United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
March 1, 2009

Typical Snow Courses

are located in small forest openings, meadows, or along roads or trails where snow falls naturally and accumulates during the winter

107 snow courses in Idaho

Typical snow course has 5 measurement points spaced 10 to 50 feet apart

Located in low, mid or high elevation areas

Measured monthly January – May
Some are also measured in mid-month

Snow depth and snow water equivalent are recorded at each sample point and then averaged for one value

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

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

Contact - - Your local 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/

How forecasts are made

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

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

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

IDAHO WATER SUPPLY OUTLOOK REPORT

March 1, 2009

SUMMARY

Idaho snowpack is currently 70-105% of average; however, many of the high percentages are in small pockets along the headwater streams bordering Idaho. The percentages don't sound too bad, but good precipitation is needed soon to salvage the winter. Current streamflow forecasts range from 50-90% of average across the region. In many basins, the snow levels are very similar to 2007 amounts. The resulting streamflow in 2007 was well below average at 20-60% in the rivers south of the Salmon basin. Reservoir storage will help buffer the low runoff this year for some users. At least one good month of precipitation is needed this year to add more water to the snowpack while cool temperatures would allow the snow to continue accumulating. If this doesn't happen, we will be looking for good spring precipitation, and a few hot days to flush the snowmelt from the mountains to the reservoirs and then a cool summer to reduce water use.

SNOWPACK

With only one more month in the snow season, little hope remains for Idaho's snowpack to return to average levels by April 1, which is when the snow water typically reaches its peak for the season. Current snowpacks are the highest at 100-110% of average in the tributaries of the upper Snake River in Wyoming, Cub, Raft, Bruneau and Hayden Lake basins. The lowest snowpacks are 70% of average in northern Idaho as well as the Weiser and Payette basins. Ironically, there are still pockets of deep snow around Coeur d'Alene and Spokane which could provide a kicker in producing more runoff if they persist into the spring, like last year.

Usually, snow depth reaches its peak for the season in early to mid-March, nearly a month before the maximum snow water content occurs because warmer temperatures allow the snow depth to start settling. This year is unique as the lack of new snowfall has allowed the snowpack to become denser in the Payette and Boise basins. Snow density is determined by dividing snow water content by snow depth. New snowfall has an average density of 10%; one inch of snow water equals ten inches of snow depth. Before the snow starts melting, it needs to compact, which allows the snowpack to increase to 40-42% density. When these densities are achieved, the snow is ripe and ready to start melting. Record high temperatures in early March in the Treasure Valley started the settling of the snow depth and ripening of the snowpack. The melt season will soon be here, Camas Creek near Fairfield and Owyhee River are usually the first to start flowing from the winter's snowfall.

PRECIPITATION

An active weather pattern allowed storms to move in from the Pacific Ocean. However, high and low pressure systems created a doughnut hole over the central mountains and prevented a great deal of moisture from falling in central Idaho. The lowest February precipitation amounts were half of average in the Clearwater, Salmon, Weiser, Payette and Boise basins. Precipitation was slightly better, but still only two-thirds of average, in the Wood and Lost basins. February amounts were only 55% of average in the Henrys Fork and Snake River headwaters in Wyoming, but increased to 90% in the Greys and Salt Rivers, the southern tributaries of the Snake River. The Bear River received 88% of average February precipitation, while the Southside Snake River basin streams, with their headwaters in northern Nevada, received 70% of average February amounts.

Combining January and February precipitation totals show that the lowest amounts were 40-60% of average across central Idaho from the Boise basin to Mud Lake area. Prairie and Mores Creek SNOTEL sites have the lowest combined January and February precipitation at 40% of average, which is the third lowest amount since daily precipitation records start in 1982. Usually one month of below normal precipitation is not enough to impact the projected water supply. However, this dry spell started in early to mid January and appears to be stretching at least into early March. Water users, managers and irrigators should watch the weather closely to determine when to raise the red flag or not. Basins that

may feel the greatest pinch are in central and southern Idaho where cumulative drought effects continue due to last year's runoff being only 55-75% of average.

RESERVOIRS

With the exception of a few rivers in Idaho, streamflows this winter were low and did not contribute much to reservoir storage. The lowest reservoir storages in the state are Salmon Falls Reservoir at only 13% of capacity; 40% of average, and Magic Reservoir at only 16% of capacity; 33% of average. When storage is this low, the ideal situation would be to have a big snowpack. Unfortunately, it is not that kind of a year. However, there are two cases where water supplies can be improved during a low snow year; spring rains and very warm, late-spring temperatures. Spring rainfall can supplement runoff during snowmelt. Warm air temperatures can also improve efficiency in delivering snowmelt to the reservoirs. On the brighter side, there are reservoirs with near to above average storage. Dworshak, Cascade, the Boise reservoir system, most Upper Snake reservoirs, Brownlee and Montpelier Creek are all storing above average volumes for this time of year. Jackson Lake has the best storage with respect to average at 131%, while Palisades Reservoir is 97% of average. Reservoirs will help buffer impacts of low runoff, but the saving grace would be abundant March snowfall and good spring precipitation.

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

Don’t let this year's snowpack, which sounds promising at 70-105% of average, fool you. During drought or below normal years, the correlation between April 1 snowpack and April-September streamflow is not a 1:1 relationship. The exception this year may be in the St. Joe, Coeur d'Alene, and Snake River above Palisades Reservoir where last year's runoff ranged from 100-140% of average and cooler temperatures helped to provide better baseflows. In addition, the Clearwater basin received abundant fall rains while the rest of the state did not, so those dryer soils will absorb more at the onset of the snowmelt season. Most streamflow forecasts across the southern half of Idaho decreased 5-15 percentage points from last month with the greatest decreases in the west central basins. The highest forecast is 99% of average in the Selway River and lowest forecasts are 55-60% of average in Camas Creek, lower Big Wood River and Bear River at Stewart Dam. The Snake River near Heise is still forecast at 90% of average, while the 90% exceedance forecast is for 75% of average, which, if it happens, means water supplies could be tight for some users.

Spring precipitation in April, May and June is like a wild card that can improve and produce good streamflows from a below normal snowpack, but the trend in the past decade or so, has been below normal amounts of spring precipitation. With a snowpack that is less than last year in most basins, runoff volumes and the extent of the high water season could be much less than last year without cooperation from Mother Nature.

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. The forecast numbers mentioned in this narrative are the volume under the 50% Chance of Exceeding, which means there is a 50% chance the volume will be greater or less than the given value. 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

Fortunately, the weather pattern was productive around Christmas and New Year’s Day resulting in abundant snowfall. Since then, dry weather has dominated most of the state. Cold temperatures kept the snow in the mountains powdery with no base for a while, followed by a warmer snow storm, which caused some unfortunate avalanche fatalities in the west, northwest and Canada. The snow in north Idaho valleys was a delight for kids, but parents were forced to shovel out their driveways. Sunny skies

prevailed in mid-January to mid-February and allowed for springtime skiing, snowshoeing, snowmobiling and cross-country skiing in the snow covered mountains. The NOAA's National Weather Service forecast calls for more snow during the first week of March throughout Idaho's mountains! That means winter recreation may continue and more snow water can be stored for summer river recreation, irrigation, hydropower production, and wildlife. River runners should get the boats ready as the high desert rivers will start flowing soon. The Owyhee River is forecast at 80% of average, while the Bruneau River is slightly better at 89%. The Middle Fork Salmon and main Salmon Rivers are also forecast at about 80% of average. The Lochsa and Selway River basin has some of the best snow in the state and are forecast at 95-100% of average.

BUDGET IMPACTS MAY AFFECT MANUAL SNOW COURSE MEASUREMENTS.

Budget cuts to the Idaho Snow Survey Program this year are forcing us to evaluate all aspects of our operations. The data collection network consists of about 120 manually measured snow courses and 118 automated SNOTEL stations serviced from our Boise office, which includes sites in Idaho, western Wyoming, northeast Washington and northern Nevada. Data quality and management, and SNOTEL operation and maintenance are two other major areas of emphasis. Water supply forecasting, product development and public information make up the fourth major facet of our program.

Measuring the 120 snow courses 2 to 6 times a year is both labor intensive and costly. Fortunately, about one-third are presently measured by cooperating partners with no cost to us except for sampling equipment and periodic travel to provide training. That arrangement has worked extremely well for many years. The rest are evenly split between paid contractors and NRCS personnel from 12 separate field offices. The contract costs, while still moderate, continue to increase each year. Agency policies for NRCS personnel require a significant investment annually for equipment, safety and training items. These are not optional, and the changing nature of the modern workforce and overall NRCS priorities exacerbates the financial obligation in order to comply. Essentially, the NRCS is increasingly more diverse, flexible and mobile. Personnel are moving much more frequently as conservation needs, priorities and programs target specific resource concerns around the state and staff are shifted accordingly.

