

Natural Resources Conservation Service

Idaho Water Supply Outlook Report

April 1, 2014



NRCS Hydrologist Karl Wetlaufer needs all six sections (180 inches) of the standard Federal Snow Sampler to measure the deep snow and verify the electronic data at the Cool Creek SNOTEL site in the Clearwater mountains of northern Idaho. On March 12, Wetlaufer recorded snow depths of 152 inches containing 55 inches snow water equivalent (SWE). Wayne Jousma, a US Army Corps of Engineers (USACE) civil engineer from the Walla Walla district assists with the project.

The Corps has cooperated with NRCS for more than 25 years on this helicopter mission. These flights monitor snow conditions at Cool Creek and six other remote inaccessible stations operated by the NRCS Snow Survey and Water Supply Forecast Program office in Boise Idaho. Snowpack data is critical to the Corps' operation of the Dworshak Reservoir on the North Fork Clearwater River, a large and vital project for multiple purposes in the Columbia River system.

Since this photo was taken, multiple storms across the entire state added six to ten additional inches of water content and another two feet of snow depth to the basin, and the snowpack increased from 125% to 135% of normal! With this already large snowpack and nearly a month yet to come in the snow accumulation season, prospects for an abundant summer runoff will keep Corps and NRCS hydrologists and engineers busy and vigilant as the annual water cycle approaches its most exciting period.

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

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Contact: Your local county Natural Resources Conservation Service Office

Internet Web Address: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/id/snow/>

Natural Resources Conservation Service Snow Surveys

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

How forecasts are made

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

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

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

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IDAHO WATER SUPPLY OUTLOOK REPORT

April 1, 2014

SUMMARY

Back to back months with above normal precipitation is just what the state needed this winter and continued the rollercoaster ride. March precipitation brought more rain in the lower elevations and snow to the high county and even a few storms in early April to add more moisture to the pack. March precipitation amounts were 170-190% of normal in the Spokane, Clearwater, Weiser, Payette and Henrys Fork basins. The least amount fell in the Little Lost basin, only 103% of normal while most other southern Idaho basins were 120-140% except for Goose Creek and the Upper Snake basins at 160%. Snowpacks are the highest at 145-160% of median in the Upper Snake headwater tributaries in western Wyoming, decreasing to 145% above Palisades and to 131% above American Falls. The Clearwater basin is 135% of median followed by the Bear and Henrys Fork at 125%. Many other basins across the state are in the 80-110% of normal range. The lowest snowpacks remain in the Owyhee at 46% of median, and 50-70% in the Bruneau, Little Wood and Weiser basins. Reservoirs are in good shape and are ready to capture the runoff from this year's mountain snowpack. Some reservoirs will fill and some won't. Streamflow forecasts mirror the snowpack with above average volumes forecast in the Upper Snake and Clearwater basins; near average (85-115%) in the west-central mountains, Salmon and Panhandle basins. The lowest forecasts are in the Wood & Lost basins and across southern Idaho with streams forecast at 20-70% of average.

Two good months of precipitation have not eliminated all the water supply shortages because of four dry months and low reservoir storage carryover from the start of this water year. Owyhee Reservoir water users will see 25% of their normal water allotment which will lead to a very short irrigation season. Shortages will occur in the Big Wood, Big Lost, Little Lost, Oakley, Salmon Falls and Owyhee basins based on the 50% Chance of Exceedance Forecast used in the Surface Water Supply Index (SWSI). Water supplies for the Little Wood users are on the cusp as the forecast on the wetter side of the 50% Chance of Exceeding Forecasts are needed to ensure adequate irrigation supplies. A wet and cool spring would help to extend this year's limited water supplies, but at this time the future weather trends will likely follow the recent trends which favor the warmth from the southwest spreading north and east from the Owyhee basin towards the continental divide. This is primarily due to lack of snow cover in southwest Idaho and much deeper snows as you approach Montana and the headwaters of the Upper Snake which take longer to go isothermal and melt. Future precipitation forecasts remain at equal chances for below, average or above normal amounts, and there is no reason not to expect the same type of climate variability we have seen.

SNOWPACK

The unique feature about Idaho's snowpack this year is it varies like our landscape. From north to south: Idaho's Panhandle snowpack is near normal in the Priest and Rathdrum basins and increases to 118% of median in the Spokane and to 137% in the large Pend Oreille basin. Get ready for a big flush when the mid-elevation Clearwater snowpack melts that has three feet of snow on the ground followed by sustained high flows from the high elevation snowpack that reaches to 150% of median in the Lochsa and Selway basins. The Salmon basin starts the unique transition with the noticeable lack of mid-elevation snowpack while most Salmon basins are near normal except along the continental divide as the Lemhi basin is 129%, the same as 2011. This lack of mid-elevation snow is really noticeable across southern Idaho in the 5,000-6,000 foot elevation band from the Weiser to the Swan Valley area in eastern Idaho, which includes southern Idaho's rangeland and eastern Idaho's dryland farming

areas. The Weiser snowpack is 69% of median while the Payette and Boise have increased to near normal levels. The snowpack in the Camas Creek, Fish Creek and Little Wood basins are 27%, 46% to 51% of median, respectively. The higher elevation snowpacks in the Big Lost, Big Wood above Hailey, and Little Lost basins range from 78%, 97% to 106% of median respectively. But don't let the 106% value fool you, as it includes Meadow Lake SNOTEL site which is in Lemhi basin, but near the Little Lost divide and is keeping these levels inflated from the stormpath along the continental divide. The Henrys Fork-Falls River snowpack at 115% of median is the lowest in this region; the snowpack quickly jumps to 135% in the Teton and Snake above Jackson Lake and reaches 160% in the Pacific Creek and Hoback River drainages. Some of these tributaries are the highest since 1997. The lower elevation snowpack in eastern Idaho, Blackfoot, Willow and Portneuf, are 116%, 96% and 94% of median respectively. The Bear River basin snowpack mirrors these patterns with the Smiths & Thomas Forks at 142% of median and decreasing to 128% in Montpelier Creek and 95% in Cub River. Overall, the Bear River snowpack is 119% of median. Idaho's southern basins are about 80% of median in Oakley and Salmon Falls, 61% in the Bruneau, and still half of median in the large and broad low elevation Owyhee basin.

PRECIPITATION

The water year 2014 rollercoaster ride continues. After the water year started with four dry months (October-January) Mother Nature started an amazing recovery with back to back wet months (February –March). The 176% of average March precipitation in the Clearwater basin was one of the highest in the state. Combining the 169% of average precipitation received in February, resulted in the largest February-March increases on record for the Lochsa basin, records start 1961. The NF Clearwater had the second largest Feb-Mar snowpack increase since 1961. Combined Feb-Mar precipitation for other SNOTEL stations across our monitoring region were wet and at least 20 sites rank in the top 5 wettest precipitation totals since records start in the early 1980s. Water year to date amounts do not reflect the healthier snowpack percentages because of the September snowfall that remained on the snow pillows before the start of the new water year and comparing median snow water content percentages to average precipitation percentages. The highest water year to date totals are 125% of average in the Snake headwaters, and then decrease to 105-115% for the Bear, Henrys Fork and Clearwater basins. The majority of the state ranges from 85-100% of average. The lowest water year to date totals are in the Little Wood and Big Lost basins at 72% and 75% of average, respectively.

RESERVOIRS

Idaho's reservoirs can be split into three categories: they have the snow and will fill, might fill depending on irrigation demand and timing of runoff, or will not fill. The 'haves' are on the western side of state and include northern Idaho's lakes, Dworshak, the Payette reservoir system, Lucky Peak and Arrowrock. The jury is still out about Anderson Ranch filling and depends on spring weather. Henrys Lake, Island Park Reservoir, Grassy Lake and American Falls reservoir will fill like they usually do. The ones that might fill and depend on spring weather and irrigation demand are Jackson Lake and Palisades Reservoir; however, based on other similar snow years, flood control releases were needed in each of those years as well. A sudden dry trend in the weather or moderate melt rates may reduce chances of having excess water. The 'want-to-be' reservoirs are the ones that will not fill and include the typical ones: Bear Lake, Oakley, Salmon Falls, Owyhee and Magic reservoirs.

Users should be aware that ENSO models are favoring and suggesting El Nino conditions are brewing for 2015, and possibly a strong El Nino. El Ninos typical bring below normal snowfall to the Pacific Northwest but each one sets up differently. Users may wish to review and consider impacts of strong El Nino years in their basin and if opportunities exist to carryover additional reservoir storage as a precautionary measure if El Nino conditions occur.

