

# Idaho Water Supply Outlook Report March 1, 2005



April 1, 1999

March 1, 2005

The winter of 1999 was a big water year and on April 1, Mores Creek Summit SNOTEL site had 42.7 inches of snow water equivalent (swe), 121% of the seasonal peak. On the other hand, Mores Creek only has 13.4 inches of swe this year and is 38% of the seasonal peak. The photographs show that the 12-foot tall building is completely buried in 1999 and that the top 8 feet are exposed this year. Typically, Mores Creek receives 7.5 inches of swe or about 75 inches of snowfall in February. However, this month it only received 1.6 inches swe, about 16 inches of snowfall. This trend is similar across much of the state. Hopefully, Idaho will experience normal snowfall in March, followed by a cool, wet spring to preserve the limited amount of snow water stored in high-elevation snowpacks for later use this summer. However, this scenario may be unlikely as extended weather forecasts continue to call for warmer and drier than average conditions.

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

---

*For more water supply and resource management information, or to subscribe to this publication*

**Contact - - Your local Natural Resources Conservation Service Office**

or

**Natural Resources Conservation Service  
Snow Surveys  
9173 West Barnes Drive, Suite C  
Boise, Idaho 83709-1574  
(208) 378-5740**

**Internet Web Address**

**<http://www.id.nrcs.usda.gov/snow/>**

---

## *How forecasts are made*

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

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

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

---

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C., 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal employment opportunity provider and employer.

# **IDAHO WATER SUPPLY OUTLOOK REPORT**

***March 1, 2005***

## **SUMMARY**

If you thought last year's snowpack was bad, well cut that in half and that is what Idaho water users in northern and central Idaho are faced with this year. Record low snowpacks less than 50% of average dominate northern Idaho whereas snowpacks in central Idaho are not much better in the 50-65% of average range. If you live in southern and eastern Idaho, snowpacks are better off at 70-85% of average. Due to well below average precipitation through February, the water supply outlook in Idaho has deteriorated even more. Barring a record snowfall in March or an unusually wet and cold spring, drought conditions will continue in Idaho and spread in the western and northern part of the state. Streamflow forecasts are in the 35-65% of average range and will hopefully allow water users to squeeze through one more season of drought.

With only one more of month winter, snowpacks range from 48% of average in northern Idaho to average in the Bear River basin. The warm and dry trend continued through February; northern and central Idaho received only 20-25% of average precipitation. Bear River received the highest precipitation in the state but was still only 74% of average. Consequently, the Bear River basin continues to host the highest water year to date precipitation at 105% of average while the Payette, Salmon and Boise River basins are the lowest at 55%. No significant changes to report concerning reservoir storage as reservoirs across central and southern Idaho remain near minimum levels and northern Idaho reservoir levels are above average. Streamflow forecasts for most Idaho drainages have been reduced about 15 percentage points from last month to the 35-65% of average range with the exception of the headwaters of the Bear River basin, which are forecast at over 100% of average. The burden of replenishing depleted snowpacks lies solely on the month of March's shoulders. However, if a March miracle does not materialize, keep your fingers crossed for a cool, wet spring. This is crucial to preserving water in high elevation snowpacks for later use this summer. Stay tuned to find out if March will be another flop or Mother Nature will grace us with much needed moisture, rain or snow.

## **SNOWPACK**

Just when you thought it could not get any worse, February delivered yet another blow of below average snowfall. Most snowpacks across Idaho hold only 50-75% of the snow water equivalent they contained at this time last year. Northern Idaho snowpacks have suffered the most and have finally dropped to below 50% of average with some sites reporting new record low snow levels for March 1. The Salmon, Weiser, Payette and Boise River basins are not doing much better at slightly over 50% of average. The Wood and Lost River basins started with near normal snow levels, but now have dropped to 66% of average. The Upper Snake and Southside Snake River basins have maintained snowpacks in the 70-80% of average range while the Bear River basin tops out at 99% of average.

## **PRECIPITATION**

Folks in northern and central Idaho and across the Pacific Northwest used sunglasses more than snow shovels last month. Although the sun was nice, the Panhandle, Clearwater, Salmon, Weiser, Payette, Boise, Wood and Lost basins all received 20-26% of average precipitation in February. This month represents the fourth straight month of below average precipitation for most of Idaho. The Southside Snake River basins did slightly better at 41% of average, whereas the Upper Snake received 56% of average. Once again, the Bear River basin received the most precipitation at 74% of average. Water year to date precipitation amounts range from a low of 54% of average in the Weiser, Payette and Boise basins to 105% in the Bear River basin. Southern and eastern Idaho continues to benefit the most from moisture coming up from southern California through Utah and into southern Idaho.

## **RESERVOIRS**

Reservoir storage is below average across most of the state except for northern Idaho. Most reservoirs are storing slightly more water than last year at this time, but amounts are below average. Storage levels are similar to the past few years due to below normal streamflows since the summer of 2000. Reservoir storage ranges from 15% of average in Bear Lake to 151% of average in Hungry Horse Reservoir. The Panhandle and Clearwater reservoir storage are approximately 130% of average. Storage in the Payette system is average while the Boise system is 69% of average. The cumulative drought effects are most evident in the southern and central part of the state. Magic and Salmon Falls reservoirs are only 12% full. Jackson Lake is only 17% full, 29% of average and Palisades Reservoir is 45% of capacity, 61% of average. Brownlee Reservoir is 94% full and 122% of average. In southeast Idaho, Bear Lake storage increased from 122,100 acre-feet on January 31 to 136,000 acre-feet. However, it is still only 10% full and 15% of average; water allocations will be well below a full amount.

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**

As anticipated by yet another warm and dry winter month, streamflow forecasts decreased about 15 percentage points from last month and now range from 35-65% of average for the April-September period for most of the state. The Upper Snake River basin is in the 35-65% of average range and the high desert streams south of the Snake River are forecast at 30-50% of average, along with the Clearwater and Salmon River basins. The Wood and Lost River basins have dropped to 20-50% of average whereas the Weiser, Payette, and Boise River basins' forecast has dropped to the 35-45% of average range. Camas Creek near Blaine and Big Wood River below Magic are the lowest forecast in the state at 20% of average, whereas the Bear River basin continues to boast some of the highest streamflow forecasts in the state. The headwater streams of the Bear are forecast at 110% of average and decrease downstream to 51% for the Bear River at Stewart Dam because of the cumulative drought. Because of the deteriorating weather conditions in this critical season, our streamflow forecasts will be updated in mid-March on our Water Supply web page:

<http://www.id.nrcs.usda.gov/snow/watersupply/>

These forecast numbers mentioned in the narrative are the volume under the 50% Chance of Exceeding, which means there is a 50% chance the volume will be greater or less than the given value. Due to the last five years of drought conditions, water users should consider using a lesser exceedance forecast to reduce the risk of coming up short on water. The streamflow forecasts are not looking good at this point, especially with only one more month left to make up a lot of lost ground. The chances of recovering to near average snow levels by April are incredibly slim without a March miracle. A cool, wet spring would help preserve the high elevation snowpack, delay and extend the supply of this natural resource, and reduce severity of drought conditions. Without significant snowfall in March or a cool, wet spring, water users should be prepared for limited water supplies.

## **RECREATION**

Heading into March, many backcountry enthusiasts have taken advantage of the low avalanche danger and spring-like conditions in the mountains. Conditions have been great if you were able to avoid all of the exposed stumps, rocks and even bare ground. However, without additional snowfall or cooler temperatures, these great spring conditions can turn to summer conditions in an instant. The warm and dry trend continued through February with well below average precipitation across the state and nothing but bluebird days are in the short-term forecast. If these trends continue, it will be a short ski/snowmobile season and river runners should have their boats ready. Boaters can expect a short high water season, if there is one; in fact the Owyhee River near Rome probably already had its snowmelt peak flow reaching 1,300 cfs on February 24. The stream is currently receding and we'll see if it continues receding with warm temperatures in early March.

## **FAREWELL TO A TRUE CONSERVATIONIST AND SALMON FALLS MEETING**

The Idaho conservation community lost one of its heroes when Morley Nelson died February 21 at the age of 88. Nelson served as the Columbia Basin Snow Survey Supervisor under the Soil Conservation Service from 1948 to 1971. He located and installed many of the snow measuring stations that are used to today and helped develop the first telemetry to automate these mountainous snow sites. Almost immediately after arriving on the job, Nelson started forecasting streams in Idaho. In 1948, 13 forecasts were published and increased to 30 the following year. He was one of the first to forecast the Columbia River at The Dalles.

