Irwin (1,2)	APR-JUL	2906	3438	3680	111	3922	4454	3330
	APR-SEP	3399	3998	4270	110	4542	5141	3870
Snake R nr Heise (2)	APR-JUL	3281	3673	3940	111	4207	4599	3560
	APR-SEP	3848	4296	4600	111	4904	5352	4160
Willow Ck nr Ririe (2)	MAR-JUL	69	87	99	113	111	129	88
Blackfoot R ab Res nr Henry	APR-JUN	44	65	82	112	101	131	73
Portneuf R at Topaz	MAR-JUL	70	84	95	107	106	124	89
	MAR-SEP	86	103	115	106	128	149	109
Snake R at Neeley (1,2)	APR-JUL	2278	3235	3670	113	4105	5062	3240
	APR-SEP	2393	3429	3900	111	4371	5407	3510

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	87.2	86.0	83.2
ISLAND PARK	135.2	94.1	111.9	102.2
GRASSY LAKE	15.2	13.0	12.7	11.8
JACKSON LAKE	847.0	661.0	629.2	490.1
PALISADES	1400.0	867.5	1118.3	1040.3
RIRIE	80.5	43.3	40.4	35.8
BLACKFOOT	348.7	206.8	197.3	220.1
AMERICAN FALLS	1672.6	1147.8	1365.0	1125.4

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - February 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Henrys Fork-Falls River	7	179	111
Teton River	8	177	110
Henrys Fork above Rexburg	15	178	110
Snake above Jackson Lake	5	181	109
Pacific Creek	2	177	117
Gros Ventre River	4	205	119
Hoback River	5	221	111
Greys River	4	192	124
Salt River	5	188	121
Snake above Palisades	22	196	115
Willow Creek	7	175	119
Blackfoot River	4	174	111
Portneuf River	6	168	118
Snake abv American Falls	39	186	116

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

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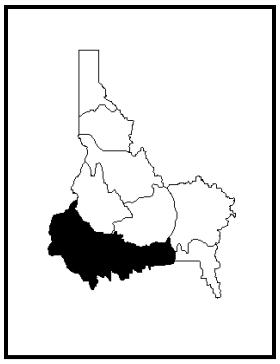
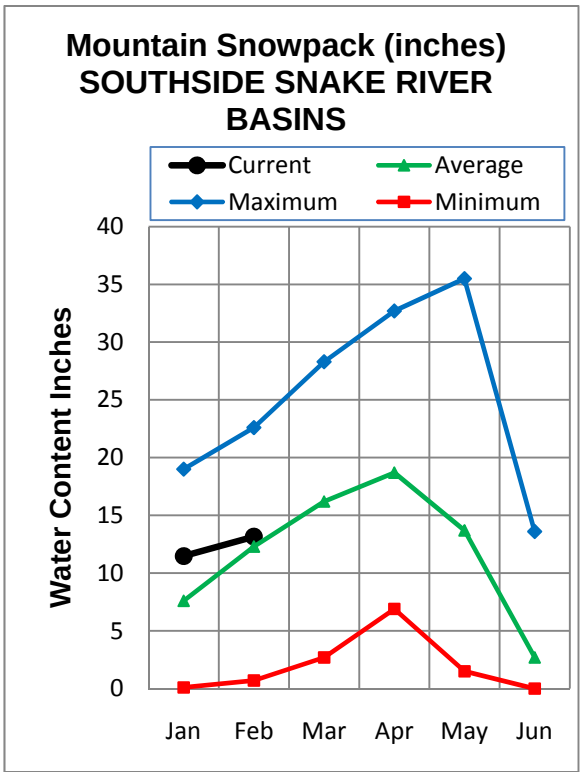
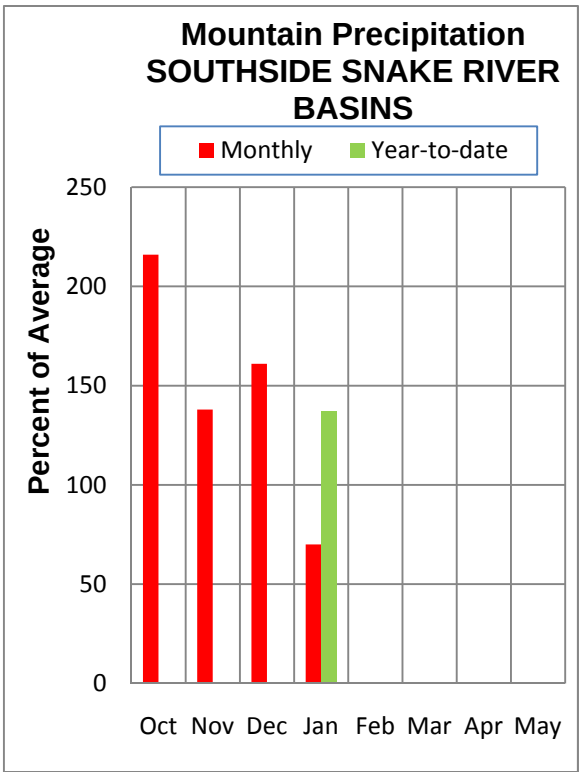
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS

