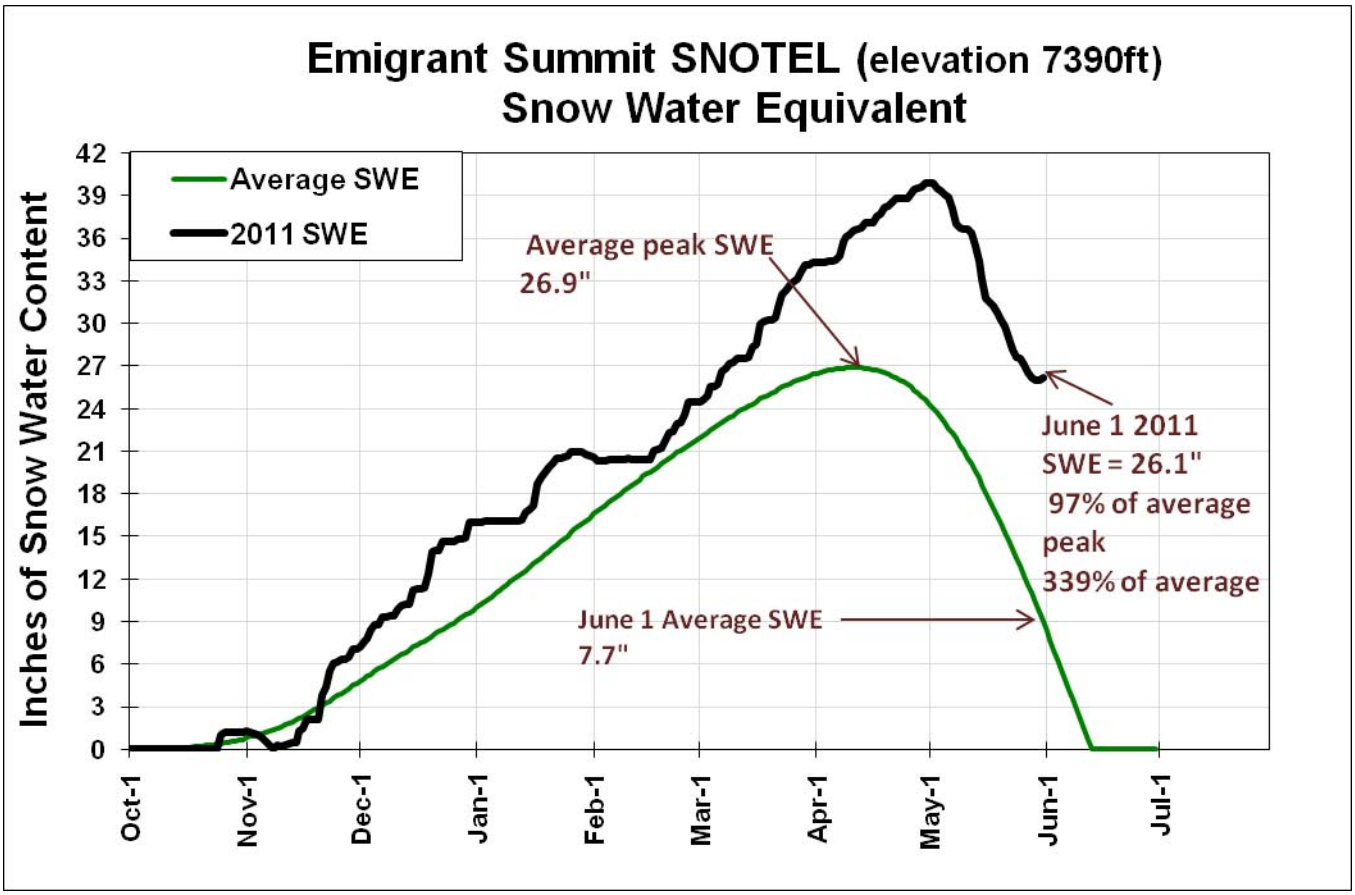
United States Department of Agriculture
Natural Resources Conservation Service

Idaho Water Supply Outlook Report
June 1, 2011



Emigrant SNOTEL site has had above average snow water equivalent (SWE) all year long and the Bear River basin has some of the highest snowpacks on record. Since unseasonably cool temperatures caused snowpacks to linger unusually late in the season, the terminology in this report switches from "percent of average" to "percent of peak". By switching the terminology, water users can compare the current snowpack to how much snow is present in an average winter. Once the 30 year average drops in the low numbers such as shown above, the percent of average results in numbers topping out in the thousands state wide, which can be confusing. At Emigrant SNOTEL, the SWE is "97% of the average peak" SWE, indicating that a typical winter's worth of snowmelt is yet to come. At this point, how the snow melts is more of a concern than the amount. Consecutive hot days or rain on the melting high snowpack will cause higher waters in already swollen creeks and rivers. The best case scenario would be moderate temperatures to slowly melt the snowpack and no more precipitation so farmers can finally plant.

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 county 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/

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

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when 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. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

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

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

IDAHO WATER SUPPLY OUTLOOK REPORT

June 1, 2011

SUMMARY

The strong La Nina weather pattern that dominated our weather all winter has brought unseasonably cool temperatures this spring and added another month or two of snowfall to Idaho's mountains and slowed snowmelt in May. The result is one of the deepest June 1 snowpacks ever measured in Idaho. The situation has provided more than enough water for all and created a potentially threatening runoff season. High damaging flows can still occur across most of the state since deep snowpacks are still present. The greatest concerns are in the Upper Snake and Bear River basins where flooding is occurring and will continue to occur as the high elevation snow melts.

Late peaking snowpacks are an anomaly and it's important to understand how it impacts Idaho's water supply and runoff picture. In an average year up to about two-thirds of the snowpack melts during April and May. In fact that's the reason streamflow forecasts throughout the winter reference the April-July and April-September runoff period. This year April's streamflow was only half of average in the headwater streams because cool temperatures prevented snowmelt. Despite continued cool temperatures in May, streamflows were above average but the peaks on most rivers are still to come. Looking forward not only do we have more snow than normal, but it will melt and run off in a shorter time period. The streamflow forecasts in this month's report are for the June-July and June-September periods and represent the residual runoff amounts left in the snowpack. Streamflow forecasts increased from last month and range from a low of 120-130% of average in the Salmon, Payette, Boise, Camas, Little Wood, Big Lost drainages to near 200% of average in the Teton, Salt, Owyhee, Salmon Falls and NF Coeur d'Alene drainages, and a high of 318% for the Bear River below Stewart Dam. More water in less time means volumes will be much greater than normal.

From this point, Idaho needs the right combination of future weather to relieve the pressure when the remaining higher elevation snow melts. The best case scenario would be for continued cooler than normal temperatures, not record breaking heat, combined with dry weather for the rest of June. Moderate temperatures would allow the snow to continue melting at less than an inch a day; if melt rates increase to 1-2 inches a day the streams will also increase accordingly until more snow melts in the higher elevations.

SNOWPACK

On June 1, about 80 SNOTEL sites in Idaho and the watersheds that drain into the state were at or near record high June 1 snow water content levels. Another 30 sites were either melted out or at non-records for June 1. A few snow measuring stations are actually just reaching their peak snow water content amounts for the season; these include Two Ocean Plateau and Grand Targhee SNOTEL sites in the Snake River headwaters. June 1 snowpack percentages are high and should be used with caution as explained on the cover of this report. Snow indexes based on 10 sites in the Bear River show the snowpack is nearly twice the previous record high June 1 level that was measured in 1983. Similarly, the Teton basin snowpack records start in 1981, and this year's snow is higher than the previous maximum that occurred in 1983. The 18 station snow index in the Salmon River is the 2nd highest; only 1982, which is the year the records begin, had more snow water on June 1. Salmon Falls snowpack is also the 2nd highest; only 1984 had more snow on June 1. All June 1 snow indexes are available at this link for comparison to past years: http://www.id.nrcs.usda.gov/snow/data/historic.html#snoindex

PRECIPITATION

May's weather pattern continued the trend of March and April by pumping above average precipitation amounts across most of Idaho. This has been the pattern for the past three months, March, April and May. The pattern also featured a slight precipitation hole centered in Idaho's central mountains; where precipitation was less than other basins in January, April and May. This hole has actually turned into good news as it will provide a bit of high water relief for the Wood and Lost basins as the remaining snow melts. May precipitation amounts were 90-100% of average in the Big Lost and Little Wood basins, while the highest amounts were 170-180% of average in Salmon Falls, Goose Creek and Owyhee basins. The Bear River, Bruneau, eastern Idaho and Upper Snake in Wyoming, Boise and Weiser basins received 150-160%. Amounts were 115-140% of average in the Panhandle, Clearwater, Salmon, Payette, Big Wood and Little Lost basins. Normal May precipitation amounts range from 2 to 5 inches across the state with the higher amounts in northern Idaho. With four months still to go this water year, 14 of Idaho's 21 major basins have already received their normal annual precipitation amounts since the start of the water year on October 1, 2010. The lowest amounts are in the headwaters streams in Idaho's central mountains at 85-95% of their normal annual totals while Idaho's southern basins have received the most at 115-140% of their annual amounts.

