

# Idaho Water Supply Outlook Report March 1, 2002



NRCS snow surveyors measure snow at 9300 feet elevation at Fishpole Lake snow course, Big Lost River Mountains, in central Idaho.

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

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## *How forecasts are made*

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

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

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

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# ***IDAHO WATER SUPPLY OUTLOOK REPORT***

***March 1, 2002***

## **SUMMARY**

The lack of precipitation the past two months is taking its toll on Idaho's frozen liquid gold. Snowpack percents of average are gradually decreasing as a result of the lack of winter storms moving into Idaho. February precipitation ranged from 80% of average in northern Idaho to 40% in the Bear River basin. Snowpack percentages range from 75-110% of average for most basins; most low elevation drainages are reporting an average to well above average snowpack. A near normal snowpack sounds good after last year's snowpack that was only half of normal on April 1, but with most reservoirs reporting much less water than last year, a good snowpack and runoff are critical this year. Streamflow forecasts range from a high of 120% of average in northern Idaho to 42% of average in the Bear River basin. Most streams across central and eastern Idaho are forecast in the 75-85% of average range. Palisades, Jackson Lake and Anderson Ranch reservoirs are not expected to fill based on below normal runoff volumes. Irrigation water supplies will be marginally adequate. Shortages depend upon your water source and water right and are possible in the upper Snake, Bear River, Oakley, Salmon Falls, Big Lost and Little Lost basins.

Water users should monitor conditions closely during the next two months. Spring precipitation can make or break a streamflow forecast, especially in southern Idaho.

## **SNOWPACK**

The lack of new snow is causing Idaho's snowpack to gradually slip to below normal conditions. Most snowpacks range from 75-110% of average. The exceptions are the low elevation snowpacks that are above to well above average. This low elevation snow provides some additional runoff and helps recharge the soil profile, but most of the low snow melts within a few weeks or a month after the snow starts melting. It is more important for the high elevation snowpack to be near normal or better since this is the primary source of Idaho's streamflow. When high elevation snow starts melting, it may take two months or longer to melt the volume of snow in these areas.

Low elevation basins in northern Idaho such as Hayden Lake and Palouse basin are 160% of average. The Owyhee basin snowpack is 132% of average, based on SNOTEL sites and aerial markers. The snowpack in the lower Boise mountains is also above average, while higher sites are only 85% of average. The Camas Creek basin snowpack near Fairfield is 106% of average, while the high elevation of Big Wood basin is only 82%. Eastern Idaho snowpacks are more consistent with all basins reporting in the 75-85% of average range. The lowest snowpacks in the state are 72-77% of average in the Lemhi basin, headwaters of the Snake River in Wyoming, and Bear River basin.

## **PRECIPITATION**

February precipitation took a downward turn and was below normal across the state. The Panhandle Region and Clearwater basin received the most at 80% of average, while the Bear River basin received the least at only 41% of average. Elsewhere, February precipitation ranged from about 55% of average in the Salmon and west-central mountains to 45% in central, eastern and southern Idaho. Water year to date precipitation remains above normal in only the Panhandle Region and Clearwater basin, 119% and 111% of average respectively. Elsewhere, water year to date ranges from 81% of average in the Bear River basin to 99% in the Southside Snake River basins. The 30-day (March) and 60-day (March-May) extended precipitation outlook for Idaho and the Pacific Northwest provided by the National Weather Service remains the same - climatology - which means there is an equal chance (33 percent chance) for above normal, normal, or below normal precipitation to occur. The extended temperature forecast for the same periods is for above normal temperatures for the West.

## **RESERVOIRS**

Reservoir storage varies across the state. The lakes and reservoirs in the Panhandle Region are storing near average or better amounts with the exception of Pend Oreille Lake. Rapid melting of the above average low elevation snow will generate rapid increases in these northern Idaho streams and lake levels. Dworshak Reservoir will fill this year and started making flood control releases in early February. The Payette reservoir system is 76% of average and will fill. The Boise reservoir system is 70% of average - Lucky Peak and Arrowrock will fill, but Anderson Ranch Reservoir is not expected to fill. Owyhee Reservoir is 23% full and will increase rapidly in storage when the low snow melts, but may not fill completely. Magic Reservoir remains low waiting for the near normal snowpack in Camas Creek to pour into the reservoir; hopefully, the Big Wood River can fill Magic reservoir the rest of the way. Mackay Reservoir is 72% of average and will fill. Palisades Reservoir is half of average and Jackson Lake is one-third of average and are not expected to fill. Bear Lake is only 65% of average and will remain low with Bear River forecasted at only 42% of average. Oakley Reservoir storage is less than half of average, while Salmon Falls Reservoir is only a quarter of average. Brownlee Reservoir is 89% of average, 68% full.

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**

Spring and summer streamflow forecasts decreased 5-20 percentage points across most of the state as a result of the below to well below normal February precipitation. The lowest forecasts in the state are in the Bear River basin at 42% of average. The highest forecasts are in the Panhandle Region, Clearwater basin and Owyhee basin at 100-120% of average. Elsewhere, streams are forecast in the 60-90% of average range. Normal or better precipitation is needed for the remaining winter months and in the spring to ensure adequate water supplies. Below normal spring precipitation like Idaho received the past two seasons will only result in observed streamflow levels below the "Most Probable" or 50% exceedance level.

## **RECREATION**

February brought lots of sunny, clear days. February precipitation was below normal across the state. Cold temperatures have kept the snow light and fluffy, especially in eastern Idaho. Island Park SNOTEL reached -36 degrees Fahrenheit on February 26! With below normal precipitation across most of the state the past two months, snowpack percentages and streamflow forecasts have also decreased. Owyhee River runners should be getting their gear ready; warm temperatures can melt the above average low elevation snow rapidly and generate potentially high peaks especially with a blast of rain. The Bruneau River should have a good boating season too. Northern Idaho river runners will benefit the most from the above average snowpacks with a long boating season. The Middle Fork Salmon River has twice the amount of snow as last year so expect a much longer season this year. The main Salmon River floating season will be long and enjoyable as it always is. The Payette reservoir system will fill and provide excellent flow when the natural snowmelt runoff recedes. Lucky Peak and Arrowrock reservoirs will fill and provide excellent reservoir recreation; irrigation releases will provide adequate tubing levels for floating through the Capitol City. Anderson Ranch Reservoir is not expected to fill. Palisades Reservoir and Jackson Lake are not expected to fill, but should provide good flows for the fishing and recreational boating.

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**IDAHO SURFACE WATER SUPPLY INDEX (SWSI) As of March 1, 2002**

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 +4.1 (abundant supply) to -4.1 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences.

SWSI values are published January through May and provide a more comprehensive outlook of water availability than either streamflow forecasts or reservoir storage figures alone. The SWSI index allows comparison of water availability between basins for drought or flood severity analysis. Threshold SWSI values have been established for most basins to indicate the potential for agricultural water shortages.

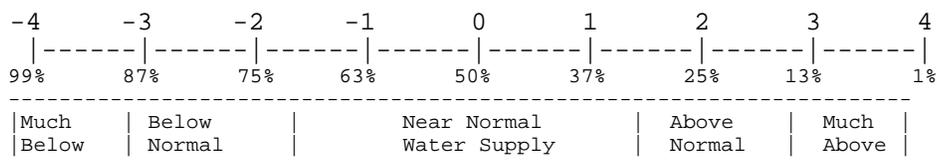
The following agencies and cooperators provide assistance in the preparation of the Surface Water Supply Index for Idaho:

US National Weather Service  
 US Bureau of Reclamation  
 Idaho Water Users Association

US Army Corps of Engineers  
 Idaho Dept. of Water Resources  
 PacifiCorp

<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	1.2	1990/91	NA
CLEARWATER	1.7	1999	NA
SALMON	-0.5	1995	NA
WEISER	0.2	1986	NA
PAYETTE	-1.0	2000	NA
BOISE	-1.5	1985	-2.6
BIG WOOD	-1.6	1981	-1.4
LITTLE WOOD	-0.9	1985	-2.6
BIG LOST	-1.6	1987	-0.8
LITTLE LOST	-0.8	1996	0.0
HENRYS FORK	-2.0	1990/91	-3.3
SNAKE (AMERICAN FALLS)	-2.9	1987/94	-2.0
OAKLEY	-1.6	1989	0.0
SALMON FALLS	-1.2	1988	0.0
BRUNEAU	-0.9	1985	NA
OWYHEE	-0.9		NA
BEAR RIVER	-3.4	2001	-3.8