These NRCS and contract snow courses are the ones that may be difficult to continue if declining budgets force us to make the tough decisions. We are asking all interested parties to please provide feedback as to the value, usefulness, and benefits of the information obtained from the snow courses in your area. Many sites, even if measured only twice a year, have 40 or more years of continuous data, a valuable record that would be beneficial to maintain. The possible replacement of key manual sites with a SNOTEL station may be an alternative. However, the $30,000 cost (equipment only) of a SNOTEL site is a significant issue that must be borne by local sponsors. Another alternative may involve local interested volunteers to make the measurements. We cannot ignore the financial realities of increasing costs and level or declining allocations to government agencies like us. The SNOTEL system is our highest priority and redirecting resources to that area of our program at the expense of other items may be unavoidable. We do not come hastily to this proposal, but we would like more local information before possible implementation of any significant actions.

We are seeking input from all interested parties regarding the use and value of the monthly measurements from the manual snow course network. If local support is there, then we will work on options to continue the sites. If, however, there does not appear to be any local support or interest for particular snow courses, budgetary decisions to drop them may be justifiable, though not desirable. The Snow Survey Program was founded as the Federal, State, Private "Cooperative Snow Surveys", and in the current economic climate, we really need the cooperative aspect to again come to the forefront to ensure the continued success of the program for the public benefits it provides.

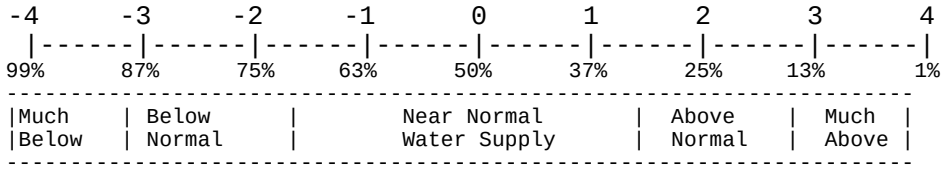
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) As of March 1, 2009

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*
PANHANDLE	-1.9	1995	NA
CLEARWATER	-0.3	2000	NA
SALMON	-0.4	2003	NA
WEISER	-1.7	2004	NA
PAYETTE	-1.9	2007	NA
BOISE	-1.1	2003	-1.7
BIG WOOD	-1.3	2008	0.0
LITTLE WOOD	-0.6	2000	-2.0
BIG LOST	-0.9	2008	-0.1
LITTLE LOST	-1.9	2000	0.5
HENRYS FORK	-1.2	2000	-3.3
SNAKE (HEISE)	0.6	2006	-1.7
OWYHEE	-1.3	2007	NA
OAKLEY	-1.1	1993/1995	-0.9
SALMON FALLS	-1.7	2008	-1.3
BRUNEAU	-0.6	2008	NA
BEAR RIVER	-2.7	2008	-3.0

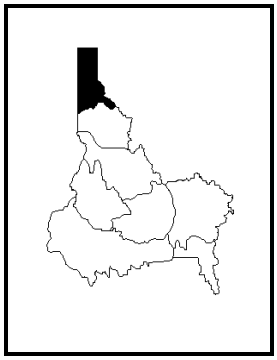
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

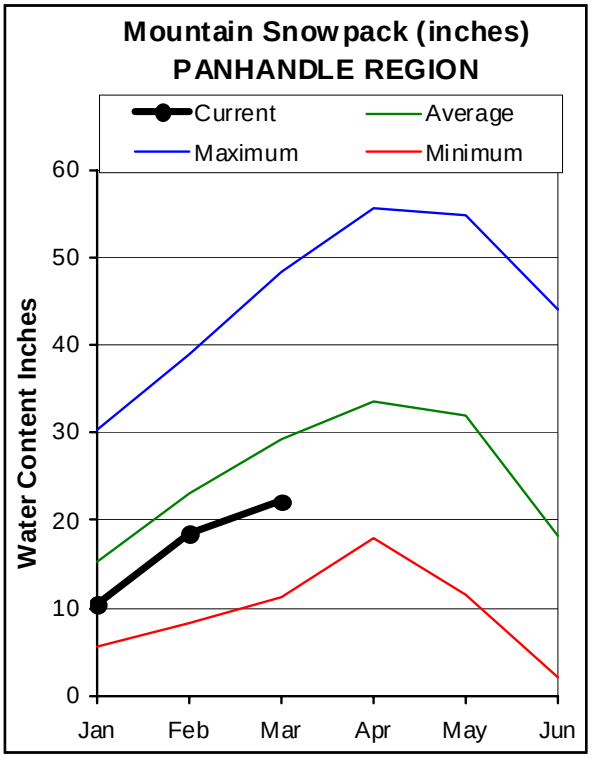


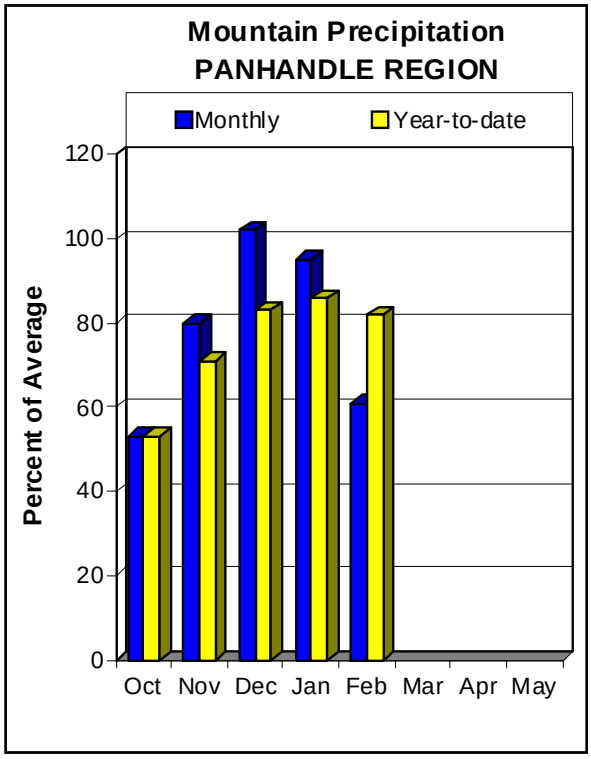
NA = Not Applicable

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, 2009







WATER SUPPLY OUTLOOK

The mountains in the Panhandle Region are storing some of the lowest snow water content amounts in the state relative to average at 65-80%. Last year the snowpack ranged from 100-200% of normal with lots more snow in the valleys. During the last week in February, some mountain SNOTEL sites received 1.5-6.5 inches of precipitation and up to two feet of new snow, but it was not enough to greatly improve the snow water content deficit. Overall, mountain precipitation in February was 61% of average and is 82% for the water year. A rain event in January and warm breezy conditions in February melted more of the low elevation snowpack. The valley snow usually does not contribute as much to the seasonal runoff as the mountain snowpack does, thus, snow measuring stations are not located in the valleys. The National Weather Service in Spokane reports Spokane has received 84 inches of snowfall thus far. Luckily more has melted off this year then last year at this time. Currently, the streams are only forecast at 70% of average for the Moyie River, 75% at Boundary Creek, 80-85% for the Kootenai, North Fork Coeur D'Alene, St. Joe and Spokane rivers. The duration of high stream flows should be less than last year with more of the low elevation snow melted.

PANHANDLE REGION
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KOOTENAI at Leonia (1,2)	APR-JUL	4840	5570	5900	84	6230	6960	7040
	APR-SEP	5540	6420	6820	84	7220	8100	8120
MOYIE RIVER at Eastport	APR-JUL	230	260	285	70	310	340	405
	APR-SEP	235	270	295	70	320	355	420
SMITH CREEK	APR-JUL	68	82	92	75	102	116	123
	APR-SEP	68	84	95	74	106	122	129
BOUNDARY CREEK	APR-JUL	72	84	92	75	100	112	123
	APR-SEP	75	87	95	74	103	115	129
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	9350	9780	9980	88	10200	10600	11300
	APR-SEP	10200	10800	11000	88	11200	11800	12500
PEND OREILLE Lake Inflow (2)	APR-JUL	10700	11000	11200	88	11400	11700	12700
	APR-SEP	11600	12000	12200	88	12400	12800	13900
PRIEST near Priest River (1,2)	APR-JUL	470	630	700	86	770	930	815
	APR-SEP	500	665	740	85	815	980	870
NF COEUR D'ALENE RIVER at Enaville	APR-JUL	360	500	600	81	700	840	740
	APR-SEP	390	535	635	81	735	880	780
ST. JOE at Calder	APR-JUL	715	860	955	84	1050	1200	1140
	APR-SEP	750	895	995	83	1090	1240	1200
SPOKANE near Post Falls (2)	APR-JUL	1540	1890	2130	84	2370	2720	2550
	APR-SEP	1600	1950	2190	83	2430	2780	2650
SPOKANE at Long Lake (2)	APR-JUL	1760	2150	2410	85	2670	3060	2850
	APR-SEP	1900	2310	2590	84	2870	3280	3070