In 1955, Nelson and the Twin Falls Soil and Water Conservation District met with the Salmon Falls Tract farmers to discuss the coming season's water supply. This meeting became an annual tradition and the 50<sup>th</sup> Salmon Falls Water Supply meeting will occur April 7, 2005 at 7:30 PM at the Hollister School. Plans were occurring and still are to dedicate this meeting to Morley Nelson. Old Snow Surveyors, previous Boards members from the Canal Company and Conservation Districts, and SCS/NRCS personnel will be there to share in this event. The public is also invited. Nelson used to say the Salmon Falls Creek forecast was his worst forecast because of the difficulty in forecasting these high desert streams, but was also the most important for the Salmon Falls Tract farmers.

Since Nelson's retirement from Snow Surveys, Nelson became well known for his birds of prey conservation efforts. As a raptor expert, Nelson played an instrumental role in the creation of the Snake River Birds of Prey National Conservation area and World Center for Birds of Prey.

## **WESTERN SNOW CONFERENCE**

A tradition started in 1932 to share information about measuring snow and predicting streamflow for snowmelt dominated streams in the western U.S. This tradition became the Western Snow Conference. The 73<sup>rd</sup> annual conference will be in Great Falls, Montana April 11-14, 2005. Today, the Western Snow Conference provides an international forum for individuals and organizations to share their research and information on snow hydrology. This year's theme is "Exploring New Frontiers in Snow Hydrology – 200 Years after Lewis & Clark". Session topics include: Remote Sensing of Mountain Snowpack and panel discussion, Hydrologic Modeling in Snowmelt Dominated Basins, Historical View of Snow and Climate, and the Role of Snow in Water Conservation, along with a poster paper display and vendor exhibit. Additional information for registration and lodging is on the Western Snow Conference web page at: <http://www.westernsnowconference.org/>

## **NRCS SNOW SURVEY DATA AND WATER SUPPLY USERS**

During the first two weeks of March, April and May of 2005 the Snow Survey and Water Supply Forecasting Program will be asking for volunteers to provide feedback on Customer Satisfaction. At the NRCS National Water and Climate Center web site a small window will appear asking if you would like to participate in a Satisfaction Survey, or you can volunteer for the survey at <http://www.wcc.nrcs.usda.gov> Thanks for considering participation.

**IDAHO SURFACE WATER SUPPLY INDEX (SWSI)**

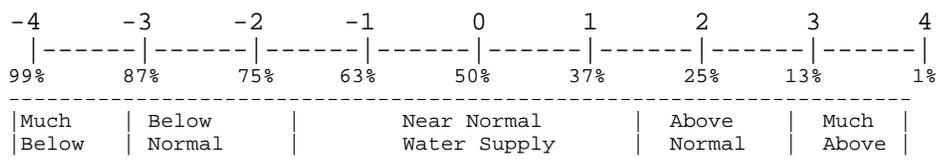
*As of March 1, 2005*

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.

<i>BASIN or REGION</i>	<i>SWSI Value</i>	<i>Most Recent Year With Similar SWSI Value</i>	<i>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</i>
PANHANDLE	-3.2	----	NA
CLEARWATER	-3.3	1992	NA
SALMON	-2.9	1994	NA
WEISER	-3.3	2001	NA
PAYETTE	-3.6	2001	NA
BOISE	-3.8	2001	-2.1
BIG WOOD	-3.3	2002	-1.0
LITTLE WOOD	-2.6	2000/03	-2.0
BIG LOST	-3.1	2001/02	-0.5
LITTLE LOST	-2.6	2000/01	0.0
HENRYS FORK	-3.3	1992	-3.3
SNAKE (HEISE)	-3.8	2001	-2.0
OAKLEY	-2.4	2004	-1.0
SALMON FALLS	-3.3	2003	-1.0
BRUNEAU	-1.9	2003	NA
BEAR RIVER	-3.8	2003/04	-3.8

**SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION**

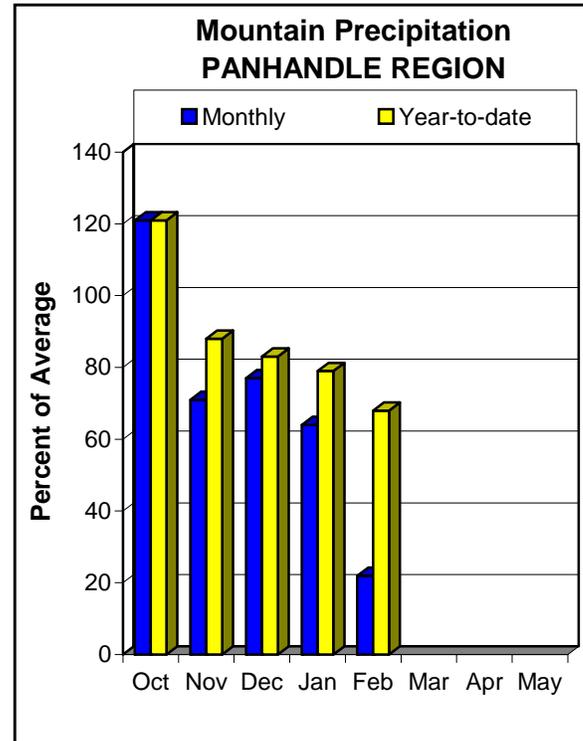
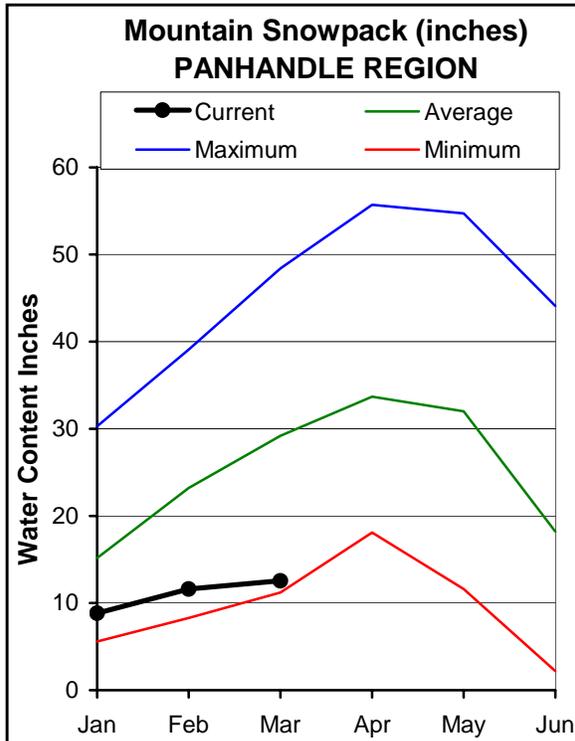
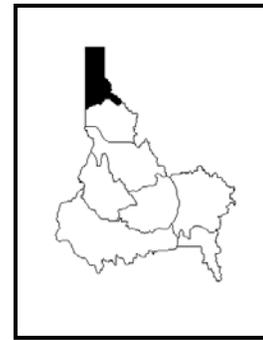


NA = Not Applicable

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

# PANHANDLE REGION

## MARCH 1, 2005



## WATER SUPPLY OUTLOOK

Once again Mother Nature forgot about winter in the Pacific Northwest and brought more sunshine than snow and rain in February. February precipitation was only 22% of average. Precipitation amounts ranged from 0.30 inches at Schweitzer Basin SNOTEL site to 2.3 inches at Lost Lake SNOTEL site. Normal February amounts are 4.6 to 11.6 inches. Many snow measuring stations are at or near record low amounts. There is a pocket of sites with new record low levels in the area encompassing the North Fork Clearwater and St. Joe basins. The combined snow water content at Benton Meadows and Benton Springs in the Priest River basin is only 35% of average and the second lowest since 1935; only 1977 had less snow. Snowpacks range from a high of 68% of average for the Moyie basin to 17% for Rathdrum basin. The St. Joe basin snowpack is 44% of average, second lowest since 1961, only ahead of 1977. The Kootenai River snowpack is 55% of average and the Pend Oreille River is 47%, based on 91 snow measuring stations in the basin. Dry weather has allowed Coeur d'Alene Lake to drop to 30% of capacity, 50% of average. This is low but not near record low because of the fall and early winter runoff. Streamflow forecasts are 72% of average for the Kootenai River, 48% for Pend Oreille Lake inflow. Smith, Boundary and Moyie rivers are forecast at 60% of average. The lowest forecast and near record minimum volumes are in the Spokane basin and its tributaries at 45% of average. With only one month of winter left, little hopes remain to build a snowpack. A return to more seasonal temperatures and precipitation would help to improve the water supply outlook and keep the forest moist.

