United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
April 1, 2010

Photo Credit: Ron Abramovich

This winter's poor snowpack is truly apparent on southern slopes across Idaho. This photo was taken March 11 looking east at about 7,600 feet in Dry Creek, a tributary of the Little Lost River in east central Idaho. Nearly bare south slopes were observed at over 8,500 feet. This illustrates why very few SNOTEL sites are located on south-facing aspects, since they are warmed by the sun resulting in mid-winter melt and sublimation during dry spells. In low winters like this year, bare southern slopes stay warmer and melt snow when it falls. Locating our snow measuring sites on northern slopes allows the snow to accumulate throughout the winter with little melt until spring temperatures warm. Sites that consistently accumulate snow, even in the driest of winters, allow for better correlation between the snowpack and streamflow. This results in more reliable streamflow forecasts. In contrast to the bare southern slopes, a potential new SNOTEL site was located in the Little Lost basin at 8,660 feet along the edge of forested northeast facing slope, this site had 37 inches of snow depth, 9 inches of snow water.

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

For more water supply and resource management information contact:

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How forecasts are made

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

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

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

IDAHO WATER SUPPLY OUTLOOK REPORT

April 1, 2010

SUMMARY

Late March storms brought a glimmer of hope to Idaho's water supply outlook. If it weren't for the March precipitation, many more record low April 1 snow levels would have been set; especially in the Clearwater and Upper Snake basins. Current snowpacks are 50-55% of average in the Spokane, Clearwater and Snake River above Palisades Reservoir and they are 2nd or 3rd lowest since 1961. Elsewhere, snowpacks are 60-80% of average with the Owyhee holding onto a near normal snowpack. The Owyhee snowpack seems anomalous, but it is a result of receiving moisture from the northern most reaches of a southern storm track and cold temperatures that preserved the low and mid-elevation snow. March precipitation ranged from 55% normal in the Upper Snake and Bear basin to about 85% in the southside Snake River basins. Water year-to-date precipitation ranges from 61% of average in the Clearwater and Upper Snake basins to slightly over 80% in west-central and southern Idaho. Many SNOTEL stations along the continental divide are setting new record low water year-to-date totals and record low April 1 snow water content levels based on the last 30 years of daily SNOTEL data. Streamflow forecasts for the April–July period range from 15% of average in the Bear River basin to 70% in the Panhandle's streams. The majority of streams in Idaho are forecast in the 40-65% of average range. Water supplies will be tight across the state since some reservoirs that normally fill are not expected to fill this year. A slow defrost is needed to help salvage this year's water supply. The good news is the current storm track is now delivering spring precipitation to parts of the northwestern US that have been missed during the winter. Hopefully, this pattern will continue and provide a delayed melt-out. A wet and cool spring would reduce and delay irrigation demand and extend our limited water supply.

SNOWPACK

El Nino created feast or famine snow conditions this winter across the western US. A number of SNOTEL sites in Arizona, New Mexico and Southern Utah have record high snowpacks, while sites in Idaho's Clearwater mountains and the upper Snake basin of Wyoming are at record low levels. Heavy snow dropped 1-4 inches of water content and up to 2 feet of snow in Idaho's mountains during the last couple of days of March. This was the second largest storm of the season at Smiley Mountain SNOTEL, in the Big Lost mountains of central Idaho; the biggest storm this year occurred way back in October. The gap in storm activity illustrates how moisture was blocked by the El Nino conditions. The March 30-31 storm increased the snowpack percentages by a few points, but did not do much to solve the water supply shortages that will occur in most basins. However, this storm brought just enough to ensure an adequate water supply for the Boise basin. April 1 snowpacks across Idaho range from about 50-75% of average, with the exception of the basins south of the Snake River, which are about 78% of average. Fifty years of measurement show the areas hardest hit by the lack of snow include the Spokane basin and Upper Snake basin in Wyoming. Both of these basin's snowpacks are the 2nd lowest snow on record; these basins are followed by the Henrys Fork, Panhandle and Clearwater basins, which are the 3rd lowest. Other basins across central and eastern Idaho rank 7th to 14th lowest. Snowpacks across most of Idaho are currently 50-70% of their normal seasonal peak values and will peak in the next week or two at most sites. Cool weather would result in an ideal delayed snowmelt scenario and the best way to stretch water supplies this spring.

PRECIPITATION

The classic El Nino pattern that has kept the Pacific Northwest's weather drier than normal since November finally lost ground in late March allowing the heaviest precipitation event of the season to roll in. This storm was much needed, but did little to make up for what was missed in past months. Currently, over 30 SNOTEL sites in the Columbia River basin are at or near minimum water year-to-

date precipitation totals. These conditions are reflected across the US-Canadian border, where El Nino effects were visible during the Winter Olympics. The storm during the last few days of March attempted to make up for lost moisture as compared to the previous months, bringing 1-4 inches of precipitation and up to 2 new feet of snow to most mountain ranges in Idaho. This single storm boosted precipitation to near 80% of normal for the month. The late March storms did not benefit the Bear River and upper Snake basins as much and these areas wound up with March precipitation of around 56% of normal. The best March precipitation was 88% of normal in the southside Snake River basins. This area made the most of each storm this year by taking advantage of the northern most reaches of a southern storm track. The southside Snake basins water year-to-date precipitation is 83% of normal; the best around. The lowest water year-to-date precipitation is in Upper Snake, Clearwater and Bear River Basins at 60-65% of normal. Other basins in northern and central Idaho are 70-75% of normal for the water year. With the biggest precipitation months behind us and the snowpack reaching their peak, a wet and cool spring would benefit Idaho water users the most.

RESERVOIRS

Water managers are storing as much water in Idaho reservoirs as they can because of the limited amount of snow in the mountains. Unfortunately, water supply shortages will likely still occur and some reservoirs that typically fill will be challenged to reach their capacity without abundant spring precipitation.

In respect to reservoir and surface irrigation supplies, Priest and Coeur d'Alene lakes received their first runoff event of the season from the late March precipitation; inflow forecasts are low at 55-75% of average, but should be enough to fill them. Dworshak Reservoir is 67% full, 103% of average, and is not expected to fill with the projected inflows at half of average. The Payette reservoir system is 106% of average, 64% full, and Cascade Reservoir will need some wet weather to reach capacity. The Boise reservoir system is 111% of average, 69% full; the question is whether the good low- to mid-elevation snow will provide the boost needed to fill the system or not. Both Owyhee Reservoir and Bear Lake are 40% full, below average in terms of storage, but should have enough water in storage to satisfy the irrigation demands. Oakley and Salmon Falls reservoirs are 38 and 27% full, respectively, which is about 75% of average. Based on the 50% chance of exceedance forecast, there would be an irrigation deficit of 4,500 acre-feet and 22,000 acre-feet, respectively. Mackay and Little Wood reservoirs are near capacity, while Magic Reservoir is about half full. The Surface Water Supply Index, which combines current reservoir storage with streamflow forecasts, illustrates that water supplies should be adequate in the Little Wood, but less than adequate in the Big Wood, Big Lost and Little Lost basins. American Falls Reservoir is full, while combined storage in Jackson Lake and Palisades Reservoir is 84% full, 132% of average. Ririe and Blackfoot reservoirs are about 60% full and near average, but are not projected to fill. The Surface Water Supply Index for the Upper Snake indicates that there is less than a 10% chance of exceeding the 4,500,000 acre-feet amount required for adequate surface irrigation supplies. Water shortages are nearly certain based on the current near record low snowpacks in the headwaters of the Upper Snake basin.

One of the major implications of this year's low snowpack will be well below average streamflows, which means that the reservoirs' water will be in high demand. Reservoir water right holders may be in better shape than natural flow water users. Water users should remain in contact with their irrigation districts and plan accordingly for tight water supplies. Reservoir managers will do the best they can to meet the numerous water demands for irrigation, recreation, hydropower and fisheries. Currently, the atmosphere is still very active; any additional precipitation this spring will help extend this year's limited runoff. Cool temperatures will reduce irrigation demand and allow for a slower delayed melt of the snowpack, similar to the past two years, as opposed the rapid melt associated with hot temperatures in the beginning of the decade.