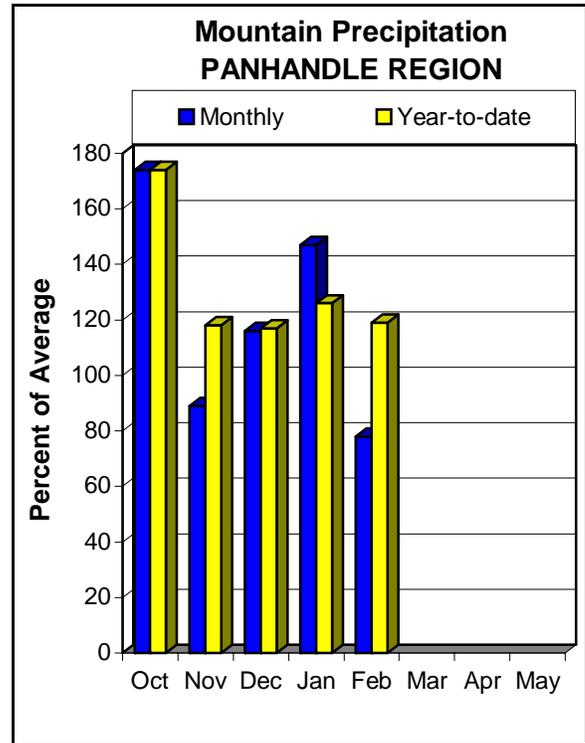
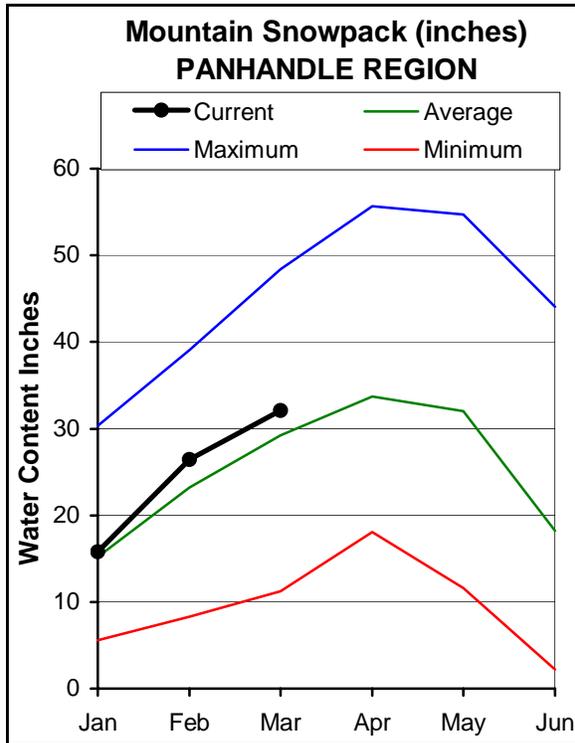
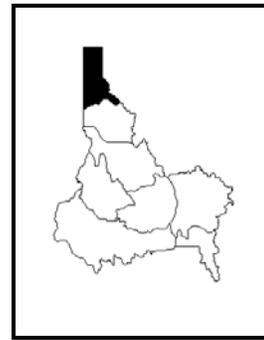
**SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION**



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, 2002



## WATER SUPPLY OUTLOOK

For the second consecutive month, the Panhandle Region and Clearwater basin received the highest monthly precipitation in the state, 80% of average. Water year to date precipitation is also the highest in the state at 119% of average. Precipitation for this water year has already exceeded the total amount that fell all of last water year. This is good news for an area that had a record low snowpack last year of only 50% of average on April 1. The snowpack in this region is also the highest in the state at 110% of average. The highest snowpack percentages are in the lower elevation areas of Hayden Lake and Palouse basin at 160% of average. Bear Mountain SNOTEL site is 120% of average and has 60 inches of snow water compared to only 20 inches a year ago. The Pend Oreille River basin snowpack is just below normal at 94% of average. Pend Oreille Lake storage remains below normal at 76% of average, while Coeur d'Alene and Priest lakes are near normal or better. Streamflow forecasts range from 90-120% of average for these northern Idaho streams. Water supplies will be adequate and much better than last year.

PANHANDLE REGION  
Streamflow Forecasts - March 1, 2002

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>					30-Yr Avg. (1000AF)					
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (% AVG.)		30% (1000AF)		10% (1000AF)		
KOOTENAI at Leonia (1,2)	APR-JUL	5669	6399	6730	96	7061	7791	7035				
	APR-SEP	6630	7407	7760	96	8113	8890	8125				
MOYIE RIVER at Eastport	APR-JUL	385	416	437	108	458	489	403				
	APR-SEP	398	431	453	108	475	508	418				
SMITH CREEK	APR-JUL	94	108	118	96	128	142	123				
	APR-SEP	97	113	124	96	135	151	129				
BOUNDARY CREEK	APR-JUL	99	113	123	100	133	147	123				
	APR-SEP	104	119	129	100	139	154	129				
PEND OREILLE Lake Inflow (2)	APR-JUL	9214	10628	11588	91	12548	13962	12700				
	APR-SEP	9302	11270	12607	91	13944	15912	13900				
PRIEST near Priest River (1,2)	APR-JUL	691	787	830	102	873	969	814				
	APR-SEP	731	837	885	102	933	1039	868				
COEUR D'ALENE at Enaville	APR-JUL	701	804	875	118	946	1049	739				
	APR-SEP	740	847	920	118	993	1100	778				
ST. JOE at Calder	APR-JUL	1102	1226	1310	115	1394	1518	1136				
	APR-SEP	1185	1313	1400	116	1487	1615	1205				
SPOKANE near Post Falls (2)	APR-JUL	2519	2853	3080	121	3307	3641	2552				
	APR-SEP	2620	2965	3200	121	3435	3780	2650				
SPOKANE at Long Lake (2)	APR-JUL	2751	3138	3401	119	3664	4051	2851				
	APR-SEP	2957	3366	3644	119	3922	4331	3072				

PANHANDLE REGION Reservoir Storage (1000 AF) - End of February					PANHANDLE REGION Watershed Snowpack Analysis - March 1, 2002				
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	2421.0	2168.0	2047.6	Kootenai ab Bonners Ferry	32	199	100	
FLATHEAD LAKE	1791.0	937.5	844.0	802.7	Moyie River	12	182	100	
NOXON RAPIDS	335.0	319.9	305.9	297.5	Priest River	4	203	106	
PEND OREILLE	1561.3	593.6	734.4	778.8	Pend Oreille River	95	154	94	
COEUR D'ALENE	238.5	133.7	26.3	144.9	Rathdrum Creek	4	176	138	
PRIEST LAKE	119.3	58.9	53.0	56.8	Hayden Lake	2	210	164	
					Coeur d'Alene River	9	180	118	
					St. Joe River	4	230	118	
					Spokane River	17	188	124	
					Palouse River	2	195	157	

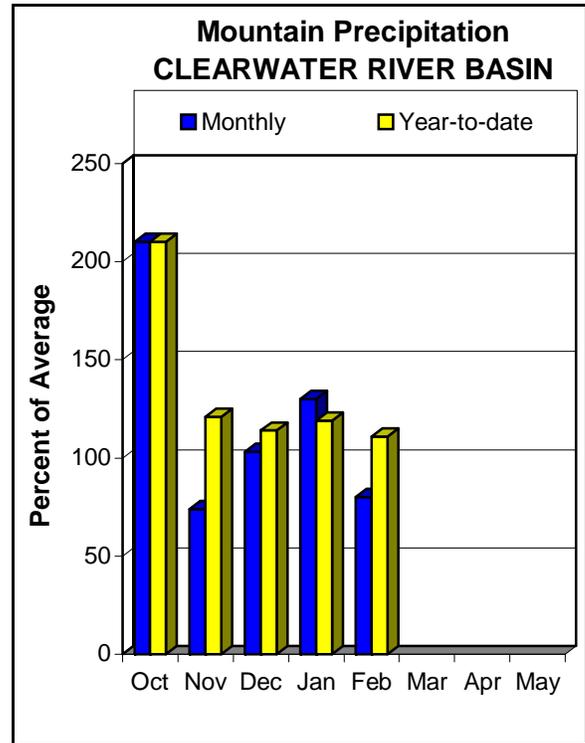
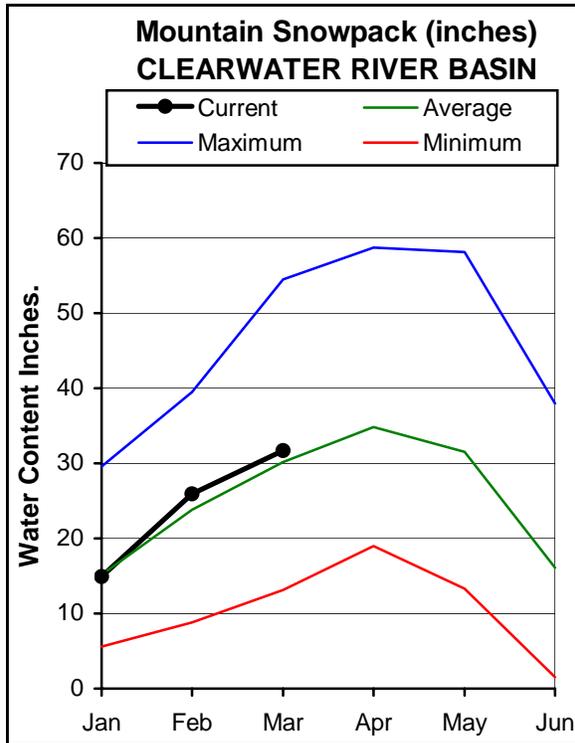
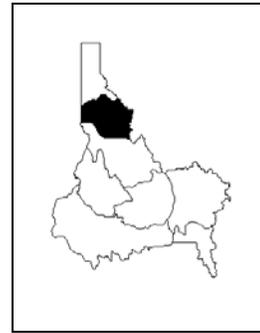
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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 flow - actual flow may be affected by upstream water management.