STREAMFLOW

The variability across our region is amazing this year. Streamflow forecasts range from 130% of average or better in the Clearwater and Upper Snake headwater streams to a meager 20% in the parts of the Owyhee basin and Camas Creek near Fairfield. The abundant snowpacks will sustain streamflows through the summer months. In contrast, the Bruneau River, which is currently at near minimal flow levels, and Salmon Falls Creek are forecast at only half of average won't see much flow this year and baseflows occurring early. The Salmon River is forecast at 109% of average, Payette and Boise at 95%. Wood and Lost drainages are forecast at 45-65% of average. The Bear River and Oakley Reservoir inflow are forecast at 70% of average.

Now that the stage is set with snowpacks approaching 1997 levels in the Clearwater and Upper Snake and reservoirs ready to catch the runoff or make releases as needed, we should also mention the possibility of localized flooding depending on how the spring weather unfolds. More extreme weather, extended hot spells and multiple days with rain, will increase snowmelt rates and produce higher streamflow levels. We've done our job, monitoring and measuring the snow, predicting the expected spring and summer runoff volumes and managing the reservoirs. With the increase in climate variability, water users should plan wisely and continue to expect the unexpected. The rest is up to Mother Nature who will not let us down, but has possibly given some basins too much snow and other basins way too little. The key is to remain flexible and watch the spring weather closely for an extended period of unusual weather.

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

RECREATION

March continued where February ended by bringing above average moisture across the state, possibly too much in some basins and not enough across southern and central basins. The Owyhee runoff season is nearly over without more rain. The Bruneau runoff season will be short, if there is one, and similar to last year, unless spring rains occur soon. The Salmon River and its tributaries are setting up to have great season; however, early season boaters should use caution and watch for additional debris and logs from past summer's fires and this winter's avalanches. If you like big water, the Lochsa and Selway could be big depending upon spring weather, but it is a given, there is plenty of snow in the mountains to sustain high water in the spring and well into the summer months. Be careful and know your limits until the streams subside to your boating skills.

Accessing the high country may be marginal and difficult until mid-July in the Clearwater, parts of Salmon and Upper Snake regions. With the snowpack well above normal, in years like this, many of our upper elevation SNOTEL sites are not melted out until after the 4th of July. Small streams (trail crossings) run high and turbulent well into the summer as observed in 2011. Washouts and blockages are a concern on back roads and trails because of some of the avalanches observed from the highways this winter. Mid-elevations will be accessible early this year across southern Idaho. Southern basins are becoming snow free and open for your recreation enjoyment. Spring is a great time to enjoy Idaho, one of the greatest recreational states in the country. Be safe and enjoy!

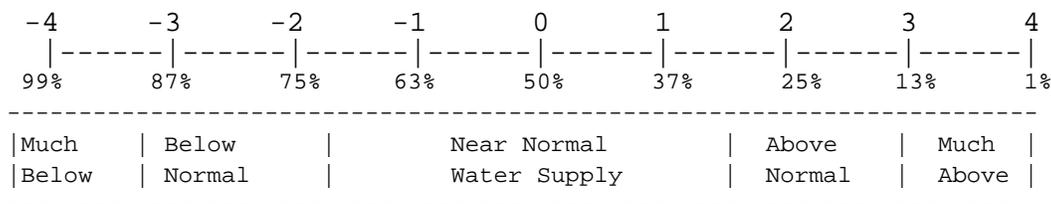
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) April 1, 2014

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

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

BASIN or REGION	SWSI Value	Most Recent Year With Similar SWSI Value	Agricultural Water Supply Shortage May Occur When SWSI is Less Than
Northern Panhandle	1.1	2013	NA
Spokane	1.1	1989	NA
Clearwater	3.3	2008	NA
Salmon	0.4	1998	NA
Weiser	-1.1	2009	NA
Payette	-0.1	2010	NA
Boise	0.1	2000	-2.0
Big Wood	-1.6	2003	0.0
Little Wood	-1.6	2004	-1.5
Big Lost	-1.6	2007	0.5
Little Lost	-2.1	2007	1.2
Teton	2.8	1984	-3.9
Henry's Fork	1.1	2008	-3.4
Snake (Heise)	2.1	2009	-1.5
Oakley	-1.3	2013	-0.2
Salmon Falls	-3.3	2003	-1.0
Bruneau	-1.6	1990	NA
Owyhee	-3.6	1992/2003/1988	-3.4
Bear River	0.6	2013	-3.4

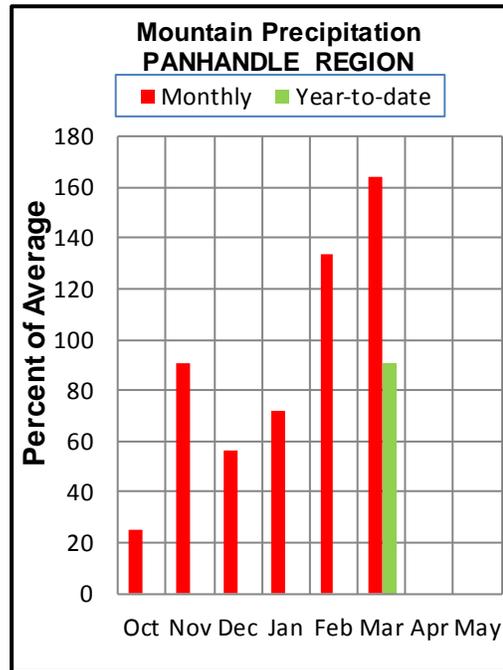
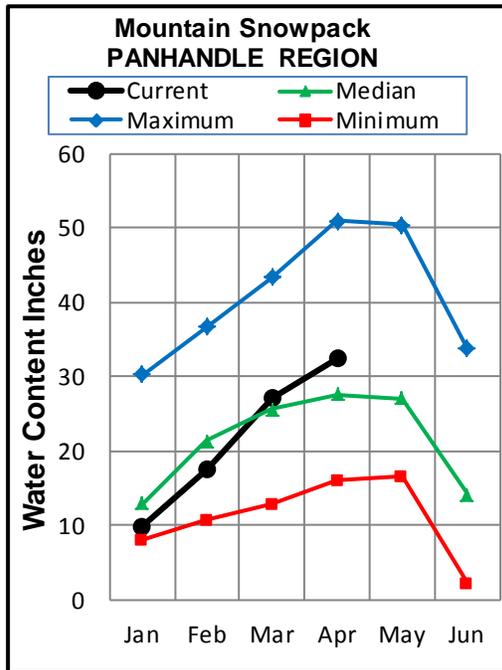
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION



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

PANHANDLE REGION

APRIL 1, 2014



WATER SUPPLY OUTLOOK

The Panhandle Region received 164% of average March precipitation. This well above average precipitation brought the water year to date precipitation closer to normal amounts after a dry fall and early winter, and now stands at 91% of normal. In addition to the notable basin-wide percent of average, many individual sites received near record precipitation totals over the February and March combined period including the Bear Mountain and Lookout SNOTEL sites. Much of this precipitation fell as snow and brought the snowpack percentages up to 118% of the 1981–2010 median value. Similar to last month, Rathdrum Creek, a lower elevation basin contains the least water stored in the snowpack, at 89% of normal. The Pend Oreille basin has the largest percent of normal snowpack in region, at 137% of median. The Spokane basin experienced one runoff event in March that primed the soils and increased reservoir storage, but much more is still to come. Pend Oreille and Priest Lakes showed only slight increases in storage while Coeur d'Alene Lake gained substantially, rising from 29% to 80% of capacity because of the March runoff event. All streamflow forecasts in the Panhandle Region increased from last month. Only the Priest River is currently being forecast at below average volumes (87%) and other forecasts range from 102% for Boundary Creek to a high of 134% of average for the Pend Oreille Lake inflow and the Clark Fork. Overall, water supplies will be adequate.