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	2444.0	2434.0	2047.6
FLATHEAD LAKE	1791.0	724.1	725.3	802.7
NOXON RAPIDS	335.0	325.7	309.2	306.0
PEND OREILLE	1561.3	457.8	912.0	778.8
COEUR D'ALENE	238.5	90.3	54.9	144.9
PRIEST LAKE	119.3	50.4	48.5	56.8

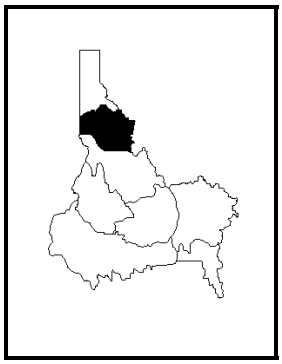
PANHANDLE REGION
Watershed Snowpack Analysis - March 1, 2009

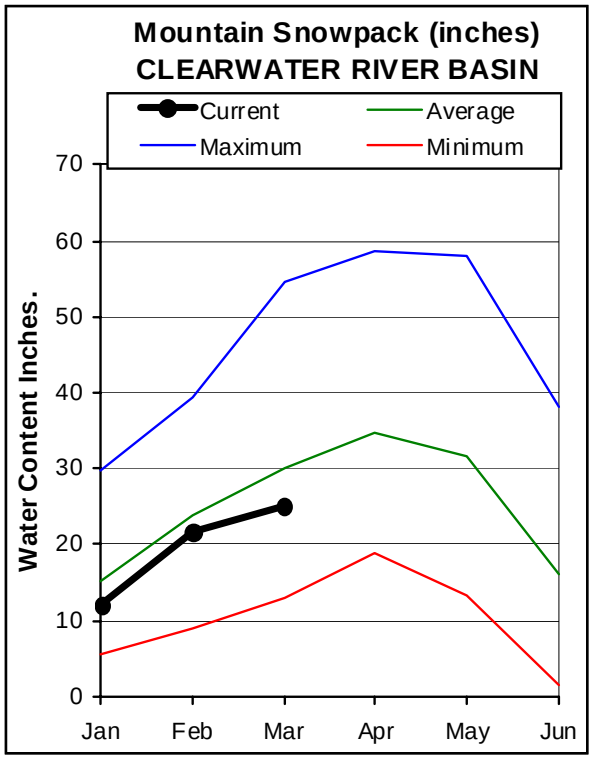
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	9	66	77
Moyie River	1	63	66
Priest River	4	63	75
Pend Oreille River	85	79	85
Rathdrum Creek	3	63	91
Hayden Lake	1	44	104
Coeur d'Alene River	3	56	80
St. Joe River	4	71	79
Spokane River	11	64	83
Palouse River	2	53	93

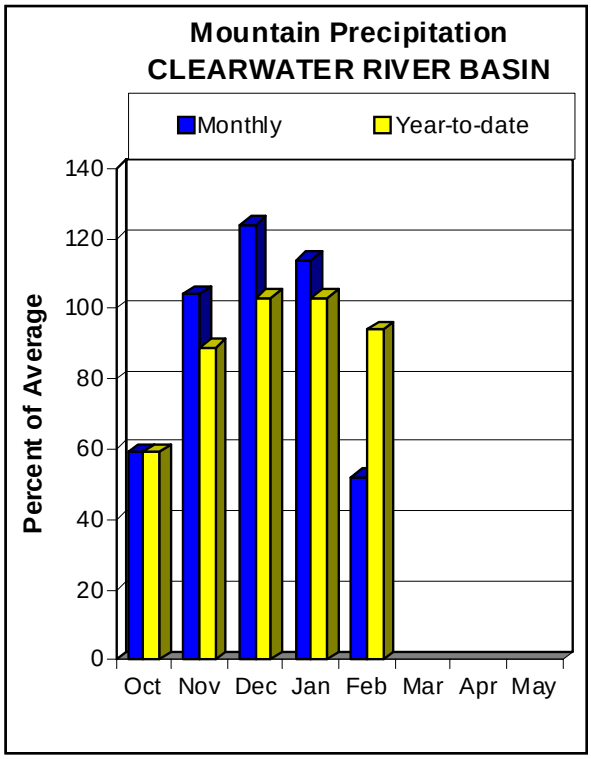
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
MARCH 1, 2009







WATER SUPPLY OUTLOOK

Overall, the Clearwater's snowpack is 85% of normal. The weather systems favored the Montana side of the Continental Divide, which explains the notable higher snowpacks in the Selway basin at 96% of normal. The mountains in the Lochsa and North Fork Clearwater drainages have snowpacks only in the 80-85% of average range. Precipitation for the water year stands at 94% of average due to ample fall rains and December snowfall, but February monthly precipitation was only 52% of normal. Even though February was dry, the water supply picture remains promising. Dworshak Reservoir is currently 66% full and 102% of average. The April through July streamflow forecasts mirror the snowpack and call for 99% of average for the Selway River, 95% for the Lochsa River but only 80% for Dworshak Reservoir inflow. River running opportunities are encouraging and the extent of high flows should be less than last year with the snow currently at only three-quarters of last year's March 1 amounts. Last year's runoff was 125% of average for most of the rivers in the Clearwater basin.

CLEARWATER RIVER BASIN
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	APR-JUL	1684	1893	2035	99	2177	2386	2060
	APR-SEP	1768	1987	2135	98	2283	2502	2170
Lochsa R nr Lowell	APR-JUL	1174	1344	1460	95	1576	1746	1530
	APR-SEP	1243	1420	1540	96	1660	1837	1610
Dworshak Reservoir Inflow	APR-JUL	1319	1856	2100	80	2344	2881	2640
	APR-SEP	1416	1990	2250	80	2510	3084	2800
Clearwater R at Orofino	APR-JUL	3386	4173	4530	97	4887	5674	4650
	APR-SEP	3570	4399	4775	97	5151	5980	4900
Clearwater R at Spalding	APR-JUL	4857	6114	6685	90	7256	8513	7430
	APR-SEP	5171	6497	7100	90	7703	9029	7850

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	2296.2	2261.4	2247.3

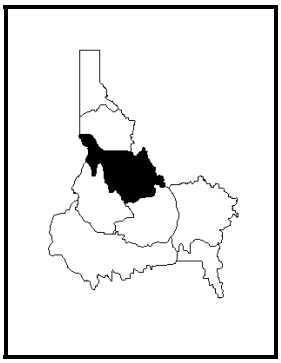
CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - March 1, 2009

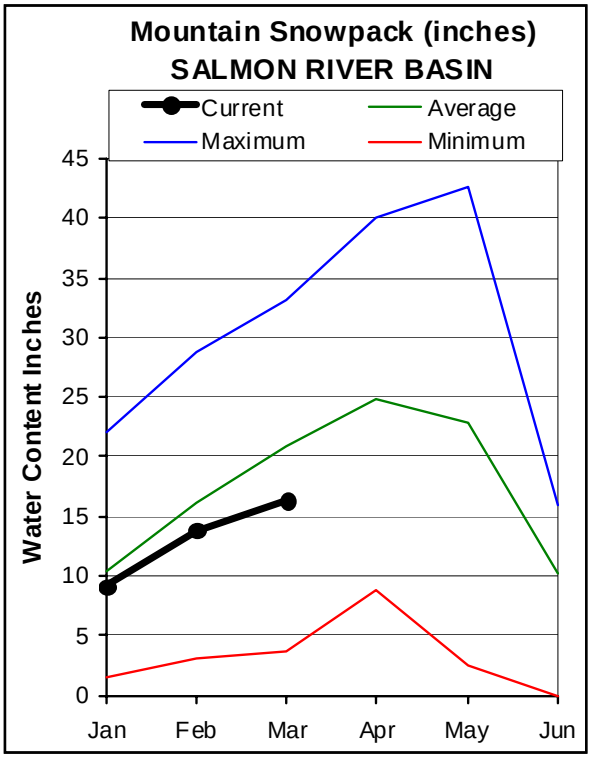
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	71	81
Lochsa River	3	69	83
Selway River	5	84	96
Clearwater Basin Total	18	72	85