# CLEARWATER RIVER BASIN

## MARCH 1, 2002



## WATER SUPPLY OUTLOOK

The Clearwater and Panhandle Regions received the highest February precipitation in the state for the second month in a row at 80% of average. As a result of the below normal precipitation, snowpack percentages also decreased by about 5 percentage points from a month ago. Snowpacks range from a high of 107% of average in the North Fork Clearwater River to 91% of average in the Lochsa and Selway rivers. Overall, the Clearwater River snowpack is 103% of average. Dworshak Reservoir is 62% of capacity, down 7 percentage points (250,000 acre-feet) from a month ago due to flood control releases. Reservoir storage remains near normal at 96% of average. Dworshak Reservoir inflow is forecast at 112% of average and will fill this year. The Clearwater River at Spalding is forecast at 110% of average. The Selway River and Lochsa River are each forecast at 89% and 96% of average respectively. The March 1 snowpack is still only 81% of its mid-April snow water content peak. More snow and rain the next six weeks would help the numerous water users in Idaho and downstream of Idaho.

CLEARWATER RIVER BASIN  
Streamflow Forecasts - March 1, 2002

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)	
SELWAY near Lowell	APR-JUL	1553	1723	1839	89	1955	2125	2062
	APR-SEP	1634	1818	1942	90	2066	2250	2170
LOCHSA near Lowell	APR-JUL	1277	1391	1468	96	1545	1659	1530
	APR-SEP	1346	1466	1547	96	1628	1748	1609
DWORSHAK RESV INFLOW (1,2)	APR-JUL	2303	2748	2950	112	3152	3597	2635
	APR-SEP	2481	2941	3150	113	3359	3819	2799
CLEARWATER at Orofino (1)	APR-JUL	4011	4677	4980	107	5283	5949	4645
	APR-SEP	4205	4917	5240	107	5563	6275	4900
CLEARWATER at Spalding (1,2)	APR-JUL	6532	7665	8180	110	8695	9828	7435
	APR-SEP	6890	8080	8620	110	9160	10350	7850

CLEARWATER RIVER BASIN Reservoir Storage (1000 AF) - End of February					CLEARWATER RIVER BASIN Watershed Snowpack Analysis - March 1, 2002			
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	2156.3	2016.7	2247.3	North Fork Clearwater	9	200	107
					Lochsa River	3	161	91
					Selway River	5	152	91
					Clearwater Basin Total	18	182	103

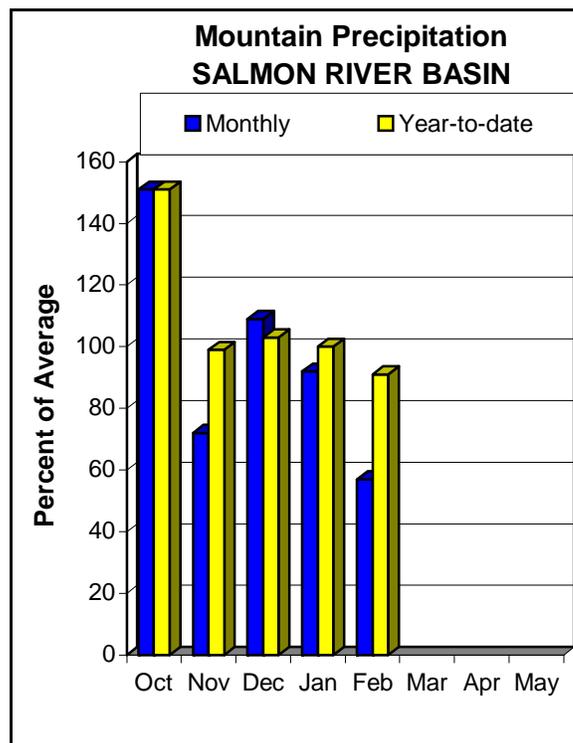
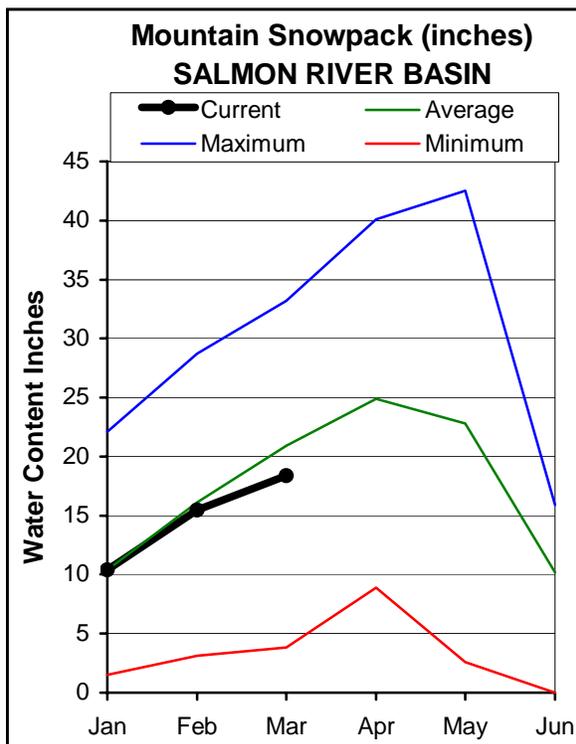
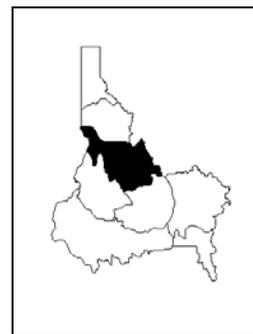
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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 flow - actual flow may be affected by upstream water management.

# SALMON RIVER BASIN

## MARCH 1, 2002



## WATER SUPPLY OUTLOOK

The Salmon basin was the dividing line for February precipitation with basins to the north receiving about 80% of normal amounts and basins to the south receiving half or less. Precipitation in the Salmon basins in February was 57% of average. Precipitation for the water year is 91% of average. As a result of the below normal precipitation, snowpack percentages decreased 6-10 percentage points from a month ago. The snow water content amounts range from a high of 97% of average in the low elevation Little Salmon basin to a low of 75% in the Lemhi River basin, one of the lowest snowpacks in the state. The Middle Fork Salmon River basin snowpack is 82% of average and has twice the amount of snow as last year! Overall, the Salmon River snowpack is 85% of average. The April-September streamflow forecast for the Salmon River at Salmon is for 86% of average; the Salmon River at White Bird is forecast at 89% of average. More snow is still needed this season because the snowpack is only 66% of its normal peak that occurs between April 1 and May 1. Last year's streamflow was only about 45% of average, so river runners and water users will see much better runoff than last year!