PANHANDLE REGION
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Kootenai R at Leonia (1,2)	APR-JUL	5990	6720	7060	107	7400	8130	6600
	APR-SEP	6970	7720	8060	106	8400	9150	7590
Moyie R at Eastport	APR-JUL	330	380	415	111	450	500	375
	APR-SEP	340	395	430	112	465	520	385
Boundary Ck nr Porthill	APR-JUL	97	110	119	102	128	141	117
	APR-SEP	101	115	124	101	133	147	123
Clark Fork at Whitehorse Rpd (1,2)	APR-JUL	11900	13400	14000	133	14600	16100	10500
	APR-SEP	13000	14600	15300	133	16000	17600	11500
Pend Oreille Lake Inflow (2)	APR-JUL	14100	15100	15800	134	16500	17500	11800
	APR-SEP	15100	16300	17100	134	17900	19100	12800
Priest R nr Priest River (1,2)	APR-JUL	510	625	675	87	725	840	780
	APR-SEP	530	660	715	86	770	900	830
NF Coeur d'Alene R at Enaville	APR-JUL	585	695	770	110	845	955	700
	APR-SEP	620	735	810	109	885	1000	740
St. Joe R at Calder	APR-JUL	1060	1170	1250	119	1330	1440	1050
	APR-SEP	1130	1240	1320	118	1400	1510	1120
Spokane R nr Post Falls (2)	APR-JUL	2180	2510	2740	115	2970	3300	2390
	APR-SEP	2260	2610	2840	115	3070	3420	2480
Spokane R at Long Lake (2)	APR-JUL	2370	2730	2980	114	3230	3590	2620
	APR-SEP	2610	2990	3250	114	3510	3890	2850

PANHANDLE REGION Reservoir Storage (1000 AF) - End of March					PANHANDLE REGION Watershed Snowpack Analysis - April 1, 2014			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Hungry Horse Lake	3451.	2538.	2896.	2081.	Kootenai ab Bonners Fer	13	125	126
Flathead Lake	1791.	762.3	644.5	762.6	Moyie River	1	100	119
Noxon Rapids Res	335.0	319.1	317.5	309.9	Priest River	3	99	104
Pend Oreille	1561.	632.2	888.0	773.0	Pend Oreille River	78	145	137
Coeur D'alene	238.5	191.6	138.1	165.5	Rathdrum Creek	2	90	92
Priest Lake Nr Coolin	119.3	65.6	62.7	67.6	Coeur d'Alene River	10	134	123
					St. Joe River	6	148	129
					Spokane River	16	133	120
					Palouse River	2	97	81

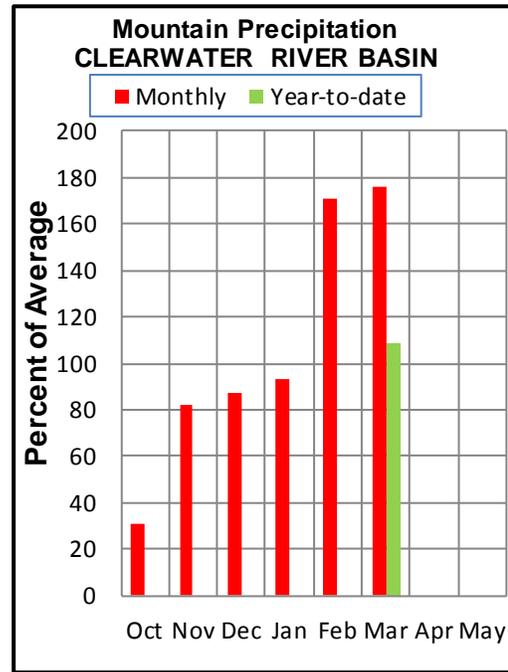
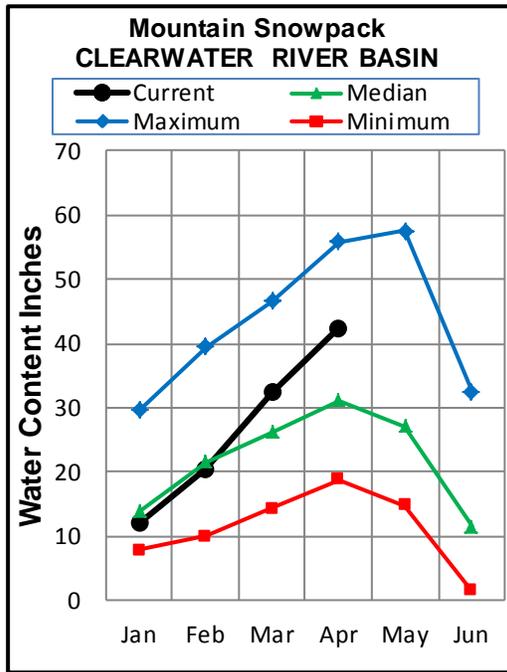
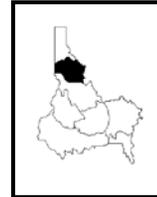
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

CLEARWATER RIVER BASIN

APRIL 1, 2014



WATER SUPPLY OUTLOOK

The Clearwater received the highest percent of average monthly precipitation of any region in Idaho at 176%. This, on top of the 169% of average precipitation that fell in February, led to the largest February and March combined snowpack increases on record for the Selway and Lochsa basins; records start in 1981 and 1961, respectively. The NF Clearwater had the 2nd largest Feb-Mar snowpack increase since 1961. As of April first, the Clearwater basin snowpack as a whole is 135% of normal. The substantial increases of the last two months have left both the Lochsa and Selway basins near 150% of their normal snowpack levels. The historic April 1st measurement started in 1961 and the Lochsa has currently the 5th highest snowpack on record while the Selway is the 8th highest. Dworshak Reservoir storage is currently 61% of capacity and 88% of average, a decrease from a month ago because of the increase in snow water above the reservoir. Consistent winter precipitation has led to deep snowpacks and resulting streamflow forecasts in the Clearwater basin are all well above average. Dworshak Reservoir inflow is forecasted the least at 128% of the April–July streamflow average. The Clearwater River at both Orofino and Spalding, as well as the Selway River are forecast to have over 135% of average streamflow while the Lochsa River is forecast at 131%. Because of the good, steady and consistent weather pattern bringing moisture into this region, water users should consider using the wetter forecasts. Spring temperatures and precipitation will determine magnitude and when the peak flows occur and users should be aware that abundant snow in the mountains will sustain high streamflow levels once the snow starts melts.

CLEARWATER RIVER BASIN
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Selway R nr Lowell	APR-JUL	2320	2490	2610	136	2730	2900	1920
	APR-SEP	2420	2600	2730	135	2860	3040	2020
Lochsa R nr Lowell	APR-JUL	1640	1760	1850	131	1940	2060	1410
	APR-SEP	1720	1850	1940	131	2030	2160	1480
Dworshak Res Inflow	APR-JUL	2460	2890	3080	128	3270	3700	2410
	APR-SEP	2610	3060	3260	127	3460	3910	2570
Clearwater R at Orofino (1)	APR-JUL	4850	5570	5900	137	6230	6950	4310
	APR-SEP	5070	5830	6180	136	6530	7290	4540
Clearwater R at Spalding (1,2)	APR-JUL	7600	8760	9280	135	9800	11000	6890
	APR-SEP	7960	9180	9730	134	10300	11500	7270

CLEARWATER RIVER BASIN Reservoir Storage (1000 AF) - End of March					CLEARWATER RIVER BASIN Watershed Snowpack Analysis - April 1, 2014			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Dworshak	3468.	2124.	2807.	2417.	North Fork Clearwater	9	149	132
					Lochsa River	2	167	147
					Selway River	4	173	152
					Clearwater Basin Total	16	152	134

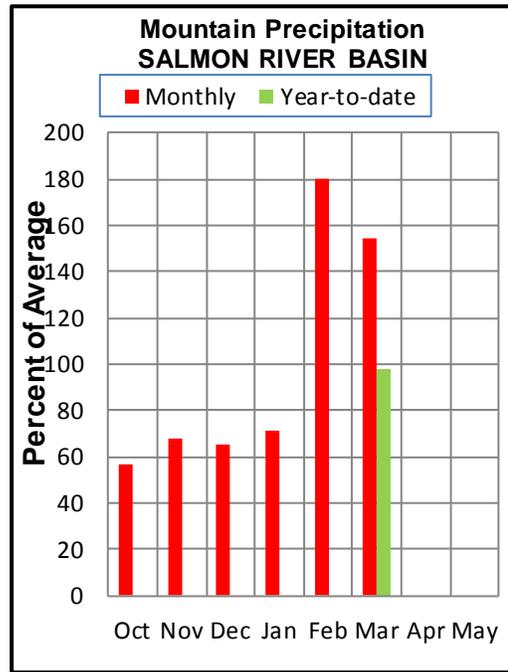
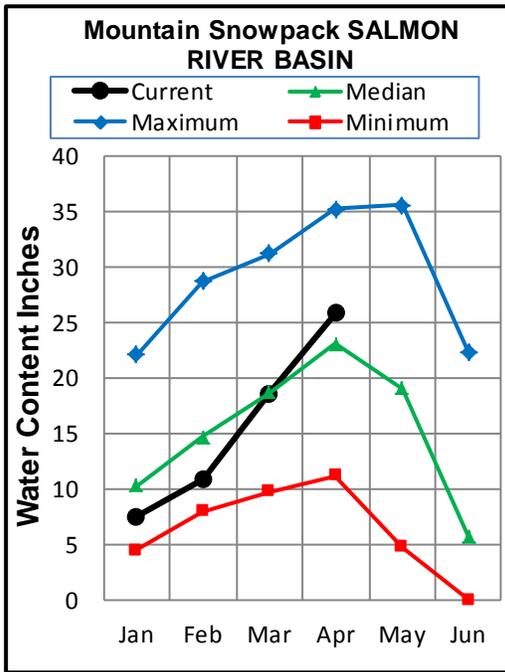
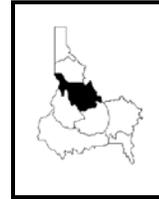
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