RESERVOIRS

Reservoir operators are managing the delicate balance between high inflows and safe outflows. They must ensure flood storage space is maintained until the peak runoff is past and that the impacts to downstream communities are minimized. Operators must also consider hydropower production and levees in their decision making process. Dworshak and Palisades reservoirs were nearly drained in anticipation of the high runoff. This year Bear Lake saw its second greatest November-May increase in storage since records begin in 1922, and could fill by fall. Bear Lake gained 400,000 acre-feet, second only to 1945-1946 when it increased 420,000 acre-feet between November and May. The lingering drought effects in the Bear basin may finally be over. Salmon Falls Reservoir is storing 133,700 acre-feet, capacity is 182,600 acre-feet and could still come close to filling if the 10% Chance Exceedance Forecast of 57,000 acre-feet for the June-July period occurs. Oakley Reservoir is in a similar situation with 25,000 acre-feet left to fill and a 10% Chance of Exceedance Forecast of 20,000 acre-feet; keep in mind the simple calculations to not include releases for irrigation demand during the June-July period. Magic and Little Wood reservoirs are 90-95% full, while Mackay is 59% full. Owyhee is full and passing inflow. Coeur d'Alene and Priest lakes are 176% and 129% of their summer capacities respectively and are passing inflows until the snowmelt streamflow peaks occur. One additional note, the NRCS will be assisting the Army Corps of Engineers and Bureau of Reclamation in June on snowline reconnaissance flights to determine the final fill of Dworshak, as well as, reservoirs in the Boise and Upper Snake projects.

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

STREAMFLOW

Streamflow forecasts reflect the unusually high June 1 snowpacks and call for near record high June-September volumes in parts of the Upper Snake, Bear and Spokane rivers. The Teton River near Driggs is forecast at 285,000 acre-feet, 186% of average, same as 1997's runoff; the Snake River near Heise is forecast at 171% of average, just 200,000 acre-feet less than the 1997 volume. The Bear River below Stewart Dam is forecast at 430,000 acre-feet, 312% of average for June-September, which is the same record high volume amount that occurred in 1983; records start in 1927. The Spokane River near Post

Falls is forecast at 1,750,000 acre-feet, 226% of average, the third highest since 1914 and only exceeded by 1974 and 1916. Idaho's southern streams are forecast at 175-210% of average, these include: Goose, Salmon Falls, Bruneau and Owyhee. The lowest June-September forecasts are 115-125% of average in the Little Wood and Big Lost basins. June – September residual runoff is forecast at 135-155% of average for the Boise, Payette, Salmon and Clearwater streams. The Kootenai River and Pend Oreille Lake inflow are forecast at 145% and 177% of average, respectively.

Users need to understand these regression forecasts rely on a limited number of years with such large June 1 snowpacks. Even so the equations are generally still reliable when the regression lines are extrapolated beyond the bulk of the observed data. Since the cool and wet trend is still present users should consider using the 30% and 10% Chance of Exceedance Forecast volumes to base their decisions on if it is not too late. Water decision makers should also be aware of the Daily Water Supply Forecast equations on this page:
http://www.id.nrcs.usda.gov/snow/watersupply/daily_guidance.html
These daily forecasts track the changing water supply conditions and are performing very well. These graphs display all five chance of exceedance Forecasts. The "User Info" graphs also display cumulative flow to help users compare forecasted values with observed runoff.

Note: Forecasts published in this report are NRCS forecasts. Jointly coordinated published forecasts by the USDA NRCS and the NOAA NWS are available from the joint west-wide Water Supply Outlook for the Western US at http://www.wcc.nrcs.usda.gov/wsf/westwide.html .The volumes referenced in these narratives are the 50% Chance of Exceeding Forecast, unless otherwise noted. Users may wish to use a different forecast to reduce their risk of having too much or too little water.

RECREATION

River runners waiting for peak flows to pass will have to wait a little longer. Above normal precipitation has continued adding to the already huge snowpacks while cool temperatures slowed the melt. Higher elevation snow measuring sites in the Upper Snake in Wyoming are just now reaching their peak snow water content. Here is what we know so far… Snow melt driven streamflow peaks have occurred in the Owyhee, Weiser and Camas Creek near Fairfield and most other lower elevation drainages across the state. Based on analysis of snowmelt driven peak flows and the amount of remaining snow, peak flows will not occur until the latter half of June for the Teton River and other tributaries fed from high elevation basins. With over 50 inches of snow water at several sites in the Bear River, those peak flows have not occurred yet. Streams with their headwaters in Idaho's central mountains (Big Wood, Big Lost, SF Boise, MF Salmon and SF Salmon) and other rivers across the state will see another increase from the remaining snow. Numerous factors will determine if the next peaks exceed the previous peaks.

The potential for extreme flows can't be overstated because of the enormous June 1 snowpacks and the continued wet weather pattern. Cooler than normal temperatures, without more precipitation, are needed for another four weeks to gradually melt the snow and keep rivers relatively well behaved. Hot temperatures or rain during this critical time period when the snow is receding and soils are saturated, will send a flush of water down many streams and generate big flows. For current information on these snowmelt streamflow relationship analyses, view the snow-stream graphs and streamflow graphs on this page: http://www.id.nrcs.usda.gov/snow/watersupply/peakflow.html If you can wait until after the peak flows have occurred, there will be an extended river running season that will provide family friendly floating levels well into the summer months.

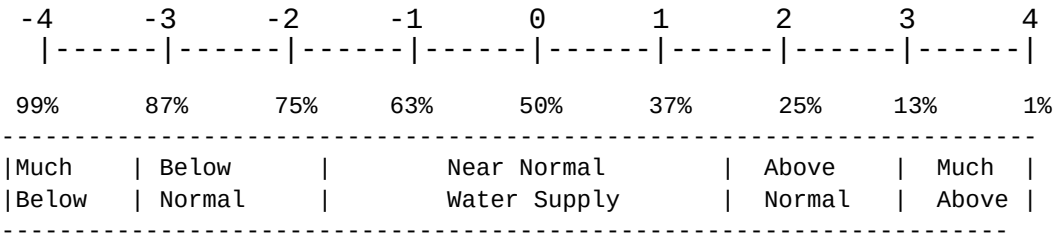
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) June 1, 2011

The Surface Water Supply Index (SWSI) is a predictive indicator of surface water availability within a watershed for the spring and summer water use season. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow. SWSI values are scaled from +4.0 (abundant supply) to -4.0 (extremely dry), with a value of zero indicating a median water supply as compared to historical occurrences. The SWSI analysis period is from 1971 to present.

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

BASIN or REGION	***SWSI Value***	***Most Recent Year With Similar SWSI Value***	***Agricultural Water Supply Shortage May Occur When SWSI is Less Than***
Northern Panhandle	3.7	1999	NA
Spokane	3.7	2008	NA
Clearwater	2.4	1976	NA
Salmon	2.4	1983	NA
Weiser	2.0	1993	NA
Payette	2.4	1997	NA
Boise	1.6	1986	-2.4
Big Wood	2.3	1984	-1.0
Little Wood	1.0	2009	-2.2
Big Lost	1.5	2009	-0.2
Little Lost	3.0	1982	0.4
Teton	4.0	1997	NA
Henrys Fork	4.0	1997	-3.4
Snake (Heise)	3.7	1997	-1.6
Oakley	2.6	2006	-0.8
Salmon Falls	3.5	1971/1972	-1.6
Bruneau	3.5	1971	NA
Owyhee	3.3	1998	-3.0
Bear River	1.1	1973	-3.7

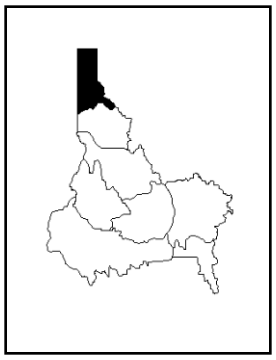
SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION

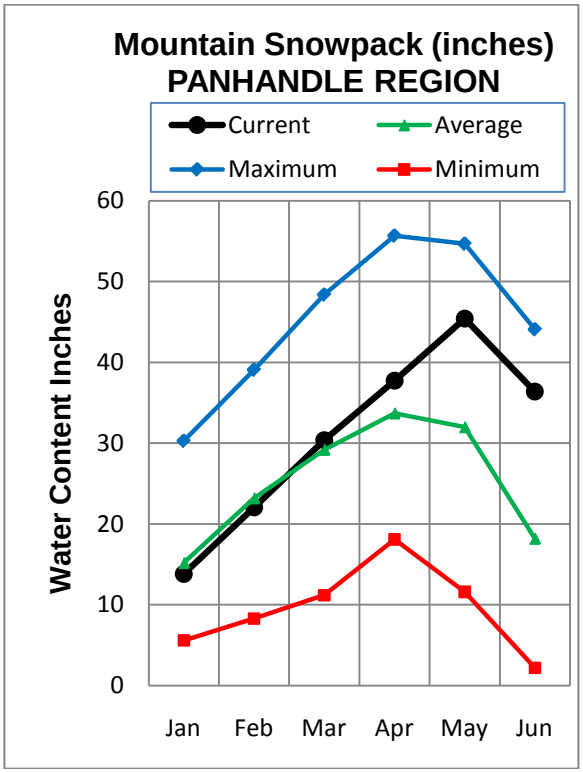


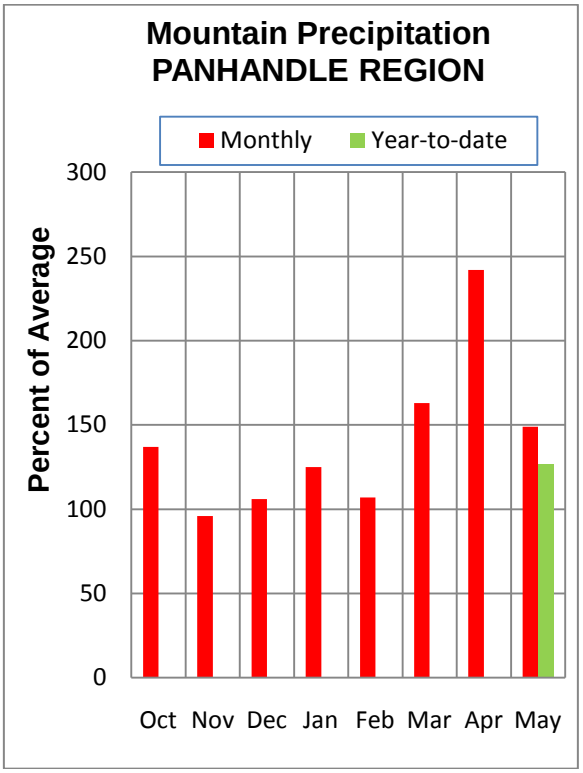
NA = Not Applicable, Note: The Percent Chance of Exceedance is an indicator of how often a range of SWSI values might be expected to occur. Each SWSI unit represents about 12% of the historical occurrences. As an example of interpreting the above scale, the SWSI can be expected to be greater than -3.0, 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