PANHANDLE REGION  
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg. (1000AF)						
		90% (1000AF)		70% (1000AF)			50% (1000AF) (% AVG.)		30% (1000AF)		10% (1000AF)	
		Chance Of Exceeding *										
KOOTENAI at Leonia (1,2)	APR-JUL	3990	4720	5050	72	5380	6110	7040				
	APR-SEP	4590	5400	5830	72	6210	7020	8120				
MOYIE RIVER at Eastport	APR-JUL	185	215	235	58	255	285	405				
	APR-SEP	190	225	245	58	265	300	420				
SMITH CREEK	APR-JUL	52	66	76	62	86	100	123				
	APR-SEP	60	70	77	60	88	104	129				
BOUNDARY CREEK	APR-JUL	51	65	75	61	85	99	123				
	APR-SEP	53	68	78	61	88	103	129				
CLARK FK at Whitehorse Rpds (1,2)	APR-JUL	4392	5087	5560	49	6450	8420	11300				
	APR-SEP	4824	5590	6110	49	7090	9260	12500				
PEND OREILLE Lake Inflow (2)	APR-JUL	4797	5531	6030	48	6990	8400	12700				
	APR-SEP	5203	6023	6580	47	7630	9180	13900				
PRIEST near Priest River (1,2)	APR-JUL	404	440	465	57	510	605	815				
	APR-SEP	397	455	495	57	565	725	870				
NF COEUR D'ALENE RIVER AT ENAVILLE	APR-JUL	247	288	315	43	385	490	740				
	APR-SEP	257	300	330	42	405	510	780				
ST. JOE at Calder	APR-JUL	340	465	550	48	635	760	1140				
	APR-SEP	355	485	570	48	655	785	1200				
SPOKANE near Post Falls (2)	APR-JUL	849	986	1080	42	1310	1640	2550				
	APR-SEP	879	1022	1120	42	1350	1700	2650				
SPOKANE at Long Lake (2)	APR-JUL	1029	1202	1320	46	1580	1970	2850				
	APR-SEP	1145	1339	1470	48	1750	2160	3070				

PANHANDLE REGION Reservoir Storage (1000 AF) - End of February					PANHANDLE REGION Watershed Snowpack Analysis - March 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HUNGRY HORSE	3451.0	3102.0	2441.0	2047.6	Kootenai ab Bonners Ferry	32	62	55
FLATHEAD LAKE	1791.0	1095.0	776.7	802.7	Moyie River	12	84	68
NOXON RAPIDS	335.0	301.3	326.6	297.5	Priest River	4	49	47
PEND OREILLE	1561.3	933.3	570.8	778.8	Pend Oreille River	91	51	47
COEUR D'ALENE	238.5	72.3	99.5	144.9	Rathdrum Creek	2	16	17
PRIEST LAKE	119.3	55.0	53.2	56.8	Hayden Lake	2	0	0
					Coeur d'Alene River	8	34	33
					St. Joe River	4	48	44
					Spokane River	14	32	32
					Palouse River	2	11	11

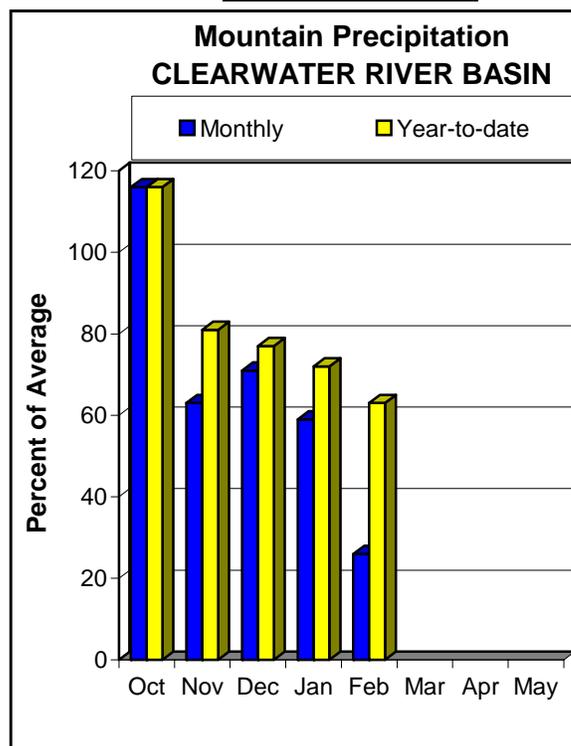
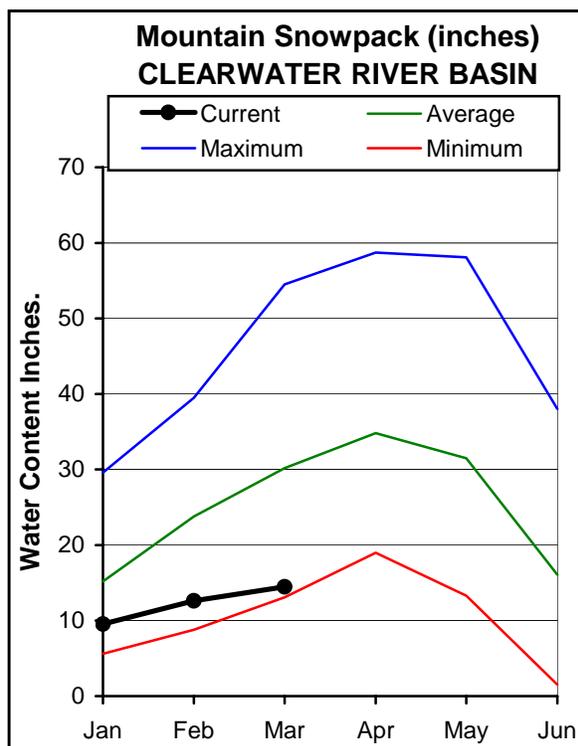
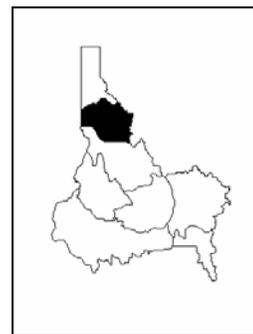
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

# CLEARWATER RIVER BASIN

## MARCH 1, 2005



## WATER SUPPLY OUTLOOK

The Clearwater basin snowpack is 46% of average, less than half of last year and the second lowest since 1961 for the 13 station snow index, only 1977 had less snow. There is a pocket of sites with new record low levels in the area encompassing the North Fork Clearwater and St. Joe basins. Individual snow measuring stations such as Cool Creek, Elk Butte, Shanghi Summit, Sherwin, Moscow Mountain and several sites in the St. Joe basin are at new record low snow levels for March 1. Data records start 45 years ago. This is the first time in 49 years that Moscow Mountain snowcourse did not have snow on March 1. The Selway basin snowpack is 51% of average. The North Fork Clearwater and Lochsa basin snowpack are 46% of average, second lowest since 1961. This year's snow is less than 2001 and slightly more than the record low year of 1977. February precipitation was only a quarter of average. Water year to date is 63% of average. The fall rains improved soil moisture conditions going into winter and helped the winter wheat, but moisture will be needed soon and again in June to help the crops. Otherwise, they will soon be feeling the drought impacts if the dry spell continues. On the positive side, Dworshak Reservoir is storing as much as possible at 83% of capacity, 128% of average. Streamflow forecasts reflect the near minimum snow levels and call for near minimum summer streamflow volumes. Lochsa and Selway rivers are forecast at 55% of average. Dworshak Reservoir inflow is forecast at 47% of average and the Clearwater River at Spalding is forecast at only 50% of average. Water will be in short supply this year, lets hope for change to more normal temperatures and precipitation across the Pacific Northwest.