SALMON RIVER BASIN  
Streamflow Forecasts - March 1, 2002

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		50% (Most Probable) (1000AF) (% AVG.)			30% (1000AF) 10% (1000AF)	
		Chance Of Exceeding *								
SALMON at Salmon (1)	APR-JUL	516	667	735	86	803	954	857		
	APR-SEP	617	784	860	86	936	1103	1000		
SALMON at White Bird (1)	APR-JUL	3847	4798	5230	89	5662	6613	5851		
	APR-SEP	4261	5312	5790	89	6268	7319	6482		

SALMON RIVER BASIN Reservoir Storage (1000 AF) - End of February					SALMON RIVER BASIN Watershed Snowpack Analysis - March 1, 2002			
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	154	81
					Lemhi River	11	115	75
					Middle Fork Salmon River	3	199	82
					South Fork Salmon River	3	205	85
					Little Salmon River	4	224	97
					Salmon Basin Total	30	162	84

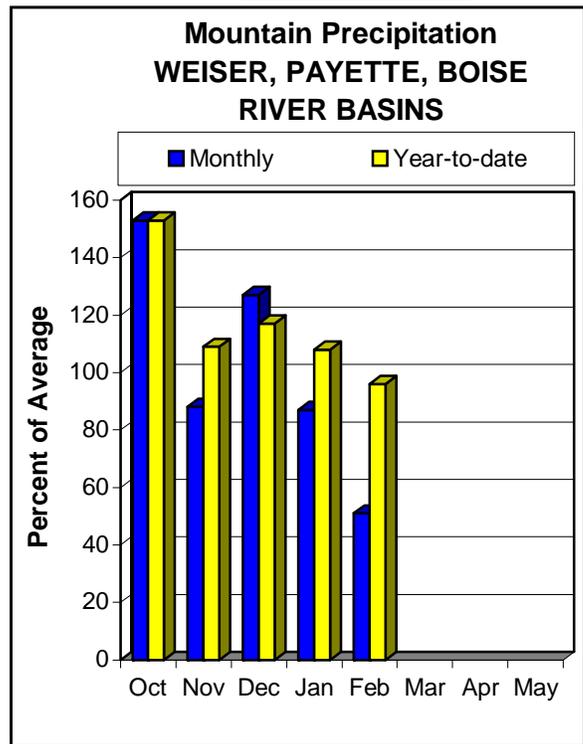
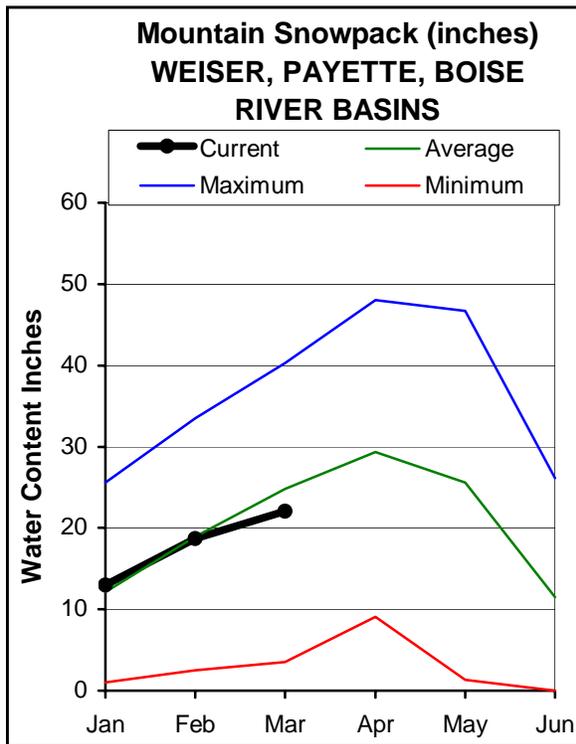
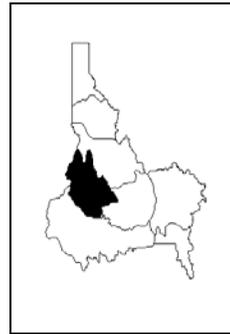
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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 flow - actual flow may be affected by upstream water management.

# WEISER, PAYETTE, BOISE RIVER BASINS MARCH 1, 2002



## WATER SUPPLY OUTLOOK

February precipitation in these west-central Idaho mountains ranged from 30-60% of average. Overall, precipitation in February in these basins was 51% of average and is 96% of average since October 1. Snow water content levels remain above normal in the lower elevations and Boise foothills and decreases to only 80% of average for several SNOTEL sites in the headwaters of the Boise, Payette and Big Wood rivers. Snow water content levels in the Weiser and Mann basins are near normal and have twice the amount of snow as last year. The North Fork Payette River is 96% of average while the South Fork Payette River is 88%; overall the Payette basin is 95% of average. The Boise basin snowpack ranges from 108% of average for Mores Creek to 89% for the Middle and North Forks of the Boise River. The Payette reservoir system is 47% full and should fill. The Payette River near Horseshoe Bend streamflow forecast is for 90% of average, down from last month. The Boise reservoir system is 41% full, up three percentage points from last month. Lucky Peak and Arrowrock reservoirs are projected to fill, but Anderson Ranch Reservoir is not projected to fill. The Boise River near Boise streamflow forecast is projected for 88% of average. Water supplies should be adequate in these basins.

WEISER, PAYETTE, BOISE RIVER BASINS  
Streamflow Forecasts - March 1, 2002

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg. (1000AF)				
		90% (1000AF)		70% (1000AF)			Chance Of Exceeding * 50% (Most Probable) (% AVG.)		30% (1000AF) 10% (1000AF)	
WEISER near Weiser (1)	APR-SEP	204	337	397	95	457	590	420		
SF PAYETTE at Lowman	APR-JUL	289	334	365	83	396	441	438		
	APR-SEP	328	379	414	84	449	500	494		
DEADWOOD RESERVOIR Inflow (1,2)	APR-JUL	88	108	118	88	128	148	134		
	APR-SEP	93	115	125	88	135	157	142		
LAKE FORK PAYETTE near McCall	APR-JUL	63	71	77	91	83	92	85		
	APR-SEP	65	74	80	90	86	95	89		
NF PAYETTE at Cascade (1,2)	APR-JUL	316	414	459	94	504	602	488		
	APR-SEP	346	452	500	94	548	654	530		
NF PAYETTE nr Banks (2)	APR-JUL	422	515	578	90	641	734	643		
	APR-SEP	454	553	621	90	689	788	690		
PAYETTE nr Horseshoe Bend (1,2)	APR-JUL	1042	1322	1449	90	1576	1856	1610		
	APR-SEP	1136	1441	1580	90	1719	2024	1755		
BOISE near Twin Springs (1)	APR-JUL	426	526	572	90	618	718	636		
	APR-SEP	461	570	620	90	670	779	691		
SF BOISE at Anderson Ranch Dam (1,2)	APR-JUL	317	420	466	86	512	615	542		
	APR-SEP	342	451	500	86	549	658	579		
MORES CREEK near Arrowrock Dam	APR-JUL	91	114	129	99	144	167	131		
	APR-SEP	96	119	135	99	151	174	137		
BOISE near Boise (1,2)	APR-JUN	830	1020	1107	88	1194	1384	1258		
	APR-JUL	878	1130	1244	88	1358	1610	1414		
	APR-SEP	955	1221	1342	88	1463	1729	1526		

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

WEISER, PAYETTE, BOISE RIVER BASINS  
Watershed Snowpack Analysis - March 1, 2002

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	3.0	2.1	6.1	Mann Creek	2	180	110
CASCADE	693.2	345.3	416.6	438.3	Weiser River	5	202	108
DEADWOOD	164.0	53.7	93.0	88.5	North Fork Payette	8	199	95
ANDERSON RANCH	450.2	74.7	278.2	268.0	South Fork Payette	5	189	88
ARROWROCK	272.2	229.1	153.4	210.4	Payette Basin Total	14	190	94
LUCKY PEAK	293.2	112.9	109.6	120.4	Middle & North Fork Boise	6	179	89
LAKE LOWELL (DEER FLAT)	165.2	38.7	97.3	109.1	South Fork Boise River	9	172	96
					Mores Creek	5	158	108
					Boise Basin Total	16	168	98
					Canyon Creek	2	187	141