FEBRUARY 1, 2011







WATER SUPPLY OUTLOOK

January precipitation across southern Idaho was below normal for the month ranging from about 55% in the Owyhee basin to 70% in the Bruneau and near 90% in Salmon Falls, Oakley and Raft River areas. However, the precipitation was not evenly distributed throughout the month and most fell as rain during a very wet and mild spell in mid January. This proverbial “January thaw” lived up to its name with the heavy rains melting lots of low elevation snow at the same time. Streamflows quickly responded as the soils were already wet from abundant fall rainfall. The Owyhee River near Rome reached 12,000 cfs and Owyhee Reservoir increased storage by 141,000 acre-feet during the month! That pattern was typical all across the region. Even the high elevation Bruneau basin had a sudden streamflow peak and about twice the usual monthly total volume. The downside to all that rain-on-snow was a significant drop in the snowpack percentages since January 1. Overall the snowpack is now 107% of normal, down from 151% a month ago. Locally, the Bruneau snowpack is 114%, Salmon Falls is 107%, Owyhee is 105% and Oakley is 85%. Luckily, the snowpacks were relatively high last month and most of the bonus river flows were captured by reservoirs except in Bruneau basin. Currently, the snowpack is still near normal, reservoirs have increased to about 80% of normal levels and seasonal streamflow forecasts are predicted to be 100-120% of the average runoff. All of this points to an optimistic water supply outlook for the coming summer. The wet soil conditions are very beneficial as well. Streams will quickly respond at the onset of the spring snow melt season and the runoff efficiency will be greatly enhanced. River runners targeting the desert streams that missed the January peaks need to get their gear ready as it may all happen quickly when the first warm-up occurs.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - February 1, 2011

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	19.8	27	31	120	36	42	26
	MAR-SEP	21	28	33	110	38	45	30
Trapper Ck nr Oakley	MAR-JUL	6.2	7.2	7.8	108	8.4	9.4	7.2
	MAR-SEP	7.5	8.5	9.2	106	9.9	10.9	8.7
Oakley Res Inflow	MAR-JUL	19.2	28	35	103	43	56	34
	MAR-SEP	21	31	38	103	46	60	37
Salmon Falls Ck nr San Jacinto	MAR-JUN	70	93	111	125	130	161	89
	MAR-JUL	72	97	116	125	137	170	93
	MAR-SEP	76	101	121	124	142	177	98
Bruneau R nr Hot Springs	MAR-JUL	172	233	280	119	331	413	235
	MAR-SEP	178	242	290	116	343	429	250
Reynolds Ck at Tollgate	MAR-JUL	6.0	8.3	10.1	104	12.0	15.2	9.7
Owyhee R nr Gold Ck (2)	MAR-JUL	13.2	26	34	106	42	55	32
	MAR-SEP	12.8	25	33	107	41	53	31
Owyhee R nr Rome	FEB-JUL	395	590	720	110	850	1050	655
	FEB-SEP	410	605	740	110	875	1070	675
Owyhee R bl Owyhee Dam (2)	FEB-JUL	440	625	770	110	930	1190	700
	FEB-SEP	470	655	800	110	960	1220	730
	APR-SEP	255	375	475	110	585	765	430

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	75.6	19.3	23.9	28.2
SALMON FALLS	182.6	44.2	43.9	55.7
WILDHORSE RESERVOIR	71.5	31.9	27.8	38.9
OWYHEE	715.0	355.6	186.0	438.3
BROWNLEE	1420.0	1251.2	1248.6	1176.3