SALMON RIVER BASIN

APRIL 1, 2014



WATER SUPPLY OUTLOOK

While March precipitation in the Salmon basin was not quite as substantial as the precipitation in basins to the north (relative to average), as a whole it still received 154% of normal precipitation. This second month in a row of well above average precipitation was able to bring the basin back to near normal water year to date precipitation amounts, 98% of average. The basin as a whole now has 119% of normal snowpack. There is a general trend of increasing snowpack amounts from west to east across the basin. The Little Salmon and SF Salmon are at 103% of normal, the MF Salmon is at 107%, and the Salmon above the town of Salmon has 113% of normal snowpack. The Lemhi basin falls in line with the trend of well above average snowpacks all along the continental divide and much of eastern Idaho, at 129% of normal. The good precipitation last month also increased streamflow forecasts, with the exception of the Lemhi River. The largest increase from last month was on the MF Salmon which rose from a forecasted 90% to 112% of average seasonal volume. The forecast for the Salmon at White Bird increased by 9% from last month and is only slightly lower than the Middle Fork, at 109%. This is good news for river runners who are hoping for a season with lots of water, especially considering the forecasts were calling for only 55-75% back in early February when the river lottery permit applications were due. Early season boaters should use caution as the past summer's fires and this winter's avalanches have brought additional logs and debris down to the river. Spring weather will determine the timing and magnitude of streamflow peaks so watch the weather closely and be sure the river levels match your boating skills and then enjoy!

SALMON RIVER BASIN
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Salmon R at Salmon (1)	APR-JUL	525	685	755	97	825	985	775
	APR-SEP	610	795	880	98	965	1150	900
Lemhi R nr Lemhi	APR-JUL	42	53	61	82	70	84	74
	APR-SEP	53	66	75	83	85	101	90
MF Salmon R at MF Lodge	APR-JUL	590	700	775	112	850	960	690
	APR-SEP	650	775	860	112	945	1070	770
SF Salmon R nr Krassel RS	APR-JUL	215	250	270	100	290	325	270
	APR-SEP	240	265	285	98	305	330	290
Johnson Ck at Yellow Pine	APR-JUL	140	166	184	96	200	230	191
	APR-SEP	151	176	193	94	210	235	205
Salmon R at White Bird (1)	APR-JUL	4460	5410	5840	109	6270	7220	5370
	APR-SEP	4900	5970	6450	109	6930	8000	5940

SALMON RIVER BASIN Reservoir Storage (1000 AF) - End of March					SALMON RIVER BASIN Watershed Snowpack Analysis - April 1, 2014			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
					Salmon River ab Salmon	9	133	113
					Lemhi River	9	135	129
					Middle Fork Salmon Rive	3	122	107
					South Fork Salmon River	3	124	103
					Little Salmon River	4	154	103
					Salmon Basin Total	28	140	118

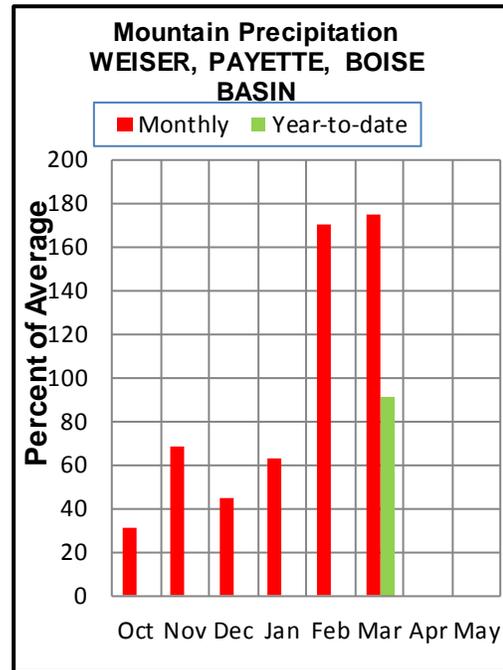
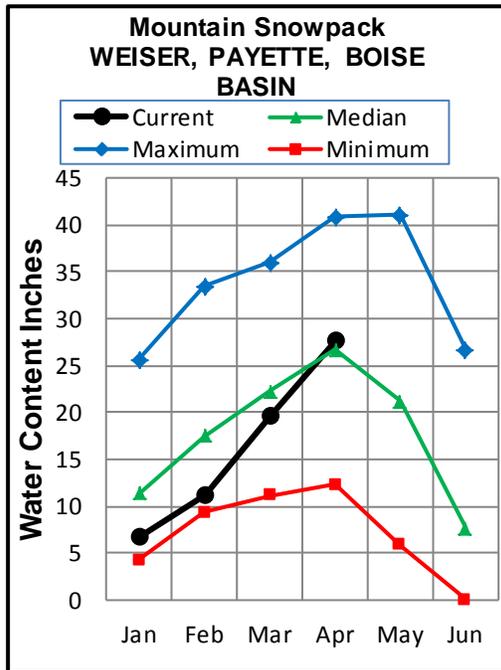
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

WEISER, PAYETTE, BOISE RIVER BASINS

APRIL 1, 2014



WATER SUPPLY OUTLOOK

March marked two months of above normal precipitation in Idaho's west central mountains. The February through March precipitation totals were some of the highest on record for a few sites in the Boise and Payette basins including Mores Creek, Trinity Mountain, Bear Basin and Squaw Flat. Precipitation for the month ranged from 163% of normal in the Boise basin, to 186% in the Payette, and up to 190% in the Weiser. After a slow start from October through January, water year to date precipitation is approaching normal amounts at 91% of average for the region. Warmer temperatures caused rain to fall at middle to lower elevations. Sites below 5,500 feet elevation have less than average snow or are already melted out, while sites above that elevation are near their normal peak amounts for the season. Three lower elevation SNOTEL sites have already melted out, including Van Wyck (Weiser Basin), Long Valley (Payette Basin) and Prairie (Boise Basin). Overall, snow the Boise and Payette basins are 96% of their seasonal peak snow water amounts, while the Weiser basin lags at 69% of its peak amount. With an active weather pattern bringing additional snow to the mountains in early April it's likely the Boise and Payette snowpacks will end up at or above normal, a dramatic turnaround from mid-January when snowpacks dipped below 60% of normal. Most streamflow forecasts range from 90-100% of average, with the only exception being the Weiser River forecast at 80%. On the Boise system reservoir storage is 107% of average, 64% of capacity. Managers expect Arrowrock and Lucky Peak to fill, however the jury is still out on Anderson Ranch. The New York Canal which had been moving water to Lake Lowell was shut down the first week of April for repairs before the irrigation season begins. On the Payette system, both Cascade and Deadwood are storing above average amounts. With reservoirs rebounding and good streamflow predicted, water supplies should be adequate to meet demand.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Weiser R nr Weiser (1)	APR-JUL	151	245	295	80	350	485	370
	APR-SEP	166	265	315	79	370	510	400
SF Payette R at Lowman	APR-JUL	320	355	380	95	405	445	400
	APR-SEP	360	400	430	95	460	505	455
Deadwood Resv Inflow (1,2)	APR-JUL	85	104	113	92	122	141	123
	APR-SEP	89	111	121	92	131	153	131
Lake Fork Payette R nr McCall	APR-JUL	60	68	73	91	79	87	80
	APR-SEP	61	69	75	90	81	90	83
NF Payette R at Cascade (1,2)	APR-JUL	310	400	440	91	480	570	485
	APR-SEP	310	405	450	91	495	590	495
NF Payette R nr Banks (2)	APR-JUL	445	520	570	91	620	695	625
	APR-SEP	435	520	575	90	630	715	640
Payette R nr Horseshoe Bend (1,2)	APR-JUL	1110	1320	1410	95	1500	1710	1480
	APR-SEP	1120	1370	1490	91	1610	1860	1630
Boise R nr Twin Springs (1)	APR-JUL	455	545	590	101	635	725	585
	APR-SEP	495	595	640	101	685	785	635
SF Boise R at Anderson Ranch Dam (1,2)	APR-JUL	305	385	420	88	455	535	475
	APR-SEP	325	410	450	88	490	575	510
Mores Ck nr Arrowrock Dam	APR-JUL	72	92	107	93	123	148	115
	APR-SEP	75	96	111	93	128	154	119
Boise R nr Boise (1,2)	APR-JUN	915	1030	1080	95	1130	1250	1140
	APR-JUL	915	1120	1210	96	1300	1510	1260
	APR-SEP	1000	1210	1300	96	1390	1600	1360