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

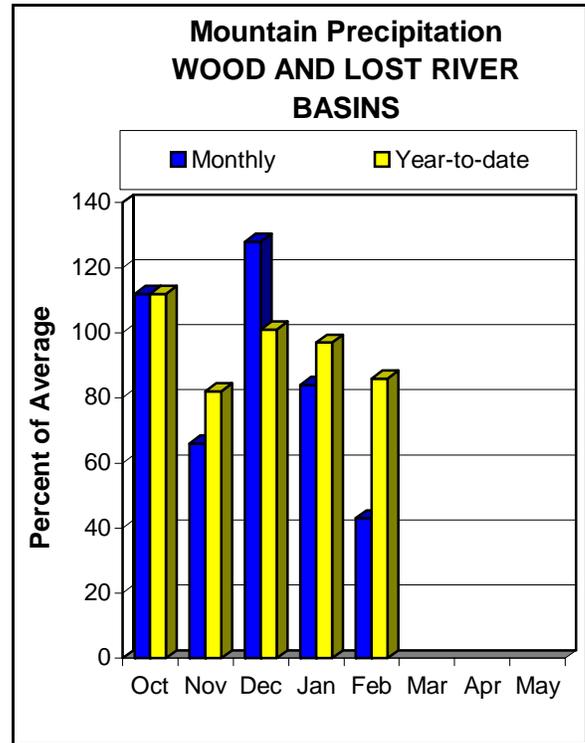
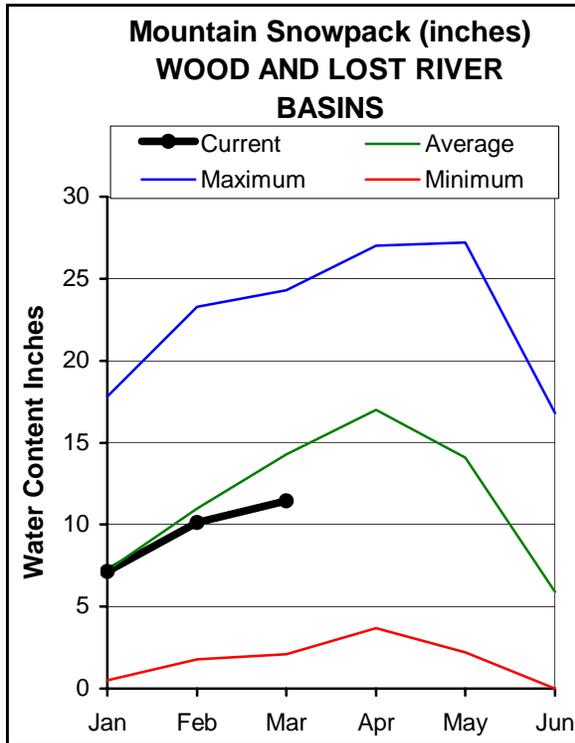
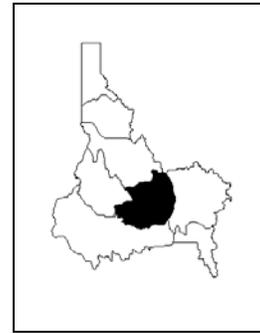
The average is computed for the 1971-2000 base period.

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

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

# WOOD and LOST RIVER BASINS

## MARCH 1, 2002



## WATER SUPPLY OUTLOOK

February precipitation was 43% of average, and as a result decreased the water year to date precipitation from 97% of average last month to its current value of 86%. Similarly, snowpack percentages decreased 10-20 percentage points from last month. Snowpacks now range from near normal in the Camas Creek basin to 76% of average in the Little Wood River basin. Other basins in these central Idaho mountains are about 82% of average. The current snow water content is only 67% of its normal peak that usually occur between March 1 and April 15. Magic Reservoir is nearly empty at 10% of capacity; the 50 Percent Exceedance Probability Forecast calls for 78% of average, and water supplies will be marginally adequate at best. Little Wood Reservoir is 37% full and with a streamflow projection of 78% should have adequate irrigation supplies for its users. Mackay Reservoir is half full, and with a Most Probable streamflow forecast of only 77% of average, may experience irrigation water supply shortages. The Little Lost River is projected at 84% of average, irrigation water shortages start occurring when streamflow is below average. Above normal precipitation is needed the next two months to provide additional streamflow for these water users that may experience water supply shortages.

WOOD AND LOST RIVER BASINS  
Streamflow Forecasts - March 1, 2002

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)		
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (% AVG.)			30% (1000AF) 10% (1000AF)	
BIG WOOD at Hailey (1)	APR-JUL	118	172	200	78	230	304	256		
	APR-SEP	134	195	226	78	260	342	289		
BIG WOOD near Bellevue	APR-JUL	74	111	141	75	174	229	188		
	APR-SEP	81	120	151	76	185	242	200		
CAMAS CREEK near Blaine	APR-JUL	44	65	81	82	99	129	99		
	APR-SEP	46	67	83	82	101	132	101		
BIG WOOD below Magic Dam (2)	APR-JUL	104	177	227	78	277	350	291		
	APR-SEP	112	188	240	78	292	368	307		
LITTLE WOOD near Carey (2)	MAR-JUL	41	61	75	78	89	109	96		
	MAR-SEP	45	67	81	78	95	117	104		
BIG LOST at Howell Ranch	APR-JUN	74	96	111	83	126	148	134		
	APR-JUL	87	120	143	83	166	199	172		
	APR-SEP	101	139	164	83	189	227	197		
BIG LOST below Mackay Reservoir (2)	APR-JUL	56	87	109	77	131	162	142		
	APR-SEP	73	109	133	77	157	193	173		
LITTLE LOST blw Wet Creek	APR-JUL	18.3	23	26	84	29	34	31		
	APR-SEP	23	29	33	84	37	43	39		

WOOD AND LOST RIVER BASINS Reservoir Storage (1000 AF) - End of February					WOOD AND LOST RIVER BASINS Watershed Snowpack Analysis - March 1, 2002			
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	18.8	48.2	89.7	Big Wood ab Hailey	8	151	82
LITTLE WOOD	30.0	11.2	16.9	17.7	Camas Creek	5	178	106
MACKAY	44.4	22.2	23.5	30.8	Big Wood Basin Total	12	158	89
					Little Wood River	5	113	76
					Fish Creek	3	163	97
					Big Lost River	7	129	82
					Little Lost River	4	139	81
					Birch-Medicine Lodge Cree	4	114	84
Camas-Beaver Creeks	4	153	93					

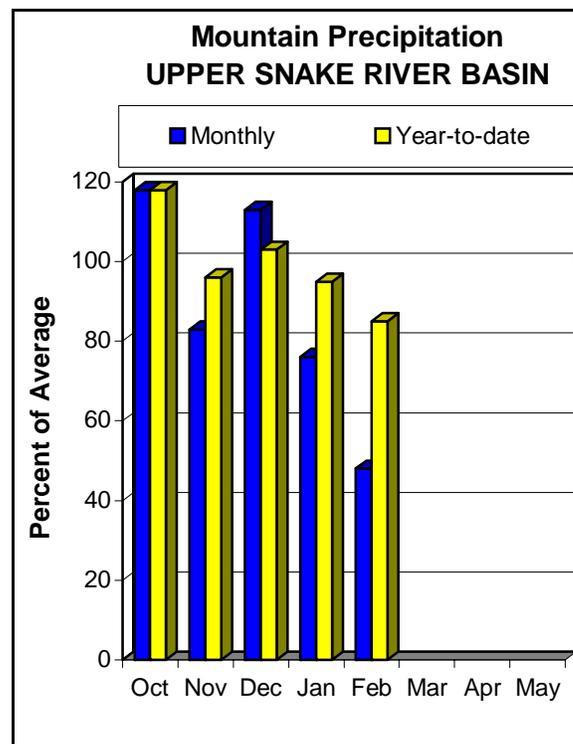
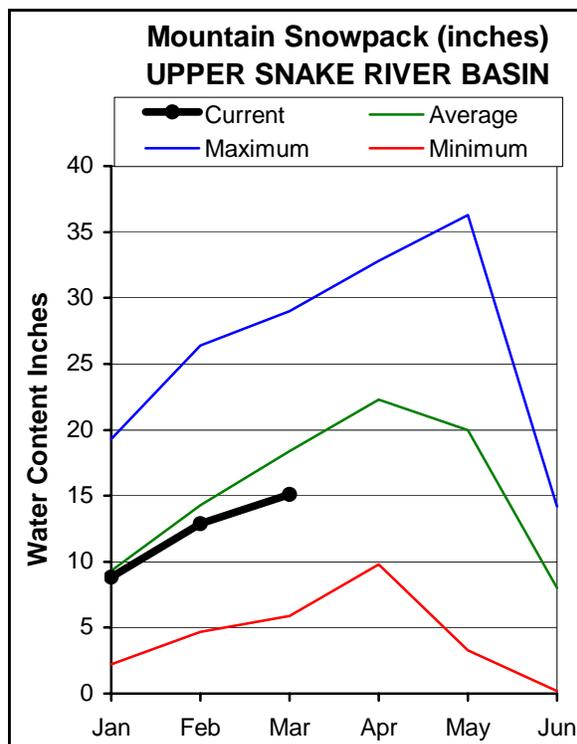
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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 flow - actual flow may be affected by upstream water management.

# UPPER SNAKE RIVER BASIN

## MARCH 1, 2002



## WATER SUPPLY OUTLOOK

Precipitation in February was 48% of average, the lowest month percentages since last August and September. Precipitation for the water year is 85% of average. Soil moisture deficits are probably still present as a result of the lack of fall rains. Several inches of snowmelt water may be needed to recharge the soil moisture profile, thus effectively reducing the runoff potential of this year's snowpack. Snowpack percentages decreased about 10 percentage points from last month and now range from 75-85% of average for these basins. The lowest snowpacks in the state are located in eastern Idaho and headwaters of the Snake River basin. The snow water content at Lewis Lake Divide SNOTEL in Yellowstone National Park is 74% of average. Out of 11 other years with similar snow water content on March 1, the snow has never returned to average by April 1. The best it has ended on April 1 of these 11 years is 90% of average. If no more snow falls this winter, snowpack in the Snake River above Palisades Reservoir basin would be only 59% of average mid-April, while the Henry's Fork and Teton basins would be 66% of average. Last year on April 1, the snowpack was about 55% of average. The combined storage for the 8 major reservoirs in the upper Snake basin is 46% full, 65% of average. This is about 1 million acre-feet less than a year ago. Streamflow forecasts decreased from a month ago and now range from 60-80% of average. Palisades and Jackson reservoirs will not fill based on these below normal projections. Surface irrigation supplies will be marginally adequate at best. Water users should be prepared for possible shortages and remain in contact with their local irrigation districts for more specific information.