JUNE 1, 2011







WATER SUPPLY OUTLOOK

It depends on which basin you look at in Idaho, who you talk to or which report you are referring to as to whether or not it is a record snowpack year. For example, 1997 had a higher peak snow amount than this year. 1997's snow melted faster than this year which means this year's June 1 snowpack has broken the late season snow record since measurements start in the early 1980s. There is still as much snow today as their usually is at the peak of a normal winter in mid-April. This year's long-lasting, deep snowpack is posing a threat for more flooding and extended high streamflows this summer. Heavy rains in late May increased the monthly precipitation amount to 138% of average. The saturated conditions and full creeks have led to numerous flood warnings for the St. Joe, Spokane and St. Marie's rivers and the threat is not over as 7 feet or more of snow is left in the high country. The ideal situation would be cooler temperatures to slowly melt the snowpack, gradually decreasing the risk of flooding. Streamflow forecasts for the July-September period range from 145% of average for the Kootenai River and up to 210% for the St. Joe River.

PANHANDLE REGION
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Kootenai R at Leonia (1,2)	JUN-JUL	5127	5720	5990	153	6260	6853	3920
	JUN-SEP	6209	6932	7260	145	7588	8311	5000
Moyie River at Eastport	JUN-JUL	221	247	265	183	283	309	145
	JUN-SEP	237	266	285	178	304	333	160
Smith Ck nr Porthill	JUN-JUL	85	96	104	208	112	124	50
	JUN-SEP	89	104	114	204	124	139	56
Boundary Ck nr Porthill	JUN-JUL	65	74	80	174	86	95	46
	JUN-SEP	71	81	88	169	95	105	52
Clark Fork at Whitehorse Rpds (1,2)	JUN-JUL	9212	9960	10300	183	10640	11388	5620
	JUN-SEP	10604	11495	11900	176	12305	13196	6750
Pend Oreille Lake Inflow (2)	JUN-JUL	10225	10806	11200	183	11594	12175	6120
	JUN-SEP	11728	12426	12900	177	13374	14072	7280
Priest R nr Priest River (1,2)	JUN-JUL	425	495	525	181	555	625	290
	JUN-SEP	470	550	590	171	630	710	345
NF Coeur d'Alene R at Enaville	JUN-JUL	312	337	355	223	373	398	159
	JUN-SEP	349	380	400	202	420	451	198
St. Joe R at Calder	JUN-JUL	748	812	855	225	898	962	380
	JUN-SEP	833	900	945	210	990	1057	450
Spokane R nr Post Falls (2)	JUN-JUL	1446	1532	1590	236	1648	1734	675
	JUN-SEP	1556	1672	1750	226	1828	1944	775
Spokane R at Long Lake (2)	JUN-JUL	1660	1755	1820	217	1885	1980	840
	JUN-SEP	1907	2040	2130	201	2220	2353	1060

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNGRY HORSE	3451.0	1749.0	2999.0	2588.0
FLATHEAD LAKE	1791.0	1506.0	1531.0	1499.2
NOXON RAPIDS	335.0	326.8	323.7	313.6
PEND OREILLE	1561.3	588.2	1243.9	1333.1
COEUR D'ALENE	238.5	418.8	229.0	270.4
PRIEST LAKE	119.3	153.6	126.4	138.5

PANHANDLE REGION
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Kootenai ab Bonners Ferry	8	257	231
Moyie River	1	291	227
Priest River	2	246	224
Pend Oreille River	44	227	226
Rathdrum Creek	1	0	0
Hayden Lake	0	0	0
Coeur d'Alene River	4	686	304
St. Joe River	4	333	203
Spokane River	9	454	253
Palouse River	1	0	0

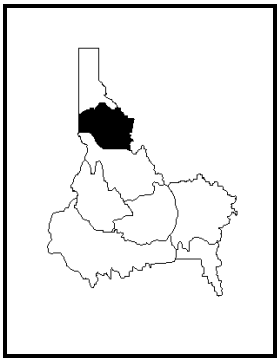
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

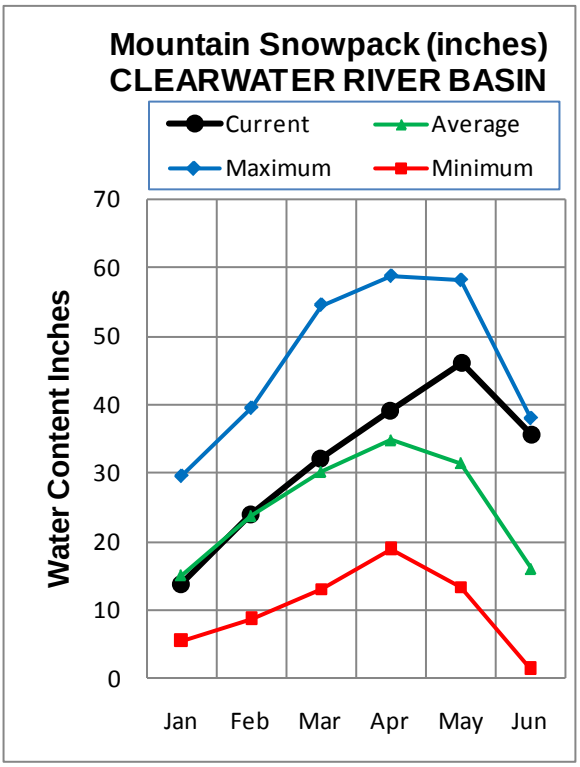
The average is computed for the 1971-2000 base period.

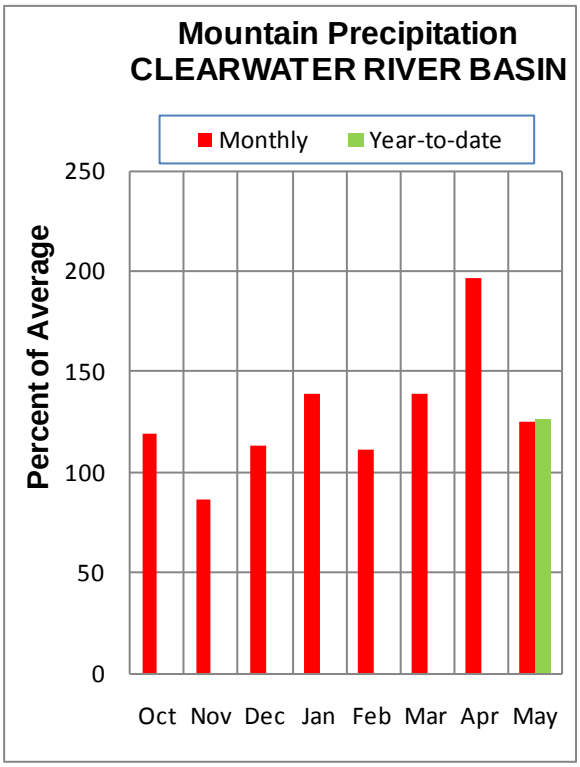
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

CLEARWATER RIVER BASIN

JUNE 1, 2011







WATER SUPPLY OUTLOOK

It is hard not to notice the cool and wet trends that have occurred the past few springs. Both this past May and last May brought about 125% of average precipitation. Like last year, the cool temperatures have caused a delayed snowmelt. Based on the 13 station Clearwater snow index, the June 1 snow water content is the highest since records start in 1984. To illustrate the affect that the cool temperatures are having, May 1 of this year was not a record; 1972 was the highest followed by 1997. Now on June 1, the Clearwater snowpack is 221% of average and still has 98% of the seasonal peak which usually occurs in mid-April. Water managers and river runners are watching the situation closely to see how the remaining snow runs off from the mountains to the rivers. Cool temperatures would provide the ideal snowmelt scenario by producing a slow melt, while hot temperatures and/or additional rains would lead to a rapid melt and higher streamflow peaks than we have seen thus far this year. The Selway, Lochsa, Dworshak inflow and Clearwater rivers are forecast at 138-146% of average for the June-September period. Dworshak Reservoir is 80% of average and 71% of capacity and is not expected to fill until late June or early July.