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

STREAMFLOW

Streamflow forecasts will be low this year across the Pacific Northwest due to the limited high elevation snowpack. Forecasts for the April–July period are the lowest in the Bear River basin at 9% of average. The Snake River near Heise is forecast at 40% of average and the Henrys Fork is forecast at 58%. Idaho's high desert streams are forecast in the 50-60% of average range, while the Wood and Lost are in the 40-60% range. The Boise and Payette rivers are forecast at 59% of average, while the Salmon and Clearwater streams are forecast at 56% of average. The Spokane River and its tributaries are forecast at 42% of average, a near record low, while the inflow to Pend Oreille Lake is forecast at half of average. The highest forecasts in the state are for around 70% of average for the Kootenai, Smith, Boundary and Priest rivers.

Note: Forecasts published in this report are NRCS guidance forecasts. NRCS is using SNOTEL data in a timely manner to provide timely streamflow forecast for users. Official jointly coordinated and published forecasts by the USDA Natural Resources Conservation Service and the US Department of Commerce, NOAA, National Weather Service are available at the joint west-wide Water Supply Outlook for the Western US at http://www.wcc.nrcs.usda.gov/wsf/westwide.html.

RECREATION

Good precipitation at the end of March brought the first increase in Idaho's streams this year. A flush occurred in the lower reaches of the Coeur d'Alene, St. Joe, Weiser, and Owyhee rivers. Each of these Rivers will have more to come, but without much snow in Idaho's high county, expect short-lived high water events and an early return to baseflow conditions. The situation could improve with timely spring rains, which was observed in June 2009 and especially in May 2005. The Salmon River, on the other hand, will have a long rafting season without high, swift flows in the early season. High peak flows from snowmelt can still occur in low snow years, but will require a cool spring starting now to delay snowmelt until mid to late May. As always, the magnitude and timing of peak flows are dependent on spring temperatures and precipitation. As mentioned last month, predicting spring rains and the onset of the dry summer heat is more challenging than predicting streamflow volumes in these snow dominated basins.

2010 WESTERN SNOW CONFERENCE

The 78th annual Western Snow Conference (WSC) meeting will be held in conjunction with the Utah State University spring runoff conference at the USU Conference Center in Logan, Utah, April 19-22, 2010. There will be joint plenary sessions with breakout sessions designed by each respective conference. A short course on Monday titled 'Products, Tools and Resources for Water Management' will be an interesting morning discussion by government agencies of products available followed by an afternoon session with water managers to discuss ways to make current and future water management more efficient, productive and to reduce risk. The WSC Thursday technical tour will include a visit to the Utah State Water Laboratory where scientists divert the Logan River through the lab to perform scale modeling, the Bear River Bay Migratory Bird Refuge, the Golden Spike and more. Additional information on conference and registration is available on the WSC web page at: http://www.westernsnowconference.org/

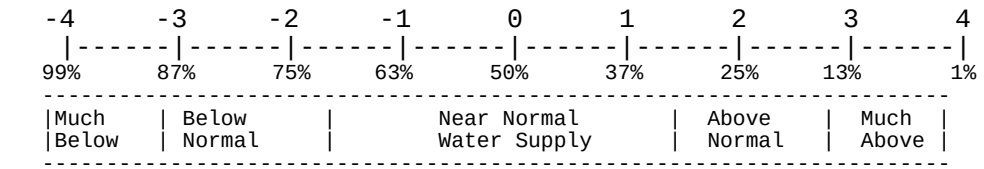
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) As of April 1, 2010

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	-3.5	----	NA
CLEARWATER	-3.6	2001	NA
SALMON	-2.8	2007	NA
WEISER	-1.8	2004	NA
PAYETTE	-2.2	2007	NA
BOISE	-2.0	2007	-2.2
BIG WOOD	-1.4	2007	-0.3
LITTLE WOOD	-1.6	2008	-1.8
BIG LOST	-1.8	2003	-0.1
LITTLE LOST	-2.6	2000, 2007	0.3
HENRYS FORK	-3.6	2001	-3.4
TETON	-3.0	2007	NA
SNAKE (HEISE)	-3.2	2002	-1.6
OWYHEE	-3.2	2001	-3.4
OAKLEY	-1.6	2008	-1.2
SALMON FALLS	-2.2	2008	-1.6
BRUNEAU	-1.6	2004	NA
BEAR RIVER	-2.4	2002	-3.4

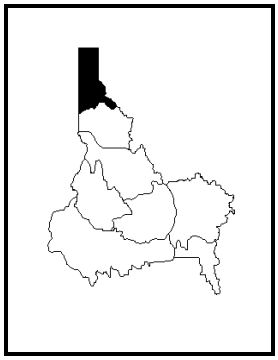
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

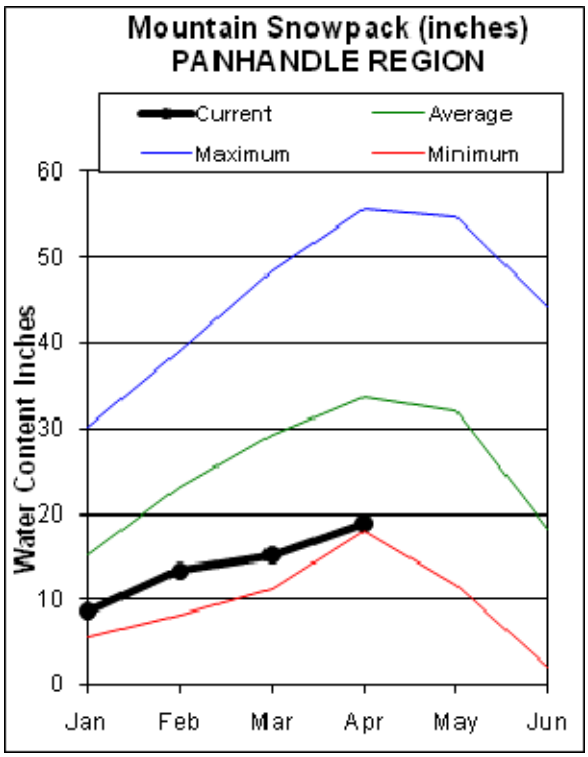


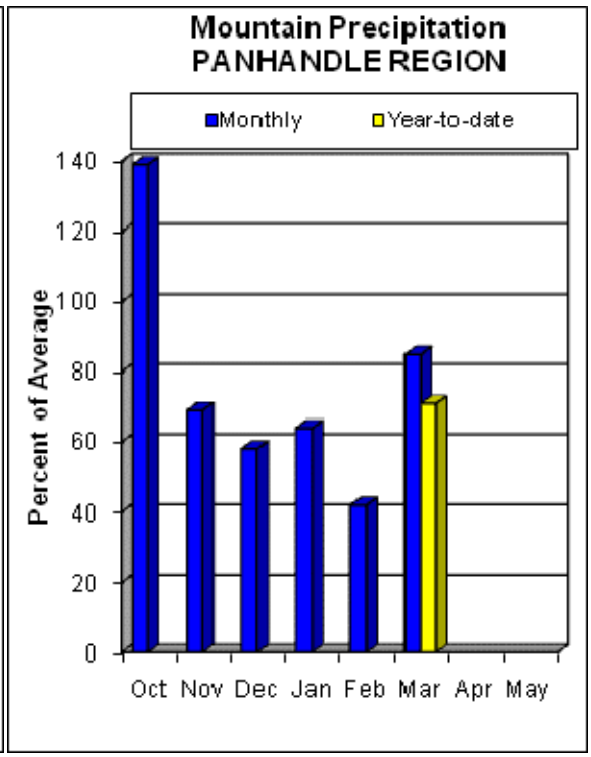
NA = Not Applicable

Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 87% of the time and less than -3.0, 13% of the time. Half the time, the SWSI will be below and half the time above a value of zero. The interval between -1.5 and +1.5 described as "Near Normal Water Supply," represents three SWSI units and would be expected to occur about one-third (36%) of the time.

PANHANDLE REGION
APRIL 1, 2010







WATER SUPPLY OUTLOOK

The Panhandle Region finally got a dose of moisture during the last few days in March producing the first runoff event of the year. Prior to this precipitation event, the monthly percent of average was hovering around 50%. After receiving the 1-3 inches of precipitation and up to two new feet of snow at the end of the March, monthly precipitation totals ended in the 80-90% of average range. This additional moisture helped, but did not significantly change the water supply outlook. The snowpack is only about 75% of normal in the tributaries near the Canadian border and decreases to 50% in the Spokane drainage, which includes the Coeur d'Alene and St. Joe drainages. The snowpack for the Spokane drainage is the 2nd lowest since 1961, with only 2001 having less snow on April 1. Seasonal streamflow forecasts haven't changed much from last month. The Priest, Kootenai and Clark Fork rivers as well as Boundary and Smith creeks have the best outlooks at 60-73% of normal streamflow volumes for the April through July period while the NF Coeur d'Alene, St. Joe, Spokane and Pend Oreille rivers are forecast much lower at 42-50% of normal; near record low volumes. Users should plan accordingly for low water supplies similar to other low snowpack years like 2001 and 2005. 2005 was especially unique in that the spring stayed wet and cool; similar to how the beginning of April is starting. A slow defrost is just what is needed to keep the snow in the high country as long as possible.