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

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Mann Creek	11.1	5.7	8.2	8.7	Mann Creek	1	91	61
Cascade	693.2	542.5	556.0	462.1	Weiser River	4	131	73
Deadwood	161.9	95.5	101.1	90.6	North Fork Payette	9	131	94
Anderson Ranch	450.2	180.9	283.4	245.3	South Fork Payette	5	137	99
Arrowrock	272.2	237.8	213.8	190.4	Payette Basin Total	16	139	95
Lucky Peak	293.2	226.4	184.3	167.5	Middle & North Fork Boi	5	171	106
Lake Lowell (deer Flat)	165.2	91.3	121.7	113.0	South Fork Boise River	5	132	96
					Mores Creek	5	205	95
					Boise Basin Total	12	165	97
					Canyon Creek	1	175	27

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

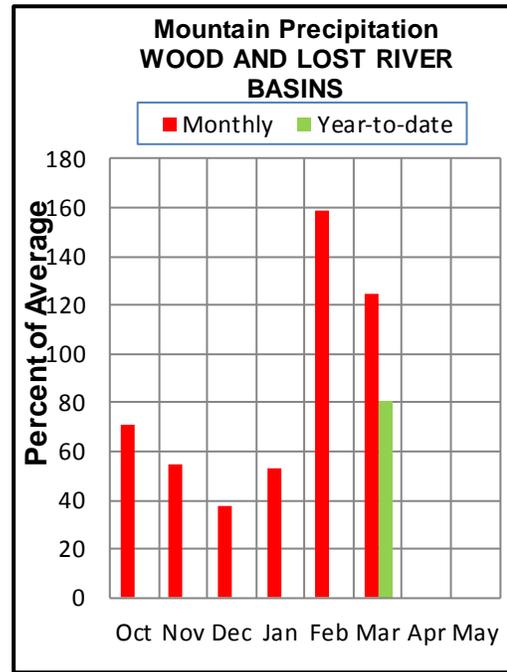
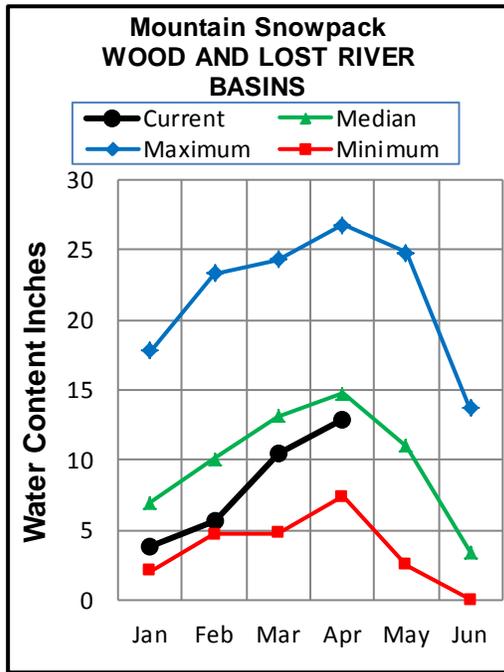
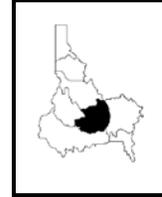
The average is computed for the 1981-2010 base period.

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

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

WOOD and LOST RIVER BASINS

APRIL 1, 2014



WATER SUPPLY OUTLOOK

The Wood and Lost basins continued to see good precipitation in March, however the water supply picture remains similar to last month with shortages expected in the Little Lost, Big Wood and Big Lost basins. The Big Wood, Little Wood and Big Lost basins all recorded about 130% of average precipitation for the month. The Little Lost and Birch Basins were the driest in the state for the month of March even though they received an average amount of precipitation. Despite two months of good precipitation, water year precipitation totals are 81% of average across this region. Snowpacks are now near their seasonal peaks with spring melt just around the corner. The Little Lost and Birch basins' snowpack has exceeded its normal peak amount by a couple percentage points. As of April 1 the Big Wood basin snow is 85% of its normal peak, the Big Lost basin is 82% of its peak, and the Little Wood basin is 68% of its peak. Percentages are skewed by elevation with near normal snow at higher elevations, while mid-elevations below about 7,000 feet have less than one-third of their normal amounts. Streamflow forecasts range from 45 to 65% of average, with Camas Creek near Blaine at 19% of average being the outlier. Reservoir storage is near average in Little Wood and Mackay, while Magic is 82% of average. Based on the Surface Water Supply Index water supplies will be marginally adequate based on the 50% chance of exceedance forecast for the Little Wood basin. Other basins should expect shortages. Based on current reservoir storage and the 50% chance of exceedance streamflow forecast, shortages on the order of 100,000 acre-feet are possible in the Big Wood basin. Elsewhere shortages of 60,000 acre-feet are possible in the Big Lost basin and 19,000 acre-feet in the Little Lost. If conditions remain wetter than normal the 10% chance of exceedance forecast indicates water supplies could be marginally adequate for the Big Lost and Big Wood basins. New snow from storms in early April have continued to get the region closer to their normal peak amounts which is a good sign; also long range climate predictions don't rule out a wet spring. Hopefully the current wet pattern continues, but water users would be wise to plan for shortages and look for ways to reduce inefficiencies in their systems.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Big Wood R at Haily (1)	APR-JUL	82	131	153	65	175	225	235
	APR-SEP	92	146	171	65	196	250	265
Big Wood R ab Magic Res	APR-JUL	5.1	50	80	47	110	155	170
	APR-SEP	5.5	53	85	47	117	165	182
Camas Ck nr Blaine	APR-JUL	2.1	8.8	15.9	19	25	42	82
	APR-SEP	2.2	9.1	16.3	20	26	43	83
Big Wood R bl Magic Dam (2)	APR-JUL	22	80	120	48	160	220	250
	APR-SEP	37	91	127	48	163	215	265
Little Wood R ab High Five Ck	APR-JUL	5.5	22	33	48	44	60	69
	APR-SEP	19.6	30	38	51	47	62	75
Little Wood R near Carey (2)	APR-JUL	4.5	22	34	44	46	63	77
	APR-SEP	16.7	30	39	47	48	61	83
Big Lost R at Howell Ranch	APR-JUL	56	83	101	64	119	146	159
	APR-SEP	63	93	114	63	135	165	180
Big Lost R Below Mackay Res	APR-JUL	17.9	47	66	54	85	114	123
	APR-SEP	29	63	86	57	109	143	150
Little Lost R nr Howe	APR-JUL	11.1	15.0	18.0	64	21	27	28
	APR-SEP	12.6	17.3	21	62	25	32	34
Camas Ck at Camas	APR-JUL	3.4	7.2	13.7	49	20	30	28

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

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Magic	191.5	73.2	27.3	89.3	Big Wood ab Hailey	7	107	97
Little Wood	30.0	19.4	24.9	19.8	Camas Creek	3	124	46
Mackay	44.4	32.2	37.0	31.2	Big Wood Basin Total	10	109	86
					Fish Creek	2	66	55
					Little Wood River	6	69	54
					Big Lost River	6	77	75
					Little Lost River	4	113	106
					Birch-Medicine Lodge Cr	4	120	105
					Camas-Beaver Creeks	4	92	72