UPPER SNAKE RIVER BASIN  
Streamflow Forecasts - March 1, 2002

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>				30-Yr Avg. (1000AF)		
		Chance Of Exceeding *		Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)		30% (1000AF)	10% (1000AF)
HENRYS FORK near Ashton (2)	APR-JUL	361	411	445	78	479	529	571
	APR-SEP	495	553	593	78	633	691	763
HENRYS FORK near Rexburg (2)	APR-JUL	712	873	982	63	1091	1252	1559
	APR-SEP	956	1137	1260	63	1383	1564	2013
FALLS near Squirrel (1,2)	APR-JUL	232	286	310	80	334	388	386
	APR-SEP	276	332	357	78	382	438	456
TETON near Driggs	APR-JUL	92	117	135	82	153	178	165
	APR-SEP	120	151	172	82	193	224	210
TETON near St. Anthony	APR-JUL	226	283	322	80	361	418	403
	APR-SEP	276	341	385	80	429	494	482
SNAKE near Moran (1,2)	APR-SEP	546	669	725	80	781	904	904
PACIFIC CREEK at Moran	APR-SEP	105	126	140	79	154	175	178
SNAKE above Palisades (2)	APR-JUL	1578	1767	1896	80	2025	2214	2370
	APR-SEP	1827	2042	2188	80	2334	2549	2735
GREYS above Palisades	APR-JUL	188	227	254	75	281	320	338
	APR-SEP	221	265	295	75	325	369	394
SALT near Etna	APR-JUL	172	226	263	77	300	354	342
	APR-SEP	216	280	323	77	366	430	419
PALISADES RESERVOIR INFLOW (1,2)	APR-JUL	1923	2364	2565	77	2766	3207	3331
	APR-SEP	2267	2757	2980	77	3203	3693	3875
SNAKE near Heise (2)	APR-JUL	2160	2485	2706	76	2927	3252	3561
	APR-SEP	2554	2921	3170	76	3419	3786	4159
BLACKFOOT RESV INFLOW	APR-JUN	49	72	87	73	102	125	120
SNAKE nr Blackfoot (1,2)	APR-JUL	2562	3365	3730	71	4095	4898	5262
	APR-SEP	3344	4220	4617	71	5014	5890	6538
PORTNEUF at Topaz	MAR-JUL	52	62	69	78	76	86	89
	MAR-SEP	64	76	84	77	92	104	109
AMERICAN FALLS RESV INFLOW (1,2)	APR-JUL	702	1574	1970	61	2366	3238	3242
	APR-SEP	685	1684	2138	61	2592	3591	3505

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

UPPER SNAKE RIVER BASIN  
Watershed Snowpack Analysis - March 1, 2002

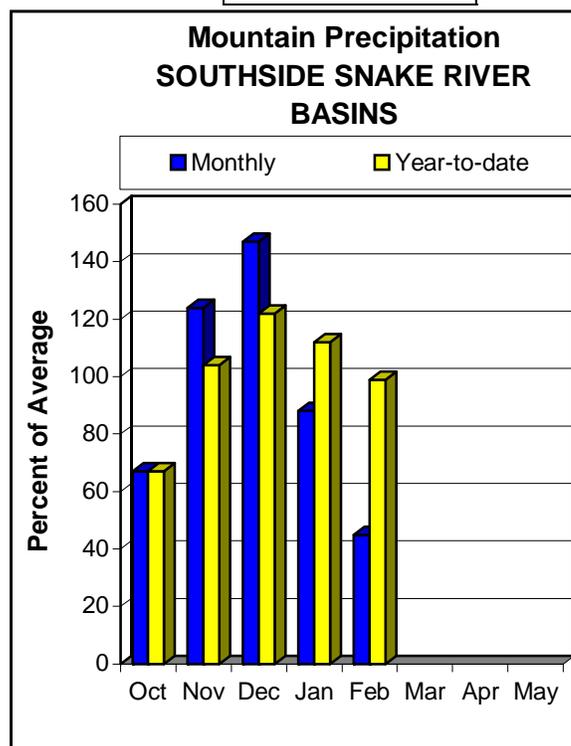
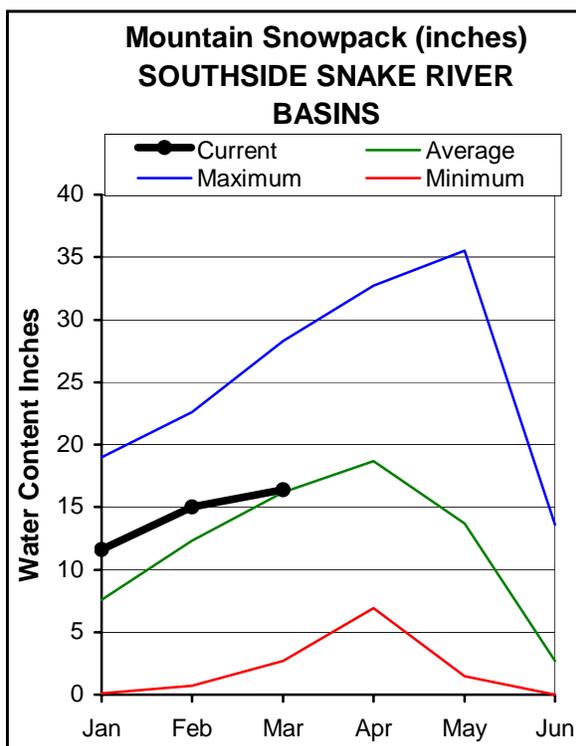
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
HENRYS LAKE	90.4	55.8	86.2	84.4	Henrys Fork-Falls River	12	151	85
ISLAND PARK	135.2	95.4	111.5	107.1	Teton River	8	112	74
GRASSY LAKE	15.2	9.6	12.8	12.0	Henrys Fork above Rexburg	20	135	81
JACKSON LAKE	847.0	153.4	638.3	494.0	Snake above Jackson Lake	9	136	76
PALISADES	1400.0	528.0	695.6	1033.1	Gros Ventre River	4	123	77
RIRIE	80.5	30.7	43.2	38.5	Hoback River	6	118	75
BLACKFOOT	348.7	110.9	210.1	224.7	Greys River	5	119	75
AMERICAN FALLS	1672.6	1127.1	1382.6	1271.1	Salt River	5	115	75
					Snake above Palisades	30	125	75
					Willow Creek	7	116	85
					Blackfoot River	5	125	77
					Portneuf River	6	138	81
					Snake abv American Falls	45	124	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow 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 flow - actual flow may be affected by upstream water management.

# SOUTHSIDE SNAKE RIVER BASINS MARCH 1, 2002



## WATER SUPPLY OUTLOOK

February precipitation was only 45% of average. As a result, water year to date precipitation has now dropped to 99% of average. Snowpack percentages also dropped 10-20 percentage points during February and now range from 105-110% of average in the Raft, Oakley, Salmon Falls and Bruneau basins. The low elevation Owyhee basin remains well above average at 132% of average, the highest since 1997. Warm temperatures or rain can rapidly melt this snowpack and may generate rapid increases in streamflows on the Owyhee River. Owyhee Reservoir is only 23% full and should have room to handle whatever Mother Nature delivers. Salmon Falls Reservoir remains nearly empty at 8% of capacity, inflows are forecast at 81% of average. Oakley Reservoir is 19% of capacity with inflows projected at 76% of average. There is still a good low elevation snowpack in the Oakley basin; ranchers are plowing snow in the pastures or moving cattle to open fields in order to feed them. This low elevation snow is not monitored by our snow survey network, but it will provide some runoff and help recharge the soil. The Snake River at Hells Canyon is forecast at 64% of average. Oakley and Salmon Falls water users should prepare for irrigation water shortages especially if spring precipitation is below normal like the last two years.