PANHANDLE REGION
Streamflow Forecasts - April 1, 2010

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	3660	4500	4890	70	5280	6120	7040
	APR-SEP	4240	5170	5600	69	6030	6960	8120
MOYIE RIVER at Eastport	APR-JUL	149	200	235	58	270	320	405
	APR-SEP	155	210	245	58	280	335	420
SMITH CREEK	APR-JUL	61	78	90	73	102	119	123
	APR-SEP	61	81	94	73	107	127	129
BOUNDARY CREEK	APR-JUL	69	82	90	73	98	111	123
	APR-SEP	72	85	94	73	103	116	129
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	4340	6000	6750	60	7500	9160	11300
	APR-SEP	4800	6660	7500	60	8340	10200	12500
PEND OREILLE Lake Inflow (2)	APR-JUL	4260	5500	6350	50	7200	8440	12700
	APR-SEP	4670	6030	6950	50	7870	9230	13900
PRIEST near Priest River (1,2)	APR-JUL	385	525	585	72	645	785	815
	APR-SEP	408	557	625	72	693	842	870
NF COEUR D'ALENE RIVER at Enaville	APR-JUL	124	235	310	42	385	495	740
	APR-SEP	139	255	330	42	405	520	780
ST. JOE at Calder	APR-JUL	380	495	570	50	645	760	1140
	APR-SEP	405	520	600	50	680	795	1200
SPOKANE near Post Falls (2)	APR-JUL	520	855	1080	42	1310	1640	2550
	APR-SEP	535	875	1110	42	1340	1690	2650
SPOKANE at Long Lake (2)	APR-JUL	615	980	1230	43	1480	1840	2850
	APR-SEP	680	1060	1320	43	1580	1960	3070

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	2534.0	2353.0	1886.7
FLATHEAD LAKE	1791.0	786.2	616.1	738.5
NOXON RAPIDS	335.0	324.5	316.1	272.9
PEND OREILLE	1561.3	553.4	573.4	763.6
COEUR D'ALENE	238.5	93.3	145.5	169.5
PRIEST LAKE	119.3	49.5	51.3	65.5

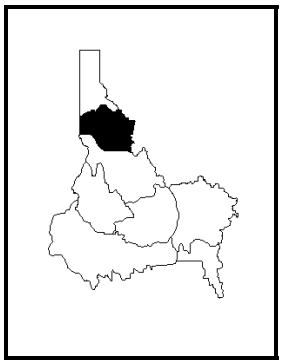
PANHANDLE REGION
Watershed Snowpack Analysis - April 1, 2010

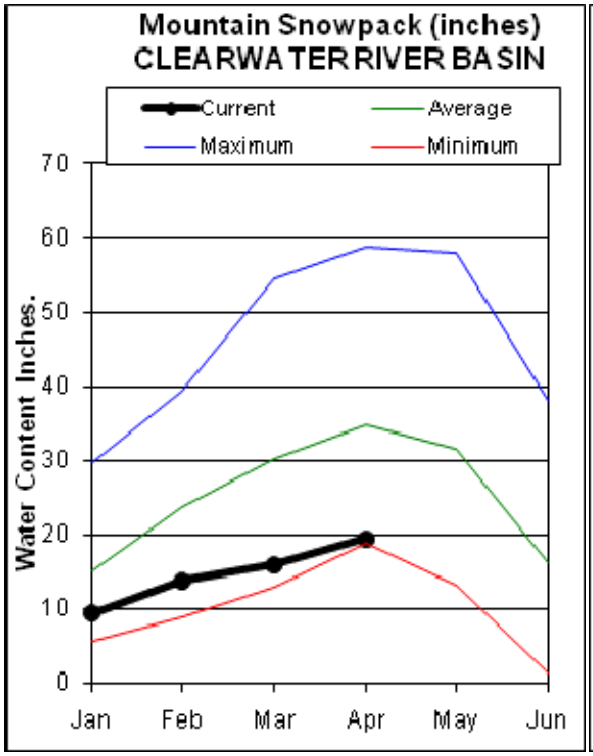
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	29	69	63
Moyie River	7	88	70
Priest River	5	92	80
Pend Oreille River	97	65	63
Rathdrum Creek	2	44	61
Hayden Lake	2	40	53
Coeur d'Alene River	10	55	52
St. Joe River	6	54	49
Spokane River	18	53	52
Palouse River	2	20	23

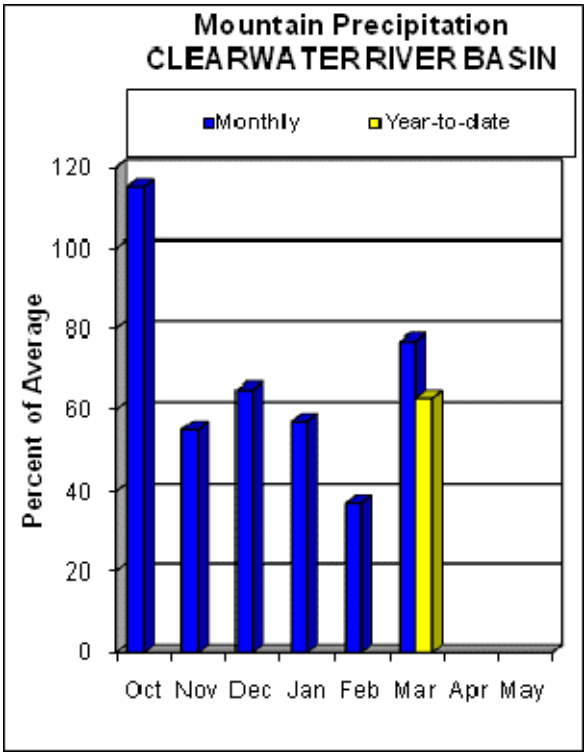
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
APRIL 1, 2010







WATER SUPPLY OUTLOOK

The stubborn weather pattern this winter stayed dry until the last few days of March when the mountains received 1-3 inches of precipitation and up to 2 feet of new snow. While this moisture is beneficial for the water supply, the overall outlook is still poor. The snowpack on the first of April is the third lowest since 1961; only 2001 and 2005 had less snow than this year. Not only are the mountain sites lacking the usual snow, but the low elevations and south facing slopes are bare and dry. This is in contrast to last year when the low elevation snow at a site like Sherwin, elevation 3,200 feet, peaked on April first, but is snow free this year. The Clearwater basin as a whole has 55% of normal snow water content. As a result, the streamflow forecasts remain low and range from 55-61% of normal. The Lochsa and Selway tributaries have the best streamflow volume forecast, while the North Fork Clearwater River (Dworshak Reservoir inflow) is only forecast at half of average. Dworshak Reservoir is currently 67% full, 103% of average, and is not expected to fill later this spring. Water managers must optimize the limited inflows to this multiple purpose reservoir for recreation, hydropower, and fisheries while also providing the minimum flood control space. River runners should be preparing now for an earlier than normal runoff season with a short duration high water period.