CLEARWATER RIVER BASIN
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Selway R nr Lowell	JUN-JUL	1120	1250	1330	141	1410	1540	945
	JUN-SEP	1220	1360	1450	138	1540	1680	1050
Lochsa R nr Lowell	JUN-JUL	800	885	945	144	1000	1090	655
	JUN-SEP	870	965	1030	140	1090	1190	735
Dworshak Res Inflow (1,2)	JUN-JUL	1150	1330	1420	148	1510	1690	960
	JUN-SEP	1320	1530	1630	146	1730	1940	1120
Clearwater R at Orofino (1)	JUN-JUL	2100	2540	2740	139	2940	3380	1970
	JUN-SEP	2330	2830	3060	138	3290	3790	2220
Clearwater R at Spalding (1,2)	JUN-JUL	3250	3920	4220	143	4520	5190	2960
	JUN-SEP	3650	4410	4750	141	5090	5850	3370

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DWORSHAK	3468.0	2468.9	3115.1	3085.8

CLEARWATER RIVER BASIN
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
North Fork Clearwater	8	363	224
Lochsa River	2	1081	304
Selway River	4	312	213
Clearwater Basin Total	14	363	224

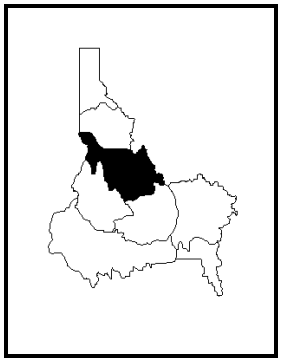
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

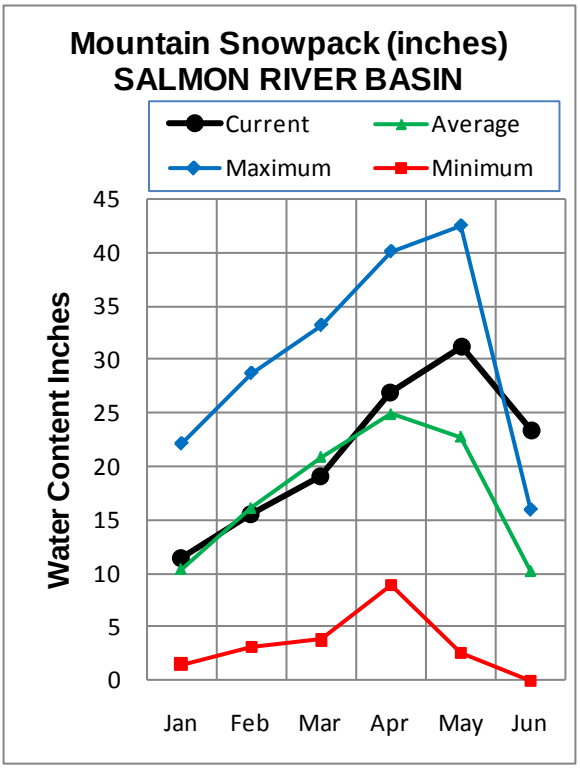
The average is computed for the 1971-2000 base period.

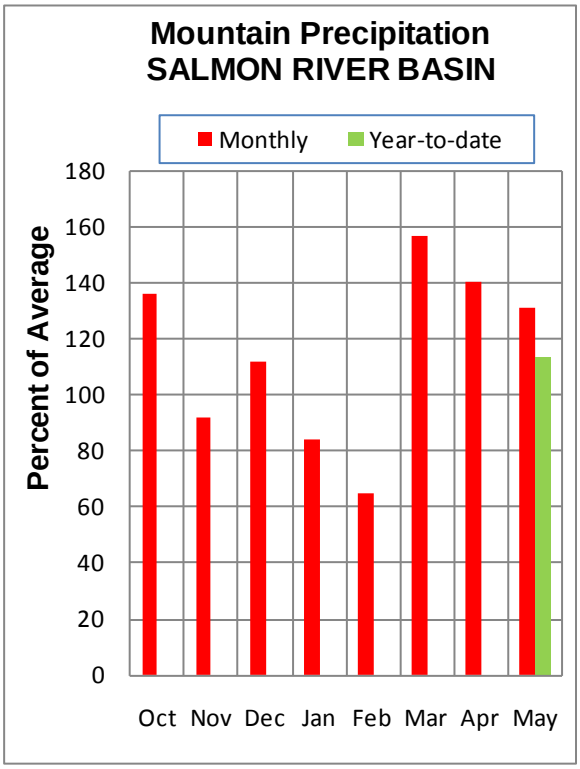
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

SALMON RIVER BASIN

JUNE 1, 2011







WATER SUPPLY OUTLOOK

Cool temperatures and delayed snowmelt has made the June 1 snowpack second highest on record since 1982, even though on April 1 it was not near record. This snowpack is still holding on to 85% of the normal seasonal snow water peak that usually occurs in mid-April. May precipitation was 131% of average in the basin, while the water year-to-date precipitation is 113% of average. Streamflow volume forecasts increased again from last month and now range from 130% of average for the Salmon River near Salmon up to 150% of average for the MF Salmon River for the June-September period. Determining peak streamflows is a challenge this year as there aren't many other years with this much June snow. We can say that since Banner Summit and Big Creek Summit SNOTEL sites are not half melted yet there is a potential for higher flows on the MF and SF Salmon rivers. Getting on the Middle Fork would be a hard anyways since the Boundary Creek road is not open yet. River runners should use caution as additional rain or hot temperatures will also generate rapid flow increases until more of the snowpack melts.

SALMON RIVER BASIN
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Salmon R at Salmon (1)	JUN-JUL	615	685	715	135	745	815	530
	JUN-SEP	755	845	885	132	925	1020	670
Lemhi R nr Lemhi	JUN-JUL	61	69	74	142	80	88	52
	JUN-SEP	85	96	103	145	111	123	71
MF Salmon R at MF Lodge	JUN-JUL	575	635	675	152	715	775	445
	JUN-SEP	665	740	790	149	840	915	530
SF Salmon R nr Krassel RS	JUN-JUL	155	176	190	133	204	225	143
	JUN-SEP	188	204	215	131	226	242	164
Johnson Ck at Yellow Pine	JUN-JUL	126	140	150	134	160	174	112
	JUN-SEP	152	165	173	137	181	194	126
Salmon R at White Bird (1)	JUN-JUL	3710	4270	4530	141	4790	5350	3220
	JUN-SEP	4350	5020	5320	138	5620	6290	3850

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

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

SALMON RIVER BASIN
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Salmon River ab Salmon	7	181	185
Lemhi River	6	157	267
Middle Fork Salmon River	3	268	187
South Fork Salmon River	3	282	187
Little Salmon River	4	745	801
Salmon Basin Total	23	237	234

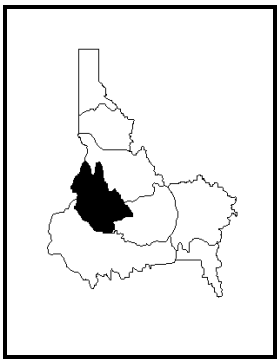
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

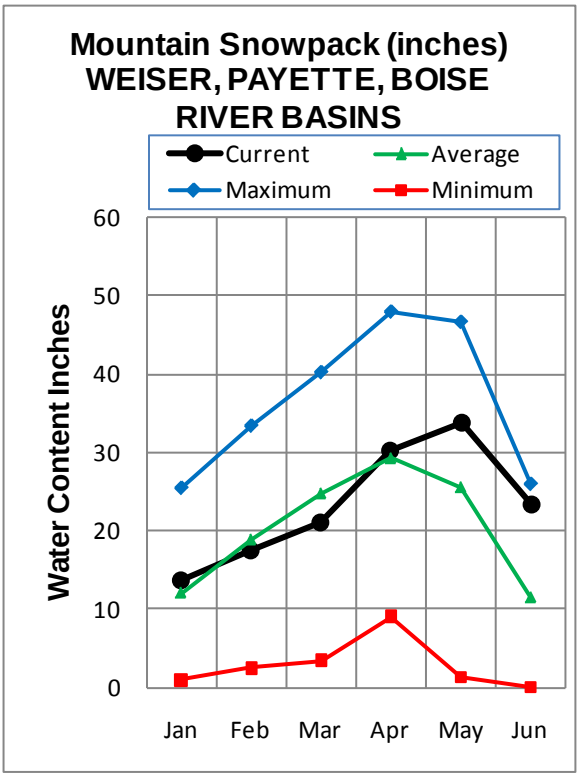
The average is computed for the 1971-2000 base period.