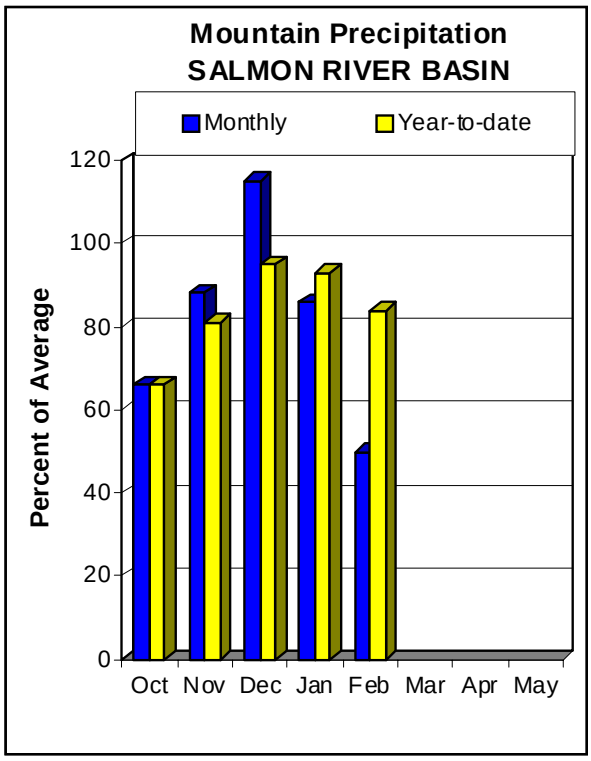
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
MARCH 1, 2009







WATER SUPPLY OUTLOOK

The snowpacks vary across the Salmon River drainage. The South Fork Salmon basin hosts the lowest snowpack at only 70% of average. The Middle Fork and Little Salmon basins are about 73% of average. The snowpack increases to 83% of average for the Salmon River above the town of Salmon and to 93% for the Lemhi basin which caught some of the moisture that fell on the east side of the Continental Divide. Overall, the Salmon basin is 81% of normal, despite the fact that February precipitation was only 50% of normal. Christmas and New Years storms began to build the snowpack, and the cold temperatures preserved the base, but not many significant weather systems moved through the region to add additional moisture to the snow. Snow indexes, which combine snow water content from several SNOTEL sites, indicate that the snow quantity is similar to 2007. Summer seasonal flows for the April through July period forecasts range from near 75% of normal for the Lemhi River and Salmon River near Salmon to near 80% of normal for the Middle Fork Salmon River and Salmon River at Whitebird. Volumes won't be as high as last year when the runoff was 113% of average, but should be provide plenty of whitewater thrills again.

SALMON RIVER BASIN
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Salmon R at Salmon	APR-JUL	377	565	650	76	735	923	855
	APR-SEP	439	660	760	76	860	1081	1000
Lemhi R nr Lemhi	APR-JUL	33	50	63	73	78	103	86
	APR-SEP	43	62	77	73	94	121	105
MF Salmon R at MF Lodge	APR-JUL	386	531	630	80	729	874	785
	APR-SEP	440	601	710	81	819	980	875
Salmon R at White Bird	APR-JUL	3096	4282	4820	82	5358	6544	5850
	APR-SEP	3410	4731	5330	82	5929	7250	6480

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

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

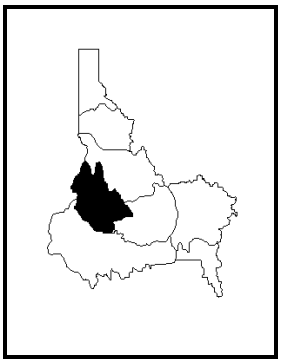
SALMON RIVER BASIN
Watershed Snowpack Analysis - March 1, 2009

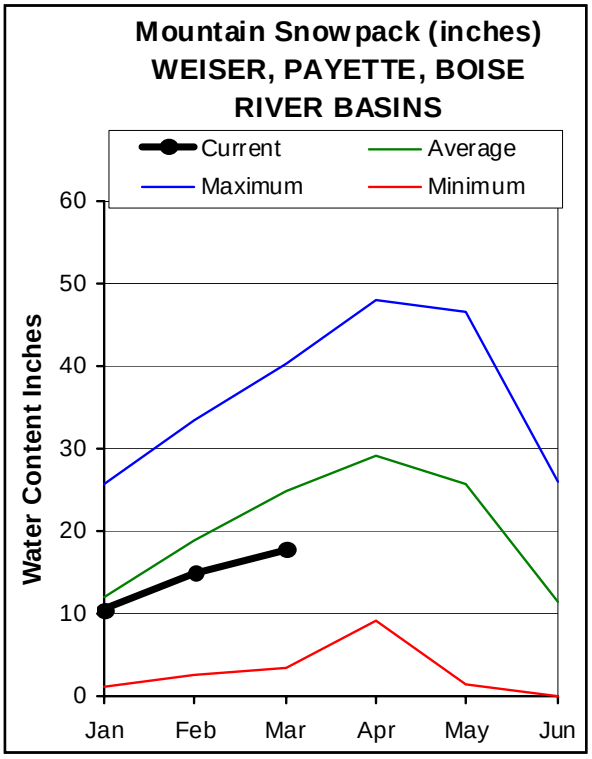
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	8	80	83
Lemhi River	10	82	91
Middle Fork Salmon River	3	71	73
South Fork Salmon River	3	65	70
Little Salmon River	4	61	74
Salmon Basin Total	29	74	82

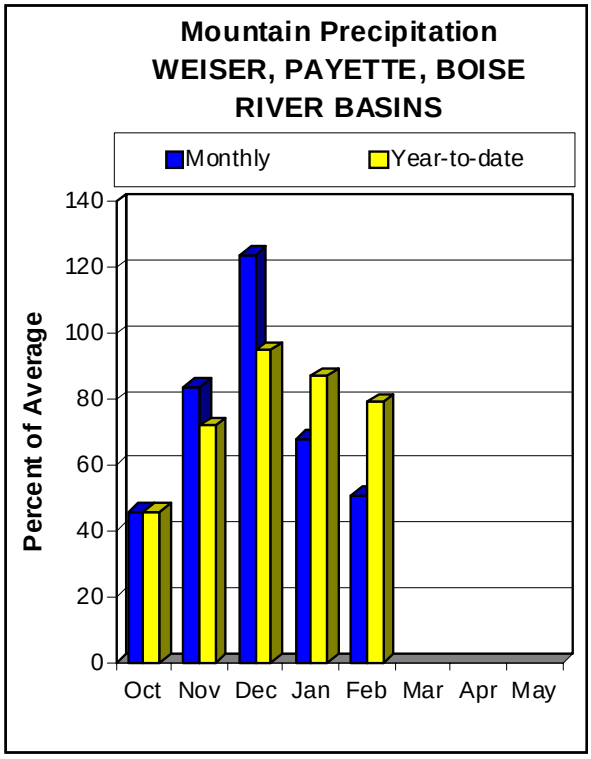
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
MARCH 1, 2009







WATER SUPPLY OUTLOOK

An active weather pattern allowed storms to move in from the Pacific Ocean. However, high and low pressure systems created a doughnut hole over the central mountains and prevented moisture from falling in central Idaho. The combined January and February precipitation was only 40% of average at Prairie and Mores Creek SNOTEL sites. This combined precipitation is the third lowest since daily precipitation records start in 1982. Word on the street in Cascade and McCall isn't any better as locals are comparing the current snowpack to what it looked like in mid to late May last spring. Tamarack Ski Resort, which will be closing due to financial reasons, needed a big snow year to draw more visitors, just like the stock market needs a big day. Overall, February precipitation was about 45% of average in the Weiser and Payette basins and about 50% in the Boise basin. Overall, water year to date precipitation is 79% of average. Snowpacks are near 65-75 % of average for the Boise, Weiser and Payette mountains. Reservoirs are similar to last month and remain near average due to minimal outflows and lack of inflows. Streamflow forecasts decreased from a month ago and now call for 68% of average for Weiser River, 62% for Payette River at Horseshoe Bend, and 71% for Boise River near Boise. In 2007, runoff was 38% of average in the Weiser River and 47% in the Boise River; and slightly better at 56% in the Payette River near Horseshoe Bend and 63% for the SF Payette River at Lowman. Based on the Boise Surface Water Supply Index, which includes current reservoir storage, surface water supplies are approaching the marginally adequate levels if the runoff is around 60% of average. Water users may wish to base their decisions on a lesser exceedance forecast especially if the drier than normal weather patterns continue.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser	MAR-JUL	164	300	375	68	459	672	555
	APR-SEP	118	223	281	67	346	514	420
SF Payette R at Lowman	APR-JUL	235	278	310	71	343	395	440
	APR-SEP	267	315	350	71	387	445	495
Deadwood Reservoir Inflow	APR-JUL	52	79	91	68	103	130	134
	APR-SEP	56	85	98	69	111	140	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	APR-JUL	197	313	365	70	417	533	520
	APR-SEP	198	317	371	69	425	544	540
NF Payette R nr Banks	APR-JUL	249	342	405	60	468	561	675
	APR-SEP	244	343	410	59	477	576	700
Payette R nr Horseshoe Bend	APR-JUL	601	881	1008	62	1136	1416	1640
	APR-SEP	601	937	1090	62	1243	1579	1760
Boise R nr Twin Springs	APR-JUL	301	421	475	75	529	649	635
	APR-SEP	332	461	520	75	579	708	690
SF Boise R at Anderson Ranch Dam	APR-JUL	212	328	380	70	432	548	540
	APR-SEP	229	350	405	70	460	581	580
Mores Ck nr Arrowrock Dam	APR-JUL	42	63	79	60	97	127	131
	APR-SEP	44	65	82	60	101	132	137
Boise R nr Boise	APR-JUN	618	809	895	71	981	1172	1260
	APR-JUL	586	871	1000	71	1129	1414	1410
	APR-SEP	640	950	1090	71	1230	1540	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	3.8	2.2	6.1
CASCADE	693.2	471.2	490.5	438.3
DEADWOOD	161.9	78.9	66.8	88.5
ANDERSON RANCH	450.2	261.8	150.3	268.0
ARROWROCK	272.2	244.4	241.2	210.4
LUCKY PEAK	293.2	108.7	99.2	120.4
LAKE LOWELL (DEER FLAT)	165.2	89.3	80.3	109.1