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - February 1, 2011

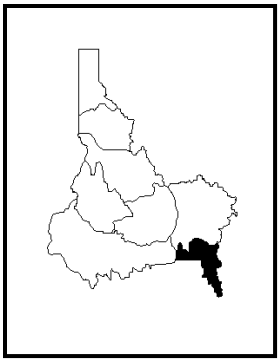
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	2	146	126
Goose-Trapper Creeks	3	128	103
Salmon Falls Creek	7	144	107
Bruneau River	8	158	114
Reynolds Creek	0	0	0
Owyhee Basin Total	19	112	105

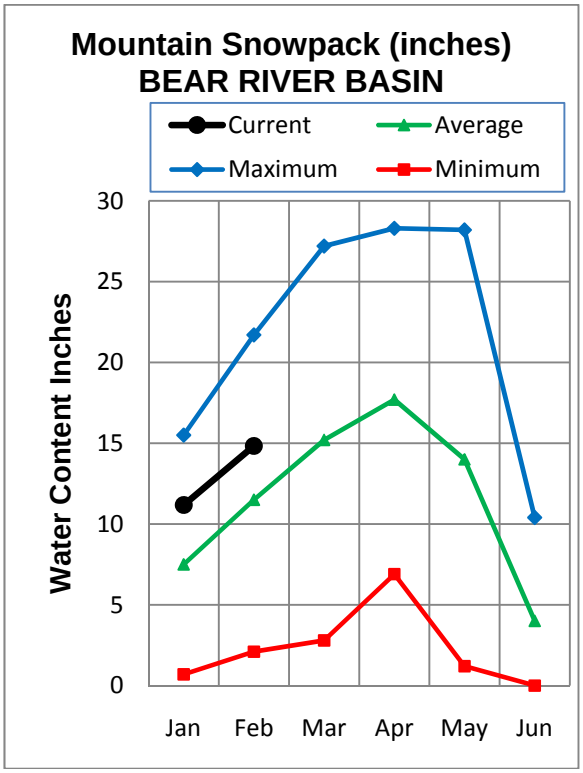
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

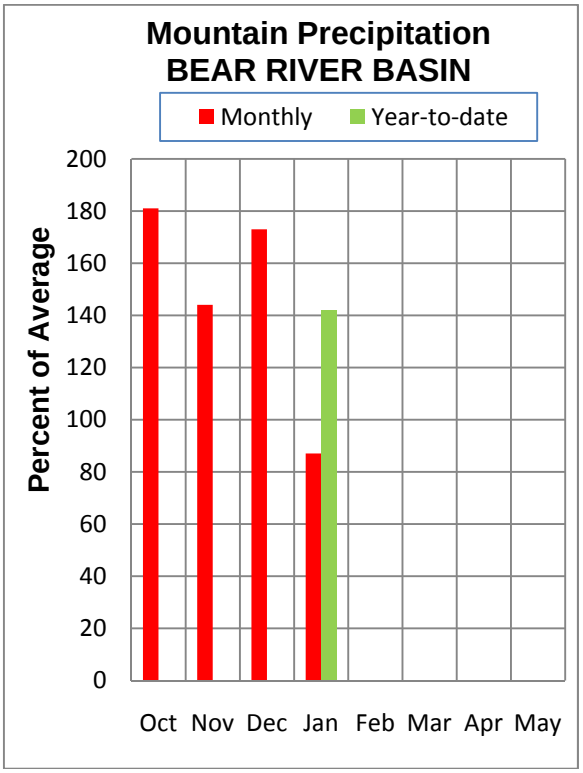
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