CLEARWATER RIVER BASIN  
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)				
		90%		70%		50%			30%		10%	
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)		(1000AF)	(1000AF)	(1000AF)	(1000AF)
SELWAY near Lowell	APR-JUL	969	1065	1130	55	1250	1420	2060				
	APR-SEP	1033	1133	1200	55	1320	1510	2170				
LOCHSA near Lowell	APR-JUL	715	780	825	54	900	1020	1530				
	APR-SEP	768	832	875	54	955	1075	1610				
DWORSHAK RESV INFLOW (1,2)	APR-JUL	898	1108	1250	47	1540	2180	2640				
	APR-SEP	938	1148	1290	46	1580	2220	2800				
CLEARWATER at Orofino (1)	APR-JUL	1818	2206	2470	53	2960	4030	4650				
	APR-SEP	1936	2331	2600	53	3090	4160	4900				
CLEARWATER at Spalding (1,2)	APR-JUL	2785	3348	3730	50	4480	6130	7430				
	APR-SEP	2976	3550	3940	50	4690	6340	7850				

CLEARWATER RIVER BASIN Reservoir Storage (1000 AF) - End of February					CLEARWATER RIVER BASIN Watershed Snowpack Analysis - March 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
DWORSHAK	3468.0	2870.3	2093.3	2247.3	North Fork Clearwater	9	48	47
					Lochsa River	3	49	45
					Selway River	5	51	51
					Clearwater Basin Total	18	47	46

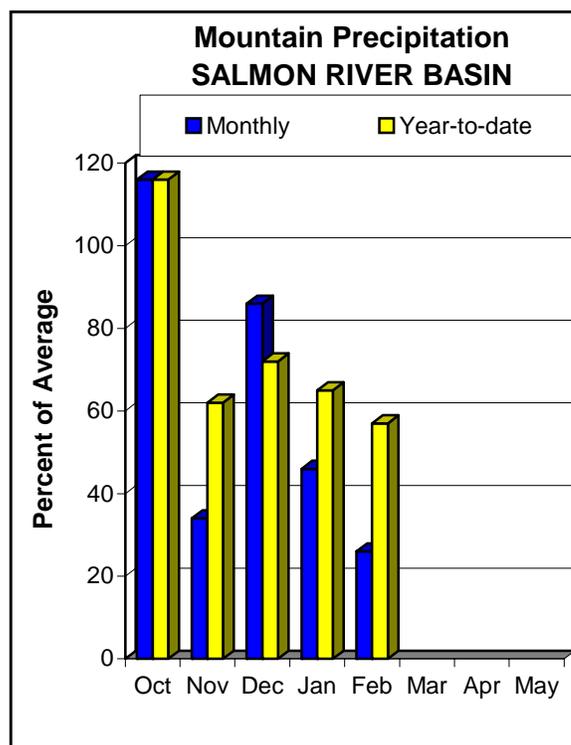
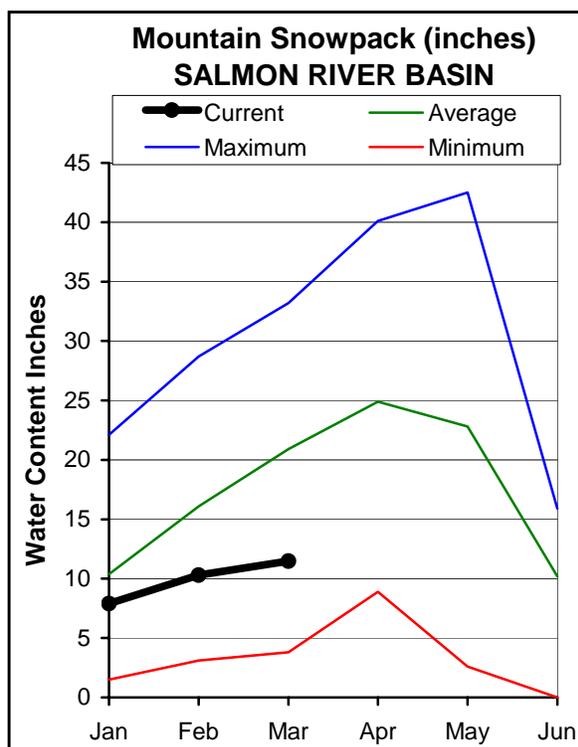
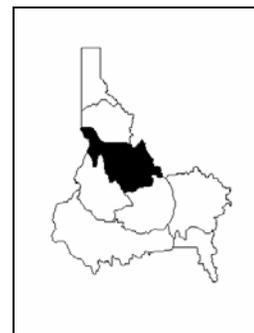
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

# SALMON RIVER BASIN

## MARCH 1, 2005



## WATER SUPPLY OUTLOOK

After Mother Nature brought only 46% of average in January, February was even worse at only 26% of average. February precipitation amounts ranged from 0.5 to 2.3 inches, normal amounts are 2.0 inches in the Lemhi basin to 8.3 inches at Deadwood Summit SNOTEL. Water year to date precipitation is only 57% of average, two-thirds of last year. The South Fork and Middle Fork Salmon basin snowpack is half of average and half of last year, and third and fourth lowest since 1961, respectively. The best snow is in the Lemhi Basin at 65% of average, third lowest since 1961 and just slightly better than 2001. Overall, the Salmon basin snowpack is 56% of average. Streamflow forecasts decreased and now call for 45% of average in the Lemhi and Middle Fork Salmon rivers. The Salmon River above Salmon is forecast at 56% of average while the Salmon River at White Bird is forecast at 54%. The snowpack is similar to 2001 levels, a year in which summer streamflow was only 46% of average. With an early peak in the snowpack and dry spring these 2001 volumes may occur again. River runners can expect a very short high water season with peaks most likely less than 35,000 cfs on the main Salmon. This will lengthen the boating season on the main Salmon and allow river runners to put on the river earlier this spring. The Middle Fork Salmon River will have a very short high water season, if any, and an early return to low flows levels. River runners can expect the Middle Fork Salmon River to be around 2.0 feet in early July because of lack mountain snow to feed the streams. Spring precipitation and temperatures will determine actual timing and magnitude of streamflow peaks.

SALMON RIVER BASIN  
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<==== Drier =====		===== 50% (1000AF) (% AVG.)		===== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	
SALMON at Salmon (1)	APR-JUL	334	418	475	56	580	815	855
	APR-SEP	414	498	555	56	660	895	1000
Lemhi River nr Lemhi	APR-JUL	17.5	27	35	41	44	58	86
	APR-SEP	23	36	46	44	57	76	105
MF Salmon at MF Lodge	APR-JUL	214	291	350	45	415	519	785
	APR-SEP	248	334	400	46	472	589	875
SALMON at White Bird (1)	APR-JUL	2410	2839	3130	54	3680	4890	5850
	APR-SEP	2740	3169	3460	53	4010	5220	6480

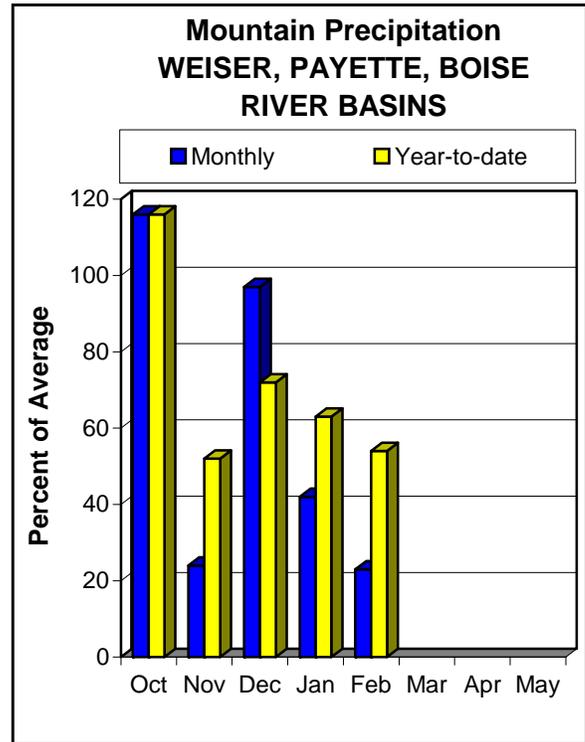
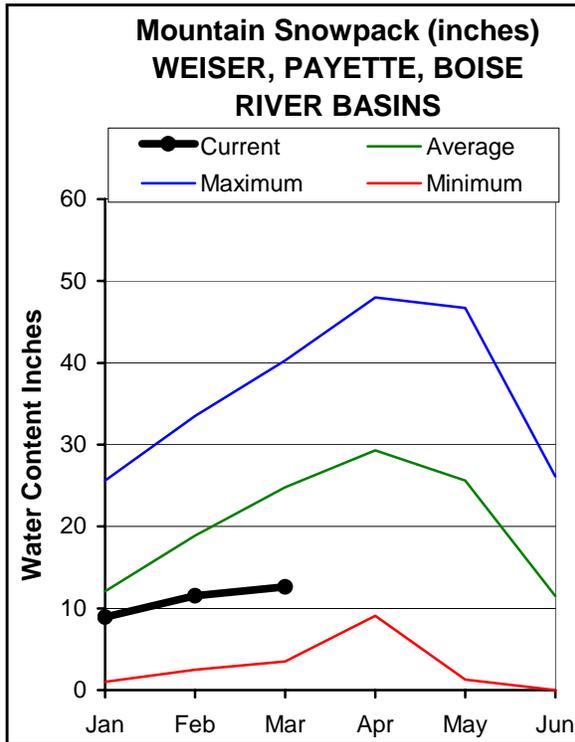
SALMON RIVER BASIN Reservoir Storage (1000 AF) - End of February					SALMON RIVER BASIN Watershed Snowpack Analysis - March 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					Salmon River ab Salmon	11	65	57
					Lemhi River	11	74	65
					Middle Fork Salmon River	3	54	50
					South Fork Salmon River	3	51	50
					Little Salmon River	4	49	52
					Salmon Basin Total	30	58	56

