USDA United States Department of Agriculture

Natural Resources Conservation Service

Idaho Water Supply Outlook Report

February 1, 2022

Snowdrifts in the Sagebrush near Pole Creek SNOTEL (photo by Mark Robertson 1/27/22)

The beginnings of disappointment...but cautiously optimistic. That is the way we can describe the February 1 snow and water supply condition across the state. As we inch closer to spring, we are still hopeful that the precipitation of late December and early January comes back - at least for a few rounds more to give us some additional drought relief. It may come as a surprise that we still have normal snowpack conditions across most of the state along with the great news of an above normal snow water equivalent in the Wood, Lost and Raft River basins. This month, the Owyhee and Bruneau basins are trailing the rest of the state as January only brought 50% of normal precipitation to the Owyhee basin. January temperatures have been overall cooler than normal in the southern part of the state, especially throughout valley locations, with near normal to slightly warmer than normal temperatures in the northern two-thirds of the state.

Water Supply Outlook Report
Federal - State – Private Cooperative Snow Surveys

For more water supply and resource management information:

Contact: Your local county *Natural Resources Conservation Service Office* Internet Web Address: http://www.id.nrcs.usda.gov/snow/
Natural Resources Conservation Service Snow Surveys
9173 West Barnes Drive, Suite C
Boise, ID 83709-1574, (208) 378-5700 ext. 5

To join a free email subscription list, please contact us by email at: idboise-nrcs-snow@usda.gov

How forecasts are made

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

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

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

Starting in 2020, streamflow forecasts with poor prediction skill (jackknife $r^2 < 0.34$) will no longer be issued. This will primarily affect the January and June forecasts, with little change anticipated for the February, March, April, and May forecasts. For more information, please contact Danny Tappa (daniel.tappa@usda.gov)

IDAHO WATER SUPPLY OUTLOOK REPORT

February 1, 2022

Overview

Snowfall persisted across Idaho the first week of January, which followed a very wet December as outlined in our January 1 report. The active weather pattern that brought abundant snowfall to Idaho's mountains and valleys alike ended abruptly the second week of January, and the often dreaded 'high and dry' pattern dominated the remainder of the month. As a result, south of the Clearwater basin, record to near-record low total precipitation was observed at many SNOTEL sites for the three-week period to end January. The Clearwater basin and to the north did receive precipitation from a few mid-month storms, which helped to prevent record low observations in that part of the state.

While less than desirable January precipitation has curbed some of the previous optimism for a drought-busting snowpack and subsequent efficient runoff season, it's worth noting that snowpack is *still* near or above normal in nearly all of Idaho's streamflow generating mountains. The same is true for water year (WY) precipitation totals across Idaho. As we mentioned in last month's report, drought severity has been reduced throughout Idaho, with less than 1% of the "Gem State" now experiencing extreme drought (>40% of the state was in extreme drought 3 months ago). In summary, the copious precipitation Idaho received in October and December that reduced drought severity has also helped to withstand the January dry-spell – conditions are still favorable for at least a normal streamflow runoff season. However, if the January dry-spell is a premonition of forthcoming weather, normal streamflow runoff will be unlikely. Current short-term weather forecasts suggest more of the same to start February – high pressure and little in the way of precipitation.

Precipitation

After the first week of January, meaningful storms were few and far between. Apart from a few basins south of Twin Falls, where generous upsloping resulted in healthy monthly totals, all other basins across Idaho recorded below normal monthly precipitation totals (Fig. 1). The lowest totals were observed in an all too familiar area: the Wood and Lost basins, where only 50 to 70% of normal monthly precipitation was recorded for January. Luckily, water year (WY) precipitation totals are still above normal for all basins (Fig. 2). This is because October and December storms brought wet conditions to Idaho with above normal monthly precipitation across the entire state during December and across nearly the entire state during October. As a result, WY totals range from ~100 to 110% of normal in the Upper Snake West Central, Salmon, Clearwater and Panhandle basins, while the reminder of Idaho's basins are ~115 to 145% of normal (Southern Snake, Bear, Wood and Lost basins; Fig. 2).

Snowpack

Snowpack percentages have uniformly decreased since January 1, but levels are still above normal for all major basins except for the Owyhee, Bruneau, Salmon Falls, and the Upper Snake, where snowpack is slightly (~85 to 95%) below normal (Fig. 3). The leaders of the pack, figuratively and literally, are the Big Lost and Little Wood basins at ~125% of normal snow water equivalent (SWE). Similarly, the neighboring Big Wood and Little Lost basins are just behind at 113% and 120% of normal, respectively. All other basins north of the Snake River Plain hold above normal snowpack, with most locations hovering right around normal for Feb 1.

While temperature inversions and cloud cover dominated January for most of Idaho's lower elevation valleys, the mountains largely received the opposite: slightly warmer than normal temperatures and many "bluebird" days. Warmer temperatures combined with little snowfall throughout January has resulted in an unusually dense snowpack for this time of year. This is important because snowpack density is closely related to the potential for snowmelt to begin; the higher the density the closer the snowpack is to reaching an isothermal state, which happens before widespread snowmelt can occur. The good news is the sun angle is still relatively low in the sky, meaning there's relatively low energy input to the snowpack. Additional snowfall will also help to prevent earlier than normal snowmelt.

Water supply

Total reservoir storage in the Upper Snake system remains below normal. The Henrys Fork arm of the Snake is closest to normal with combined storage between Henrys Lake, Island Park Reservoir and Grassy Lake at 99% of normal (83% of capacity). Reservoir storage above the Snake River at Heise is much below normal with combined storage between Palisades and Jackson Lake at only 45% for end of January (30% of capacity). In the Wood and Lost basins, storage is similarly below normal (Mackay: 68%, Little Wood: 65%, and Magic: 43%) The Boise Reservoir system is currently 77% of normal (43% of capacity), while to the north, the Payette system is 88% of normal
(57% of capacity). Reservoirs south of the Snake River are generally below normal, except for Bear Lake where current levels are 117% of normal (42% of capacity).

February 1 streamflow forecasts favor above normal spring and summer runoff for the vast majority of Idaho (Fig. 4). This is likely because of the healthy WY total precipitation and current snowpack that remains above normal in most areas. Exceptions to this are in the Henrys Fork of the Snake River basin, where median forecasts currently range from ~80 to 85% of normal. If the current dry spell continues during February, we can expect significant decreases in streamflow forecasts by March 1.

Streamflow, snowpack, and precipitation data for each basin can be accessed here or on the NRCS interactive map.