BEAR RIVER BASIN

FEBRUARY 1, 2011







WATER SUPPLY OUTLOOK

Rarely can the water users claim that the mountains in the Bear River have the highest snowpack percentages in the state of Idaho. As of February 1, the bragging can begin since the snowpack is at 129% of average (last year the February 1 snowpack was 62%). Additionally, the Bear River basin snowpack is at 80% of the seasonal peak snow water content that occurs around April 1. If the rest of the season were to be dry, then the first of April would have an 80% of normal snowpack. This year's snowpack is impressive considering January precipitation was only 87% of average. The cumulative water year precipitation since October 1 is 142% of average and is a result of well above average precipitation each month except January. The lack of snow in the low hills is deceiving, but the higher elevations where the SNOTEL sites are located are storing excellent water content even with the rain on snow that occurred in mid-January. Generally, if rain occurs on higher elevation snow during the heart of winter, it absorbs the rain like a sponge. The high elevation snow depth will settle and cause higher densities, but not melt. In the mountains scattered across the rest of the state, there is a lot of snow variability within individual basins, but the Bear basin mountains are consistently well above average. The snowpack percentages of averages range from 123% in the Malad River to 137% in the Bear River above the Wyoming-Idaho state line. The streamflow forecasts dropped a few percentage points since last month mostly because of the low January precipitation. The April-July volume forecasts are still looking very promising and range from 123% of average for Smiths Fork up to 141% of average for the Little Bear River with the rest of the rivers in the middle of that range. Bear Lake is storing similar amounts of water to last year and is 59% of average. Based on the Surface Water Supply Index (SWSI), which combines current conditions and streamflow forecasts, water users should have adequate water supplies and more water than they have had in the last decade.

BEAR RIVER BASIN
Streamflow Forecasts - February 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	110	134	150	133	166	190	113
	APR-SEP	125	152	170	136	188	215	125
Bear R abv Resv nr Woodruff	APR-JUL	86	142	180	132	220	275	136
	APR-SEP	70	142	190	134	240	310	142
Big Ck nr Randolph	APR-JUL	4.0	5.3	6.2	127	7.1	8.4	4.9
Smiths Fork nr Border	APR-JUL	91	113	127	123	141	163	103
	APR-SEP	108	132	148	122	164	188	121
Bear R bl Stewart Dam	APR-JUL	168	250	305	130	360	440	234
	APR-SEP	195	285	350	134	415	505	262
Little Bear at Paradise	APR-JUL	40	55	65	141	75	90	46
Logan R nr Logan	APR-JUL	110	140	160	127	180	210	126
Blacksmith Fk nr Hyrum	APR-JUL	41	55	65	135	75	89	48

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	532.2	539.3	906.1
MONTPELIER CREEK	4.0	2.2	2.5	1.7

BEAR RIVER BASIN
Watershed Snowpack Analysis - February 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	4	216	136
Bear River ab WY-ID line	10	227	137
Montpelier Creek	2	203	128
Mink Creek	1	215	124
Cub River	1	212	138
Bear River ab ID-UT line	18	215	133
Malad River	1	145	123

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

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow 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 Jan 2011).**

Panhandle River Basins

Kootenai R at Leonia, ID
+ Lake Koocanusa (Storage Change)
Moyie R at Eastport, ID – No Corrections
Boundary Ck nr Porthill, ID – No Corrections
Smith Creek nr Porthill, ID – No Corrections
Clark Fork R at Whitehorse Rapids, ID
+ Hungry Horse (Storage Change)
+ Flathead Lake (Storage Change)
+ Noxon Rapids Res (Storage Change)
Pend Oreille Lake Inflow, ID
+ 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, ID
+ Priest Lake (Storage Change)
NF Coeur d'Alene R at Enaville, ID - No Corrections
St. Joe R at Calder, ID - No Corrections
Spokane R nr Post Falls, ID
+ 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, ID
+ Clearwater R nr Peck, ID
- Clearwater R at Orofino, ID
+ Dworshak Res (Storage Change)
Clearwater R at Orofino, ID - No Corrections
Clearwater R at Spalding, ID
+ Dworshak Res (Storage Change)

Salmon River Basin

Salmon R at Salmon, ID - No Corrections
Lemhi R nr Lemhi, ID – No Corrections
MF Salmon R at MF Lodge, ID – No Corrections
SF Salmon R nr Krassel Ranger Station, ID – No Corrections
Johnson Creek at Yellow pine, ID – No Corrections
Salmon R at White Bird, ID - No Corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser, ID - No Corrections
SF Payette R at Lowman, ID - No Corrections
Deadwood Res Inflow, ID
+ Deadwood R bl Deadwood Res nr Lowman
+ Deadwood Res (Storage Change)
Lake Fork Payette R nr Mccall, ID – No Corrections
NF Payette R at Cascade, ID
+ Cascade Res (Storage Change)
+ Payette Lake (Storage Change)
NF Payette R nr Banks, ID
+ Cascade Res (Storage Change)
+ Payette Lake (Storage Change)
Payette R nr Horseshoe Bend, ID
+ Cascade Res (Storage Change)
+ Deadwood Res (Storage Change)
+ Payette Lake (Storage Change)
Boise R nr Twin Springs, ID - No Corrections
SF Boise R at Anderson Ranch Dam, ID
+ Anderson Ranch Res (Storage Change)
Mores Ck nr Arrowrock Dam – No Corrections
Boise R nr Boise, ID
+ Anderson Ranch Res (Storage Change)
+ Arrowrock Res (Storage Change)
+ Lucky Peak Res (Storage Change)