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

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

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

# WEISER, PAYETTE, BOISE RIVER BASINS MARCH 1, 2005



## WATER SUPPLY OUTLOOK

February was the second consecutive month that Mother Nature took a vacation. February precipitation in these west-central mountains was only 23% of average. Precipitation since the water year started October 1 dropped to 54% of average. The snowpack in the Weiser, Payette and Boise basins is 55% of average, fourth lowest since 1961; only 1977, 1991 and 2001 had less snow than this year. As a result streamflow forecasts took a tumble and now call for only 35-45% of the average April - September volumes in these basins. If the forecasts hold true, water supplies will be similar to 2001 when some Treasure Valley farmers experienced early irrigation water shutoffs. Currently, combined storage in the Boise reservoir system is 41% of capacity, 69% of average. However in 2001, the Boise reservoir system held 126,000 acre-feet more than this year. The Payette reservoir system storage is average at 64% of capacity and has 40,000 acre-feet more in storage than in 2001. Water users should prepare for shortages as the drought that has plagued central and eastern Idaho is now moving into the west-central and northern Idaho basins.

WEISER, PAYETTE, BOISE RIVER BASINS  
Streamflow Forecasts - March 1, 2005

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 near Weiser (1)	APR-SEP	88	127	154	37	214	349	420
SF PAYETTE at Lowman	APR-JUL	109	155	185	42	215	260	440
	APR-SEP	129	180	215	43	250	300	495
DEADWOOD RESERVOIR Inflow (1,2)	APR-JUL	26	48	58	43	68	90	134
	APR-SEP	29	51	61	43	71	93	142
LAKE FORK PAYETTE near McCall	APR-JUL	31	39	45	53	51	59	85
	APR-SEP	31	40	46	52	52	61	89
NF PAYETTE at Cascade (1,2)	APR-JUL	164	189	205	42	245	340	490
	APR-SEP	179	204	220	42	260	355	530
NF PAYETTE nr Banks (2)	APR-JUL	185	218	240	37	305	395	645
	APR-SEP	199	235	260	38	330	425	690
PAYETTE nr Horseshoe Bend (1,2)	APR-JUL	457	524	570	35	695	980	1610
	APR-SEP	481	564	620	35	770	1110	1750
BOISE near Twin Springs (1)	APR-JUL	150	245	285	45	325	420	635
	APR-SEP	150	260	310	45	360	470	690
SF BOISE at Anderson Ranch Dam (1,2)	APR-JUL	100	175	210	39	245	320	540
	APR-SEP	178	206	225	39	275	385	580
MORES CREEK near Arrowrock Dam	APR-JUL	24	30	34	26	49	72	131
	APR-SEP	26	32	36	26	52	75	137
BOISE near Boise (1,2)	APR-JUN	401	445	475	38	560	750	1260
	APR-JUL	418	485	530	38	660	945	1410
	APR-SEP	463	530	575	38	705	985	1530

WEISER, PAYETTE, BOISE RIVER BASINS Reservoir Storage (1000 AF) - End of February					WEISER, PAYETTE, BOISE RIVER BASINS Watershed Snowpack Analysis - March 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MANN CREEK	11.1	2.9	2.6	6.1	Mann Creek	2	51	57
CASCADE	693.2	474.2	426.9	438.3	Weiser River	5	50	57
DEADWOOD	161.9	74.5	83.3	88.5	North Fork Payette	8	46	51
ANDERSON RANCH	450.2	174.0	274.7	268.0	South Fork Payette	5	50	51
ARROWROCK	272.2	139.8	1.4	210.4	Payette Basin Total	14	48	52
LUCKY PEAK	293.2	101.5	183.2	120.4	Middle & North Fork Boise	5	53	50
LAKE LOWELL (DEER FLAT)	165.2	110.7	140.7	109.1	South Fork Boise River	9	61	60
					Mores Creek	5	41	50
					Boise Basin Total	16	52	55
					Canyon Creek	2	60	73

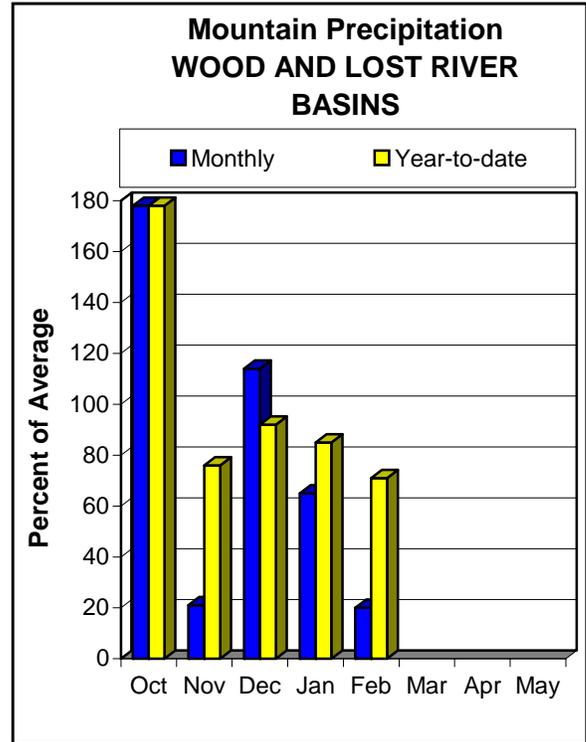
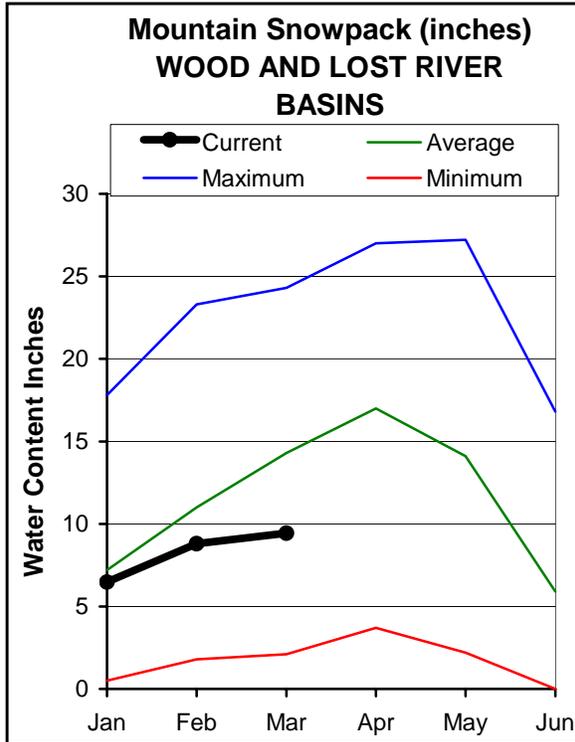
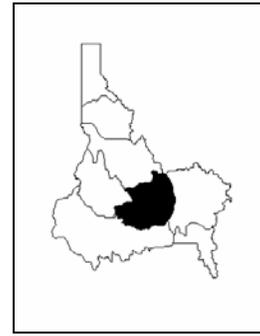
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

# WOOD and LOST RIVER BASINS

## MARCH 1, 2005



## WATER SUPPLY OUTLOOK

February precipitation amounts that fell in Idaho's central mountains were more typical of those that occur in the summer months. February amounts ranged from 0.2 inches in the Big Lost basin to 1.5 inches at Vienna Mine SNOTEL; normal amounts are 2.0 to 5.8 inches. Snowpacks range from 64% of average in Camas Creek to 80% in Fish, Birch and Medicine Lodge basins. The Big Wood basin snowpack above Hailey is 66% of average, slightly better than 1994, but the sixth lowest since 1961. The Big Lost basin snowpack is 80% of average, seventh lowest since 1961. Magic Reservoir remains nearly empty at 13% full, 29% of average. Little Wood and Mackay reservoirs are half full, 80% of average. Due to lack of precipitation, streamflow forecasts decreased significantly and now call for 43% of average for the Big Wood at Hailey and decrease to 20% of average in the lower Big Wood basin and Camas Creek. Little Wood River is forecast at 37% of average. The Big Lost River at Howell Ranch and Little Lost River are forecast at 53% of average. This year the Big Lost River below Mackay Reservoir is forecast at 48% of average, 83,000 acre-feet for the April-September period while the observed runoff in 2001, 2002 and 2004 was about 68,000 acre-feet. With the lack of snow in the mountains and the usual dry season just around the corner, water users can expect similar or worse surface water supplies to recent years unless the weather changes for the better.