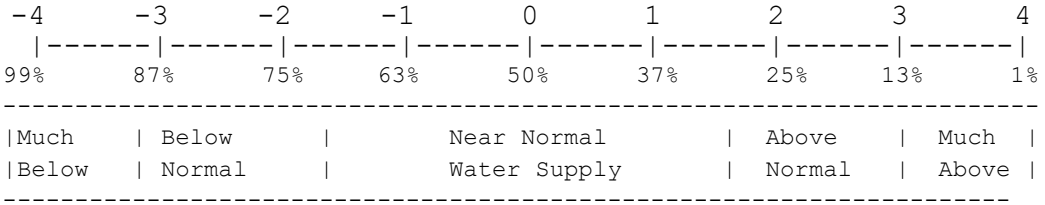
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) February 1, 2022

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 1991 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*
Spokane	**1.2**	**2009**	**NA**
Clearwater	**0.7**	**2020**	**NA**
Salmon	**-0.1**	**2020**	**NA**
Weiser	**----**	**----**	**NA**
Payette	**-0.1**	**2014**	**NA**
Boise	**-0.1**	**2010**	**- 1.6**
Big Wood above Hailey	**1.4**	**2012**	**- 2.6**
Big Wood	**0.9**	**2012**	**0.8**
Camas Creek nr Blaine	**1.2**	**2012**	**NA**
Little Wood	**1.4**	**2018**	**- 1.3**
Big Lost	**----**	**----**	**0.8**
Little Lost	**----**	**----**	**1.2**
Teton	**-0.9**	**2004**	**- 3.9**
Henrys Fork	**-0.7**	**1993**	**- 3.1**
Snake (Heise)	**-0.9**	**2016**	**- 1.6**
Oakley	**-0.9**	**2016**	**0.5**
Salmon Falls above Jackpot	**0.4**	**2020**	**NA**
Salmon Falls	**-1.2**	**2008**	**- 0.8**
Bruneau	**0.1**	**2020**	**NA**
Owyhee	**-0.9**	**2016**	**- 2.3**
Bear River	**0.3**	**2014**	**- 3.6**