CLEARWATER RIVER BASIN
Streamflow Forecasts - April 1, 2010

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	940	1095	1200	58	1305	1460	2060
	APR-SEP	996	1165	1280	59	1395	1564	2170
Lochsa R nr Lowell	APR-JUL	730	855	940	61	1025	1150	1530
	APR-SEP	764	898	990	62	1082	1216	1610
DWORSHAK Resv. Inflow (1,2)	APR-JUL	717	1132	1320	50	1508	1923	2640
	APR-SEP	782	1221	1420	51	1619	2058	2800
CLEARWATER R at Orofino (1)	APR-JUL	1847	2468	2750	59	3032	3653	4650
	APR-SEP	1978	2633	2930	60	3227	3882	4900
CLEARWATER R at Spalding (1,2)	APR-JUL	2688	3679	4130	56	4581	5572	7430
	APR-SEP	2884	3934	4410	56	4886	5936	7850

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	2308.7	2514.0	2244.1

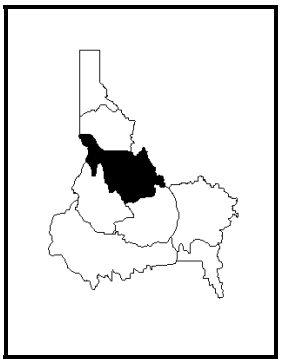
CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - April 1, 2010

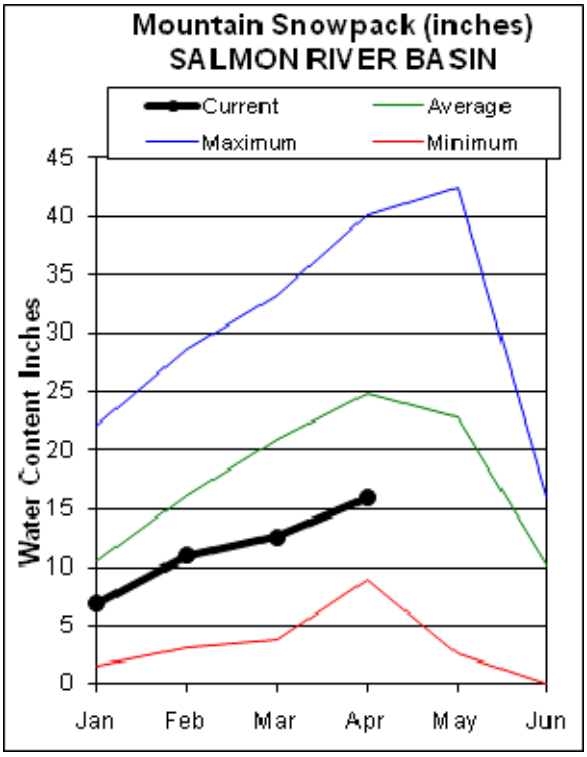
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	9	59	56
Lochsa River	4	55	54
Selway River	6	53	58
Clearwater Basin Total	19	54	54

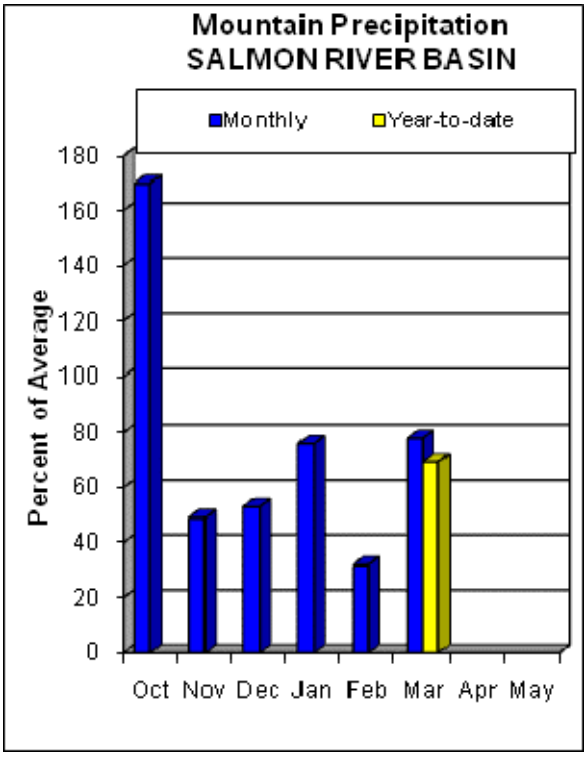
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
APRIL 1, 2010







WATER SUPPLY OUTLOOK

March brought 78% of normal precipitation, but the cumulative effect of a dry winter leaves the water year-to-date precipitation at 69% of average. Overall, the Salmon basin snowpack is 64% of average. The Lemhi and Little Salmon basins have the highest snow percentages at 70% of normal, while the South Fork and Middle Fork Salmon basins have the lowest at 60% of average. The main Salmon River and its tributaries are only forecast for about 50% of average streamflow. Other years with a similar snowpack to this year are 1987, 1988, 1990, 1992 and 1994. In these years, the Salmon River at White Bird peaked between 25,000–35,000 cfs between May 1 and June 1. Water users and river runners should expect similar streamflow patterns this year, unless a wet spring occurs like in May 2005 and June 2009. Peak flows on the Middle Fork will be low, possibly in the 4.0 foot range, without the influence of rain. The river will return to the 2.0 foot gage height before July 1. Plan your trips according to your boating skills. In other low snow years, rain generated peaks on the Middle Fork have exceeded snow generated peak flows, so watch the spring weather to be safe. The Salmon River will see a very long floating season with a short high water season.

SALMON RIVER BASIN
Streamflow Forecasts - April 1, 2010

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SALMON at Salmon (1)	APR-JUL	212	369	440	52	511	668	855
	APR-SEP	249	435	520	52	605	791	1000
Lemhi R nr Lemhi	APR-JUL	25	34	41	48	48	60	86
	APR-SEP	34	44	52	50	60	74	105
MF Salmon at MF Lodge	APR-JUL	199	310	385	49	460	571	785
	APR-SEP	228	354	440	50	526	652	875
Salmon at White Bird (1)	APR-JUL	1829	2779	3210	55	3641	4591	5850
	APR-SEP	2073	3137	3620	56	4103	5167	6480

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

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

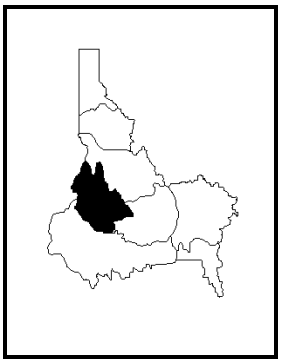
SALMON RIVER BASIN
Watershed Snowpack Analysis - April 1, 2010

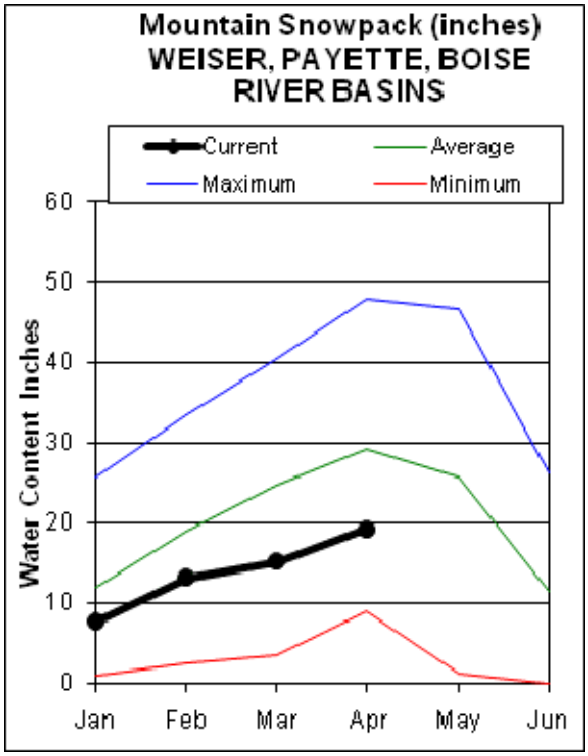
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	8	65	66
Lemhi River	9	66	71
Middle Fork Salmon River	3	64	59
South Fork Salmon River	3	71	60
Little Salmon River	4	75	70
Salmon Basin Total	29	65	64

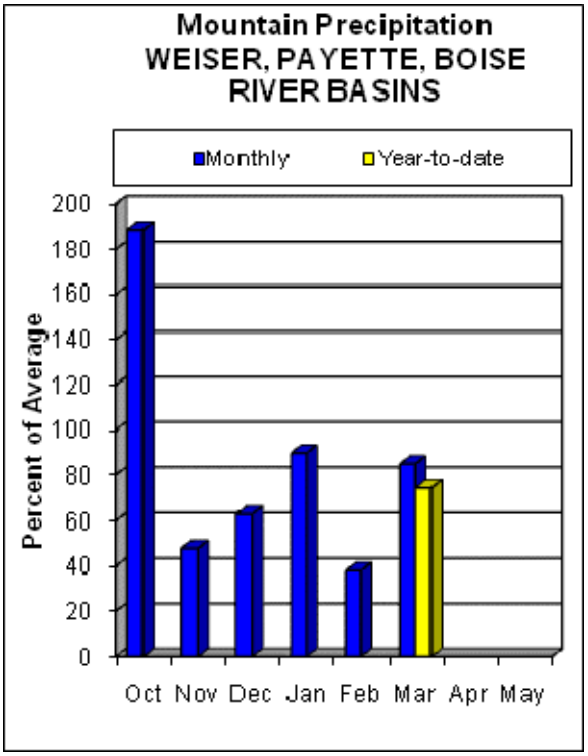
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
APRIL 1, 2010