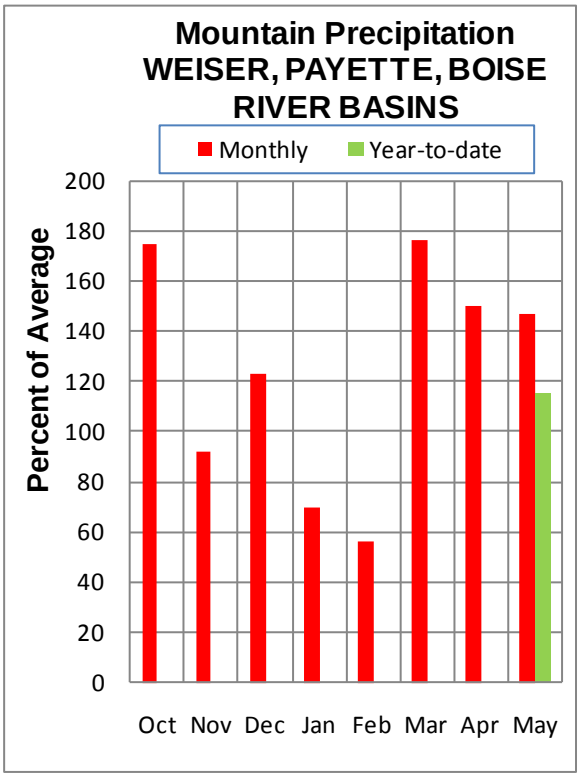
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

WEISER, PAYETTE, BOISE RIVER BASINS

JUNE 1, 2011







WATER SUPPLY OUTLOOK

The National Weather Service reported that this spring has been the coolest since 1984 at the Boise airport. Cool temperature in the mountains has caused snow to melt much slower than normal, elevating the late season percent of average numbers to stratospheric levels. A more meaningful way to summarize snowpacks this month is to compare them to the normal seasonal peak values, which generally occur two months ago in April. The Weiser basin's snow is still 57% of its average peak, while the Boise and Payette basins still have 77% of their average peak snow amounts. June's snow is the greatest on record since 1982 when records begin in the Weiser basin (5 times more than the next biggest in 1999), second greatest in the Payette and third greatest in the Boise. These rankings support the claim that this spring has been so cool. Precipitation in May was 147% of average, the third month in a row with precipitation near 150% or better. Water year precipitation since October 1 is 115% of average. The cool temperatures have been perfect to allow reservoir operators to create space in the Boise and Payette reservoir systems. Releases from Lucky Peak reservoir have held the Boise River at bank full since early April dropping reservoir levels upstream to 76% of capacity. Releases have also been made from Cascade and Deadwood reservoirs which are 75% of capacity. June-September forecasts predict 129-181% of average streamflow with peak snowmelt flows still to come on most rivers. The Weiser could see another streamflow peak if temperatures increase while there is still significant snow; it is doubtful that this peak would exceed the previous peaks though. As always, future temperatures and precipitation will determine the timing and magnitude of peak flows in the unregulated rivers in the Payette and Boise drainages.

WEISER, PAYETTE, BOISE RIVER BASINS
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Weiser R nr Weiser (1)	JUN-JUL	97	136	155	141	176	225	110
	JUN-SEP	128	169	189	136	210	260	139
SF Payette R at Lowman	JUN-JUL	305	330	345	141	360	390	245
	JUN-SEP	365	395	415	138	435	465	300
Deadwood Res Inflow (1,2)	JUN-JUL	95	105	109	165	113	123	66
	JUN-SEP	104	116	121	164	126	138	74
Lake Fk Payette R nr McCall	JUN-JUL	55	62	67	149	72	80	45
	JUN-SEP	57	64	69	144	74	83	48
NF Payette R at Cascade (1,2)	JUN-JUL	270	315	335	156	355	400	215
	JUN-SEP	285	335	355	151	375	425	235
NF Payette R nr Banks (2)	JUN-JUL	310	365	405	153	445	500	265
	JUN-SEP	335	395	435	150	475	535	290
Payette R nr Horseshoe Bend (1,2)	JUN-JUL	885	1010	1070	151	1130	1250	710
	JUN-SEP	1040	1170	1230	148	1290	1420	830
Boise R nr Twin Springs (1)	JUN-JUL	370	405	420	150	435	470	280
	JUN-SEP	435	475	495	148	515	555	335
SF Boise R at Anderson Ranch (1,2)	JUN-JUL	245	280	295	131	310	345	225
	JUN-SEP	280	315	335	129	355	390	260
Mores Ck nr Arrowrock Dam	JUN-JUL	44	52	58	181	64	74	32
	JUN-SEP	51	60	67	181	74	85	37
Boise R nr Boise (1,2)	JUN-JUL	725	795	825	146	855	925	565
	JUN-SEP	850	930	965	142	1000	1080	680

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MANN CREEK	11.1	11.0	11.0	10.5
CASCADE	693.2	507.3	635.2	588.6
DEADWOOD	161.9	134.8	135.0	139.0
ANDERSON RANCH	450.2	376.6	400.7	388.7
ARROWROCK	272.2	174.7	150.3	191.9
LUCKY PEAK	293.2	225.3	284.8	242.3
LAKE LOWELL (DEER FLAT)	165.2	148.0	150.2	133.5

WEISER, PAYETTE, BOISE RIVER BASINS
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Mann Creek	1	314	0
Weiser River	3	719	8340
North Fork Payette	6	484	295
South Fork Payette	4	250	193
Payette Basin Total	11	338	253
Middle & North Fork Boise	5	227	177
South Fork Boise River	6	182	153
Mores Creek	2	291	301
Boise Basin Total	10	201	176
Canyon Creek	1	0	0

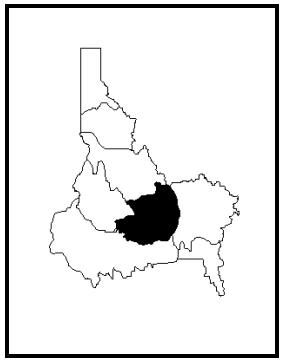
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

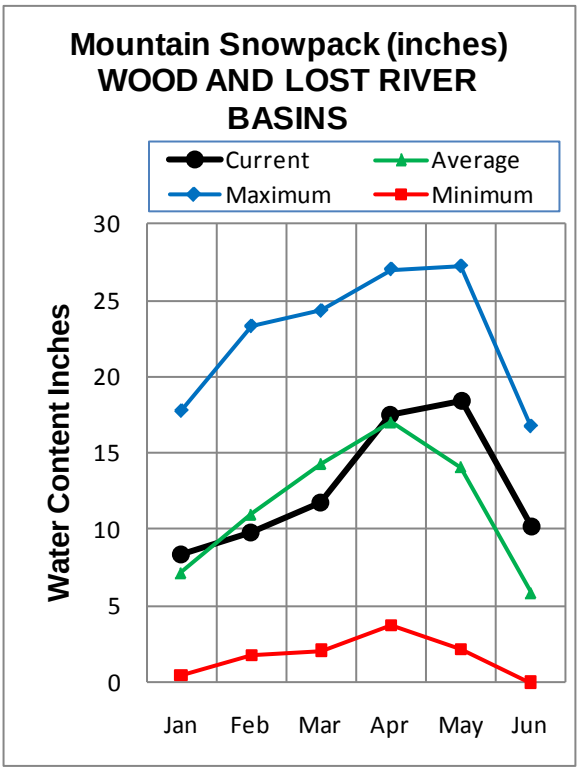
The average is computed for the 1971-2000 base period.

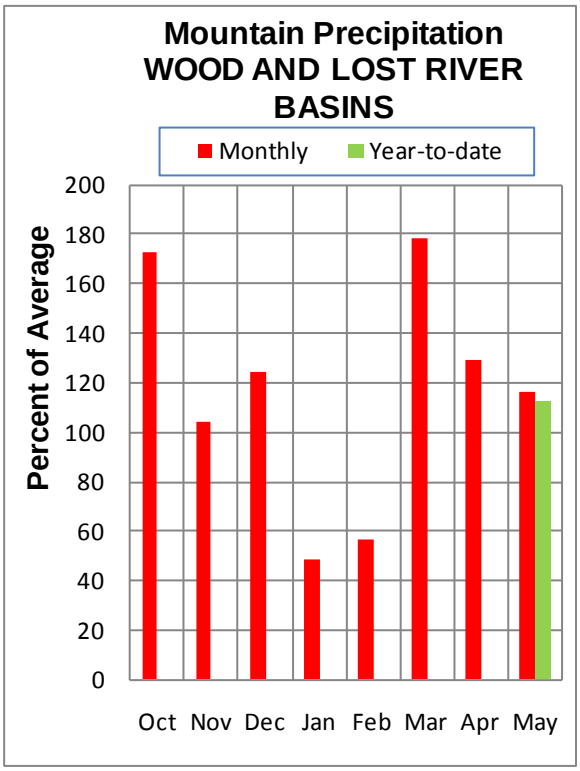
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

WOOD and LOST RIVER BASINS

JUNE 1, 2011







WATER SUPPLY OUTLOOK

Temperatures in May were unseasonably cool, but still warm enough to melt significant amounts of snow. The slow snow melt has been ideal to limit high water and give reservoir operators time to adjust levels after an extra month of snow accumulation in April and three months of above normal precipitation from March to May. May's precipitation was 116% of normal, lowest monthly precipitation in the state. Water year to date precipitation since October 1 stands at 112% of average. June 1 snow amounts are high compared to average due to low melt rates. Since 1982 the Little Wood basin has only had more snow on June 1 once before in 1995. Other basins are 4th or 5th highest since 1982. The Big Wood basin still has 61% of its average seasonal snow peak and the Little Lost basin has 75% of its average peak. Summer streamflow forecasts call for volumes of 115-162% of normal for the June-September period. Reservoir levels as a percent of capacity are: Magic 96%, Mackay 59% and Little Wood 90%. Above normal snow and a wet spring will provide plenty of water to all users, the question this year is when and how big will the rivers peak? To date only Camas Creek has peaked. The Big Wood snowmelt runoff model is currently predicting a peak in mid-June based on average snow melt rates. The Big Lost River generally peaks four days after Lost-Wood Divide SNOTEL melts-out. If this rule plays out, this year's stream peak may not occur until the second half of June or later if temperatures remain below normal. Reservoir operators should continue to monitor precipitation and snowmelt and adjust outflows accordingly. If temperatures spike above normal in early June there is plenty of snow to increase river flows until more snow melts.