SWSI SCALE, PERCENT CHANCE OF EXCEEDANCE, AND INTERPRETATION



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

Figure 1: Monthly Precipitation for February 1, 2022

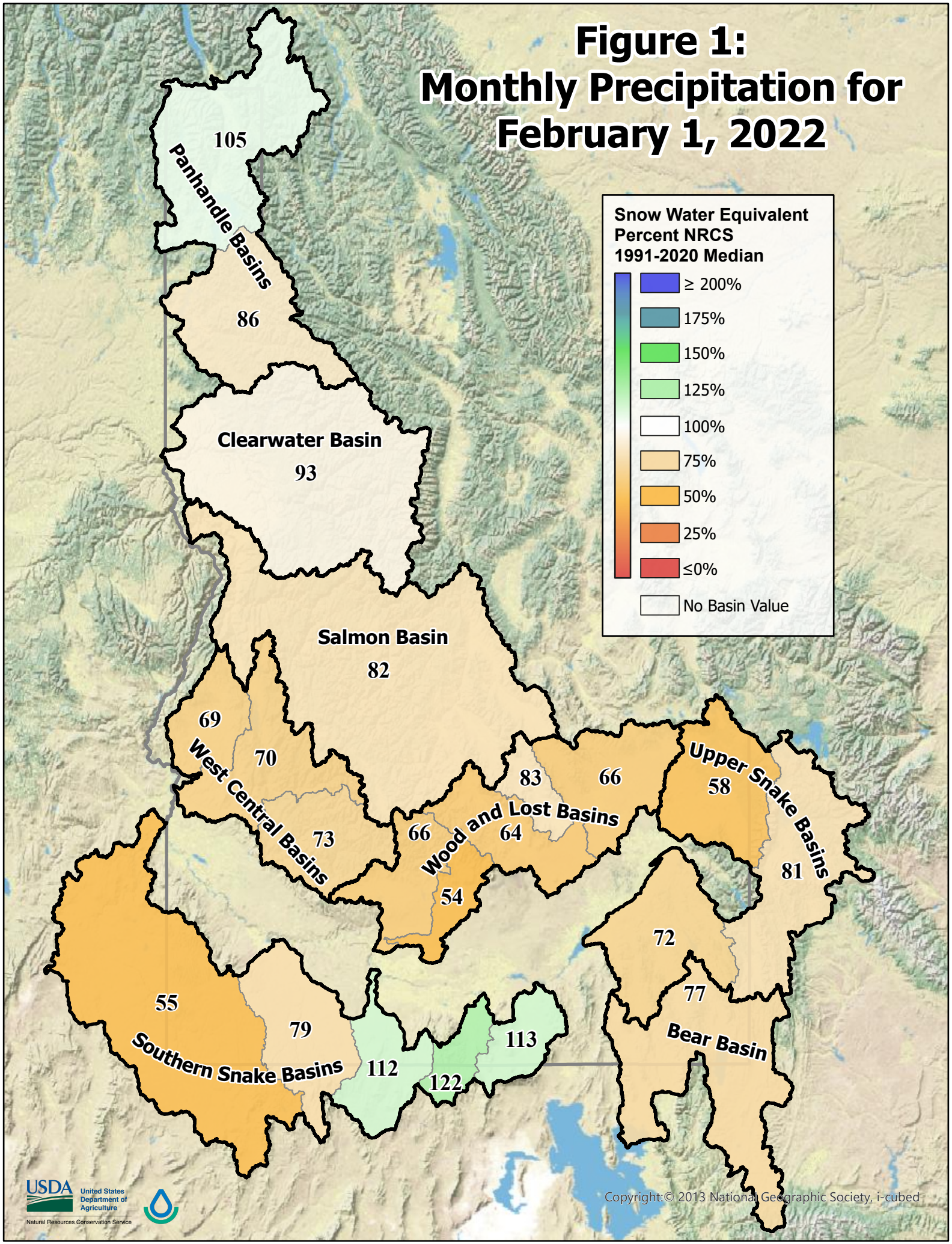


Figure 2:
February 1, 2022
Water-Year-to-Date-Precipitation

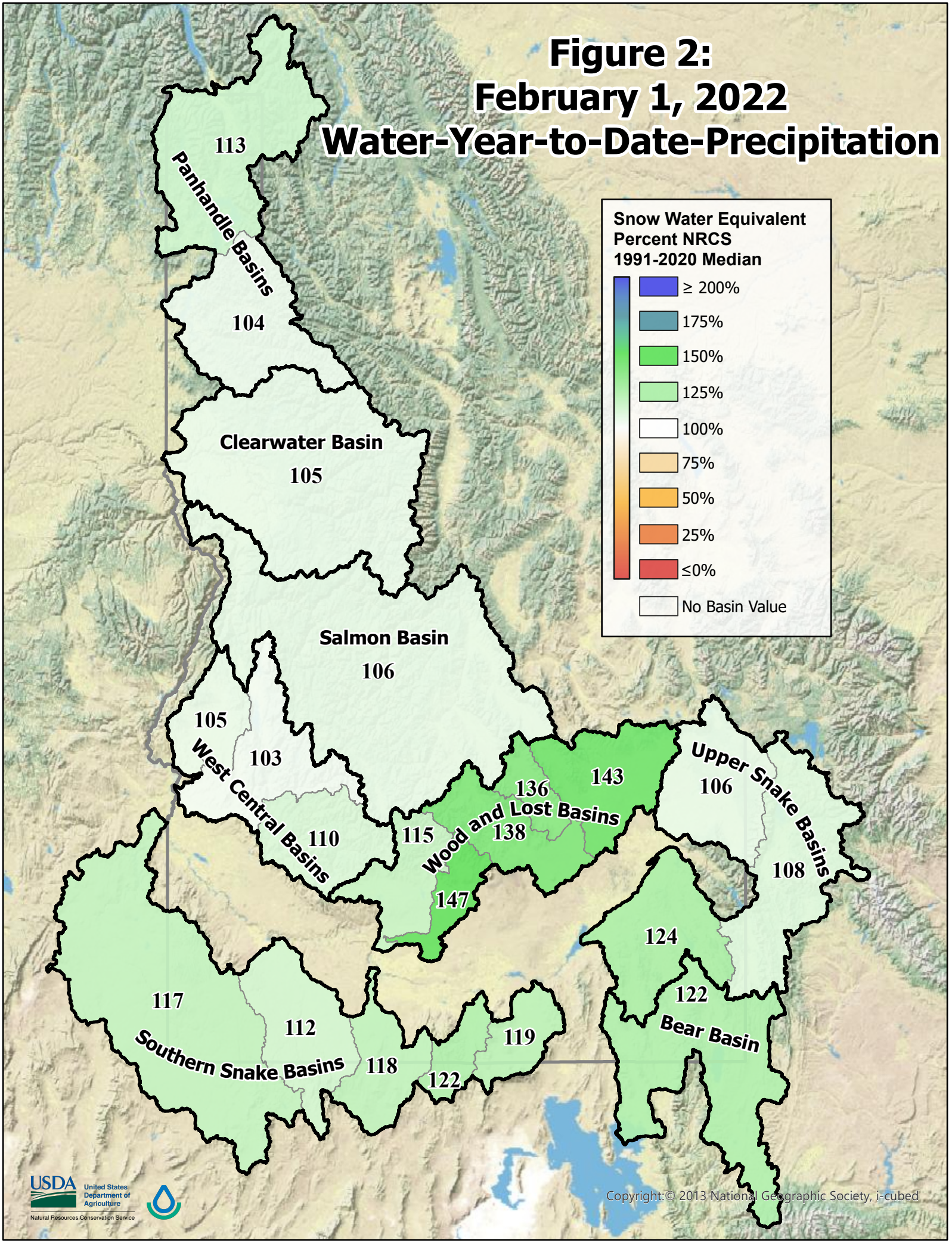


Figure 3:
February 1, 2022
Percent of Median Snowpack

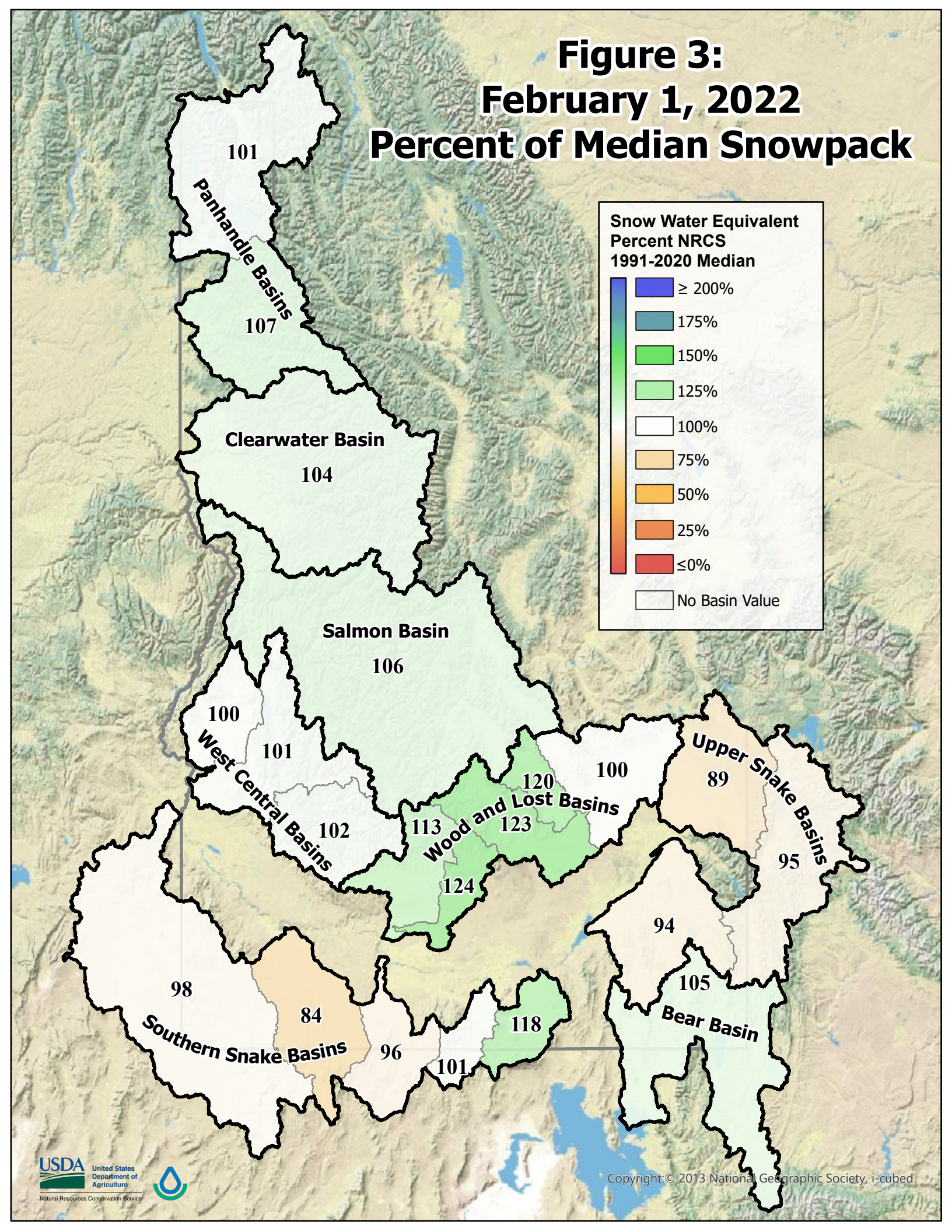
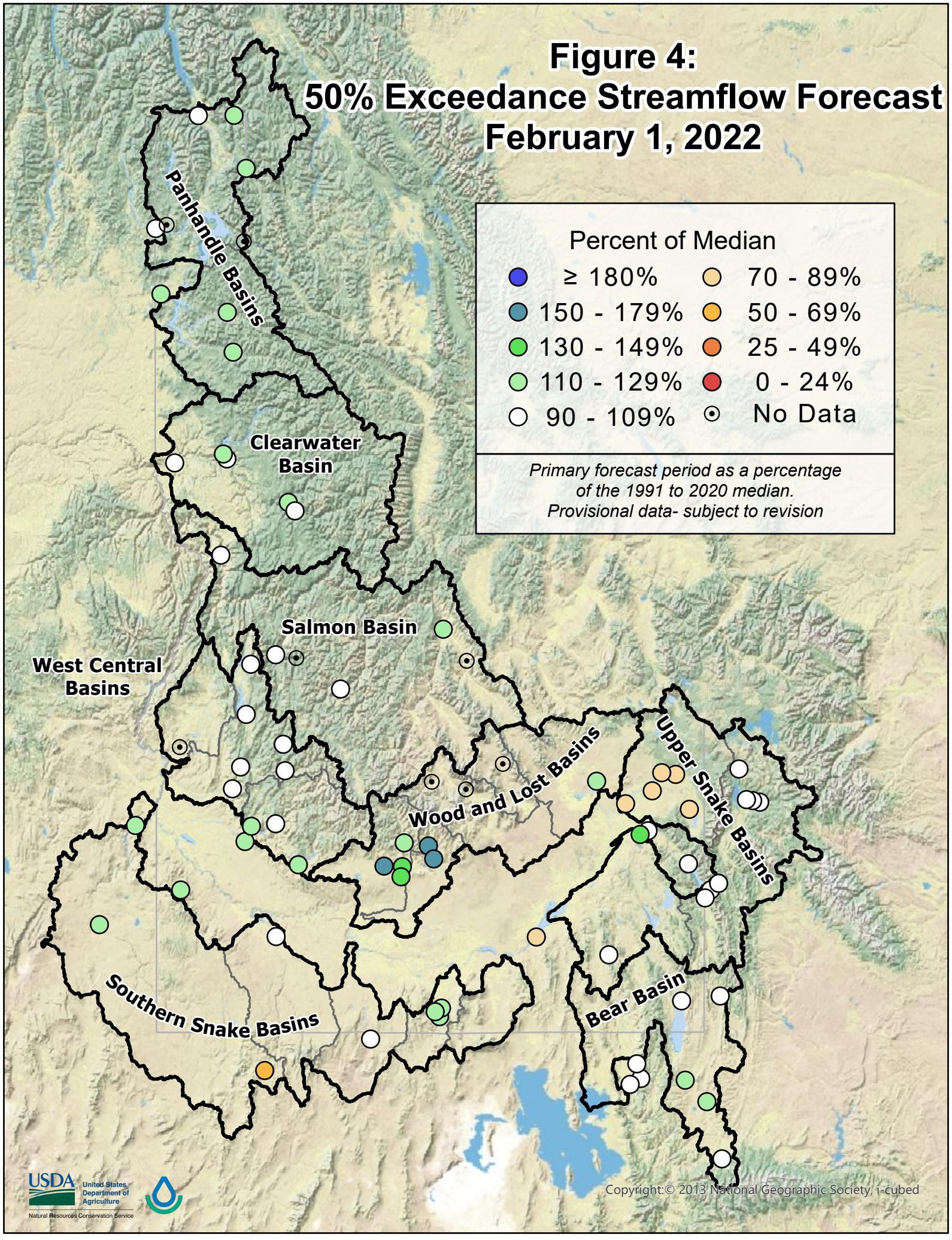
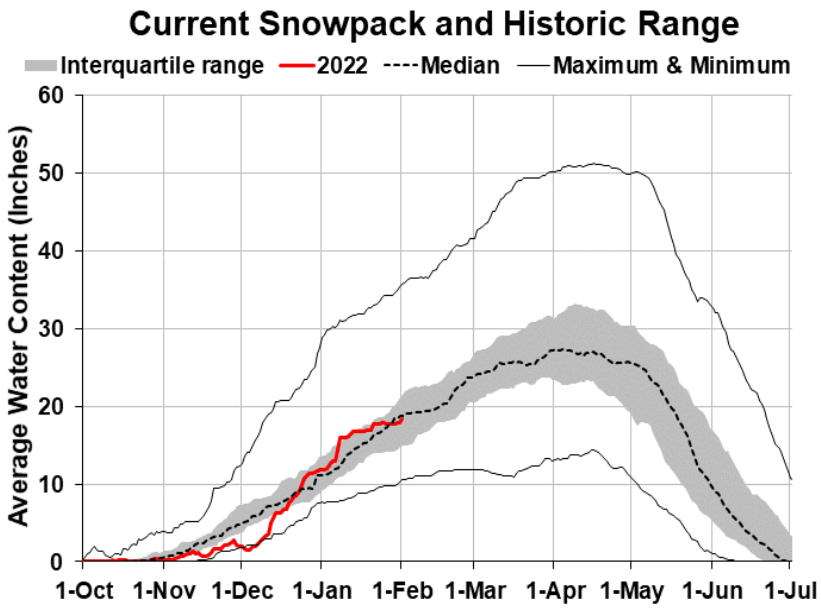


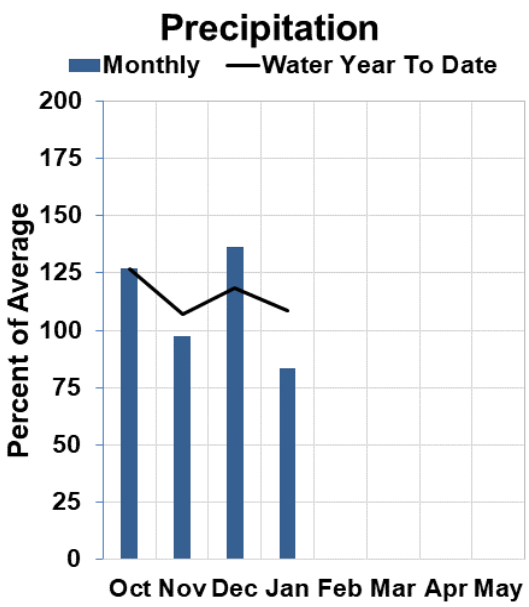
Figure 4:
50% Exceedance Streamflow Forecast
February 1, 2022



Panhandle Region

February 1, 2022





WATER SUPPLY OUTLOOK

Although there wasn't much precipitation in the second half of January, the Panhandle basins fared slightly better than most of the state, and monthly precipitation was ~85 to 105% of normal (Fig. 1). WY 2022 is still trending near normal with February 1 total precipitation at ~105 to 115% of normal (Fig. 2). Snowpack is also near normal and ranges from ~100 to 105% of normal for February 1 (Fig. 3). Even at elevations above 6,000 ft, January had a couple rain on snow events. Despite this, the snowpack was cold enough and had low enough density to retain this water. Rain on snow events increase snow density and warm the snowpack, which reduces the overall amount of energy required to produce snowmelt runoff. Although it is too early to predict snowmelt timing for this region, the Panhandle basins still have near normal snow density which should help prevent early snowmelt. Across most elevations in the Panhandle basins, the snowpack is slightly more than 50% of normal peak conditions which typically occurs between April 5 and 14. Having 50% of normal peak conditions is expected for this time of year, but it suggests there is still plenty of time for conditions to evolve.