WATER SUPPLY OUTLOOK

The last couple of days in March brought up to four inches of precipitation to Idaho's central mountains. The greatest amount was measured at Deadwood Summit SNOTEL at 6,860 feet in the Payette basin. This storm doubled March's monthly precipitation, increasing the monthly total to 86% of average for the region and should be enough to rescue the water supply for the Boise basin. Precipitation since October 1st is now 73% of average. April 1 snowpacks are about 65% of average seasonal peak amounts in the Payette and Boise basins, and 78% in the Weiser. Out of 50 years of measurement, this winter's snowpack is the 9th lowest in the Payette, 12th lowest in the Boise and 14th lowest in the Weiser. All reservoirs in the Payette and Boise systems are storing average or better amounts. Reservoir managers predict that the chances of filling the Boise system are better than the Payette, where Cascade Reservoir will be difficult to top off given the current snow conditions. Managers are looking at 2007 and 2005 as similar years to gain insight for decisions. Streamflow forecasts range from 50-70% of average. The Surface Water Supply Index, which combines current reservoir storage with streamflow forecasts, predicts a total water supply of 1,612 KAF in the Boise basin based on the 50% of exceedance forecast; about 1,500 KAF is needed for an adequate irrigation water supply. For Payette water users, the reservoirs have sufficient carryover to get through the season even if they do not fill. Current forecasts predict wet weather through April, offering further encouragement. Snowpack percentages will likely rise 5-10 percentage points between now and mid-April if temperatures remain cool and storms continue, because the 30-year snow water content averages are leveling off and will soon start decreasing.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - April 1, 2010

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 (1)	APR-JUL	130	218	265	68	317	447	390
	APR-SEP	148	241	290	69	344	479	420
SF Payette R at Lowman	APR-JUL	223	253	275	63	298	333	440
	APR-SEP	255	290	315	64	341	381	495
Deadwood Resv Inflow (1,2)	APR-JUL	50	69	78	58	87	106	134
	APR-SEP	52	74	84	59	94	116	142
Lake Fork Payette R nr McCall	APR-JUL	48	54	59	69	64	72	85
	APR-SEP	48	55	60	67	65	73	89
NF Payette R at Cascade (1,2)	APR-JUL	184	274	315	61	356	446	520
	APR-SEP	182	277	320	59	363	458	540
NF Payette R nr Banks (2)	APR-JUL	258	334	385	57	436	512	675
	APR-SEP	256	339	395	56	451	534	700
Payette R nr Horseshoe Bend (1,2)	APR-JUL	658	866	960	59	1054	1262	1640
	APR-SEP	668	924	1040	59	1156	1412	1760
Boise R nr Twin Springs (1)	APR-JUL	279	372	415	65	458	551	635
	APR-SEP	303	404	450	65	496	597	690
SF BOISE at Anderson Ranch Dam (1,2)	APR-JUL	184	264	300	56	336	416	540
	APR-SEP	205	291	330	57	369	455	580
MORES CK nr Arrowrock Dam	APR-JUL	39	54	65	50	78	98	131
	APR-SEP	41	56	68	50	81	102	137
Boise R nr Boise (1,2)	APR-JUN	582	698	750	60	802	918	1260
	APR-JUL	535	738	830	59	922	1125	1410
	APR-SEP	594	815	915	60	1015	1236	1530

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	7.6	7.6	8.8
CASCADE	693.2	456.2	500.3	428.8
DEADWOOD	161.9	95.2	84.4	91.6
ANDERSON RANCH	450.2	311.9	271.9	262.8
ARROWROCK	272.2	229.3	235.2	204.5
LUCKY PEAK	293.2	155.8	159.5	162.6
LAKE LOWELL (DEER FLAT)	165.2	111.7	121.9	126.9

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2010

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	2	145	89
Weiser River	5	95	71
North Fork Payette	8	74	65
South Fork Payette	5	76	66
Payette Basin Total	14	76	67
Middle & North Fork Boise	5	80	67
South Fork Boise River	9	87	75
Mores Creek	5	91	80
Boise Basin Total	16	87	74
Canyon Creek	2	144	132

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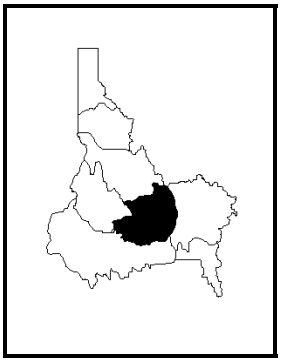
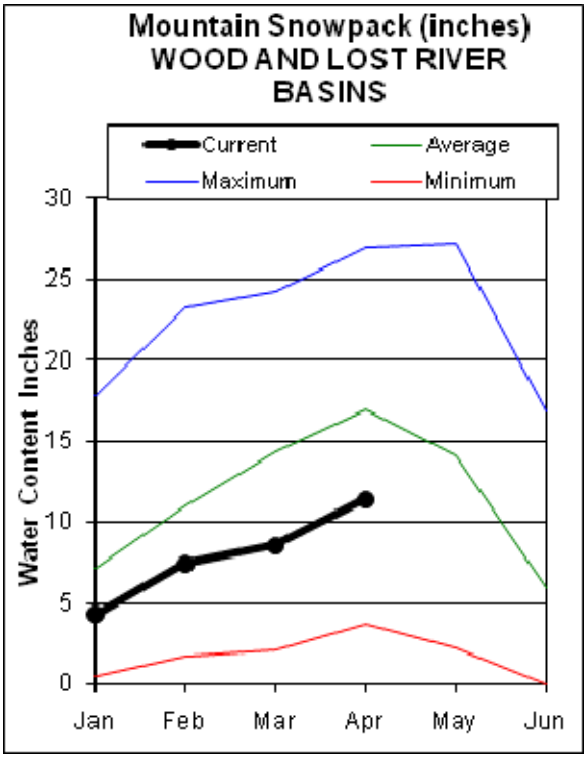
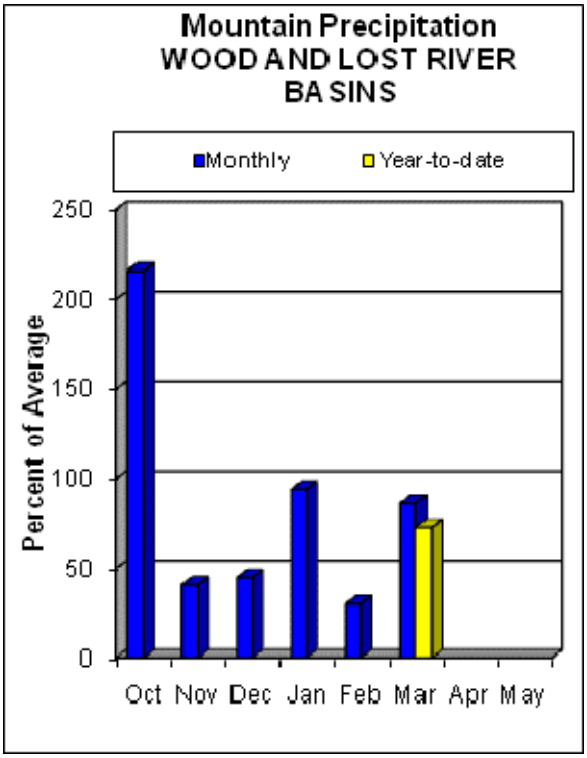
(2) - The value is natural flow - actual flow may be affected by upstream water management.