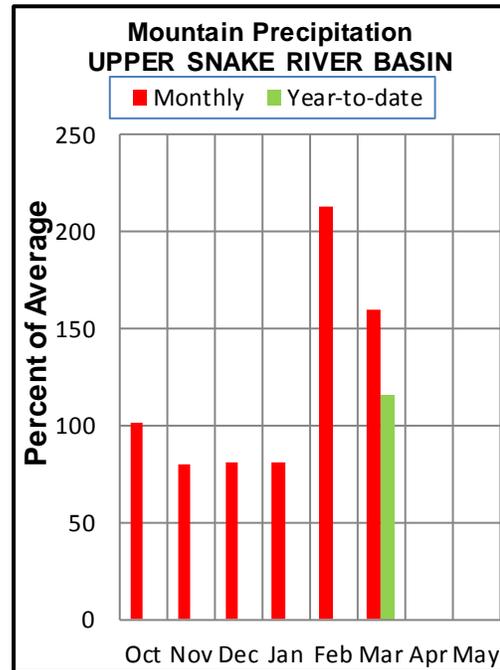
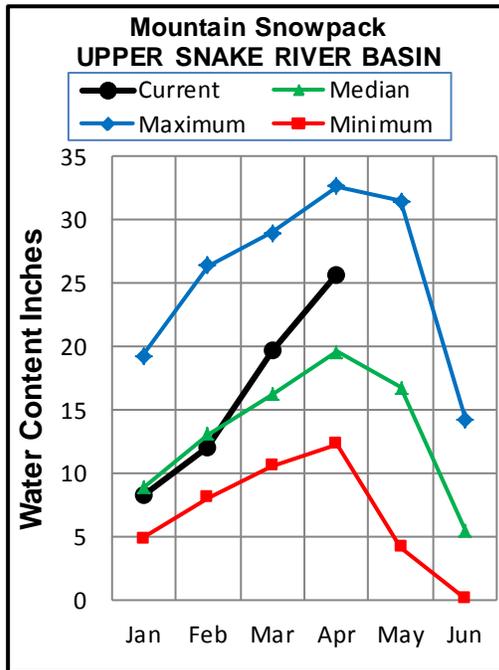
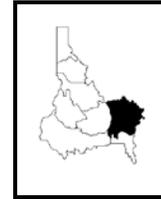
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

UPPER SNAKE BASIN

APRIL 1, 2014



WATER SUPPLY OUTLOOK

With the Upper Snake snowpack currently 130% of its normal peak amount, it is hard to believe that just two months ago water shortages were being discussed. The past two months have more than made up for the four below normal precipitation months that preceded them. Over twice normal monthly precipitation was recorded in February; March was not far behind with 157% of normal precipitation falling. As of April 1, water year precipitation is 116% of average. In terms of snow this year's February-March period was historic; snow water gains between February 1 and April 1 this year beat all previous years going back to 1961 when the records begin. As a percent of median the greatest snowpacks are found in the Hoback basin at 161%, Pacific Creek at 159% and the Greys River at 152%. Percentages are less across the border in Idaho where the Henrys Fork above Rexburg is 124% of normal for April 1 and Willow, Blackfoot and Portneuf basins are 95-115%. Streamflow forecasts follow suit with Wyoming tributaries forecast between 127-162% of average. Most Idaho tributaries are forecast between 95-115%, with the Teton River and Willow Creek being outliers at about 140%. Reservoir storage in the Upper Snake system is 81% of average, 58% of capacity. Despite the current below normal storage, water users should expect the system to fill, or nearly fill, depending on the timing of runoff and assuming the weather doesn't turn hot and dry leading to high irrigation demand early in the season. The Snake River at Heise forecast is 5,490,000 acre-feet for the April-September period; this amount would meet demand and likely boost carryover storage for next winter. The Surface Water Supply Index indicates that even the driest forecast (90% chance of exceedance) would meet demand. The Upper Snake's water supply is in great shape to handle whatever weather this summer may bring.

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - March 1, 2014

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>					30-Yr Avg. (1000AF)	
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)		10% (1000AF)
Henrys Fork nr Ashton (2)	APR-JUL	400	460	505	95	550	620	530
	APR-SEP	555	630	680	96	735	820	710
Henrys Fork nr Rexburg (2)	APR-JUL	1330	1470	1560	111	1650	1790	1400
	APR-SEP	1740	1890	2000	112	2110	2260	1790
Falls R nr Ashton (2)	APR-JUL	310	350	380	104	410	455	365
	APR-SEP	370	415	450	103	485	540	435
Teton R nr Driggs	APR-JUL	170	199	220	143	240	275	154
	APR-SEP	205	245	270	140	300	345	193
Teton R nr St. Anthony	APR-JUL	395	455	495	136	540	605	365
	APR-SEP	470	535	585	134	635	710	435
Snake R at Flagg Ranch	APR-JUL	525	565	590	127	615	655	465
	APR-SEP	580	620	650	127	680	720	510
Snake R nr Moran (1,2)	APR-JUL	860	955	1000	131	1040	1140	765
	APR-SEP	935	1050	1100	130	1150	1260	845
Pacific Ck At Moran	APR-JUL	205	230	245	149	260	285	164
	APR-SEP	220	245	260	150	275	300	173
Buffalo Fork ab Lava nr Moran	APR-JUL	325	355	375	134	395	425	280
	APR-SEP	370	405	430	134	455	490	320
Snake R nr Alpine (1,2)	APR-JUL	2790	3010	3110	143	3210	3430	2170
	APR-SEP	3150	3430	3560	142	3690	3970	2500
Greys R nr Alpine	APR-JUL	410	440	460	151	480	510	305
	APR-SEP	475	510	535	149	560	595	360
Salt R nr Etna	APR-JUL	385	445	485	162	525	585	300
	APR-SEP	460	535	590	159	645	720	370
Snake R nr Irwin (1,2)	APR-JUL	3960	4280	4430	147	4580	4900	3010
	APR-SEP	4590	4960	5130	147	5300	5670	3500
Snake R nr Heise (2)	APR-JUL	4330	4570	4730	146	4890	5130	3240
	APR-SEP	5020	5300	5490	145	5680	5960	3780
Willow Ck nr Ririe	APR-JUL	47	71	87	143	103	127	61
Blackfoot R ab Res nr Henry	APR-JUN	41	57	69	115	82	104	60
Snake R nr Blackfoot (1,2)	APR-JUL	4560	5080	5320	125	5560	6080	4260
	APR-SEP	5530	6170	6460	124	6750	7390	5220
Portneuf R at Topaz	APR-JUL	43	52	59	92	66	77	64
	APR-SEP	56	66	73	90	81	93	81
Snake R at Neeley (1,2)	APR-JUL	3030	3770	4100	155	4430	5170	2650
	APR-SEP	3310	4100	4460	159	4820	5610	2810

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

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - April 1, 2014

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Henrys Lk Nr Lake	90.4	78.0	90.6	81.3	Henrys Fork-Falls River	9	128	115
Island Park	135.2	103.7	109.2	111.8	Teton River	5	160	137
Grassy Lake	15.2	14.0	13.0	12.3	Henrys Fork above Rexbu	14	137	121
Jackson Lake	847.0	244.7	628.9	430.7	Snake above Jackson Lak	5	146	139
Palisades Res Nr Irwin	1400.	619.7	698.4	902.8	Pacific Creek	2	155	159
Ririe Lake Nr Ririe	80.5	53.1	50.6	44.8	Gros Ventre River	3	168	140
Blackfoot Res Nr Henry	348.7	178.3	235.8	186.4	Hoback River	5	202	158
American Falls	1672.	1352.	1549.	1497.	Greys River	4	184	152
					Salt River	3	183	145
					Snake above Palisades	18	169	148
					Willow Creek	7	126	96
					Blackfoot River	5	154	116
					Portneuf River	6	144	94
					Snake abv American Fall	36	154	129