WOOD AND LOST RIVER BASINS
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Big Wood R at Hailey (1)	JUN-JUL	164	196	210	146	225	255	144
	JUN-SEP	200	240	255	144	270	310	177
Big Wood R ab Magic Res	JUN-JUL	134	152	165	162	178	196	102
	JUN-SEP	153	174	188	162	200	225	116
Camas Ck nr Blaine	JUN-JUL	9.1	13.0	16.0	121	19.3	25	13.2
	JUN-SEP	10.6	14.8	18.0	129	22	27	14.0
Big Wood R bl Magic Dam (2)	JUN-JUL	143	166	181	159	196	220	114
	JUN-SEP	166	189	205	158	220	245	130
Little Wood R ab High Five Ck	JUN-JUL	28	34	39	118	44	52	33
	JUN-SEP	32	40	45	115	51	60	39
Little Wood R nr Carey (2)	JUN-JUL	25	32	37	116	42	49	32
	JUN-SEP	33	41	46	118	51	59	39
Big Lost R at Howell Ranch	JUN-JUL	108	128	142	125	157	180	114
	JUN-SEP	135	160	178	128	197	227	139
Big Lost R bl Mackay Res	JUN-JUL	99	110	117	122	124	135	96
	JUN-SEP	133	147	157	124	167	181	127
Little Lost R nr Howe	JUN-JUL	21	24	26	144	28	32	18.1
	JUN-SEP	28	32	35	135	38	43	26

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
MAGIC	191.5	184.5	130.9	154.1
LITTLE WOOD	30.0	27.0	27.3	27.4
MACKAY	44.4	26.2	43.3	34.9

WOOD AND LOST RIVER BASINS
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Big Wood ab Hailey	7	195	161
Camas Creek	2	0	0
Big Wood Basin Total	9	195	161
Fish Creek	0	0	0
Little Wood River	4	1192	330
Big Lost River	4	0	132
Little Lost River	3	226	249
Birch-Medicine Lodge Cree	2	158	302
Camas-Beaver Creeks	2	0	225

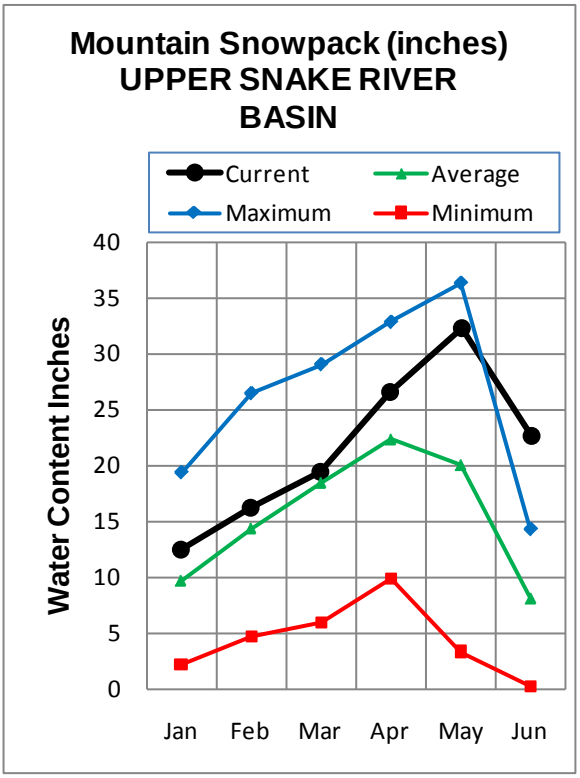
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

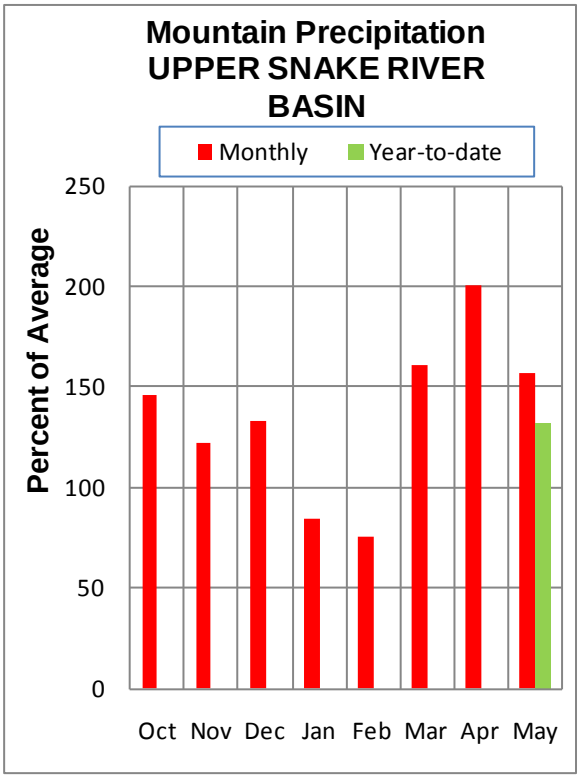
The average is computed for the 1971-2000 base period.

(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.
(3) - Median value used in place of average.

UPPER SNAKE BASIN

JUNE 1, 2011





WATER SUPPLY OUTLOOK

The Upper Snake's snowpack finally peaked the first week of May at 140% of its normal seasonal peak that usually occurs in mid-April. This is one of the all-time deepest snowpacks ever measured in the basin. Unseasonably cool temperatures since the peak have caused the snow to melt much slower than normal. This is highlighted when you compare 1997 to this year. 1997 actually peaked slightly higher than 2011 but this June's snowpack is more than twice the June 1997 amount. The Upper Snake's snowpack is almost three times its average amount for June 1 and is still 92% of its normal peak amount. In other words most of this winter's snow remains on the ground and the snowmelt that has occurred so far is only a fraction of what is left to come. May precipitation at 157% of normal and is the third month in a row with more than one and a half times the average amount. Water year to date precipitation since October 1 stands at 132% of average. Jackson Lake and Palisades reservoirs have been drafted to 43% and 37% of capacity respectively. Water District #1 provided the following information in a recent update, "Releases from Palisades Reservoir are currently 23,000 cfs. River discharges near Heise, Rexburg, Shelley and Blackfoot are expected to stay near or above flood stage for the next month. Jackson Lake releases are expected to decrease to 5,000 cfs this week, which will allow for a greater amount of empty space in Palisades Reservoir." They also mention that outflows from Island Park and Ririe are expected to decrease a few hundred cfs to match inflows, but these decreases are not expected to give much relief to downstream flooding since the Falls and Teton rivers have not peaked yet. Streamflow forecasts for the June-September period are 128-227% of average. Water District #1 recommends "canals with the facilities to divert water from the main river without aggravating other flooded areas… to divert as much water as possible to help relieve the current downstream flooding and also provide recharge during this plentiful runoff supply."

UPPER SNAKE RIVER BASIN
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Henrys Fk nr Ashton (2)	JUN-JUL	295	325	350	143	375	410	245
	JUN-SEP	485	530	565	128	600	650	440
Falls R nr Ashton (2)	JUN-JUL	270	310	335	168	365	410	199
	JUN-SEP	355	400	435	161	470	520	270
Teton R nr Driggs	JUN-JUL	183	200	215	199	230	250	108
	JUN-SEP	240	265	285	186	305	330	153
Teton R nr St. Anthony	JUN-JUL	405	445	470	196	500	540	240
	JUN-SEP	515	565	595	186	630	680	320
Henrys Fork nr Rexburg (2)	JUN-JUL	1190	1260	1300	157	1340	1410	830
	JUN-SEP	1740	1820	1880	147	1940	2020	1280
Snake R at Flagg Ranch	JUN-JUL	460	495	515	181	535	570	285
	JUN-SEP	525	560	585	175	610	645	335
Snake R nr Moran (1,2)	JUN-JUL	730	800	835	170	870	940	490
	JUN-SEP	835	925	965	166	1010	1090	580
Pacific Ck at Moran	JUN-JUL	162	181	194	194	205	225	100
	JUN-SEP	177	197	210	198	225	245	106
Buffalo Fork ab Lava nr Moran	JUN-JUL	355	380	400	178	420	445	225
	JUN-SEP	435	470	490	183	510	545	268
Gros Ventre R at Kelly	JUN-JUL	143	177	210	177	225	255	119
	JUN-JUL	143	177	210	177	225	255	119
Snake R ab Res nr Alpine (1,2)	JUN-JUL	2190	2370	2450	167	2530	2710	1470
	JUN-SEP	2620	2850	2960	161	3070	3300	1840
Greys R nr Alpine	JUN-JUL	340	355	365	194	375	390	188
	JUN-SEP	420	440	455	186	470	490	245
Salt R nr Etna	JUN-JUL	350	380	405	250	430	460	162
	JUN-SEP	470	515	545	227	575	620	240
Snake R nr Irwin (1,2)	JUN-JUL	3080	3350	3470	178	3590	3860	1950
	JUN-SEP	3840	4140	4280	171	4420	4720	2500
Snake R nr Heise (2)	JUN-JUL	3320	3510	3640	178	3770	3960	2050
	JUN-SEP	4150	4380	4530	171	4680	4910	2650
Willow Ck nr Ririe (2)	JUN-JUL	30	35	38	190	41	46	20
Snake R nr Blackfoot (1,2)	JUN-JUL	4180	4590	4770	179	4950	5360	2670
	JUN-SEP	5610	6020	6200	168	6380	6790	3690
Portneuf R at Topaz	JUN-JUL	57	63	67	181	71	77	37
	JUN-SEP	87	95	101	184	107	116	55
Snake R at Neeley (1,2)	JUN-JUL	1856	2581	2950	178	3343	4297	1660
	JUN-SEP	2585	3428	3850	186	4297	5366	2070