WOOD and LOST RIVER BASINS
APRIL 1, 2010







WATER SUPPLY OUTLOOK

The last three days of March brought twice the amount that had fallen the first 28 days of the month. This helped the Wood and Lost basins jump from the state's worst monthly precipitation in February to one of the best in March. March precipitation was still below normal at 86% of average, but better than the 20% of average that fell in February. While the stormy period helped, it was far too little to rescue the summer water supply outlook. One problem that it caused was high avalanche danger because of the abundant new snow following the extended dry spell. Water year-to-date precipitation is about 75% of average and the snowpack for April 1 ranges from 60-75% of average with the lowest amounts in the Little Lost basin. Despite the extremely disappointing snowpack, this year still has more snow than 1977, 1987, 1994, 2001 and 2007. Another El Nino year that was quite similar to this winter was 1988, which had average spring precipitation but a very dry summer. Streamflows are forecast between 40% of average for the Big Wood River above Magic Reservoir and Camas Creek near Blaine to about 60% of average for the Big Wood River at Hailey, Little Lost River and Big Lost River at Howell Ranch. One hope for improved streamflows may lie in the high elevation zone above most of our SNOTEL sites. Smiley Mountain SNOTEL, at 9,520 feet in the Big Lost basin, received two feet of snow (over three inches of water content) in October and this snow never melted. Recently developed averages for this site, which was installed in 2002, indicate that its snow is about 84% of average, compared with the rest of the basin which is 64% of average; this suggests that the upper elevations may provide a boost to streamflows. Mackay and Little Wood reservoirs are almost full, while Magic Reservoir is about half full. The Surface Water Supply Index, which combines current reservoir storage with streamflow forecasts, predicts that supplies should be adequate in the Little Wood, but less than adequate in the Big Wood, Big Lost and Little Lost basins.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - April 1, 2010

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 R at Hailey (1)	APR-JUL	62	120	147	58	174	232	255
	APR-SEP	70	135	165	57	195	260	290
Big Wood R ab Magic Reservoir	APR-JUL	16.0	49	72	38	95	128	190
	APR-SEP	22	58	82	40	106	142	205
Camas Ck nr Blaine	APR-JUL	20	32	42	42	53	72	100
	APR-SEP	21	33	43	43	54	73	101
BIG WOOD below Magic Dam (2)	APR-JUL	31	82	117	40	152	203	290
	APR-SEP	37	90	127	42	164	217	305
LITTLE WOOD R abv High Five Ck	APR-JUL	20	30	38	49	47	62	78
	APR-SEP	22	33	41	48	51	66	85
LITTLE WOOD near Carey (2)	APR-JUL	19	32	40	46	48	61	87
	APR-SEP	21	34	43	46	52	65	94
BIG LOST at Howell Ranch	APR-JUL	72	94	110	64	128	156	173
	APR-SEP	82	107	126	64	146	179	197
BIG LOST blw Mackay Resv	APR-JUL	35	53	66	47	79	97	141
	APR-SEP	48	71	87	51	103	126	172
Little Lost R nr Howe	APR-JUL	11.8	15.9	19.0	61	22	28	31
	APR-SEP	14.9	20	24	62	28	35	39

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	91.8	42.9	107.1
LITTLE WOOD	30.0	28.2	18.6	19.4
MACKAY	44.4	41.4	29.2	32.7

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - April 1, 2010

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	8	80	67
Camas Creek	5	101	87
Big Wood Basin Total	13	86	72
Fish Creek	3	86	76
Little Wood River	8	84	75
Big Lost River	5	71	64
Little Lost River	4	63	60
Birch-Medicine Lodge Cree	4	79	77
Camas-Beaver Creeks	4	66	59

* 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.
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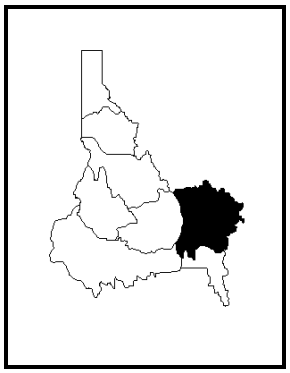
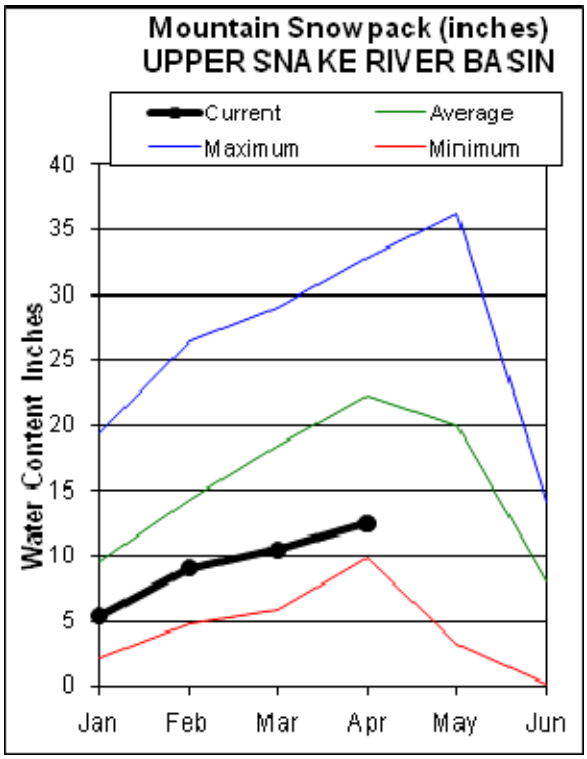
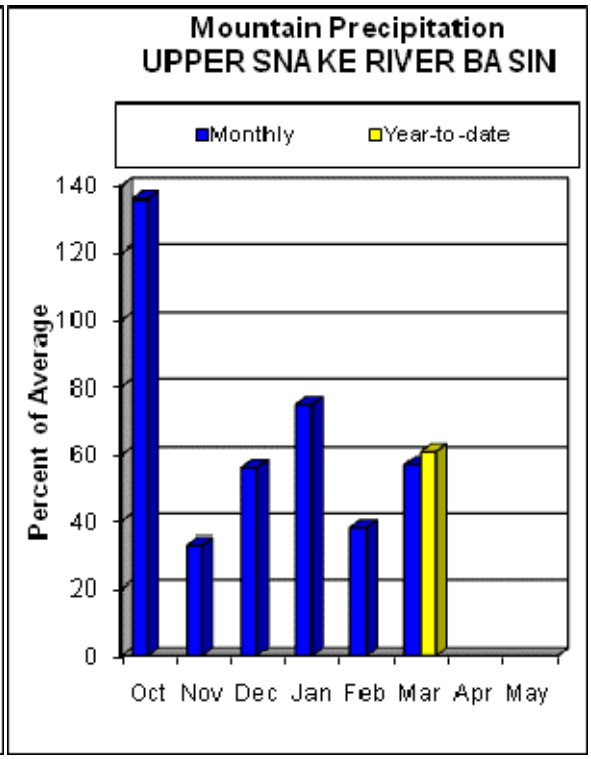
UPPER SNAKE BASINS
APRIL 1, 2010







WATER SUPPLY OUTLOOK

2010 is going down in the record books as one of the driest winters since records started in the Upper Snake basin. The next month will determine if it claims the 2nd driest spot in the last 50 years after 1977; currently 2001 was slightly drier. The long term record at Lewis Lake Divide, which extends back to 1919, puts this year the fourth driest with 17.0 inches of snow water content. Years with less snow include 1977 (12.6 inches), 1931 (15.0 inches), and 2001 (16.7 inches). The average peak snow water content at Lewis Lake Divide is 36.7 inches. The Snake basin snowpack above American Falls is 57% of average. March recorded just over half its normal monthly precipitation putting water year-to-date precipitation since October at 61% of average. Reservoirs are operating as designed and storing as much as they can in this low snow year and are 101-133% of average, except for Blackfoot at 91% of average. But even Blackfoot Reservoir has one of its best carryover storages in the past decade. Streamflow volume forecasts dropped from 47% of average last month for the Snake River at Heise to 40% of average. Other streamflow forecasts are in the 20-60% of average range. The Surface Water Supply Index, which combines reservoir storage and streamflow forecasts, indicates that there is less than a 10% chance of exceeding 4,500,000 acre-feet, which is the amount required for adequate surface water irrigation. Water shortages are nearly certain based on current snow levels. This is the year that normal or better spring precipitation is needed along with a slow defrost to decrease irrigation demand and stretch the Snake River's limited water supply. Water users should remain in contact with their irrigation districts for more information.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - April 1, 2010