Lakes in the Panhandle are at ~65 to 95% of normal storage and broken down for each lake is: Coeur d'Alene at 64%, Pend Oreille at 85%, and Priest Lake at 94%. Streamflow forecasts for April through July range from ~110 to 115% of normal at the 50% exceedance level for the Panhandle basins. NOAA's Official 30-Day Outlook predicts equal chances of normal precipitation and suggests increased chances of below normal temperatures for February.

Panhandle Region Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
Moyie R at Eastport	APR-JUL	365	430	475	127%	520	590	375
	APR-SEP	380	445	490	126%	535	605	390
Kootenai R at Leonia 1 & 2	APR-JUL	6440	7820	8450	126%	9070	10500	6680
	APR-SEP	7560	8950	9580	127%	10200	11600	7560
Boundary Ck nr Porthill	APR-JUL	85	105	119	100%	132	152	119
	APR-SEP	89	109	123	99%	137	157	124
Clark Fork R bl Cabinet Gorge Dam 2								
Pend Oreille Lake Inflow 2	APR-JUL	9080	11200	12600	108%	14100	16200	11700
	APR-SEP	9910	12100	13600	108%	15100	17300	12600
Priest R nr Priest River 2								
NF Coeur dAlene R at Enaville	APR-JUL	505	690	815	114%	940	1130	715
	APR-SEP	535	725	855	114%	980	1170	750
St. Joe R at Calder 2	APR-JUL	845	1060	1200	114%	1350	1560	1050
	APR-SEP	905	1120	1270	113%	1420	1640	1120
Spokane R nr Post Falls 2	APR-JUL	1770	2370	2780	111%	3180	3780	2510
	APR-SEP	1850	2460	2870	112%	3280	3890	2570

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

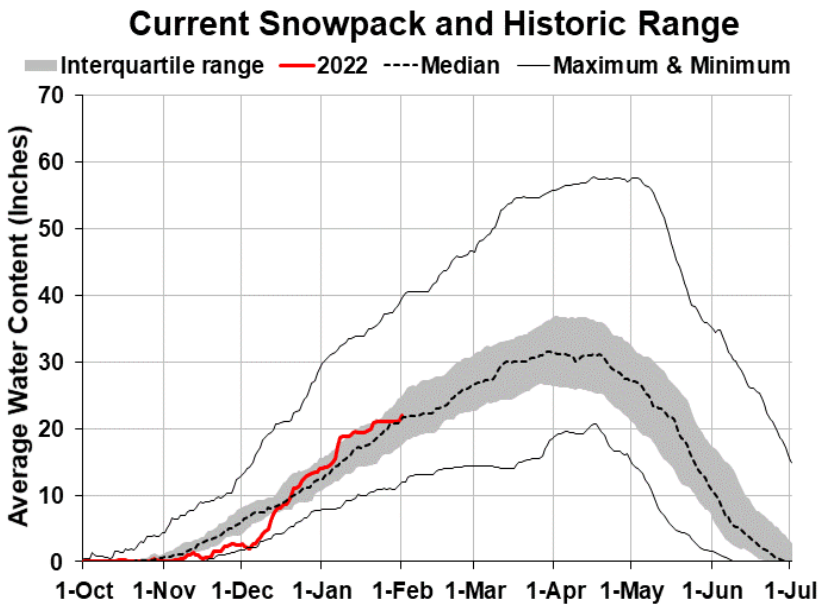
Reservoir Name	Current (KAF)	Last YR	Median (KAF)	Capacity (KAF)
Hungry Horse Lake	3026.9	2983.5	2626.0	3451.0
Flathead Lake	919.5	1005.1	942.9	1791.0
Noxon Rapids Reservoir	314.8	318.9	316.4	335.0
Lake Pend Oreille	534.3	577.0	630.8	1561.3
Priest Lake	51.8	46.6	55.3	119.3
Lake Coeur d' Alene	68.0	71.8	106.7	238.5

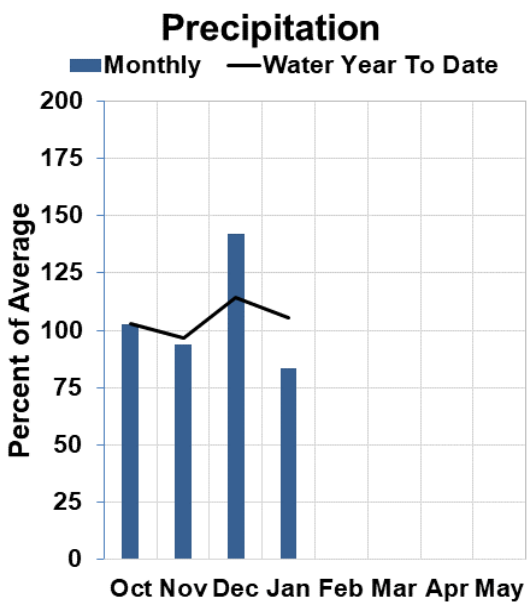
Watershed Snowpack Analysis: February 1, 2022

Basin Name	# of Sites	% of Median 2022	2021
Moyie River	1	102%	95%
Priest River	7	103%	99%
Rathdrum Creek	3	86%	102%
Coeur d' Alene River	6	110%	76%
St. Joe River	4	104%	83%
Pend Oreille Lake	6	92%	91%
Palouse River	2	101%	89%
Lower Kootenai	2	118%	104%
Pend Oreille-Kootenai	15	101%	95%
Coeur d' Alene-St. Joe Total	9	108%	78%

Clearwater River Basin

February 1, 2022





WATER SUPPLY OUTLOOK

The Clearwater Basin fared slightly better than most of Idaho basins in January, and the monthly precipitation was ~85 to 110% of normal (Fig. 1). WY 2022 is still trending near normal with February 1 total precipitation at ~100 to 115% of normal (Fig. 2). Snowpack is also near normal and ranges from ~95 to 105% of normal for February 1 (Fig. 3). Much like the Panhandle basins, areas at or below 5,000 ft elevation had a couple rain on snow events in January. Despite these warm storm events, the snowpack was cold enough and had low enough density to retain this water. Rain on snow events increase snow density and warm the snowpack which reduces the overall amount of energy required to produce snowmelt runoff. Snow density in this region is increasing and is slightly above normal, which hopefully isn't setting the stage for early melt. The Clearwater snowpack is around 60 to 70% of normal peak conditions which typically occurs in early April. 60 to 70% of normal peak conditions is expected for this time of year, and it suggests there is still plenty of time for conditions to evolve.