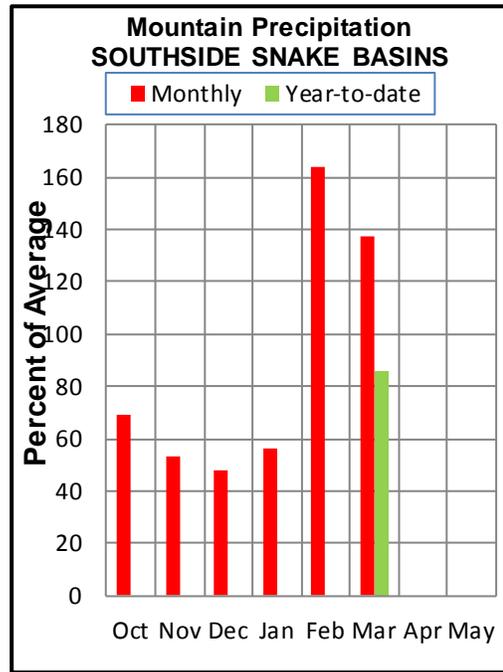
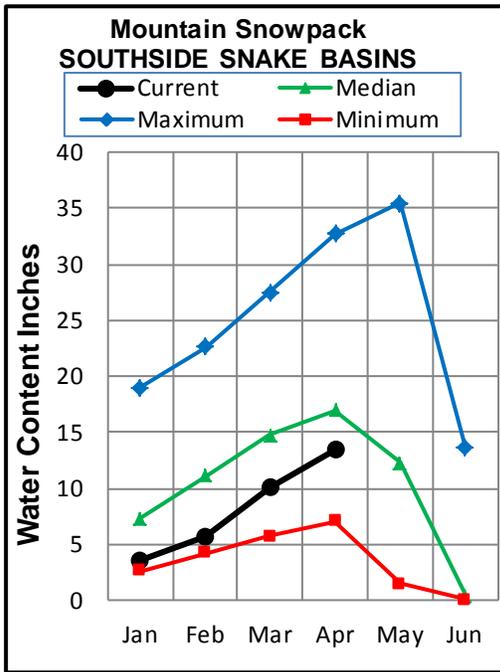
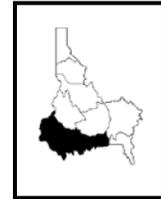
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

SOUTHSIDE SNAKE RIVER BASINS

APRIL 1, 2014



WATER SUPPLY OUTLOOK

March brought the Southside Snake basins another month of above normal precipitation, but more wet weather is needed to prevent water shortages. March precipitation ranged from 120% of average in the Bruneau Basin, to 136% in the Owyhee and Salmon Falls basins, to 161% in Goose Creek. Water year precipitation since October is 80-100% of normal across these basins and improves moving west to east. Data from Magic Mountain, Bostetter Ranger Station and Howell Canyon SNOTEL sites rank this February-March precipitation as the first or second greatest amount for the period since records start in 1981. Unfortunately snow levels fluctuated widely from one storm to the next and snowpacks gained at some sites and melted at others. The net effect was that despite two months of near record precipitation, snowpacks did not see record increases. Only the Oakley and Salmon Falls snow indexes rank this year's snow water increase between February 1 and April 1 in the top half of years since 1961. April 1 snowpacks are far below their normal peak amounts; Owyhee is less than 50% of peak, Bruneau 64% of peak, Salmon Falls 77% of peak and Oakley 79% of peak. Reservoir storage increased somewhat from the rain and low elevation snowmelt. Oakley Reservoir is now 74% of average, 29% full; Salmon Falls is 49% of average, 15% full; and Owyhee is 34% of average, 24% full. Streamflow forecasts for the April-July period are 45% of average for Owyhee River below the dam, 55% for the Bruneau River, 46% for Salmon Falls Creek and 73% for Oakley Inflow. Conditions have improved somewhat since last month but water supply concerns remain high. The Surface Water Supply Index which combines current reservoir storage with forecasted streamflow indicates that more wet weather is needed. In the Owyhee basin the 10% chance of exceedance forecast would produce a water supply similar to last year when irrigators had a marginally adequate supply. Oakley Reservoir water users would have a marginally adequate supply based on the 30% chance of exceedance forecast. For Salmon Falls even the maximum forecast volume (10% chance of exceedance) will fall short of an adequate amount. Long range weather forecasts indicate equal chances of a wet, dry, or normal spring.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg. (1000AF)		
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	10% (1000AF)			
Goose Ck ab Trapper Ck nr Oakley	APR-JUL	3.4	9.4	13.4	72	17.4	23	18.7
	APR-SEP	3.6	10.0	14.3	72	18.6	25	20
Trapper Ck nr Oakley	APR-JUL	2.6	3.4	4.0	80	4.6	5.4	5.0
	APR-SEP	3.6	4.5	5.1	84	5.7	6.6	6.1
Oakley Reservoir Inflow	APR-JUL	6.0	12.8	17.4	73	22	29	24
	APR-SEP	7.2	14.5	19.4	75	24	32	26
Salmon Falls Ck nr San Jacinto	APR-JUN	15.0	23	30	45	38	50	66
	APR-JUL	15.6	25	32	46	40	54	70
	APR-SEP	17.5	27	35	47	44	58	74
Bruneau R nr Hot Springs	APR-JUL	49	77	100	55	126	169	183
	APR-SEP	52	82	106	55	133	179	192
Reynolds Ck at Tollgate	APR-JUL	0.38	2.1	3.2	42	4.3	6.0	7.6
Owyhee R nr Gold Ck (2)	APR-JUL	0.160	1.49	3.7	17	7.4	16.5	22
Owyhee R nr Rome	APR-JUL	38	87	148	43	210	300	345
	APR-SEP	47	100	161	44	220	315	365
Owyhee R bl Owyhee Dam (2)	APR-JUL	88	132	168	45	210	275	375
	APR-SEP	108	156	193	48	235	300	405

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

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - April 1, 2014

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Oakley Reservoir Near Oakley	75.6	22.0	25.9	29.6	Raft River	4	95	84
Salmon Falls Reservoir	182.6	27.2	37.8	56.0	Goose-Trapper Creeks	4	113	89
Wild Horse Re Nr Gold Creek	71.5	15.8	28.6	39.2	Salmon Falls Creek	6	91	82
Lake Owyhee Near Nyssa	715.0	170.2	376.1	495.8	Bruneau River	5	85	70
Brownlee	1420.	1216.	1147.	1102.	Reynolds Creek	5	149	72
					Owyhee Basin Total	5	126	58
					Owyhee Basin SNOTEL	5	126	58

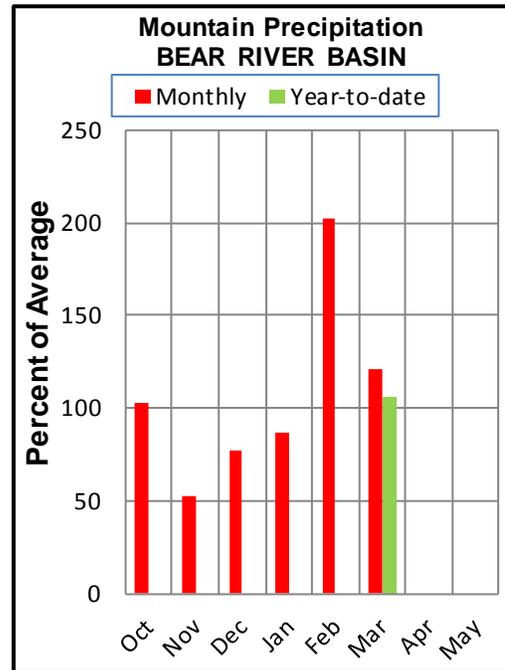
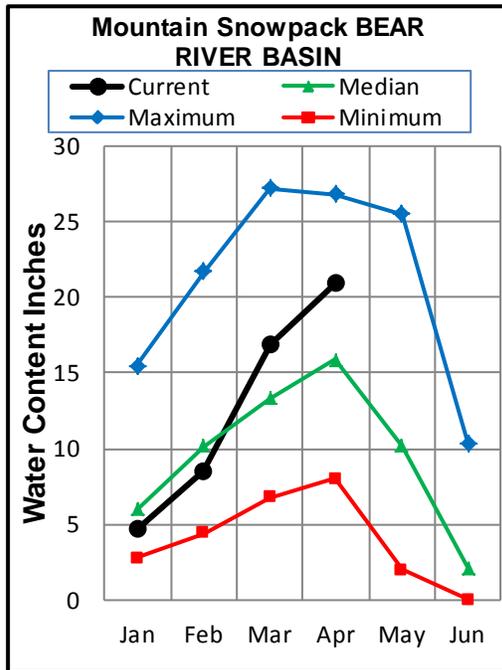
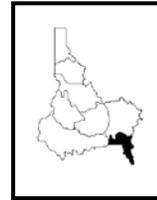
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

BEAR RIVER BASIN

APRIL 1, 2014



WATER SUPPLY OUTLOOK

While the Bear River basin did not receive twice the normal amount of precipitation like it did in February, March precipitation was above normal at 121%. This was enough to keep the basin at slightly above average water year to date precipitation levels since the water year started October 1, 2013. Even with less precipitation, the moisture that did fall helped to maintain the above normal snowpacks. Overall, the Bear River snowpack above the ID-UT line is 119% of median. Individual basins are 142% of median for Smiths & Thomas Forks, 128% for Montpelier Creek, 111% for Mink Creek but only 95% for Cub River. Similar to other portions of the state, the most abundant snowpacks in the Bear basin are nearest the Continental Divide from this winter's unique storm pattern. As of April 1st Bear Lake was holding 710,700 acre-feet which is exactly half full and 97% of 1981-2010 average. Streamflow forecasts range from a low of 71% of normal for the Bear River below Stewart Dam to a high of 110% for the Smiths Fork. Other forecasts are projected to have near normal seasonal volumes, with the exception of Big Creek which is forecasts at 89%. The previous two seasons of well below normal streamflow may take its toll on some of the benefits of this year's good snowpacks, but any increases in reservoir storage this year will be beneficial to all. Natural flow water users can expect much better volumes in the rivers than the past two seasons.