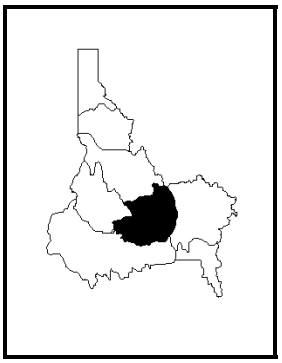
WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2009

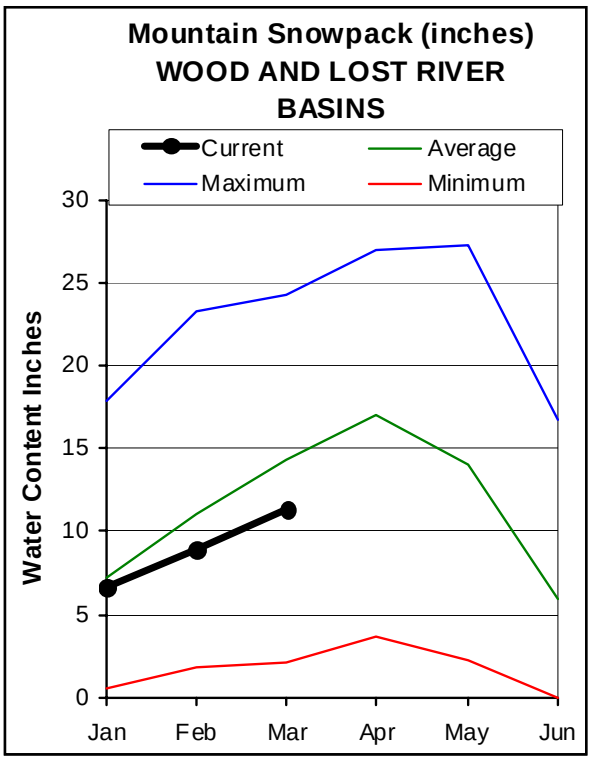
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	2	66	65
Weiser River	5	53	69
North Fork Payette	8	60	72
South Fork Payette	5	67	71
Payette Basin Total	14	63	71
Middle & North Fork Boise	5	75	72
South Fork Boise River	9	74	79
Mores Creek	5	57	68
Boise Basin Total	16	69	75
Canyon Creek	2	82	105

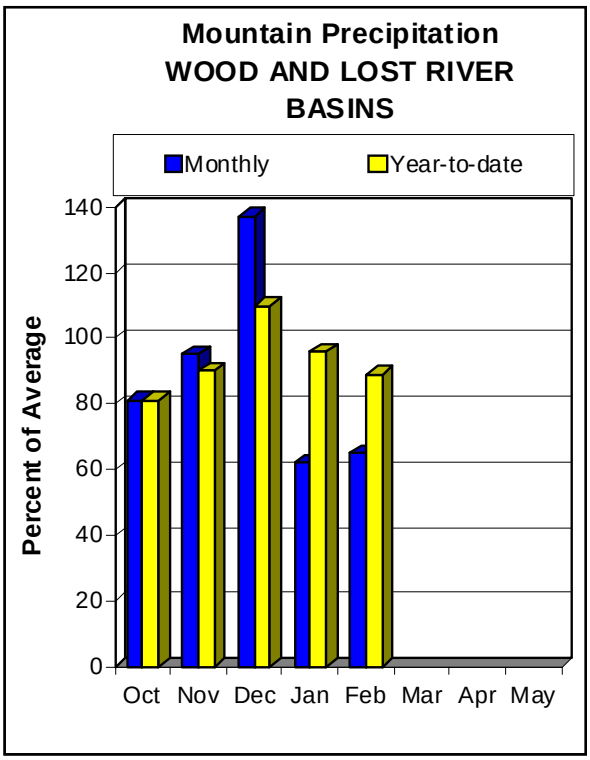
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
MARCH 1, 2009







WATER SUPPLY OUTLOOK

One good month of above normal precipitation that fell in December is not enough for this winter. The dry spell started again in January and continued though February. February precipitation ranged from 47% of average in Camas Creek to 75% in the Big Lost basin. Combined January and February precipitation amounts were some of the lowest amounts in the state with a handful of stations from the Big Wood basin to Mud Lake receiving only half the normal amounts. Usually these months account for about 25% of the annual precipitation, but not this year. Current snowpacks are 75-85% of average and very similar to 2007 snow levels. Reservoir storage remains low, with minimal inflows due to lack of rain and cold temperatures allowing the snow to settle in depth and not melt except in the lower elevations. The 50% Chance of Exceeding Forecast calls for 67% of average for the Big Wood River at Hailey while the minimum forecast, 90% chance of exceedance, is for 31% of average. A similar March 1 snowpack in 2007 produced runoff that was only 40% of average for the Big Wood River at Hailey and 16% for Big Wood River below Magic Dam. April-June precipitation that year was only 59% of average. Unless you know it is going to be a wet spring, water users may consider using the lower volume runoff forecasts (the 70% and 90% chance of exceedance forecasts), which are in the same ballpark as observed runoff in 2007 in the Big Wood basin. Little Wood River is forecast at 70% of average, while observed flow in 2007 was 21%. Little Lost River is forecast at 70% of average and flows were 53% in 2007. Water supplies will be tight this year in these central Idaho basins and users should plan accordingly.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Big Wood River at Hailey	APR-JUL	78	137	170	67	206	297	255
	APR-SEP	88	155	192	66	233	336	290
Big Wood R ab Magic Reservoir	APR-JUL	18.0	66	98	52	130	178	190
	APR-SEP	23	74	109	53	144	195	205
Camas Ck nr Blaine	APR-JUL	21	39	55	55	73	105	100
	APR-SEP	22	40	56	55	74	106	101
Big Wood R bl Magic Dam	APR-JUL	37	110	160	55	210	283	290
	APR-SEP	42	118	170	56	222	298	305
Little Wood R ab High Five Creek	MAR-JUL	29	47	61	72	77	105	85
	MAR-SEP	31	50	66	72	84	113	92
Little Wood R nr Carey	MAR-JUL	33	53	66	69	79	99	96
	MAR-SEP	36	57	71	68	85	106	104
Big Lost R at Howell Ranch	APR-JUL	81	114	139	80	167	213	173
	APR-SEP	92	130	159	81	191	244	197
Big Lost R bl Mackay Res	APR-JUL	43	79	103	73	127	163	141
	APR-SEP	56	99	129	75	159	202	172
Little Lost R nr Howe	APR-JUL	12.7	17.9	22	71	26	34	31
	APR-SEP	14.6	21	26	67	32	41	39

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	29.8	24.1	89.7
LITTLE WOOD	30.0	13.3	10.5	17.7
MACKAY	44.4	26.5	25.6	30.8

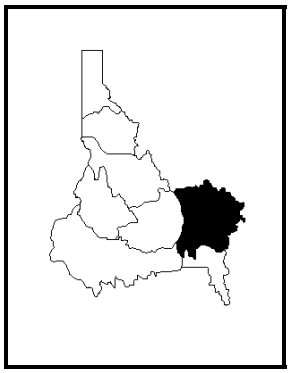
WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - March 1, 2009

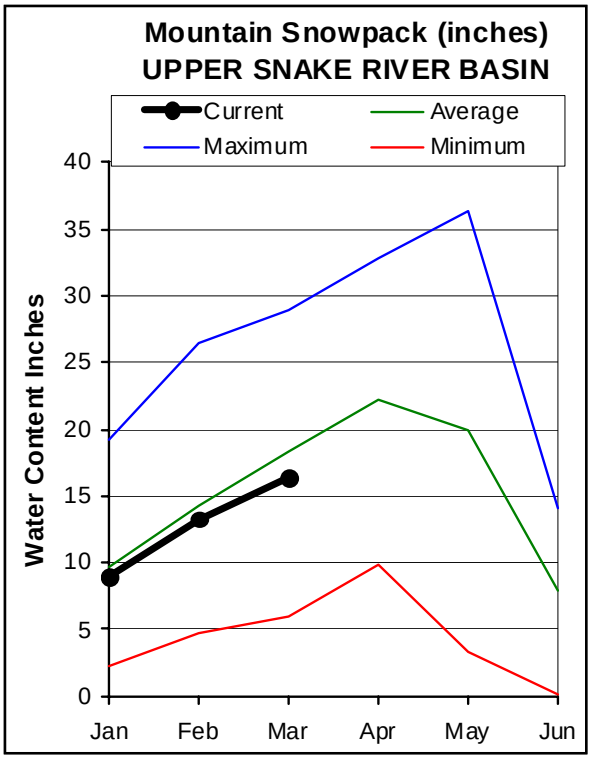
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	8	71	73
Camas Creek	5	75	86
Big Wood Basin Total	13	73	77
Fish Creek	3	92	87
Little Wood River	8	85	85
Big Lost River	6	81	81
Little Lost River	4	71	81
Birch-Medicine Lodge Cree	4	67	74
Camas-Beaver Creeks	4	69	78