Dworshak Reservoir is currently at 67% of its storage capacity, which is 99% of normal at this time of the year. Streamflow forecasts for the primary period range from ~100 to 110% of normal at the 50% exceedance level for the Clearwater River Basin. NOAA's Climate Prediction Center's three-month outlook suggests increased chances of below normal temperatures and equal chances of normal precipitation for February.

Clearwater River Basin Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
Selway R nr Lowell	APR-JUL	1460	1770	1990	102%	2200	2520	1960
	APR-SEP	1540	1860	2080	101%	2300	2620	2050
Lochsa R nr Lowell	APR-JUL	1210	1440	1590	111%	1740	1960	1430
	APR-SEP	1280	1510	1660	111%	1820	2040	1500
Dworshak Reservoir Inflow 2	APR-JUL	1910	2320	2610	110%	2890	3310	2370
	APR-SEP	2050	2480	2770	108%	3060	3480	2560
Clearwater R at Orofino	APR-JUL	3310	4030	4510	103%	5000	5710	4380
	APR-SEP	3510	4240	4730	104%	5230	5960	4570
Clearwater R at Spalding 2	APR-JUL	5280	6530	7380	108%	8230	9480	6820
	APR-SEP	5620	6890	7760	106%	8620	9900	7290

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

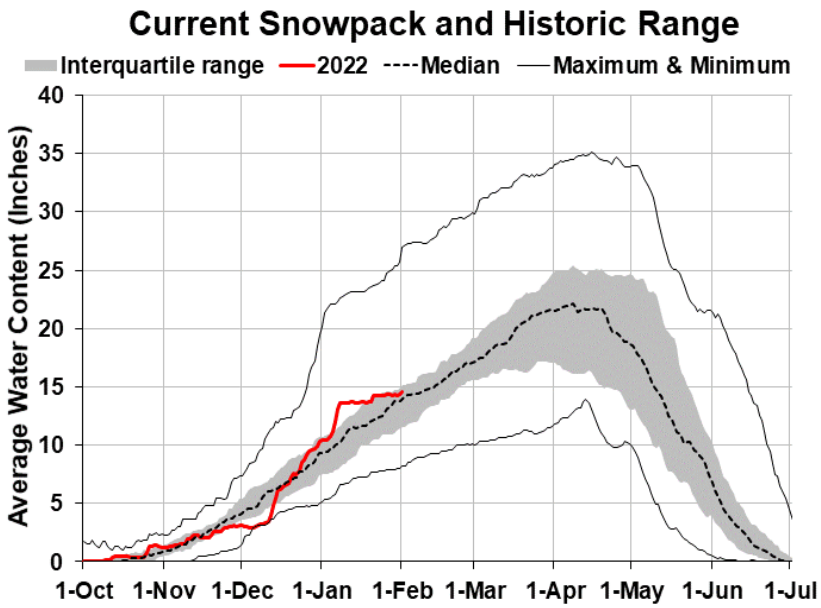
Reservoir Name	Current (KAF)	Last YR	Median (KAF)	Capacity (KAF)
Dworshak Reservoir	2324.5	2393.0	2339.0	3468.0

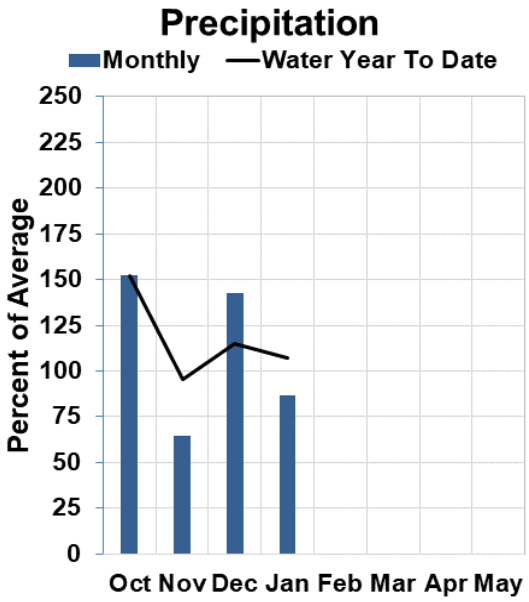
Watershed Snowpack Analysis: February 1, 2022

Basin Name	# of Sites	% of Median 2022	% of Median 2021
NF Clearwater River	9	106%	81%
Lochsa River	3	109%	79%
Selway River	4	94%	81%
SF Clearwater River	1	94%	73%
Clearwater Basin Total	17	104%	82%

Salmon River Basin

February 1, 2022





WATER SUPPLY OUTLOOK

Despite the ongoing stretch of relatively dry weather, January precipitation was 82% of normal (Fig. 1). WY precipitation has fallen somewhat and is now 106% of normal (Fig. 2). The February 1 Salmon Basin snowpack is 106% of normal (Fig. 3). The lack of new snow and sunny skies have contributed to above-normal snowpack density for February 1, and the median basin snowpack density is the highest it has been at this date in at least the last five years. Hopefully a cool and wet pattern returns, and high snowpack density is not setting the stage for another year of early melt out. Soil moisture readings still suggest above-normal soil moisture in the basin, which continues to be a good sign for springtime runoff efficiency.

The Salmon Basin streamflow forecasts are near normal to slightly above normal, from ~95% to 120%. The Climate Prediction Center's 30-Day Outlook expects equal chances for normal temperatures and precipitation, and the current 10-day forecast does not show significant precipitation on the way.

Salmon River Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
Salmon R at Salmon	APR-JUL	605	805	935	117%	1070	1270	800
	APR-SEP	705	920	1070	116%	1220	1430	920
Lemhi R nr Lemhi								
MF Salmon R at MF Lodge	APR-JUL	545	720	840	108%	960	1140	775
	APR-SEP	615	800	930	109%	1060	1250	850
SF Salmon R nr Krassel Ranger Station	APR-JUL	168	230	270	93%	310	370	290
	APR-SEP	182	245	290	94%	330	395	310
Johnson Ck at Yellow Pine								
Salmon R at White Bird	APR-JUL	4100	5150	5870	99%	6580	7640	5940
	APR-SEP	4540	5670	6430	97%	7200	8320	6600