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 (2)	APR-JUL	248	295	330	58	366	424	570
	APR-SEP	376	436	480	63	526	597	765
HENRYS FORK near Rexburg (2)	APR-JUL	679	817	910	58	1003	1141	1560
	APR-SEP	937	1093	1200	60	1307	1463	2010
Falls R nr Ashton (2)	APR-JUL	186	217	240	63	264	301	380
	APR-SEP	221	258	285	63	313	357	450
Teton R nr Driggs	APR-JUL	55	72	85	52	99	121	165
	APR-SEP	71	93	110	52	128	158	210
Teton R nr St. Anthony	APR-JUL	140	174	200	49	227	271	405
	APR-SEP	174	215	245	51	277	329	480
Snake River At Flagg Ranch	APR-JUL	217	255	280	57	305	343	495
	APR-SEP	234	276	305	56	334	376	545
SNAKE nr Moran (1,2)	APR-JUL	285	381	425	52	469	565	815
	APR-SEP	315	428	480	53	532	645	905
Pacific Ck At Moran	APR-JUL	40	64	81	47	98	122	171
	APR-SEP	45	70	87	49	104	129	178
Buffalo Fork ab Lava nr Moran, WY	APR-JUL	125	155	175	58	195	225	301
	APR-SEP	142	177	200	58	223	258	344
Gros Ventre R at Kelly, WY	APR-JUL	2.0	40	67	34	94	133	200
	APR-JUL	2.0	40	67	34	94	133	200
SNAKE abv Resv nr Alpine (1,2)	APR-JUL	622	844	945	40	1046	1268	2370
	APR-SEP	704	983	1110	41	1237	1516	2730
Greys R Nr Alpine	APR-JUL	126	154	174	51	194	222	340
	APR-SEP	146	181	205	52	229	264	395
Salt R Nr Etna	APR-JUL	33	94	135	40	176	237	340
	APR-SEP	65	142	195	46	248	325	420
SNAKE nr Irwin (1,2)	APR-JUL	868	1193	1340	40	1487	1812	3330
	APR-SEP	1089	1461	1630	42	1799	2171	3870
SNAKE near Heise (2)	APR-JUL	1039	1278	1440	40	1602	1841	3560
	APR-SEP	1291	1570	1760	42	1950	2229	4160
WILLOW CREEK nr Ririe (2)	APR-JUL	2.4	12.3	24	30	36	53	81
Blackfoot R ab Res nr Henry	APR-JUN	9.6	17.9	25	34	33	48	73
Portneuf R at Topaz	APR-JUL	23	30	35	43	40	49	81
	APR-SEP	32	39	45	45	51	61	100
Snake River at Neeley (1,2)	APR-JUL	97	345	680	21	1010	1750	3240
	APR-SEP	105	370	730	21	1090	1880	3510

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	86.7	87.5	85.5
ISLAND PARK	135.2	116.8	121.3	114.6
GRASSY LAKE	15.2	12.9	13.2	12.3
JACKSON LAKE	847.0	631.1	649.9	486.6
PALISADES	1400.0	1248.7	1108.7	941.5
RIRIE	80.5	44.9	45.2	41.6
BLACKFOOT	348.7	210.0	104.7	229.8
AMERICAN FALLS	1672.6	1666.8	1616.0	1443.2

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2010

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Henrys Fork-Falls River	9	59	53
Teton River	8	64	60
Henrys Fork above Rexburg	17	61	56
Snake above Jackson Lake	9	53	51
Pacific Creek	3	52	59
Gros Ventre River	3	54	57
Hoback River	5	51	47
Greys River	4	58	60
Salt River	5	56	62
Snake above Palisades	27	54	54
Willow Creek	7	58	65
Blackfoot River	5	65	64
Portneuf River	7	78	68
Snake abv American Falls	47	59	57

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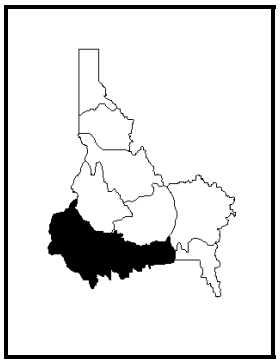
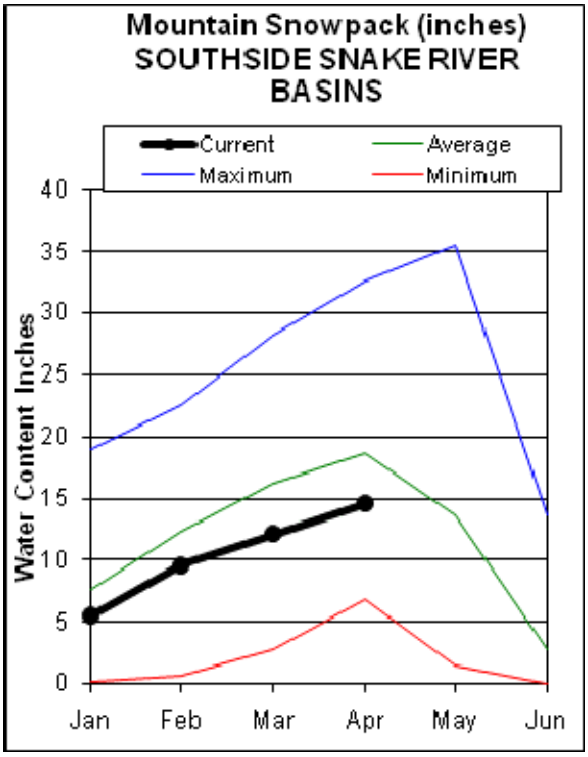
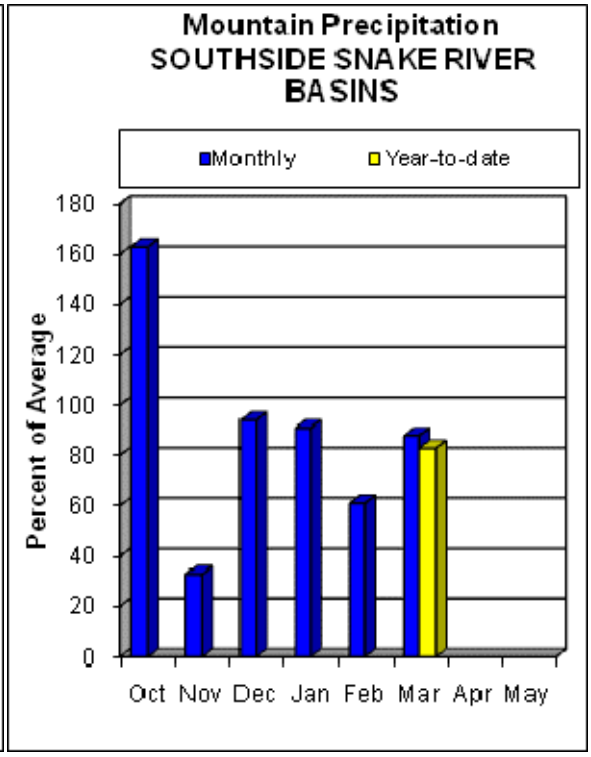
SOUTHSIDE SNAKE RIVER BASINS
APRIL 1, 2010







WATER SUPPLY OUTLOOK

March brought average precipitation to the Bruneau and Salmon Falls basins and about 85% of average precipitation to the Oakley and Owyhee basins. Water year-to-date precipitation is about 83% of average across the region, best in the state behind the Weiser basin which is at 85%. In comparison to the rest of Idaho, these basins benefited from being on the northern edge of the El Nino storm track. Snowpacks range from 74% of average for Salmon Falls, to 82% for Oakley, to 86% for Bruneau, to 114% for the Owyhee. All reservoirs besides Brownlee are storing less than average amounts. Brownlee is 88% of capacity, 122% of average, but with minimal inflows projected, Idaho Power will try to maximize hydropower production while balancing recreation and fishery needs. The Owyhee basin is the tricky one to forecast this year. The near normal lower elevation snowpack has the potential to provide additional runoff but only if it rains. There was one streamflow peak on the Owyhee River in late March of about 3,000 cfs and there will be another peak as soon as it warms up or rains. Based on current snow levels, the Owyhee streams are forecast in the 55-65% of average range and when combined with reservoir storage, the total should be adequate to meet irrigation supplies. Runoff volumes in the Owyhee basin could be better than predicted with normal or better May-June precipitation which has occurred in 6 of the last 10 years. The Bruneau River is forecast at 58% of average and will have a short floating season if spring rains do not fall. Salmon Falls Creek and Oakley Reservoir inflow are forecast at 45-55% of average. Combining current reservoir storage with the 50% chance of exceeding forecast puts Oakley irrigation supplies about 4,500 acre-feet short and Salmon Falls supplies 22,000 acre-feet short. If the precipitation pattern that benefitted these basins all winter continues through spring, then these deficits may be reduced or overcome. Keep your fingers crossed as the weather pattern is still very active.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - April 1, 2010