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HENRYS LAKE	90.4	87.9	89.4	89.2
ISLAND PARK	135.2	116.5	134.2	132.8
GRASSY LAKE	15.2	15.1	15.3	14.4
JACKSON LAKE	847.0	366.8	741.1	572.6
PALISADES	1400.0	511.6	1137.9	1033.6
RIRIE	80.5	77.6	69.1	70.3
BLACKFOOT	348.7	325.7	248.7	287.8
AMERICAN FALLS	1672.6	1618.4	1447.5	1476.1

UPPER SNAKE RIVER BASIN
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
Henrys Fork-Falls River	5	318	235
Teton River	2	425	282
Henrys Fork above Rexburg	7	334	243
Snake above Jackson Lake	5	321	261
Pacific Creek	2	260	254
Gros Ventre River	3	264	277
Hoback River	5	480	323
Greys River	4	256	299
Salt River	3	322	413
Snake above Palisades	18	318	298
Willow Creek	2	0	0
Blackfoot River	2	0	0
Portneuf River	3	6925	2518
Snake abv American Falls	27	337	294

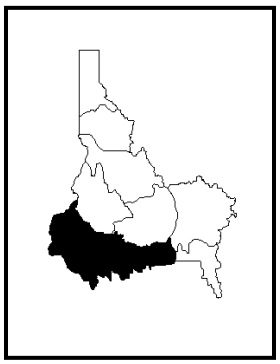
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

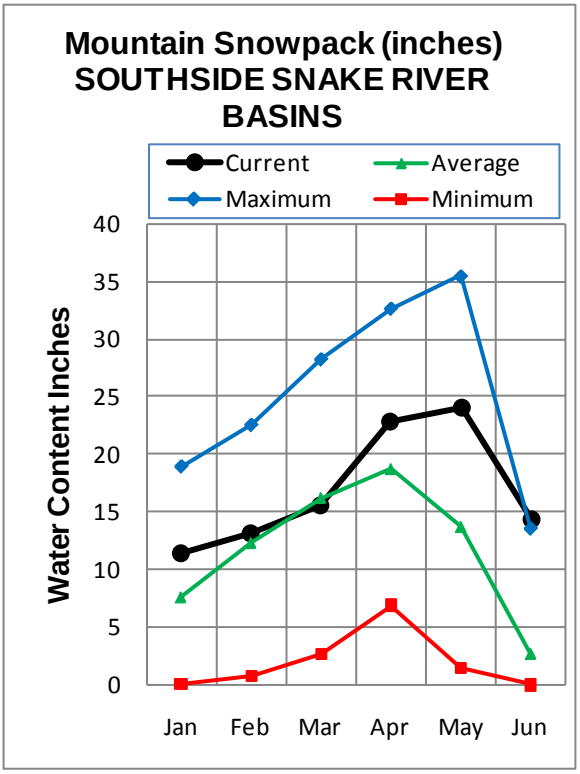
The average is computed for the 1971-2000 base period.

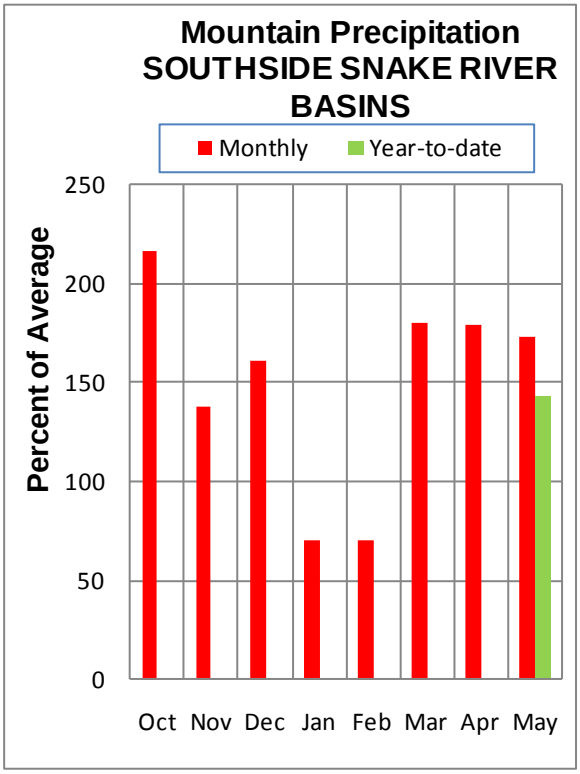
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

SOUTHSIDE SNAKE RIVER BASINS

JUNE 1, 2011







WATER SUPPLY OUTLOOK

Only 1984 had more snow linger into June than what is present this year in the Southside basins. Snow accumulated through April and then cooler than normal temperatures in May have delayed snowmelt so much that Salmon Falls and Bruneau basins still have about 70% of their normal peak snow water amounts remaining to melt. May precipitation was 173% of average for the month, a trend repeated every month since March. Water year to date precipitation since October first is 143% of average. Up and down temperatures created multiple streamflow peaks thus far in all basins. The Bruneau River has been fluctuating around flood stage repeatedly this spring. Chances of another peak on the Bruneau are good as Bear Creek SNOTEL's melt has been on and off so far this spring and a lot of snow remains. If temperatures warm up before the site is half melted another peak is likely. Salmon Falls Creek may also have another peak since Pole Creek SNOTEL is only about 20% melted and Salmon Falls Creek often peaks when it is 35% melted. The Owyhee has already seen its peak, and there isn't enough snow left to drive the river that high again unless it is rain driven. Most summer streamflow volume forecasts range from 155-203% for the June-September period. Storage continues to increase in Oakley and Salmon Falls reservoirs but for either reservoir to fill it would take the 10% chance of exceedance forecast streamflow volume. Owyhee Reservoir is already full and passing inflows. No shortages will occur this year, just a surplus which will provide for adequate supplies for not only this year but also next's year's irrigation season.

SOUTHSIDE SNAKE RIVER BASINS
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Goose Ck ab Trapper Ck nr Oakley	JUN-JUL	10.2	11.6	12.6	0	13.6	15.0	0.0
	JUN-SEP	13.0	14.6	15.7	0	16.8	18.4	0.0
Trapper Ck nr Oakley	JUN-JUL	3.3	3.6	3.8	0	4.0	4.3	0.0
	JUN-SEP	5.2	5.6	5.9	0	6.2	6.6	0.0
Oakley Res Inflow	JUN-JUL	9.6	12.3	14.3	174	16.5	19.9	8.2
	JUN-SEP	14.3	17.6	20	177	23	27	11.3
Salmon Falls Ck nr San Jacinto	JUN-JUL	34	40	45	188	50	58	24
	JUN-SEP	42	49	54	193	59	68	28
Bruneau R nr Hot Springs	JUN-JUL	123	142	155	189	169	190	82
	JUN-SEP	144	165	180	196	196	220	92
Reynolds Ck at Tollgate	JUN-JUL	3.8	4.8	5.5	294	6.3	7.5	1.9
Owyhee R nr Gold Ck (2)	JUN-SEP	0.0	0.6	1.0	357	1.4	2.0	0.3
Owyhee R nr Rome	JUN-JUL	128	145	156	220	167	184	71
	JUN-SEP	153	172	185	203	198	215	91
Owyhee R bl Owyhee Dam (2)	JUN-JUL	128	150	167	204	184	210	82
	JUN-SEP	163	187	205	183	225	250	112

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
OAKLEY	75.6	52.6	31.9	45.0
SALMON FALLS	182.6	133.7	75.6	101.2
WILDHORSE RESERVOIR	71.5	74.4	48.1	58.4
OWYHEE	715.0	721.3	355.2	614.6
BROWNLEE	1420.0	1029.4	1367.8	1263.0

SOUTHSIDE SNAKE RIVER BASINS
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Raft River	1	178	716
Goose-Trapper Creeks	3	263	1059
Salmon Falls Creek	5	239	455
Bruneau River	5	195	368
Reynolds Creek	5	172	297
Owyhee Basin Total	7	612	698

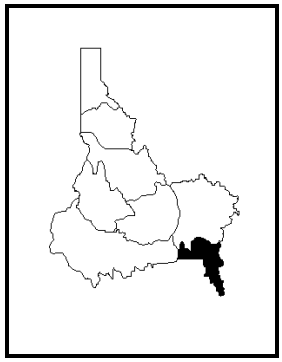
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

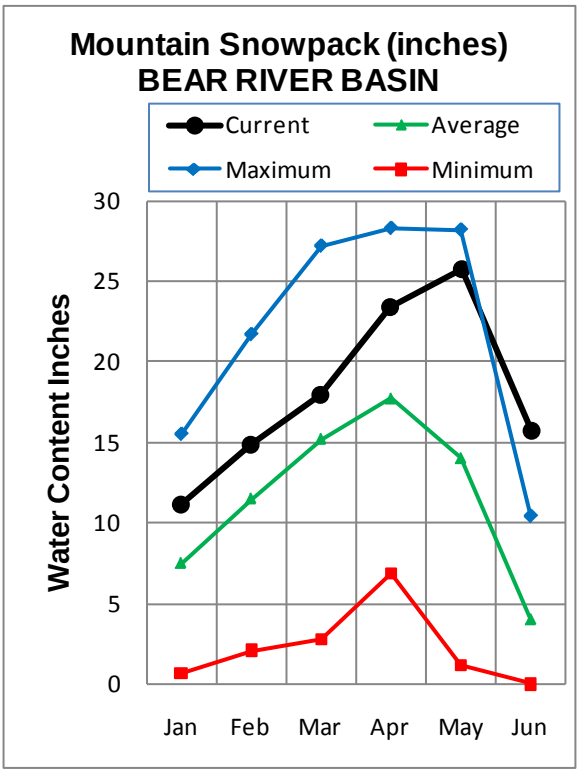
The average is computed for the 1971-2000 base period.