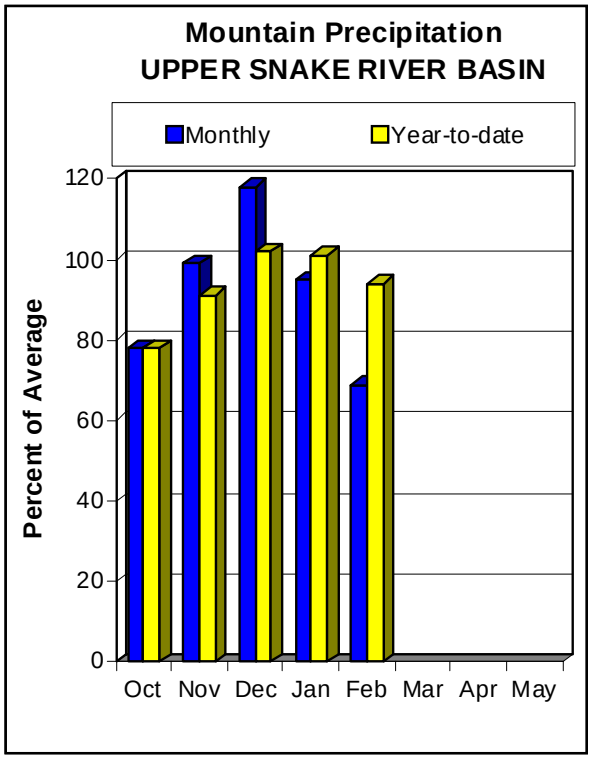
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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 BASINS
MARCH 1, 2009







WATER SUPPLY OUTLOOK

Once again the Upper Snake basin caught the fringes of the storms that avoided central Idaho. February mountain precipitation amounts ranged from 55% of average in the Falls, Teton and Snake River above Jackson basins to 90% in the Greys and Salt basins. Overall, February precipitation was 69% of average and water year-to-date precipitation stands at 94% of average, which is less than last year. Current snowpacks range from 80% of average in the lower elevation basins in Idaho and Henrys Fork to 105% in a few of the headwater tributaries in Wyoming. The snowpack is less than last year except in the Gros Ventre, Greys and Salt basins. Better carryover reservoir storage will help make up some the difference in the lack of snow for this year. Reservoir storage is above average for most of the reservoirs with the exception of Blackfoot Reservoir which is only 43% of average. The eight reservoirs are storing 1.1 million acre-feet more this year than last year. In comparison, an average runoff year, like last year, the Snake River near Heise provides 4.2 million acre-feet of water during the April-September period. The Heise gage is forecast at 89% of average, 3,700,000 acre-feet. Combining the projected runoff with reservoir storage shows 5.3 million acre-feet available, while the surface irrigation demand is about 4.4 million acre-feet. The 90% Chance of Exceeding Forecast is for 75% of average which would provide 4.7 million acre-feet. Water supplies may be tight if the surface runoff is much less than 80% of average at the Heise gage. Unfortunately, the final piece of this year's runoff may come down to spring precipitation. Timing and intensity of spring runoff will also influence efficiency of the snow to produce streamflow. Water users should plan accordingly and consider how the different exceedance forecasts may affect you or your water right.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Henrys Fork nr Ashton	APR-JUL	339	403	450	79	499	577	570
	APR-SEP	485	563	620	81	679	772	765
Henrys Fork nr Rexburg	APR-JUL	950	1111	1220	78	1329	1490	1560
	APR-SEP	1246	1427	1550	77	1673	1854	2010
Falls R nr Ashton	APR-JUL	245	283	310	82	339	383	380
	APR-SEP	293	338	370	82	404	456	450
Teton R nr Driggs	APR-JUL	83	104	120	73	137	163	165
	APR-SEP	103	130	150	71	172	206	210
Teton R nr St. Anthony	APR-JUL	213	263	300	74	339	402	405
	APR-SEP	262	321	365	76	411	485	480
Snake River At Flagg Ranch	APR-JUL	349	403	440	89	477	531	495
	APR-SEP	381	440	480	88	520	579	545
Snake R Nr Moran	APR-JUL	548	673	730	90	787	912	815
	APR-SEP	591	735	800	88	865	1009	905
Pacific Ck At Moran	APR-JUL	125	152	170	99	188	215	171
	APR-SEP	128	156	175	98	194	222	178
Snake R Nr Alpine	APR-JUL	1600	1944	2100	89	2256	2600	2370
	APR-SEP	1809	2215	2400	88	2585	2991	2730
Greys R Nr Alpine	APR-JUL	267	304	330	97	356	393	340
	APR-SEP	309	354	385	98	416	461	395
Salt R Nr Etna	APR-JUL	204	273	320	94	367	436	340
	APR-SEP	250	333	390	93	447	530	420
Snake R nr Irwin	APR-JUL	2347	2789	2990	90	3191	3633	3330
	APR-SEP	2737	3227	3450	89	3673	4163	3870
Snake R nr Heise	APR-JUL	2654	2979	3200	90	3421	3746	3560
	APR-SEP	3084	3451	3700	89	3949	4316	4160
Willow Ck nr Ririe	MAR-JUL	47	68	82	93	96	117	88
Blackfoot R ab Res nr Henry	APR-JUN	30	45	57	78	70	93	73
Portneuf R at Topaz	MAR-JUL	49	59	67	75	75	88	89
	MAR-SEP	60	72	81	74	90	105	109
Snake River at Neeley	APR-JUL	1040	1858	2230	69	2602	3420	3240
	APR-SEP	1112	1998	2400	68	2802	3688	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	87.0	79.5	84.4
ISLAND PARK	135.2	115.3	94.4	107.1
GRASSY LAKE	15.2	13.0	13.4	12.0
JACKSON LAKE	847.0	644.8	335.4	494.0
PALISADES	1400.0	1004.0	567.3	1033.1
RIRIE	80.5	41.7	40.2	38.5
BLACKFOOT	348.7	97.3	90.8	224.7
AMERICAN FALLS	1672.6	1408.7	1089.3	1271.1

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - March 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Henrys Fork-Falls River	9	77	81
Teton River	8	77	77
Henrys Fork above Rexburg	17	77	79
Snake above Jackson Lake	5	90	87
Pacific Creek	2	91	102
Gros Ventre River	3	97	96
Hoback River	5	99	87
Greys River	5	106	103
Salt River	5	107	110
Snake above Palisades	22	96	93
Willow Creek	7	77	86
Blackfoot River	5	84	87
Portneuf River	7	83	86
Snake abv American Falls	42	88	90