Wood and Lost River Basins

Big Wood R at Hailey, ID - No Corrections
Big Wood R ab Magic Res, ID
+ Big Wood R nr Bellevue, ID
+ Willow Ck
Camas Ck nr Blaine – No Corrections
Big Wood R bl Magic Dam nr Richfield, ID
+ Magic Res (Storage Change)
Little Wood R ab High Five Ck, ID – No Corrections
Little Wood R nr Carey, ID
+ Little Wood Res (Storage Change)
Big Lost R at Howell Ranch, ID - No Corrections
Big Lost R bl Mackay Res nr Mackay, ID
+ Mackay Res (Storage Change)
Little Lost R bl Wet Ck nr Howe, ID - No Corrections

Upper Snake River Basin

Henrys Fork nr Ashton, ID
+ Henrys Lake (Storage Change)
+ Island Park Res (Storage Change)
Henrys Fork nr Rexburg, ID
+ Henrys Lake (Storage Change)
+ Island Park Res (Storage Change)
+ Grassy Lake (Storage Change)
+ Diversions from Henrys Fk btw Ashton to St. Anthony, ID
+ Diversions from Henrys Fk btw St. Anthony to Rexburg, ID
+ Diversions from Falls R ab nr Ashton, ID
+ Diversions from Falls R nr Ashton to Chester, ID
Falls R nr Ashton, ID
+ Grassy Lake (Storage Change)
+ Diversions from Falls R ab nr Ashton, ID
Teton R nr Driggs, ID - No Corrections
Teton R nr St. Anthony, ID
- Cross Cut Canal into Teton R
+ Sum of Diversions for Teton R ab St. Anthony, ID
Snake R nr Moran, WY
+ Jackson Lake (Storage Change)

Pacific Ck at Moran, WY – No Corrections
Buffalo Fork ab Lava nr Moran – No Corrections
Gros Ventre R at Kelly – No Corrections
Snake R ab Palisades, WY
+ Jackson Lake (Storage Change)
Greys R ab Palisades, WY – No Corrections
Salt R ab Palisades, WY – No Corrections
Snake R nr Irwin, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Snake R nr Heise, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Willow Ck nr Ririe, ID
+ Ririe Res (Storage Change)
Blackfoot Reservoir Inflow, ID
+ Blackfoot Reservoir releases
+ Blackfoot Res (Storage Change)
Portneuf R at Topaz, ID - No Corrections
Snake R at Neeley, ID
+ Snake R at Neeley (observed)
+ All Corrections made for Henrys Fk nr Rexburg, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot

Southside Snake River Basins

Goose Ck ab Trapper Ck-no adjustments
Trapper Ck nr Oakley-no adjustments
Oakley Res Inflow, ID (does not include Birch Creek inflow)
+ Goose Ck ab Trapper Ck
+ Trapper Ck nr Oakley
Salmon Falls Ck nr San Jacinto, NV - No Corrections
Bruneau R nr Hot Springs, ID - 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 R bl Owyhee Dam, OR (observed)
+ Owyhee Res (Storage Change)
+ Diversions to North and South Canals
Snake R at King Hill, ID - No Corrections
Snake R nr Murphy, ID - No Corrections
Snake R at Weiser, ID - No Corrections
Snake R at Hells Canyon Dam, ID
+ Brownlee Res (Storage Change)

Bear River Basin

Bear R nr UT-WY Stateline, UT – No Corrections
Bear R ab Res nr Woodruff, UT – No Corrections
Big Ck nr Randolph – No Corrections
Smiths Fork nr Border, WY - No Corrections
Bear R bl Stewart Dam nr Montpelier, ID
+ Bear R bl Stewart Dam
+ Rainbow Inlet Canal
Little Bear R at Paradise – No Corrections
Logan R nr Logan – No Corrections
Blacksmith Fk nr Hyrum – 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 Jan 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	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 * 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

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