SOUTHSIDE SNAKE RIVER BASINS  
Streamflow Forecasts - March 1, 2002

Forecast Point	Forecast Period	<<==== Drier ===== Future Conditions ===== Wetter =====>>					30-Yr Avg. (1000AF)	
		90% (1000AF)		70% (1000AF)		Chance Of Exceeding * 50% (Most Probable) (% AVG.)		
		30% (1000AF)	10% (1000AF)					
OAKLEY RESV INFLOW	MAR-JUL	16.7	22	26	77	30	37	34
	MAR-SEP	18.2	24	28	76	33	40	37
OAKLEY RESV STORAGE	MAR-31	16.2	17.4	18.2	51	19.0	20	36
	APR-30	19.5	22	24	58	25	28	41
	MAY-31	18.9	23	26	58	29	33	45
SALMON FALLS CREEK nr San Jacinto	MAR-JUN	49	62	72	81	83	100	89
	MAR-JUL	50	64	75	81	87	105	93
	MAR-SEP	53	68	79	81	91	110	98
SALMON FALLS RESV STORAGE	MAR-31	16.5	21	24	34	27	31	70
	APR-30	27	33	37	42	41	47	89
	MAY-31	48	57	64	63	71	80	101
BRUNEAU near Hot Spring	MAR-JUL	143	185	216	91	250	304	237
	MAR-SEP	149	192	225	91	260	316	248
OWYHEE near Gold Creek (2)	MAR-JUL	19.8	27	32	100	38	48	32
OWYHEE nr Owyhee (2)	APR-JUL	43	68	84	102	101	125	82
OWYHEE near Rome	MAR-JUL	436	526	592	102	662	772	580
OWYHEE RESV INFLOW (2)	MAR-JUL	460	552	619	101	690	801	613
	MAR-SEP	489	582	649	101	720	832	643
SUCCOR CK nr Jordan Valley	MAR-JUL	7.1	12.9	16.9	100	21	27	16.9
SNAKE RIVER at King Hill (1,2)	APR-JUL			1840	60			3045
SNAKE RIVER near Murphy (1,2)	APR-JUL			1855	60			3092
SNAKE RIVER at Weiser (1,2)	APR-JUL			3630	63			5765
SNAKE RIVER at Hells Canyon Dam (1,2)	APR-JUL			4180	64			6493
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	12430	17429	19700	91	21971	26970	21550

SOUTHSIDE SNAKE RIVER BASINS Reservoir Storage (1000 AF) - End of February					SOUTHSIDE SNAKE RIVER BASINS Watershed Snowpack Analysis - March 1, 2002			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
OAKLEY	74.5	14.0	25.6	31.4	Raft River	6	152	109
SALMON FALLS	182.6	14.6	20.0	59.8	Goose-Trapper Creeks	5	185	110
WILDHORSE RESERVOIR	71.5	22.0	36.1	40.1	Salmon Falls Creek	5	141	99
OWYHEE	715.0	166.2	292.6	489.1	Bruneau River	8	149	107
BROWNLEE	1419.3	972.0	1308.0	1090.5	Owyhee Basin Total	20	173	132

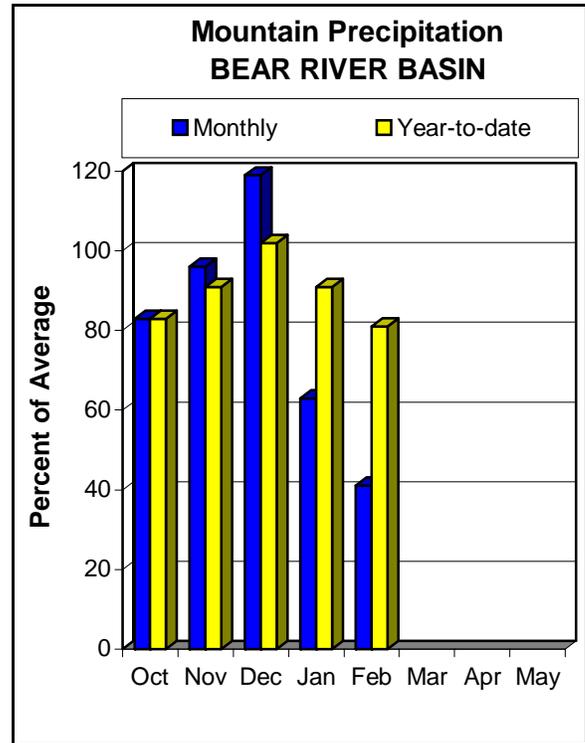
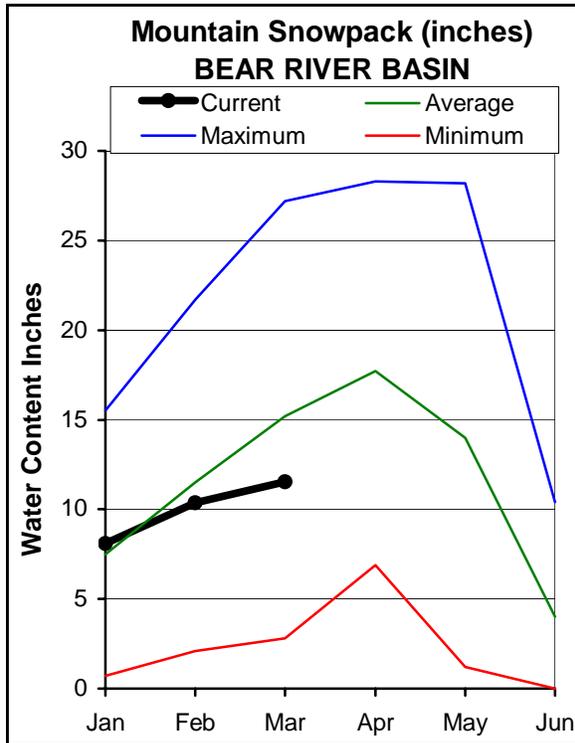
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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

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

# BEAR RIVER BASIN

## MARCH 1, 2002



## WATER SUPPLY OUTLOOK

February precipitation was the lowest in the state for the second consecutive month, only 41% of average. Precipitation for the water year dropped 10 percentage points from a month ago to 81% of average, also the lowest in the state. Snowpack percentages mirrored the lack of precipitation and decreased 10-20 percentage points during February. The snowpack percentages are some of the lowest in the state ranging from 72% of average in Montpelier Creek basin to 82% for Cub River basin. The Bear River basin snowpack above the Idaho-Utah state line is 75% of average. Trail Lake SNOTEL station, in the headwaters of the Bear River in Utah at 9,960 feet, is only 65% of average and has only half of its peak snow water content that occurs in mid-April. If no more snow falls in the Bear River basin, the snowpack would be 59% of average on April 1. Last year on April 1 the snowpack was only 45% of average. Storage in Bear Lake remains low at only 42% of capacity, 65% of average. Montpelier Creek Reservoir is 25% of capacity, 59% of average. Streamflow forecasts decreased significantly from last month and call for much below normal runoff volumes at only 42% of average for the Bear River below Stewart Dam. Bear Lake irrigators can expect water supply shortages, especially if future conditions remain dry. Irrigators should remain in contact with their local irrigation districts.

BEAR RIVER BASIN  
Streamflow Forecasts - March 1, 2002

Forecast Point	Forecast Period	Future Conditions						30-Yr Avg. (1000AF)	
		<<==== Drier =====		===== Wetter =====>>					
		90% (1000AF)	70% (1000AF)	Chance Of Exceeding * 50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)		
Bear R nr UT-WY State Line	APR-SEP	61	73	83	66	94	112	125	
BEAR R nr Woodruff, UT	APR-SEP	57	80	102	66	129	183	154	
BEAR R nr Randolph, UT	APR-JUL	1.0	35	63	55	91	132	115	
	APR-SEP	4.0	38	69	55	100	147	125	
SMITHS FK nr Border, WY	APR-JUL	40	49	57	56	66	81	102	
	APR-SEP	47	58	66	56	76	92	118	
THOMAS FK nr WY-ID State Line (Disc.	APR-JUL	Much Below Average							33
BEAR R blw Stewart Dam nr Montpelier	APR-JUL	16.0	78	120	42	162	224	288	
	APR-SEP	18.0	88	135	41	182	252	327	
MONTPELIER CK nr Montpelier (Disc)(2	APR-JUL	Much Below Average							12.2
CUB R nr Preston	APR-JUL	Much Below Average							47

BEAR RIVER BASIN Reservoir Storage (1000 AF) - End of February					BEAR RIVER BASIN Watershed Snowpack Analysis - March 1, 2002			
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	593.1	893.4	910.7	Smiths & Thomas Forks	4	113	74
MONTPELIER CREEK	4.0	1.0	1.4	1.7	Bear River ab WY-ID line	14	111	72
					Montpelier Creek	2	115	72
					Mink Creek	3	116	72
					Cub River	3	129	82
					Bear River ab ID-UT line	24	117	75
					Malad River	3	121	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow 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 flow - actual flow may be affected by upstream water management.