WOOD AND LOST RIVER BASINS  
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<==== Drier =====		====		==== Wetter =====>>		
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
BIG WOOD at Hailey (1)	APR-JUL	52	89	110	43	133	190	255
	APR-SEP	60	102	125	43	150	214	290
BIG WOOD ab Magic Reservoir	APR-JUL	15.0	28	40	21	55	84	190
	APR-SEP	25	36	43	21	78	129	204
CAMAS CREEK near Blaine	APR-JUL	3.0	10.0	17.0	17	26	42	100
	APR-SEP	4.0	11.0	18.0	18	27	44	101
BIG WOOD below Magic Dam (2)	APR-JUL	34	48	58	20	108	180	290
	APR-SEP	36	51	61	20	113	191	305
LITTLE WOOD R ab High Five Ck	MAR-JUL	16.8	26	34	40	43	57	85
	MAR-SEP	17.6	28	36	39	45	61	92
	APR-JUL	13.1	22	29	37	37	51	78
	APR-SEP	13.9	23	31	37	40	55	85
LITTLE WOOD near Carey (2)	MAR-JUL	26	33	38	40	51	71	96
	MAR-SEP	28	36	41	39	55	76	104
	APR-JUL	21	28	32	37	45	65	87
	APR-SEP	23	30	35	37	49	70	94
BIG LOST at Howell Ranch	APR-JUL	54	77	92	53	122	165	173
	APR-SEP	62	87	105	53	139	188	197
BIG LOST bl Mackay Reservoir	APR-JUL	40	57	68	48	92	128	141
	APR-SEP	48	69	83	48	113	156	172
LITTLE LOST bl Wet Creek	APR-JUL	11.3	14.5	16.7	54	21	27	31
	APR-SEP	14.2	18.2	21	54	26	34	39

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

WOOD AND LOST RIVER BASINS  
Watershed Snowpack Analysis - March 1, 2005

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
MAGIC	191.5	25.6	23.5	89.7	Big Wood ab Hailey	8	69	66
LITTLE WOOD	30.0	15.5	14.2	17.7	Camas Creek	5	58	64
MACKAY	44.4	22.8	21.0	30.8	Big Wood Basin Total	13	65	66
					Fish Creek	3	76	83
					Little Wood River	9	73	81
					Big Lost River	7	71	80
					Little Lost River	4	73	68
					Birch-Medicine Lodge Cree	4	79	80
					Camas-Beaver Creeks	4	82	94

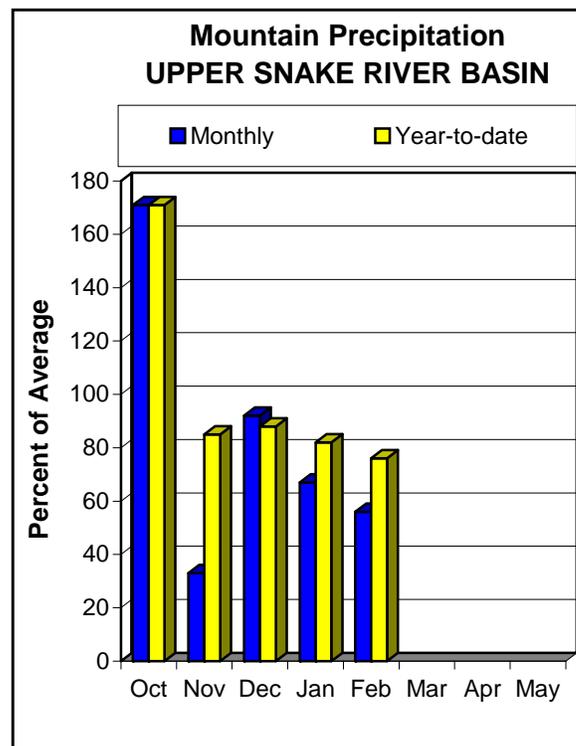
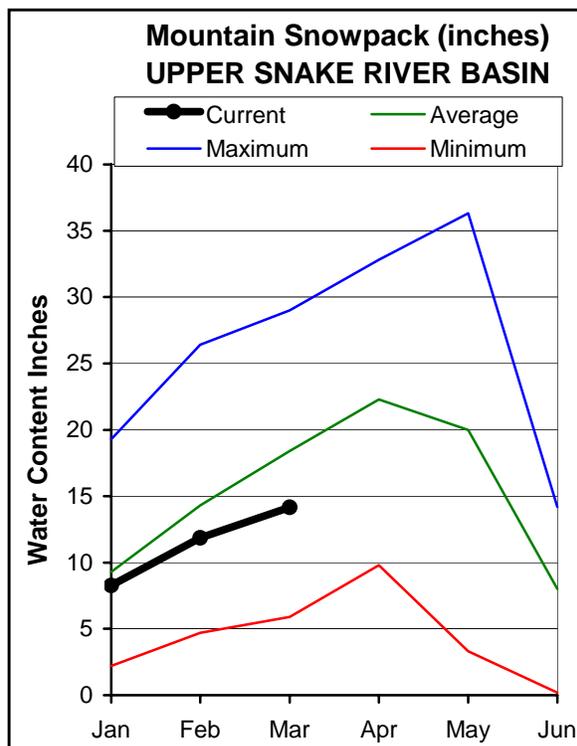
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

# UPPER SNAKE RIVER BASIN

## MARCH 1, 2005



## WATER SUPPLY OUTLOOK

February mountain precipitation was below average for the fourth consecutive month at only 56% of average, second highest in the state. Precipitation since the water year started October 1 is 76% of average and is now less than last year. The snowpack is also only about three-quarters of last year's, but keep in mind, antecedent soil moisture conditions are better than a year ago. The highest snowpack is in the Portneuf basin at 84% of average. The lowest is 58% of average in Blackfoot basin. The snowpack above Jackson Lake is only 67% of average, while the snowpack above Palisades Reservoir is 71% of average, 58% of its seasonal peak. The past three years, the snowpack reached 80-90% of its seasonal peak and produced runoff that was about 70% of average. March precipitation or a cool, wet spring and summer are critical to keep the runoff similar to the past few years. The Snake River near Heise is forecast 61% of average; in 2001 the flow was 47% of average, but there was also 560,000 acre-feet more in storage. Jackson and Palisades reservoirs have a combined storage of 34% of capacity, half of average, and will not fill. American Falls Reservoir is 70% full, and is not projected to fill. The Henrys Fork is forecast at 68% of average. With below average spring precipitation, surface water supplies will be less than last year, and could approach the 2001 levels when shortages were more widespread across the basin. Let's hope for a March miracle!