BEAR RIVER BASIN
Streamflow Forecasts - April 1, 2014

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
Bear R nr UT-WY State Line	APR-JUL	79	96	108	96	120	137	112
	APR-SEP	87	106	119	97	132	151	123
Bear R ab Res nr Woodruff	APR-JUL	78	103	120	99	137	162	121
	APR-SEP	82	108	125	98	143	168	128
Big Ck nr Randolph	APR-JUL	1.35	2.6	3.4	89	4.3	5.6	3.8
Smiths Fk nr Border	APR-JUL	76	89	98	110	107	120	89
	APR-SEP	87	102	112	108	122	137	104
Bear R bl Stewart Dam	APR-JUL	18.6	85	130	71	175	241	183
	APR-SEP	19.5	94	144	70	194	269	205
Little Bear R at Paradise	APR-JUL	12.9	24	32	78	40	51	41
Logan R nr Logan	APR-JUL	82	99	110	99	121	138	111
Blacksmith Fork nr Hyrum	APR-JUL	15.9	31	42	98	53	68	43

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of March					BEAR RIVER BASIN Watershed Snowpack Analysis - April 1, 2014			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Median
Bear Lake	1421.	710.7	801.0	730.9	Smiths & Thomas Forks	3	181	145
Montpelier Ck Res	4.0	0.0	1.7	1.9	Bear River ab WY-ID lin	3	181	145
					Montpelier Creek	2	175	128
					Mink Creek	4	162	111
					Cub River	3	143	95
					Bear River ab ID-UT lin	16	164	118
					Malad River	1	221	106

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

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

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

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

Panhandle River Basins

Kootenai R at Leonia, MT
+ Lake Koocanusa storage change
Moyie R at Eastport – no corrections
Smith Creek nr Porthill – no corrections
Boundary Ck nr Porthill – no corrections
Clark Fork R at Whitehorse Rapids
+ Hungry Horse storage change
+ Flathead Lake storage change
+ Noxon Rapids Res storage change
Pend Oreille Lake Inflow
+ Pend Oreille R at Newport, WA
+ Hungry Horse storage change
+ Flathead Lake storage change
+ Noxon Rapids storage change
+ Pend Oreille Lake storage change
+ Priest Lake storage change
Priest R nr Priest R
+ Priest Lake storage change
NF Coeur d'Alene R at Enaville - no corrections
St. Joe R at Calder- no corrections
Spokane R nr Post Falls
+ Coeur d'Alene Lake storage change
Spokane R at Long Lake, WA
+ Coeur d'Alene Lake storage change
+ Long Lake, WA storage change

Clearwater River Basin

Selway R nr Lowell - no corrections
Lochsa R nr Lowell - no corrections
Dworshak Res Inflow
+ Clearwater R nr Peck
- Clearwater R at Orofino
+ Dworshak Res storage change
Clearwater R at Orofino - no corrections
Clearwater R at Spalding
+ Dworshak Res storage change

Salmon River Basin

Salmon R at Salmon - no corrections
Lemhi R nr Lemhi – no corrections
MF Salmon R at MF Lodge – no corrections
SF Salmon R nr Krassel Ranger Station – no corrections
Johnson Creek at Yellow pine – no corrections
Salmon R at White Bird - no corrections

Weiser, Payette, Boise River Basins

Weiser R nr Weiser - no corrections
SF Payette R at Lowman - no corrections

Deadwood Res Inflow
+ Deadwood R bl Deadwood Res nr Lowman
+ Deadwood Res storage change
Lake Fork Payette R nr McCall – no corrections
NF Payette R at Cascade
+ Cascade Res storage change
+ Payette Lake storage change
NF Payette R nr Banks
+ Cascade Res storage change
+ Payette Lake storage change
Payette R nr Horseshoe Bend
+ Cascade Res storage change
+ Deadwood Res storage change
+ Payette Lake storage change
Boise R nr Twin Springs - no corrections
SF Boise R at Anderson Ranch Dam
+ Anderson Ranch Res storage change
Mores Ck nr Arrowrock Dam – no corrections
Boise R nr Boise
+ Anderson Ranch Res storage change
+ Arrowrock Res storage change
+ Lucky Peak Res storage change

Wood and Lost River Basins

Big Wood R at Hailey - no corrections
Big Wood R ab Magic Res
+ Big Wood R at Stanton Crossing nr Bellevue
+ Willow Ck
Camas Ck nr Blaine – no corrections
Big Wood R bl Magic Dam nr Richfield
+ Magic Res storage change
Little Wood R ab High Five Ck – no corrections
Little Wood R nr Carey
+ Little Wood Res storage change
Big Lost R at Howell Ranch - no corrections
Big Lost R bl Mackay Res nr Mackay
+ Mackay Res storage change
Little Lost R bl Wet Ck nr Howe - no corrections

Upper Snake River Basin

Henrys Fork nr Ashton
+ Henrys Lake storage change
+ Island Park Res storage change
Falls R nr Ashton
+ Grassy Lake storage change
+ Diversions from Falls R ab nr Ashton
Teton R nr Driggs - no corrections
Teton R nr St. Anthony
- Cross Cut Canal into Teton R
+ Sum of Diversions for Teton R ab St. Anthony
+ Teton Dam for water year 1976 only

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

Snake R nr Flagg Ranch, WY – no corrections

Snake R nr Moran, WY

- + Jackson Lake storage change

Pacific Ck at Moran, WY - no corrections

Buffalo Fork ab Lava nr Moran, WY - no corrections

Gros Ventre R at Kelly, WY - no corrections

Snake R ab Res nr Alpine, WY

- + Jackson Lake storage change

Greys R nr Alpine, WY - no corrections

Salt R R nr Etna, WY - no corrections

Snake R nr Irwin

- + Jackson Lake storage change

- + Palisades Res storage change

Snake R nr Heise

- + Jackson Lake storage change

- + Palisades Res storage change

Willow Ck nr Ririe

- + Ririe Res storage change

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

Blackfoot R ab Res nr Henry

- + Blackfoot Res storage change

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

Portneuf R at Topaz - no corrections

Snake R at Neeley

- + Jackson Lake storage change

- + Palisades Res storage change

- + American Falls storage change

- + Teton Dam for water year 1976 only

Southside Snake River Basins

Goose Ck nr Oakley - no adjustments

Trapper Ck nr Oakley - no adjustments

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

- + Goose Ck

- + Trapper Ck

Salmon Falls Ck nr San Jacinto, NV - no corrections

Bruneau R nr Hot Springs - no corrections

Reynolds Ck at Tollgate - no corrections

Owyhee R nr Gold Ck, NV

- + Wildhorse Res storage change

Owyhee R nr Rome, OR – no Corrections

Owyhee R bl Owyhee Dam, OR

- + Owyhee Res storage change

- + Diversions to North and South Canals

Bear River Basin

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

Bear R abv Res nr Woodruff, UT- no corrections

Big Ck nr Randolph, UT - no corrections

Smiths Fork nr Border, WY - no corrections

Bear R bl Stewart Dam nr Montpelier

- + Bear R bl Stewart Dam

- + Rainbow Inlet Canal

Little Bear R at Paradise, UT - no corrections

Logan R nr Logan, UT - no corrections

Blacksmith Fk nr Hyrum, UT - no corrections

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

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

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

Interpreting Water Supply Forecasts

Introduction

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

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

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

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

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

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

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

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

30-Year Average. The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1981-2010. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

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

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

To Decrease the Chance of Having Less Water than Planned for

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

To Decrease the Chance of Having More Water than Planned for

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

Using the forecasts - an Example

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

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

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

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

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

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

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

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

OFFICIAL BUSINESS



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