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	APR-JUL	6.4	11.1	15.0	52	19.5	27	29
	APR-SEP	7.5	12.7	17.0	53	22	30	32
OAKLEY RESV STORAGE	APRIL	26	28	29	71	30	32	41
	MAY	27	30	33	73	36	39	45
	JUNE	19.6	25	29	72	33	38	40
Salmon Falls Ck nr San Jacinto	APR-JUN	17.2	26	33	44	41	54	75
	APR-JUL	17.7	27	35	44	44	58	80
	APR-SEP	19.7	30	38	45	47	62	84
SALMON FALLS RESV STORAGE	APRIL	53	57	60	68	63	67	88
	MAY	44	52	58	57	64	72	101
	JUNE	32	45	54	57	63	76	95
Bruneau R nr Hot Springs	APR-JUL	62	93	118	58	146	192	205
	APR-SEP	66	99	125	58	154	203	215
Owyhee R nr Gold Creek (2)	APR-JUL	7.0	11.3	15.0	60	19.5	28	25
	APR-SEP	5.6	10.7	15.5	65	22	33	24
Owyhee R nr Rome	APR-JUL	92	164	225	59	296	417	380
Owyhee R blw Owyhee Dam (2)	APR-JUL	12.0	98	225	56	350	540	400
	APR-SEP	13.0	119	245	57	370	555	430
Reynolds Ck at Tollgate	APR-JUL	4.3	5.5	6.4	78	7.4	8.9	8.2

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	75.6	28.4	24.5	36.0
SALMON FALLS	182.6	49.8	31.0	70.2
WILDHORSE RESERVOIR	71.5	29.2	29.2	46.2
OWYHEE	715.0	276.3	354.4	593.0
BROWNLEE	1420.0	1256.2	1165.1	1029.5

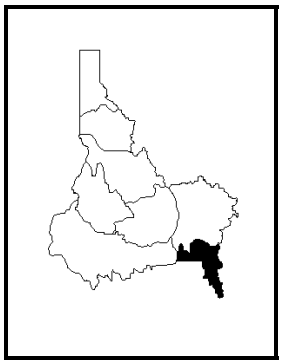
SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2010

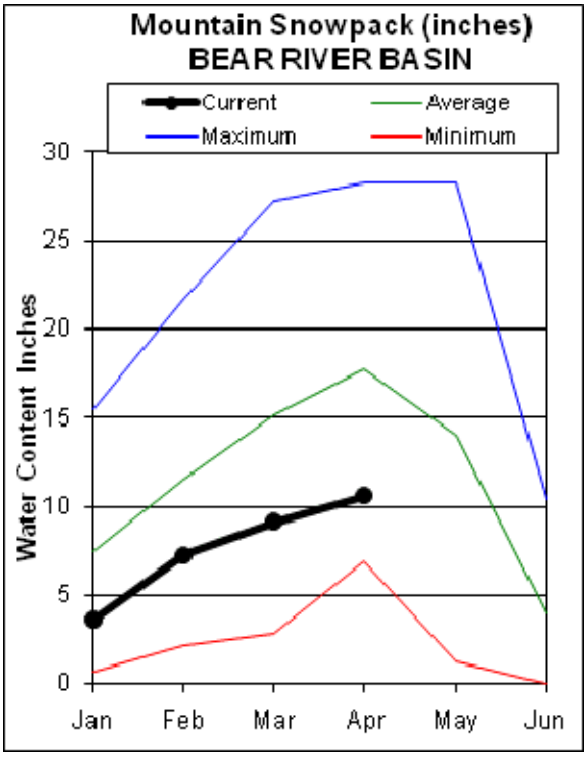
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	6	89	89
Goose-Trapper Creeks	7	87	82
Salmon Falls Creek	8	74	74
Bruneau River	8	83	86
Reynolds Creek	6	105	96
Owyhee Basin Total	20	133	114

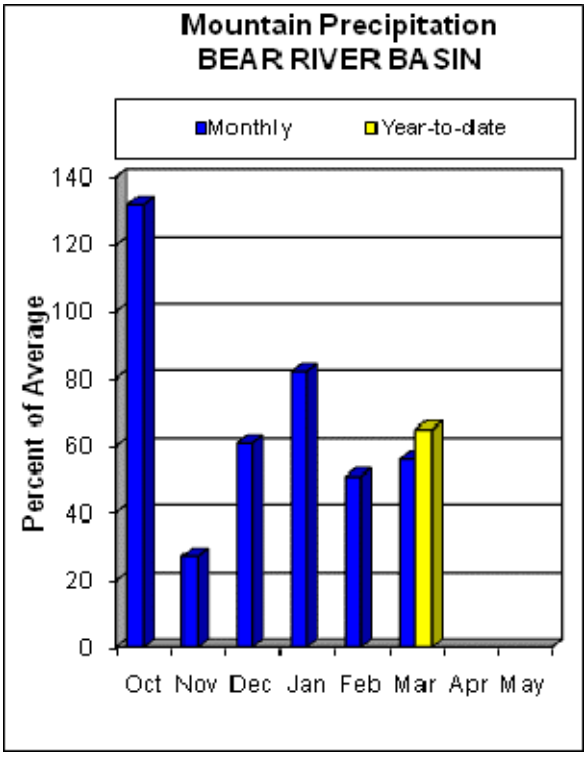
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

(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
APRIL 1, 2010







WATER SUPPLY OUTLOOK

Most of the storms missed the Bear River basin this year. Monthly precipitation ranged from 30-80% of average this winter and March brought only 56% of normal monthly precipitation. This leaves the water year-to-date precipitation at only 65% of average since October 1. As a result, the April 1 snowpack is 60% of normal for the Bear River basin and very similar to 2007 when the streamflow runoff was only 15% of average. Currently, the Bear River at Stewart Dam is forecast at 16% of average. With Bear Lake storing 568,400 acre-feet, irrigators should be able to squeeze through another year, but the lake will be near minimum storage levels by summer's end. The Smith Fork is an important tributary to Bear Lake but is only forecast at 47% of average. Other streamflow forecasts in the Bear River basin range from 25-55% of average. Above normal spring precipitation combined with a slow defrost would help cushion the impacts of low streamflows and reduce reservoir drawdown.

BEAR RIVER BASIN
Streamflow Forecasts - April 1, 2010

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 River nr UT-WY State Line	APR-JUL	36	53	65	58	77	94	113
	APR-SEP	36	55	68	54	81	100	125
Bear River ab Reservoir nr Woodruff	APR-JUL	18.0	43	60	44	77	102	136
	APR-SEP	19.0	45	62	44	79	105	142
Big Creek nr Randolph	APR-JUL	0.5	1.4	2.0	41	2.6	3.6	4.9
Smiths Fork nr Border	APR-JUL	21	37	48	47	59	75	103
	APR-SEP	21	40	52	43	64	83	121
Bear River at Stewart Dam	APR-JUL	2.0	21	40	17	85	151	234
	APR-SEP	5.0	24	41	16	91	166	262
Little Bear at Paradise, UT	APR-JUL	1.4	7.3	15.0	33	23	34	46
Logan R nr Logan, UT	APR-JUL	2.0	14.0	26	21	37	54	126
Blacksmith Fk Abv Up&L Dam Nr Hyrum	APR-JUL	1.0	8.5	19.0	40	30	45	48

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	568.4	412.5	923.8
MONTPELIER CREEK	4.0	2.8	2.9	1.7

BEAR RIVER BASIN
Watershed Snowpack Analysis - April 1, 2010

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	4	63	62
Bear River ab WY-ID line	12	63	58
Montpelier Creek	2	74	60
Mink Creek	4	62	60
Cub River	3	63	64
Bear River ab ID-UT line	26	64	60
Malad River	3	100	75

* 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

Buffalo Fork ab Lava Ck nr Moran, WY – No Corrections

Gros Ventre R at Kelly, 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 Reservoir 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
(Does not include inflow from Birch Creek)
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						
Montpelier Creek	0.21	---	3.84	---	4.0	Dead+Active
Bear Lake	5.0 MAF	119.00	1302.00	---	1421.0	Active+Inactive: Includes 119 that can be released

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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