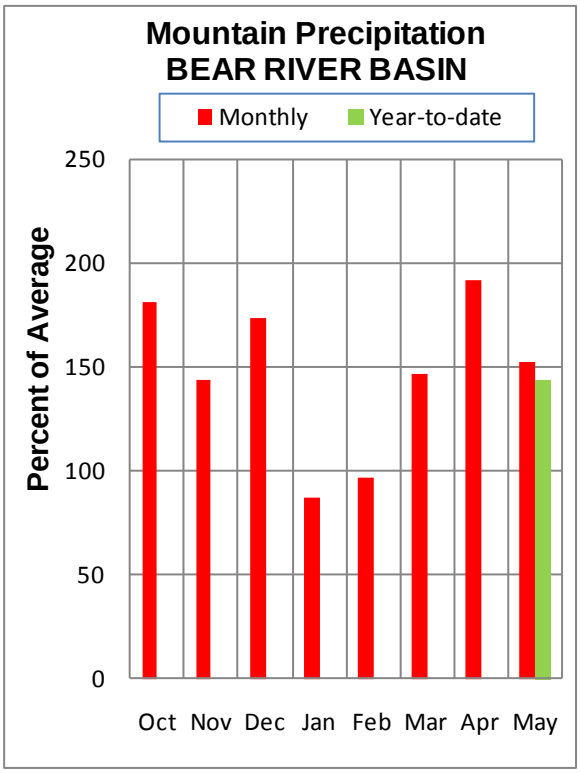
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.
(3) - Median value used in place of average.

BEAR RIVER BASIN

JUNE 1, 2011







WATER SUPPLY OUTLOOK

To say that it's been a big winter and that streams are full is an understatement. To paint a better picture, as of June 1, the Bear River basin has the highest snowpack since the record starts in 1981 and nearly twice as much as the previous maximum in 1983. The June 1 snowpack is still 115% of the average seasonal peak that normally occurs in mid-April. Precipitation in May was 152% of average, 192% in April, and 147% in March. Soil moisture conditions in the snow-free zones are saturated and the Bear River plus its tributaries have been flowing above average for the past month. Streamflow records date back to the late 1920's and the highest summer streamflow volumes occurred after the big winter of 1983. This year's June-September streamflow forecasts are predicting a greater volume than in 1983. The lowest volume forecasts are 205% of average for Smiths Fork and increase to 312% for the Bear River below Stewart Dam. The highest forecasts are in the headwaters and call for 375% of average for the Bear River near Woodruff. Already this year from November through May, Bear Lake has gained 400,000 acre-feet; nearly tying the 420,000 acre-feet gained in the same period during 1945-1946. Bear Lake's current storage is 888,600 acre-feet, 84% of average. Enough space remains in the reservoir after the decade long drought that it will be able to store more of the runoff from this spring and should be near full later this summer making for an incredible one year recovery.

BEAR RIVER BASIN
Streamflow Forecasts - June 1, 2011

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear R nr UT-WY State Line	APR-JUL	205	215	225	199	235	245	113
	JUN-JUL	174	183	190	271	197	205	70
	APR-SEP	230	245	255	204	265	280	125
	JUN-SEP	200	210	220	268	230	240	82
Bear R ab Res nr Woodruff	APR-JUL	330	345	360	265	375	390	136
	JUN-JUL	220	230	240	375	250	260	64
	APR-SEP	365	380	395	278	410	425	142
	JUN-SEP	255	265	275	387	285	295	71
Big Ck nr Randolph	APR-JUL	15.3	15.7	16.0	327	16.3	16.7	4.9
	JUN-JUL	6.7	7.1	7.4	322	7.7	8.1	2.3
Smiths Fk nr Border	APR-JUL	153	161	167	162	173	181	103
	APR-SEP	185	195	200	165	210	220	121
	JUN-JUL	111	119	125	205	131	139	61
	JUN-SEP	143	153	158	205	168	178	77
Bear R bl Stewart Dam	APR-JUL	510	560	595	254	630	680	234
	APR-SEP	580	635	675	258	715	770	262
	JUN-JUL	295	325	350	318	375	405	110
	JUN-SEP	355	400	430	312	460	505	138
Little Bear R at Paradise	APR-JUL	88	96	102	222	108	116	46
	JUN-JUL	35	38	40	336	42	45	11.9
Logan R nr Logan	APR-JUL	205	225	235	187	245	265	126
	JUN-JUL	157	165	170	243	175	183	70
Blacksmith Fork nr Hyrum	APR-JUL	100	112	120	250	128	140	48
	JUN-JUL	45	50	53	265	56	61	20

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

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1421.0	888.6	617.9	1052.3
MONTPELIER CREEK	4.0	2.3	4.1	3.3

BEAR RIVER BASIN
Watershed Snowpack Analysis - June 1, 2011

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
Smiths & Thomas Forks	3	341	418
Bear River ab WY-ID line	9	508	516
Montpelier Creek	1	0	0
Mink Creek	1	593	339
Cub River	1	533	485
Bear River ab ID-UT line	15	554	522
Malad River	1	0	0

* 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.
(3) - Median value used in place of average.

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 Jan 2011).**

Panhandle River Basins

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

Moyie R at Eastport, ID – No Corrections

Boundary Ck nr Porthill, 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 Res (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 Res Inflow, ID
+ Clearwater R nr Peck, ID
- Clearwater R at Orofino, ID
+ Dworshak Res (Storage Change)

Clearwater R at Orofino, ID - No Corrections

Clearwater R at Spalding, ID
+ Dworshak Res (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

SF Salmon R nr Krassel Ranger Station, ID – No Corrections

Johnson Creek at Yellow pine, 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 Res Inflow, ID
+ Deadwood R bl Deadwood Res nr Lowman
+ Deadwood Res (Storage Change)

Lake Fork Payette R nr Mccall, ID – No Corrections

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

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

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

Boise R nr Twin Springs, ID - No Corrections

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

Mores Ck nr Arrowrock Dam – No Corrections

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

Wood and Lost River Basins

Big Wood R at Hailey, ID - No Corrections

Big Wood R ab Magic Res, ID
+ Big Wood R nr Bellevue, ID
+ Willow Ck

Camas Ck nr Blaine – No Corrections

Big Wood R bl Magic Dam nr Richfield, ID
+ Magic Res (Storage Change)

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

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

Big Lost R at Howell Ranch, ID - No Corrections

Big Lost R bl Mackay Res nr Mackay, ID
+ Mackay Res (Storage Change)

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

Upper Snake River Basin

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

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

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

Pacific Ck at Moran, WY – No Corrections
Buffalo Fork ab Lava nr Moran – No Corrections
Gros Ventre R at Kelly – No Corrections
Snake R ab Palisades, WY
+ Jackson Lake (Storage Change)
Greys R ab Palisades, WY – No Corrections
Salt R ab Palisades, WY – No Corrections
Snake R nr Irwin, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Snake R nr Heise, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
Willow Ck nr Ririe, ID
+ Ririe Res (Storage Change)
Blackfoot Reservoir Inflow, ID
+ Blackfoot Reservoir releases
+ Blackfoot Res (Storage Change)
Portneuf R at Topaz, ID - No Corrections
Snake R at Neeley, ID
+ Snake R at Neeley (observed)
+ All Corrections made for Henrys Fk nr Rexburg, ID
+ Jackson Lake (Storage Change)
+ Palisades Res (Storage Change)
+ Diversions from Snake R btw Heise and Shelly
+ Diversions from Snake R btw Shelly and Blackfoot

Southside Snake River Basins

Goose Ck ab Trapper Ck-no adjustments
Trapper Ck nr Oakley-no adjustments
Oakley Res Inflow, ID (does not include Birch Creek inflow)
+ Goose Ck ab Trapper Ck
+ Trapper Ck nr Oakley
Salmon Falls Ck nr San Jacinto, NV - No Corrections
Bruneau R nr Hot Springs, ID - No Corrections
Reynolds Ck at Tollgate - No Corrections
Owyhee R nr Gold Ck, NV
+ Wildhorse Res (Storage Change)
Owyhee R nr Rome, OR – No Corrections
Owyhee R bl Owyhee Dam, OR
+ Owyhee R bl Owyhee Dam, OR (observed)
+ Owyhee Res (Storage Change)
+ Diversions to North and South Canals
Snake R at King Hill, ID - No Corrections
Snake R nr Murphy, ID - No Corrections
Snake R at Weiser, ID - No Corrections
Snake R at Hells Canyon Dam, ID
+ Brownlee Res (Storage Change)

Bear River Basin

Bear R nr UT-WY Stateline, UT – No Corrections
Bear R ab Res nr Woodruff, UT – No Corrections
Big Ck nr Randolph – No Corrections
Smiths Fork nr Border, WY - No Corrections
Bear R bl Stewart Dam nr Montpelier, ID
+ Bear R bl Stewart Dam
+ Rainbow Inlet Canal
Little Bear R at Paradise – No Corrections
Logan R nr Logan – No Corrections
Blacksmith Fk nr Hyrum – No Corrections

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

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

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

Interpreting Water Supply Forecasts

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Weiser, Payette, Boise River Basins
Streamflow Forecasts – January 2006

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

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

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

OFFICIAL BUSINESS

Issued by
Dave White, Chief
Natural Resources Conservation Service
Washington, DC

Released by
Jeff Burwell, State Conservationist
Rob Sampson, State Conservation Engineer
Natural Resources Conservation Service
Boise, Idaho

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

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

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