UPPER SNAKE RIVER BASIN  
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	Future Conditions					30-Yr Avg. (1000AF)	
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	50% (1000AF) (% AVG.)	30% (1000AF)	10% (1000AF)		
HENRY'S FORK near Ashton (2)	APR-JUL	305	355	390	68	425	475	570
	APR-SEP	420	480	520	68	560	620	765
HENRY'S FORK near Rexburg (2)	APR-JUL	770	930	1040	67	1150	1310	1560
	APR-SEP	1040	1220	1340	67	1460	1640	2010
FALLS RIVER nr Ashton (2)	APR-JUL	180	225	255	67	285	330	380
	APR-SEP	210	265	300	67	335	390	450
TETON RIVER NEAR DRIGGS	APR-JUL	52	77	95	58	113	138	165
	APR-SEP	68	99	120	57	141	170	210
TETON near St. Anthony	APR-JUL	175	208	230	57	270	325	405
	APR-SEP	220	259	285	59	330	395	480
SNAKE at Flagg Ranch	APR-JUL	215	270	305	65	340	395	470
	APR-SEP	235	295	335	65	375	435	515
SNAKE nr Moran (1,2)	APR-JUL	345	455	505	62	555	665	815
	APR-SEP	380	505	560	62	615	740	905
PACIFIC CREEK at Moran	APR-JUL	58	77	91	53	105	124	171
	APR-SEP	63	84	98	55	112	133	178
SNAKE ab resv nr Alpine (1,2)	APR-JUL	1020	1300	1430	60	1560	1840	2370
	APR-SEP	1180	1500	1650	60	1800	2120	2730
GREYS above Palisades	APR-JUL	139	180	205	60	230	270	340
	APR-SEP	160	205	235	60	265	310	395
SALT near Etna	APR-JUL	109	163	200	59	235	290	340
	APR-SEP	140	200	245	58	290	350	420
SNAKE nr Irwin (1,2)	APR-JUL	1420	1860	2060	62	2260	2700	3330
	APR-SEP	1680	2170	2390	62	2610	3100	3870
SNAKE near Heise (2)	APR-JUL	1620	1950	2170	61	2390	2720	3560
	APR-SEP	1920	2290	2540	61	2790	3160	4160
WILLOW CREEK nr Ririe	MAR-JUL	14.2	22	29	33	37	49	88
BLACKFOOT RESV INFLOW	APR-JUN	30	38	44	37	59	82	120
SNAKE nr Blackfoot (1,2)	APR-JUL	1760	2370	2640	57	2910	3520	4600
	APR-SEP	2330	2940	3210	57	3480	4090	5620
PORINEUF at Topaz	MAR-JUL	37	47	54	61	61	71	89
	MAR-SEP	46	58	66	61	74	86	109
AMERICAN FALLS RESV INFLOW (1,2)	APR-JUL	617	857	1020	32	1390	2210	3240
	APR-SEP	697	937	1100	31	1470	2290	3510

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

UPPER SNAKE RIVER BASIN  
Watershed Snowpack Analysis - March 1, 2005

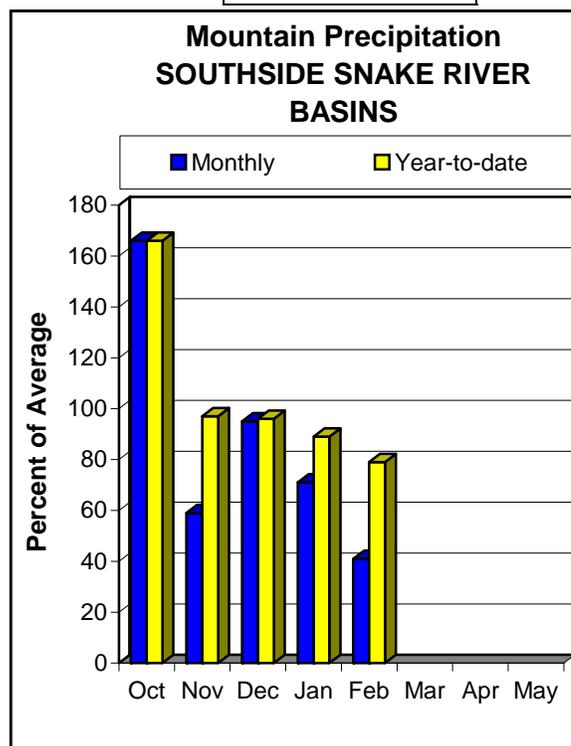
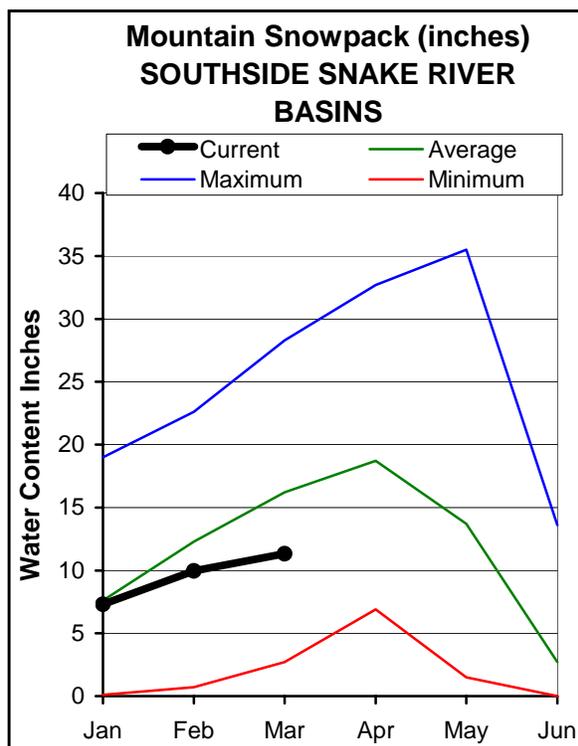
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HENRY'S LAKE	90.4	67.1	69.8	84.4	Henry's Fork-Falls River	12	70	78
ISLAND PARK	135.2	86.6	84.3	107.1	Teton River	8	68	68
GRASSY LAKE	15.2	8.9	9.9	12.0	Henry's Fork above Rexburg	20	69	75
JACKSON LAKE	847.0	143.9	171.6	494.0	Snake above Jackson Lake	9	66	67
PALISADES	1400.0	630.0	514.0	1033.1	Gros Ventre River	3	82	68
RIRIE	80.5	33.2	30.0	38.5	Hoback River	5	81	71
BLACKFOOT	348.7	40.0	31.0	224.7	Greys River	5	86	79
AMERICAN FALLS	1672.6	1175.5	1024.0	1271.1	Salt River	5	86	80
					Snake above Palisades	28	75	71
					Willow Creek	7	59	73
					Blackfoot River	5	72	71
					Portneuf River	7	70	84
					Snake abv American Falls	49	72	74

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

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

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

# SOUTHSIDE SNAKE RIVER BASINS MARCH 1, 2005



## WATER SUPPLY OUTLOOK

February precipitation was 41% of average and ranged from 15-55% for the 14 SNOTEL stations in these high desert basins. Water year to date precipitation is 79% of average, just slightly better than a year ago. Snowpack percentages decrease from east to west with the Raft at 99% of average, 86% for Oakley, 81% for Salmon Falls, 75% for Bruneau and 59% for Owyhee basins. Warm temperatures and no rain in late February and early March started melting the low elevation snowpack in the Owyhee and Weiser basins. With sustained warm temperatures in late February, the Owyhee River near Rome probably reached its snowmelt peak streamflow for the season. The river reached 1,300 cfs on February 24. Additional peaks are still possible with future rain. Rain dominated hydrographs are much flashier as opposed to snowmelt dominated hydrographs produced from nature gradually releasing melt water from the winter snowpack. Owyhee Reservoir storage increased to only 28% of capacity, 42% of average; irrigation shortages are likely if this was the peak flow. Oakley, Salmon Falls and Wildhorse reservoirs are only 10-20% full, 35-45% of average. Streamflow forecasts decreased significantly from last month and now call for 45% of average for Oakley and Salmon Falls basins, 50% for Bruneau and Owyhee headwaters, and only 35% for Owyhee Reservoir inflow. With less than a month to go this winter and warmer temperatures still persisting, water supply shortages will occur. Salmon Falls basin water supplies may be similar to 2002 and 2003 while Oakley basin water supplies could be similar to 2004.

SOUTHSIDE SNAKE RIVER BASINS  
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)
		<<===== Drier =====>>		===== Wetter =====>>				
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	
OAKLEY RESERVOIR INFLOW	MAR-JUL	9.2	13.3	16.4	48	19.9	26	34
	MAR-SEP	10.3	14.6	17.9	48	22	28	37
SALMON FALLS CREEK nr San Jacinto	MAR-JUN	17.0	30	38	43	46	59	89
	MAR-JUL	17.0	31	40	43	49	63	93
	MAR-SEP	19.0	33	42	43	51	65	98
BRUNEAU near Hot Spring	MAR-JUL	66	95	118	50	143	185	235
	MAR-SEP	70	101	125	50	152	195	250
OWYHEE near Gold Creek (2)	MAR-JUL	7.1	9.9	11.8	37	16.5	26	32
	MAR-SEP	7.2	9.7	11.4	37	15.4	24	31
OWYHEE nr Owyhee (2)	APR-JUL	15.2	29	38	46	55	79	82
OWYHEE near Rome	MAR-JUL	118	167	205	35	247	316	580
	MAR-SEP	122	172	210	35	252	322	600
OWYHEE RESV INFLOW (2)	MAR-JUL	126	176	215	35	258	327	615
	MAR-SEP	135	186	225	35	268	337	645
	APR-SEP	58	101	138	32	180	253	430
SUCCOR CK nr Jordan Valley	MAR-JUL	2.6	4.7	6.2	37	10.2	16.0	16.9
SNAKE RIVER at King Hill (1,2)	APR-JUL	320	1042	1370	47	1700	2420	2940
SNAKE RIVER near Murphy (1,2)	APR-JUL	245	1019	1370	44	1720	2490	3090
SNAKE RIVER at Weiser (1,2)	APR-JUL	1200	1498	1700	30	2450	4100	5770
SNAKE RIVER at Hells Canyon Dam (1,2)	APR-JUL	1441	1756	1970	30	2735	4420	6490
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	2690	7689	9960	46	12230	17230	21600