**Streamflow Adjustment List for All Forecasts Published in Idaho Water Supply Outlook Report:** streamflow forecasts are projections of runoff volumes that would occur without influences from upstream reservoirs or diversions. These values are referred to as natural, unregulated or adjusted flows. To make these adjustments, changes in reservoir storage, diversions, and inter-basin transfers are added or subtracted from the observed (actual) streamflow volumes. The following list documents the adjustments made for each forecast point. **(Revised Dec. 2005).**

#### **Panhandle River Basins**

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

#### **Clearwater River Basin**

Selway R nr Lowell - No Corrections  
Lochsa R nr Lowell - No Corrections  
Dworshak Resv Inflow, ID  
+ Clearwater R nr Peck, ID  
- Clearwater R at Orofino, ID  
+ Dworshak Resv (Storage Change)  
Clearwater R at Orofino, ID - No Corrections  
Clearwater R at Spalding, ID  
+ Dworshak Resv (Storage Change)

#### **Salmon River Basin**

Salmon R at Salmon, ID - No Corrections  
Lemhi R nr Lemhi, ID – No Corrections  
MF Salmon R at MF Lodge, ID – No Corrections  
Salmon R at White Bird, ID - No Corrections

#### **Weiser, Payette, Boise River Basins**

Weiser R nr Weiser, ID - No Corrections  
SF Payette R at Lowman, ID - No Corrections  
Deadwood Resv Inflow, ID  
+ Deadwood R blw Deadwood Resv nr Lowman  
+ Deadwood Resv (Storage Change)  
Lake Fork Payette R nr Mccall, ID – No Corrections  
NF Payette R at Cascade, ID  
+ Cascade Resv (Storage Change)  
+ Payette Lake (Storage Change)

NF Payette R nr Banks, ID  
+ Cascade Resv (Storage Change)  
+ Payette Lake (Storage Change)  
Payette R nr Horseshoe Bend, ID  
+ Cascade Resv (Storage Change)  
+ Deadwood Resv (Storage Change)  
+ Payette Lake (Storage Change)  
Boise R nr Twin Springs, ID - No Corrections  
SF Boise R at Anderson Ranch Dam, ID  
+ Anderson Ranch Resv (Storage Change)  
Boise R nr Boise, ID  
+ Anderson Ranch Resv (Storage Change)  
+ Arrowrock Resv (Storage Change)  
+ Lucky Peak Resv (Storage Change)

#### **Wood and Lost River Basins**

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

#### **Upper Snake River Basin**

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

Greys R abv Palisades, WY – No Corrections  
Salt R abv Palisades, WY – No Corrections  
Snake R nr Irwin, ID  
+ Jackson Lake (Storage Change)  
+ Palisades Resv (Storage Change)  
Snake R nr Heise, ID  
+ Jackson Lake (Storage Change)  
+ Palisades Resv (Storage Change)  
Willow Ck nr Ririe, ID  
+ Ririe Resv (Storage Change)  
Blackfoot Reservoir Inflow, ID  
+ Blackfoot Reservoir releases  
+ Blackfoot Resv (Storage Change)  
Snake R nr Blackfoot, ID  
+ Palisades Resv (Storage Change)  
+ Jackson Lake (Storage Change)  
+ Diversions from Snake R btw Heise and Shelly  
+ Diversions from Snake R btw Shelly and Blackfoot  
Portneuf R at Topaz, ID - No Corrections  
American Falls Resv Inflow, ID  
+ Snake River at Neeley  
+ All Corrections made for Henrys Fk nr Rexburg, ID  
+ Jackson Lake (Storage Change)  
+ Palisades Resv (Storage Change)  
+ Diversions from Snake R btw Heise and Shelly  
+ Diversions from Snake R btw Shelly and Blackfoot  
**Southside Snake River Basins**  
Oakley Resv Inflow, ID  
+ Goose Ck abv Trapper Ck  
+ Trapper Ck nr Oakley  
Salmon Falls Ck nr San Jacinto, NV - No Corrections  
Bruneau R nr Hot Springs, ID - No Corrections  
Owyhee R nr Gold Ck, NV  
+ Wildhorse Resv (Storage Change)  
Owyhee R nr Owyhee, NV  
+ Wildhorse Resv (Storage Change)  
Owyhee R nr Rome, OR – No Corrections  
Owyhee Resv Inflow, OR  
+ Owyhee R blw Owyhee Dam, OR  
+ Owyhee Resv (Storage Change)  
+ Diversions to North and South Canals  
Succor Ck nr Jordan Valley, OR - No Corrections  
Snake R at King Hill, ID - No Corrections  
Snake R nr Murphy, ID - No Corrections  
Snake R at Weiser, ID - No Corrections  
Snake R at Hells Canyon Dam, ID  
+ Brownlee Resv (Storage Change)  
**Bear River Basin**  
Bear R nr UT-WY Stateline, UT – No Corrections  
Bear R abv Resv nr Woodruff, UT – No Corrections  
Smiths Fork nr Border, WY - No Corrections  
Bear R blw Stewart Dam nr Montpelier, ID  
+ Bear R blw Stewart Dam  
+ Rainbow Inlet Canal

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

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists volumes for each reservoir, and defines the storage volumes NRCS uses when reporting capacity and current storage. In most cases, NRCS reports usable storage, which includes active and inactive storage. **(Revised Dec. 2005)**

<b><u>Basin/ Reservoir</u></b>	<b><u>Dead Storage</u></b>	<b><u>Inactive Storage</u></b>	<b><u>Active Storage</u></b>	<b><u>Surcharge Storage</u></b>	<b><u>NRCS Capacity</u></b>	<b><u>NRCS Capacity Includes</u></b>
<b><u>Panhandle Region</u></b>						
Hungry Horse	39.73	---	3451.00	---	3451.0	Active
Flathead Lake	Unknown	---	1791.00	---	1791.0	Active
Noxon Rapids	Unknown	---	335.00	---	335.0	Active
Pend Oreille	406.20	112.40	1042.70	---	1561.3	Dead+Inactive+Active
Coeur d'Alene	---	13.50	225.00	---	238.5	Inactive+Active
Priest Lake	20.00	28.00	71.30	---	119.3	Dead+Inactive+Active
<b><u>Clearwater Basin</u></b>						
Dworshak	---	1452.00	2016.00	---	3468.0	Inactive+Active
<b><u>Weiser/Boise/Pavette Basins</u></b>						
Mann Creek	1.61	0.24	11.10	---	11.1	Active
Cascade	---	46.70	646.50	---	693.2	Inactive+Active
Deadwood	---	---	161.90	---	161.9	Active
Anderson Ranch	24.90	37.00	413.10	---	450.1	Inactive+Active
Arrowrock	---	---	272.20	---	272.2	Active
Lucky Peak	---	28.80	264.40	13.80	293.2	Inactive+Active
Lake Lowell	7.90	5.80	159.40	---	165.2	Inactive+Active
<b><u>Wood/Lost Basins</u></b>						
Magic	Unknown	---	191.50	---	191.5	Active
Little Wood	---	---	30.00	---	30.0	Active
Mackay	0.13	---	44.37	---	44.4	Active
<b><u>Upper Snake Basin</u></b>						
Henrys Lake	---	---	90.40	---	90.4	Active
Island Park	0.40	---	127.30	7.90	135.2	Active+Surcharge
Grassy Lake	---	---	15.18	---	15.2	Active
Jackson Lake	Unknown	---	847.00	---	847.0	Active
Palisades	44.10	155.50	1200.00	---	1400.0	Dead+Inactive+Active
Ririe	4.00	6.00	80.54	10.00	80.5	Active
Blackfoot	---	---	348.73	---	348.7	Active
American Falls	---	---	1672.60	---	1672.6	Active
<b><u>Southside Snake Basins</u></b>						
Oakley	---	---	75.60	---	75.6	Active
Salmon Falls	48.00	5.00	182.65	---	182.6	Active+Inactive
Wildhorse	---	---	71.50	---	71.5	Active
Owyhee	406.83	---	715.00	---	715.0	Active
Brownlee	0.45	444.70	975.30	---	1420.0	Inactive+Active
<b><u>Bear River Basin</u></b>						
Bear Lake	5.0 MAF	119.00	1302.00	---	1421.0	Active+Inactive: includes 119 that can be released
Montpelier Creek	0.21	---	3.84	---	4.0	Dead+Active

## Interpreting Water Supply Forecasts

### Introduction

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

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

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

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

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

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

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

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

**30-Year Average.** The 30-year average streamflow for each forecast period is provided for comparison. The average is based on data from 1971-2000. The % AVG. column compares the 50% chance of exceedance forecast to the 30-year average streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year average streamflow.

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

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

### To Decrease the Chance of Having Less Water than Planned for

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

### To Decrease the Chance of Having More Water than Planned for

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

### Using the forecasts - an Example

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

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

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

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

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

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

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

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

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