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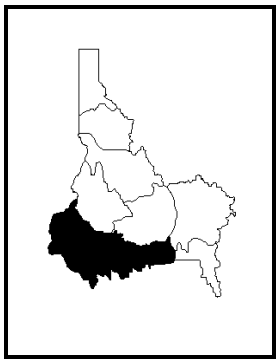
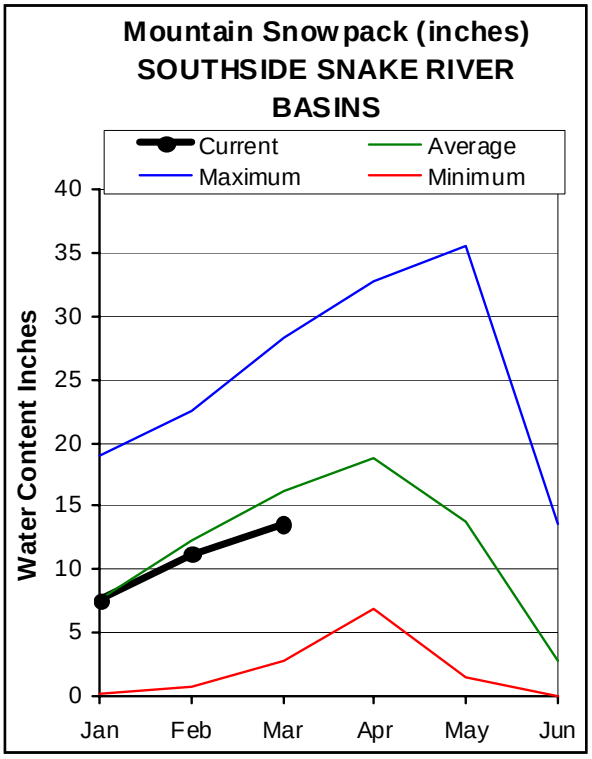
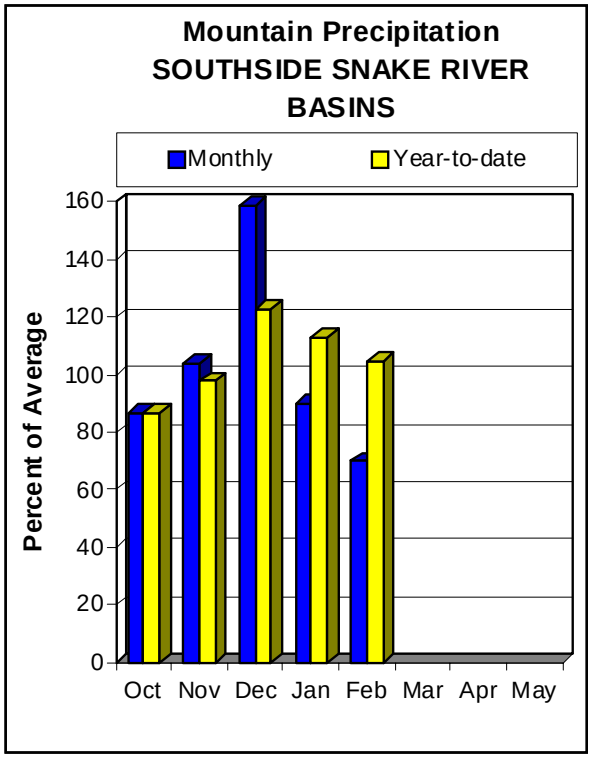
(2) - The value is natural flow - actual flow may be affected by upstream water management.

SOUTHSIDE SNAKE RIVER BASINS
MARCH 1, 2009







WATER SUPPLY OUTLOOK

The snowpack is currently 84% of average in the mountains south of the Snake River. The measured snow in the higher elevations indicate that the Bruneau basin is 100% of average, Owyhee basin is 98%, Salmon Falls basin is 96%, and Reynolds Creek is only 72%. If you live or have visited the Owyhee's lately, you might think that it looks much dryer than the snow stations are reporting. The snow measurements are taken in the mountain areas where the snow typically accumulates and has not started melting yet. The exception is Reynolds Creek, where a lot of the area measured is the high desert sage area that represents the lay of the land in the Owyhee area. Runoff usually begins in March in these high desert drainages, which is about one to two months earlier than the rivers north of the Snake River. The 50% chance of exceedance forecasts call for the March-July streamflow to be in the 70-90% of average range. The lowest streamflow forecasts are for Reynolds Creek at 50% of normal, where the land has already lost some of its snow, 80% for the Owyhee River below the Owyhee Lake dam, 84% for Salmon Falls Creek, and near 90% for the Bruneau River. Runoff will start soon in the Owyhee River for the river runners. Reservoir storage in Oakley, Salmon Falls, Owyhee and Wildhorse is currently less than 40% full and less than 70% of average, while Brownlee Reservoir is 79% full, 103% of average. Based on the Surface Water Supply Index, water supplies will be marginally adequate in the Oakley and Salmon Falls basins. Water users may want to use a smaller exceedance volume forecast which plans for less water just to play it safe.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Oakley Reservoir Inflow	MAR-JUL	11.7	18.5	24	71	30	41	34
	MAR-SEP	12.9	20	26	70	33	44	37
OAKLEY RESV STORAGE	MARCH	23	24	25	69	26	27	36
	APRIL	25	27	29	71	31	33	41
	MAY	25	29	32	71	35	39	45
Salmon Falls Ck nr San Jacinto	MAR-JUN	47	62	74	83	87	108	89
	MAR-JUL	48	65	78	84	92	115	93
	MAR-SEP	51	69	82	84	96	120	98
Bruneau R nr Hot Springs	MAR-JUL	127	174	210	89	249	313	235
	MAR-SEP	134	182	220	88	261	328	250
Owyhee R nr Gold Creek	MAR-JUL	16.4	23	29	91	36	47	32
	MAR-SEP	15.3	21	26	84	31	41	31
Owyhee R nr Rome	MAR-JUL	290	403	490	85	586	742	580
	MAR-SEP	298	412	500	83	597	754	600
Owyhee R blw Owyhee Dam	MAR-JUL	114	338	490	80	642	866	615
	MAR-SEP	84	335	505	78	675	926	645
	APR-SEP	35	208	325	76	442	615	430
Reynolds Ck at Tollgate	MAR-JUL	2.7	3.9	4.8	50	5.8	7.6	9.7

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	75.6	20.7	26.7	31.4
SALMON FALLS	182.6	23.7	32.1	59.8
WILDHORSE RESERVOIR	71.5	26.0	29.8	40.1
OWYHEE	715.0	232.6	215.8	489.1
BROWNLEE	1420.0	1123.3	904.7	1090.5

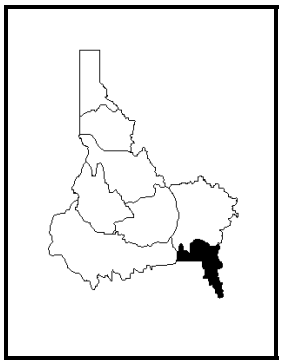
SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - March 1, 2009

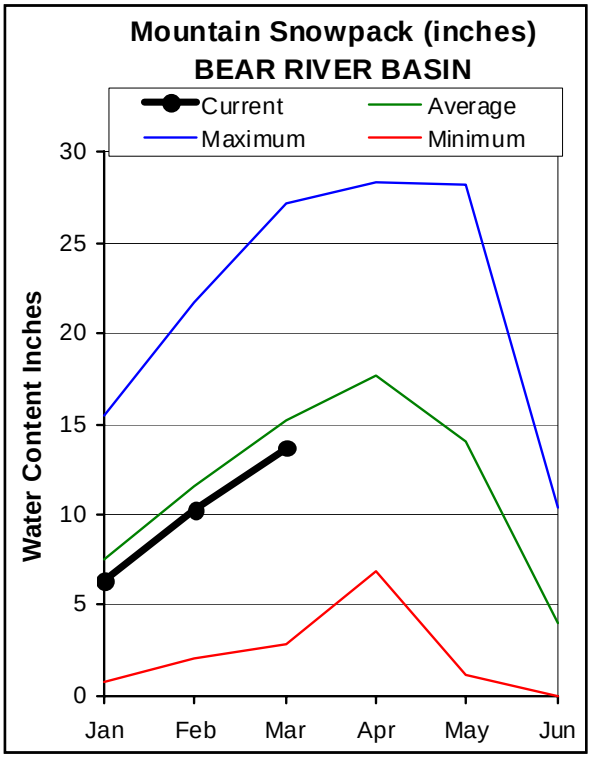
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	6	86	100
Goose-Trapper Creeks	5	84	93
Salmon Falls Creek	5	86	92
Bruneau River	8	92	100
Reynolds Creek	6	69	72
Owyhee Basin Total	20	75	98

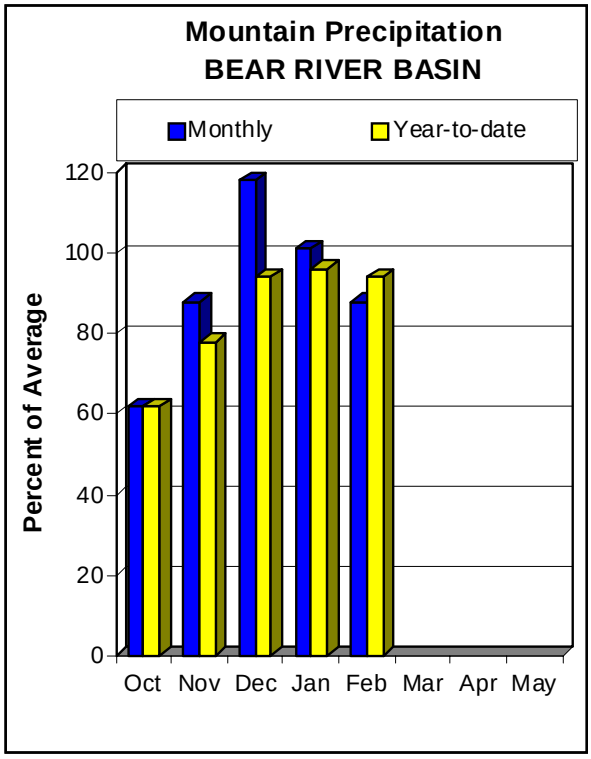
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
MARCH 1, 2009