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

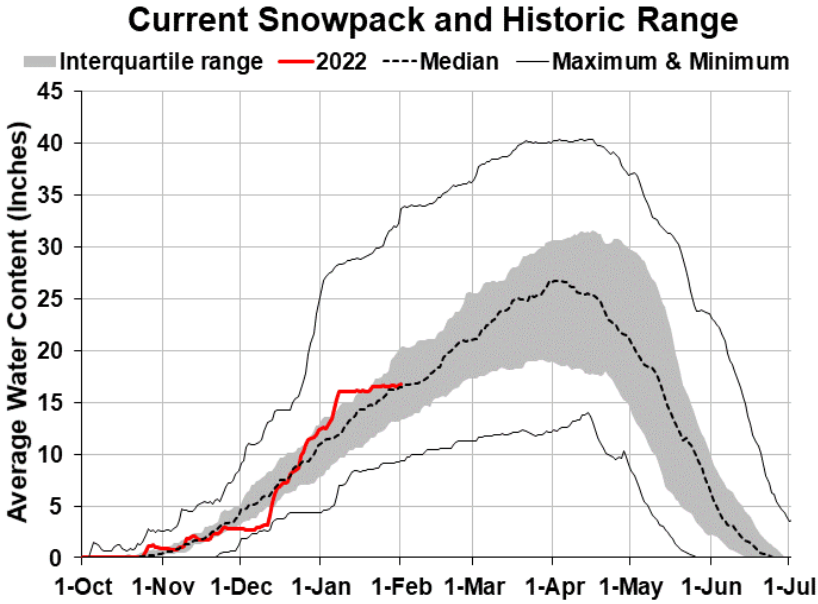
1) 90% and 10% exceedance probabilities are actually 95% and 5%

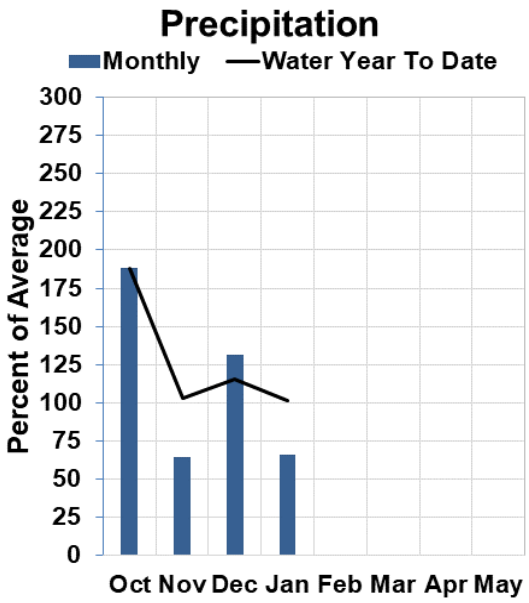
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Watershed Snowpack Analysis: February 1, 2022			
Basin Name	# of Sites	% of Median 2022	2021
Salmon River ab Salmon	8	119%	80%
Lemhi River	4	105%	80%
MF Salmon River	3	111%	87%
SF Salmon River	3	101%	91%
Little Salmon River	4	99%	103%
Lower-Middle Salmon	4	100%	82%
Salmon Basin Total	21	106%	87%

West Central Basins

February 1, 2022





WATER SUPPLY OUTLOOK

Although early January was quite wet, the lasting high-pressure system and lack of moisture resulted in January precipitation being ~70% of normal in the West Central basins (Fig. 1). WY precipitation is now ~105 to 110% of normal (Fig. 2). Snowpacks in the West Central basins are all ~100% of normal (Fig. 3). Dry and sunny weather have contributed to the above-normal snowpack density for February 1 across the West Central basins. Hopefully, the high snowpack density is not setting the stage for another year of early melt-out. Soil moisture is still above normal, which continues to be a good sign for springtime runoff efficiency.

Reservoir storage in the Boise system (Anderson Ranch, Arrowrock and Lucky Peak combined) is 77% of normal, and storage in the Weiser Basin is 61% of normal. Streamflow forecasts for the Boise Basin are ~105% to 115% of normal, and the Payette is ~100% of normal. The Climate Prediction Center's 30-Day Outlook suggests equal chances for normal temperatures and precipitation, and the current 10-day forecast does not show much precipitation.

West Central Basins Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
SF Boise R at Anderson Ranch Dam 2	APR-JUL	275	400	485	115%	570	700	420
	APR-SEP	300	430	520	116%	610	740	450
Boise R nr Twin Springs	APR-JUL	390	525	615	103%	705	840	600
	APR-SEP	430	570	665	103%	760	900	645
Mores Ck nr Arrowrock Dam	APR-JUL	49	84	108	113%	132	167	96
	APR-SEP	51	87	112	112%	136	172	100
Boise R nr Boise 2	APR-JUL	760	1060	1260	112%	1460	1760	1130
	APR-SEP	845	1150	1360	111%	1570	1880	1220
Lake Fork Payette R nr McCall	APR-JUL	57	71	80	99%	90	104	81
	APR-SEP	58	73	83	100%	92	107	83
NF Payette R at Cascade 2	APR-JUL	290	395	465	97%	535	640	480
	APR-SEP	290	400	475	97%	550	660	490
NF Payette R nr Banks 2	APR-JUL	345	490	590	99%	690	835	595
	APR-SEP	350	500	600	98%	705	855	610
SF Payette R at Lowman	APR-JUL	290	370	425	104%	480	565	410
	APR-SEP	330	420	480	105%	540	630	455
Deadwood Reservoir Inflow 2	APR-JUL	81	107	124	100%	142	167	124
	APR-SEP	87	115	134	99%	153	181	136
Payette R nr Horseshoe Bend 2	APR-JUL	900	1250	1490	104%	1730	2080	1430
	APR-SEP	970	1340	1590	104%	1840	2200	1530
Weiser R nr Weiser								

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

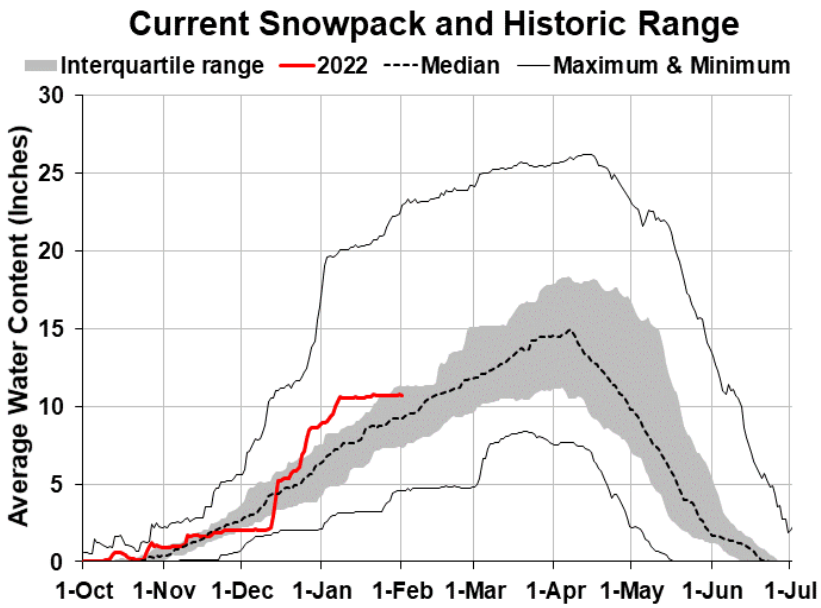
Reservoir Name	Current (KAF)	Last YR	Median (KAF)	Capacity (KAF)
Anderson Ranch Reservoir	176.1	271.7	270.2	450.2
Arrowrock Reservoir	171.7	201.2	206.9	272.2
Lucky Peak Reservoir	89.8	81.8	92.5	293.2
Sub-Basin Total	**437.5**	**554.8**	**569.6**	**1015.6**
Deadwood Reservoir	63.4	80.3	91.6	161.9
Cascade Reservoir	419.8	445.8	454.4	693.2
Sub-Basin Total	**483.2**	**526.1**	**546.0**	**855.1**
Lake Lowell	78.0	106.9	98.7	165.2
Mann Creek Reservoir	1.6	3.2	2.6	11.1