SOUTHSIDE SNAKE RIVER BASINS Reservoir Storage (1000 AF) - End of February					SOUTHSIDE SNAKE RIVER BASINS Watershed Snowpack Analysis - March 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
OAKLEY	75.6	14.6	10.7	31.4	Raft River	6	81	99
SALMON FALLS	182.6	20.7	16.6	59.8	Goose-Trapper Creeks	7	71	86
WILDHORSE RESERVOIR	71.5	14.4	14.6	40.1	Salmon Falls Creek	8	64	81
OWYHEE	715.0	203.3	121.8	489.1	Bruneau River	8	61	75
BROWNLEE	1420.0	1330.5	1063.5	1090.5	Owyhee Basin Total	20	41	59

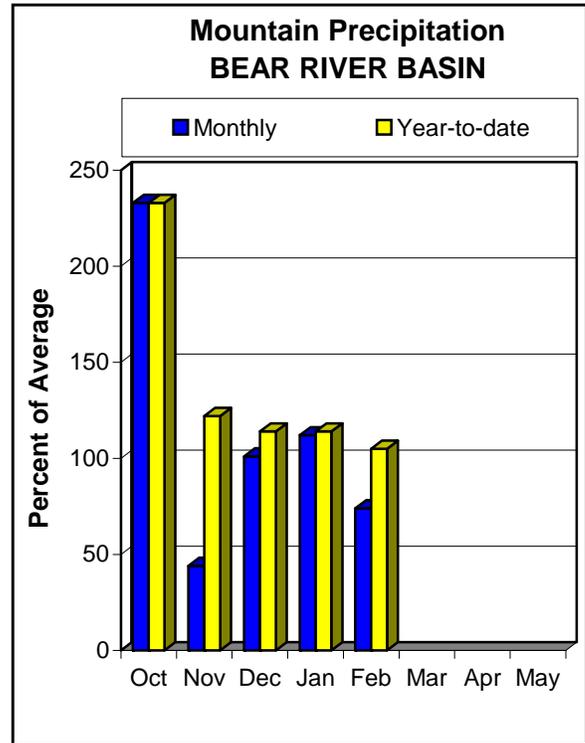
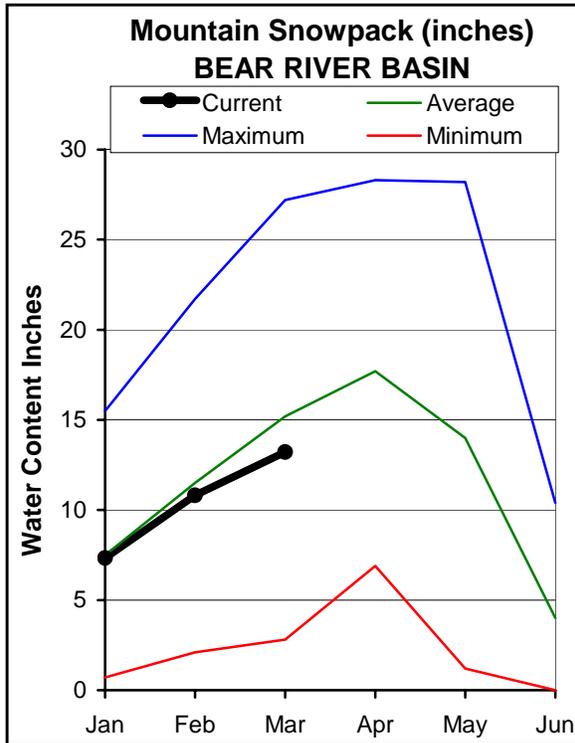
\* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

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

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

# BEAR RIVER BASIN

## MARCH 1, 2005



## WATER SUPPLY OUTLOOK

The Bear River basin continues to capitalize on this year's unusual weather patterns with moisture coming up from southern California through Utah and into southern Idaho. February precipitation was 74% of average, highest in the state, and range from 40-100% of average across the basin. Precipitation since the water year started October 1 is average, but seems greater, as it is 19% more than a year ago. The Bear River basin snowpack ranges from 120% of average in the headwaters of Utah to 75% for the northernmost sites in the Bear River basin in Idaho. Overall, the Bear River snowpack is average and recently exceeded last year's peak snow levels because of the record dry March and April in 2004. Actually, the Bear River snowpack is the best since April 1999 based on a 15 station snow index! Let's hope this wet trend continues for years to come to get Bear Lake water storage back to average or better levels. Currently, Bear Lake is only 10% of capacity, 15% of average. Streamflow forecasts remain encouraging with the headwater streams forecast at 110% of average. Smiths Fork is forecast at 88% of average and will provide water for down valley water users. However, because of the cumulative drought, the observed flow for the Bear River at Stewart Dam is only forecast at 51%. Irrigation releases will be made from Bear Lake but water allotments will be well below a full amount.

BEAR RIVER BASIN  
Streamflow Forecasts - March 1, 2005

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 River nr UT-WY State Line	APR-SEP	104	123	137	110	151	170	125
Bear River ab Reservoir nr Woodruff	APR-SEP	115	143	163	115	181	211	142
Smiths Fork nr Border	APR-JUL	68	82	91	88	100	114	103
	APR-SEP	79	95	105	87	115	131	121
Bear River at Stewart Dam	APR-JUL	66	96	119	51	145	187	234
	APR-SEP	82	116	142	54	171	219	262

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of February					BEAR RIVER BASIN Watershed Snowpack Analysis - March 1, 2005			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
BEAR LAKE	1421.0	136.0	152.8	910.7	Smiths & Thomas Forks	4	111	94
MONTPELIER CREEK	4.0	1.8	1.0	1.7	Bear River ab WY-ID line	14	119	103
					Montpelier Creek	2	105	89
					Mink Creek	4	92	93
					Cub River	3	103	103
					Bear River ab ID-UT line	25	107	99
					Malad River	3	56	70

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

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

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

# Interpreting Streamflow 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.

**Most Probable (50 Percent Chance of Exceeding) Forecast.** This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

## To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

**70 Percent Chance of Exceeding Forecast.** There is a 70 percent chance that the streamflow volume will exceed this forecast value.

There is a 30 percent chance the streamflow volume will be less than this forecast value.

**90 Percent Chance of Exceeding Forecast.** There is a 90 percent chance that the streamflow volume will exceed this forecast value.

There is a 10 percent chance the streamflow volume will be less than this forecast value.

## To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having

too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

**30 Percent Chance of Exceeding Forecast.** There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

**10 Percent Chance of Exceeding Forecast.** There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

## Using the forecasts - an example

**Using the Most Probable Forecast.** Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Death between March 1 and July 31.

**Using the Higher Exceedence Forecasts.** If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are **available** from the **National** Weather Service every two weeks), or if **they are** operating **at a level** where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

**Using the Lower Exceedance Forecasts.** If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three Out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

WEISER, PAYETTE, BOISE RIVER BASINS  
Streamflow Forecasts

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>					30-Yr Avg. (1000AF)	
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% 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	

For more information concerning streamflow forecasting ask your local NRCS field office for a copy of "A Field Office Guide for Interpreting Streamflow Forecasts" or visit our Web page.

OFFICIAL BUSINESS



*Issued by*  
Bruce I. Knight, Chief  
Natural Resources Conservation Service  
Washington, DC

*Released by*  
Richard Sims, State Conservationist  
Natural Resources Conservation Service  
Boise, Idaho

*Prepared by*  
Snow Survey Staff  
Ron Abramovich, Water Supply Specialist  
Philip Morrissey, Hydrologist  
James Montesi, Hydrologist  
Jeff Graham, Electronics Technician

Assistance provided by  
Tom Perkins, Senior Forecast Hydrologist,  
NRCS, National Water and Climate Center, Portland, Oregon

Cooperative funding for printing provided by  
Idaho Department of Water Resources

Numerous other agencies provide funding and/or  
cooperative support for the collection, operation  
and maintenance of the Snow Survey Program.  
Their cooperation is greatly appreciated.