WATER SUPPLY OUTLOOK

For a change in many years, the mountains in the Bear River, southern and eastern Idaho have received more snow compared to the rest of the state with respect to the average. As of March 1, the snowpack is 90% of normal and 71% of its seasonal peak that usually occurs in early April. Last year at this time, the snowpack was 96% of normal. While most of the state received only 50-65% of normal February precipitation, the Bear managed to receive 88% of normal precipitation for the month, and is maintaining a 94% of normal water year-to-date precipitation amount. Last year, there was a slightly better snowpack and had 86% of average spring precipitation, but the Bear River at Stewart Dam only had 58% of average streamflow. This river is unique in that the forecast is for the water that flows by the gage instead of natural flow per customer requests and due to the complicated nature of the numerous diversions upstream. For April through July, the forecast is for 60% of normal streamflow below the dam. By contrast, the rest of the upstream tributaries are forecast at 80-85% of normal. The Bear River Surface Water Supply Index (SWSI), which combines the Bear River at Stewart Dam forecast and current Bear Lake storage and then ranks the values compared to history, indicates there should be 535,000 acre-feet of water available for irrigation. Typical irrigation demand is 500,000 acre-feet. Releases and allotments from Bear Lake are also are determined by elevation of the lake. Supplies will be tight again which has been the norm, but could improve if the Bear River basin remains in the storm track or spring brings good precipitation.

BEAR RIVER BASIN
Streamflow Forecasts - March 1, 2009

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	65	84	97	86	110	129	113
	APR-SEP	73	95	110	88	125	147	125
Bear River ab Reservoir nr Woodruff	APR-JUL	67	95	114	84	133	161	136
	APR-SEP	72	100	120	85	140	168	142
Big Creek nr Randolph	APR-JUL	2.2	3.3	4.0	82	4.7	5.8	4.9
Smiths Fork nr Border	APR-JUL	65	79	88	85	97	111	103
	APR-SEP	79	95	105	87	115	131	121
Bear River at Stewart Dam	APR-JUL	82	115	140	60	168	213	234
	APR-SEP	88	123	150	57	180	229	262
Little Bear at Paradise, UT	APR-JUL	16.4	29	38	83	47	60	46
Logan nr Logan, UT	APR-JUL	73	92	105	83	118	137	126
Blacksmith Fk nr Hyrum, UT	APR-JUL	15.9	30	40	83	50	64	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	385.3	375.9	910.7
MONTPELIER CREEK	4.0	2.6	1.2	1.7

BEAR RIVER BASIN
Watershed Snowpack Analysis - March 1, 2009

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	4	105	93
Bear River ab WY-ID line	12	90	90
Montpelier Creek	2	97	83
Mink Creek	4	90	96
Cub River	3	95	100
Bear River ab ID-UT line	26	92	92
Malad River	3	82	89

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow 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 Nov. 2007).**

Panhandle River Basins

Kootenai R at Leonia, ID
+ Lake Koocanusa (Storage Change)

Boundary Ck nr Porthill, ID – No Corrections

Moyie R at Eastport, 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 Resv (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 Resv Inflow, ID
+ Clearwater R nr Peck, ID
- Clearwater R at Orofino, ID
+ Dworshak Resv (Storage Change)

Clearwater R at Orofino, ID - No Corrections

Clearwater R at Spalding, ID
+ Dworshak Resv (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

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 Resv Inflow, ID
+ Deadwood R blw Deadwood Resv nr Lowman
+ Deadwood Resv (Storage Change)

Lake Fork Payette R nr Mccall, ID – No Corrections

NF Payette R at Cascade, ID
+ Cascade Resv (Storage Change)
+ Payette Lake (Storage Change)

NF Payette R nr Banks, ID
+ Cascade Resv (Storage Change)
+ Payette Lake (Storage Change)

Payette R nr Horseshoe Bend, ID
+ Cascade Resv (Storage Change)
+ Deadwood Resv (Storage Change)
+ Payette Lake (Storage Change)

Boise R nr Twin Springs, ID - No Corrections

SF Boise R at Anderson Ranch Dam, ID
+ Anderson Ranch Resv (Storage Change)

Boise R nr Boise, ID
+ Anderson Ranch Resv (Storage Change)
+ Arrowrock Resv (Storage Change)
+ Lucky Peak Resv (Storage Change)

Wood and Lost River Basins

Big Wood R at Hailey, ID - No Corrections

Big Wood R abv Magic Resv, ID
+ Big Wood R nr Bellevue, ID
+ Willow Ck

Camas Ck nr Blaine – No Corrections

Big Wood R blw Magic Dam nr Richfield, ID
+ Magic Resv (Storage Change)

Little Wood R abv High Five Ck, ID – No Corrections

Little Wood R nr Carey, ID
+ Little Wood Resv (Storage Change)

Big Lost R at Howell Ranch, ID - No Corrections

Big Lost R blw Mackay Resv nr Mackay, ID
+ Mackay Resv (Storage Change)

Little Lost R blw Wet Ck nr Howe, ID - No Corrections

Upper Snake River Basin

Henrys Fork nr Ashton, ID
+ Henrys Lake (Storage Change)
+ Island Park Resv (Storage Change)

Henrys Fork nr Rexburg, ID
+ Henrys Lake (Storage Change)
+ Island Park Resv (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 abv 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 abv 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 abv St. Anthony, ID

Snake R nr Moran, WY
+ Jackson Lake (Storage Change)

Pacific Ck at Moran, WY – No Corrections

Snake R abv Palisades, WY
+ Jackson Lake (Storage Change)

Greys R abv Palisades, WY – No Corrections
Salt R abv Palisades, WY – No Corrections
Snake R nr Irwin, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
Snake R nr Heise, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
Willow Ck nr Ririe, ID
+ Ririe Resv (Storage Change)
Blackfoot Resvervoir Inflow, ID
+ Blackfoot Reservoir releases
+ Blackfoot Resv (Storage Change
Portneuf R at Topaz, ID - No Corrections
Snake River at Neeley, ID
+ Snake River at Neeley (observed)
+ All Corrections made for Henrys Fk nr Rexburg, ID
+ Jackson Lake (Storage Change)
+ Palisades Resv (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot

Southside Snake River Basins

Oakley Resv Inflow, ID
+ Goose Ck abv Trapper Ck
+ Trapper Ck nr Oakley
Salmon Falls Ck nr San Jacinto, NV - No Corrections
Bruneau R nr Hot Springs, ID - No Corrections
Owyhee R nr Gold Ck, NV
+ Wildhorse Resv (Storage Change)
Owyhee R nr Rome, OR – No Corrections
Owyhee R blw Owyhee Dam, OR
+ Owyhee R blw Owyhee Dam, OR (observed)
+ Owyhee Resv (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 Resv (Storage Change)

Bear River Basin

Bear R nr UT-WY Stateline, UT – No Corrections
Bear R abv Resv nr Woodruff, UT – No Corrections
Smiths Fork nr Border, WY - No Corrections
Bear R blw Stewart Dam nr Montpelier, ID
+ Bear R blw Stewart Dam
+ Rainbow Inlet Canal

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 volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. **(Revised Dec. 2005)**

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	---	13.50	225.00	---	238.5	Inactive+Active
Priest Lake	20.00	28.00	71.30	---	119.3	Dead+Inactive+Active
Clearwater Basin						
Dworshak	---	1452.00	2016.00	---	3468.0	Inactive+Active
Weiser/Boise/Payette Basins						
Mann Creek	1.61	0.24	11.10	---	11.1	Active
Cascade	---	46.70	646.50	---	693.2	Inactive+Active
Deadwood	---	---	161.90	---	161.9	Active
Anderson Ranch	24.90	37.00	413.10	---	450.1	Inactive+Active
Arrowrock	---	---	272.20	---	272.2	Active
Lucky Peak	---	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	---	---	30.00	---	30.0	Active
Mackay	0.13	---	44.37	---	44.4	Active
Upper Snake Basin						
Henrys Lake	---	---	90.40	---	90.4	Active
Island Park	0.40	---	127.30	7.90	135.2	Active+Surcharge
Grassy Lake	---	---	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	---	---	348.73	---	348.7	Active
American Falls	---	---	1672.60	---	1672.6	Active
Southside Snake Basins						
Oakley	---	---	75.60	---	75.6	Active
Salmon Falls	48.00	5.00	182.65	---	182.6	Active+Inactive
Wildhorse	---	---	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	5.0 MAF	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

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

OFFICIAL BUSINESS

Issued by
David White, Acting Chief
Natural Resources Conservation Service
Washington, DC

Released by
Jeff Burwell, State Conservationist
Dave Hoover, Assistant State Conservationist
Natural Resources Conservation Service
Boise, Idaho

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

Assistance provided by
Jolyne Lea, Forecast Hydrologist
Jim Marron, Forecast Hydrologist
NRCS, National Water and Climate Center, Portland, Oregon

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