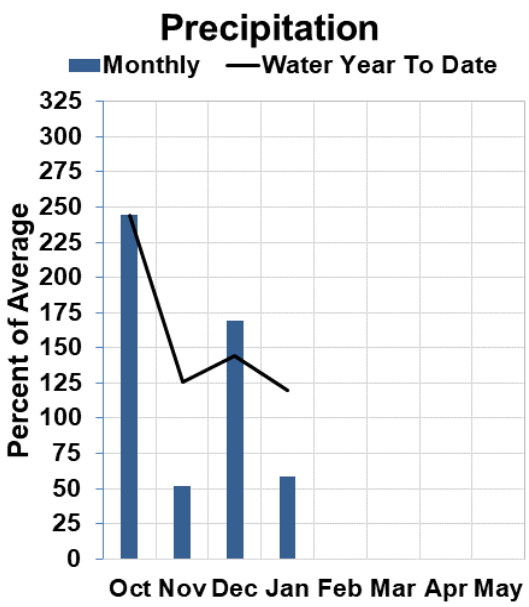
Watershed Snowpack Analysis: February 1, 2022

Basin Name	# of Sites	% of Median 2022	% of Median 2021
SF Boise River	9	103%	91%
MF & NF Boise Rivers	6	96%	92%
Mores Creek	5	102%	103%
Canyon Creek	4	118%	111%
Boise Basin Total	18	102%	96%
NF Payette River	9	98%	100%
SF Payette River	4	104%	94%
Payette Basin Total	19	101%	101%
Mann Creek	1	91%	122%
Weiser Basin Total	7	100%	101%

Wood & Lost River Basin

February 1, 2022





WATER SUPPLY OUTLOOK

The stubborn high-pressure system in place the western U.S. since early January brought an end to the moisture in the Wood and Lost basins. January precipitation dropped off significantly and was ~55% to 65% of normal, except for the Little Lost Basin, which was slightly higher at 83% of normal (Fig. 1). WY precipitation continues to be above normal, from ~135% to 150% of normal, except for the Big Wood Basin, which is slightly lower than the others at 115% of normal (Fig. 2). Basin snowpacks remain above normal for now, with all basins ~110% to 125% of normal, except for the Birch-Medicine Lodge-Beaver-Camas, which is only slightly above normal (Fig. 3). Snowpack density has increased from below normal in December and early January to above normal across the Wood and Lost basins. With the dry stretch of weather set to continue into early February, we are thankful for the extremely wet start to the water year in the Wood and Lost basins. Soil moisture continues to be above normal, which may help with runoff efficiency in the spring.

February 1 reservoir storage remains well below 30-year normal values, with Magic Reservoir at 43% of normal, Little Wood Reservoir at 65% of normal, and Mackay Reservoir at 68% of normal. Streamflow forecasts for the Big Wood and Little Lost basins are well above normal, from ~115% to 160%. The Climate Prediction Center's 30-Day Outlook suggests equal chances for normal temperatures and precipitation, and the current 10-day forecast does not suggest significant precipitation is on the way soon.

Wood and Lost Basins Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
Camas Ck at Camas	APR-JUL	4.8	12.6	19.9	115%	29	45	17.3
Little Lost R bl Wet Ck nr Howe								
Big Lost R at Howell Ranch								
Big Lost R bl Mackay Reservoir								
Little Wood R ab High Five Ck	MAR-JUL	47	71	90	155%	112	148	58
	MAR-SEP	50	76	96	155%	119	158	62
Little Wood R nr Carey 2	MAR-JUL	48	76	98	161%	124	166	61
	MAR-SEP	51	81	104	160%	131	176	65
Big Wood R at Hailey	APR-JUL	133	210	265	126%	320	400	210
	APR-SEP	150	235	295	128%	355	440	230
Big Wood R ab Magic Reservoir	APR-JUL	76	142	198	142%	265	380	139
	APR-SEP	83	152	210	144%	280	395	146
Camas Ck nr Blaine	MAR-JUL	26	57	84	158%	116	173	53
	MAR-SEP	27	57	84	158%	117	174	53
Big Wood R bl Magic Dam 2	APR-JUL	100	184	255	148%	335	480	172
	APR-SEP	109	196	270	148%	355	500	182

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

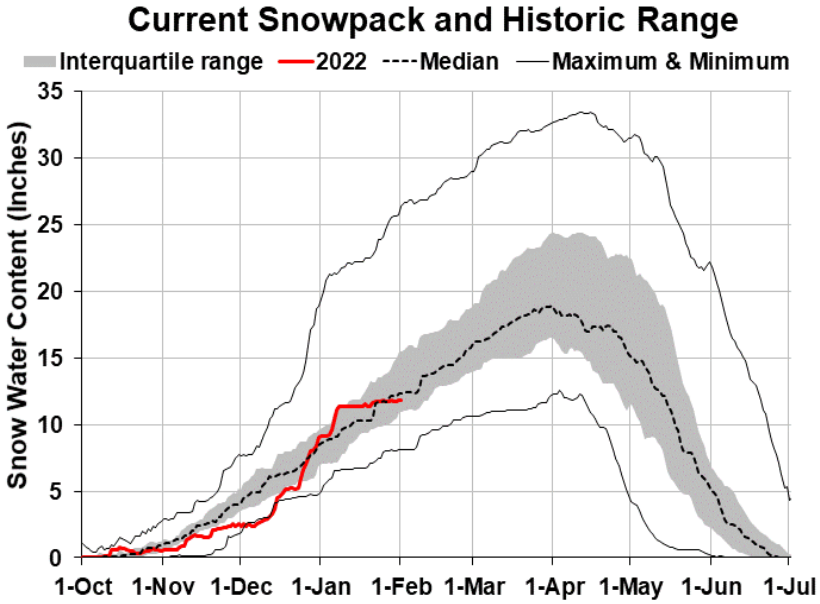
Reservoir Name	Current (KAF)	Last YR	Median (KAF)	Capacity (KAF)
Mackay Reservoir	19.3	25.7	28.2	44.4
Little Wood Reservoir	11.0	12.8	16.9	30.0
Magic Reservoir	21.3	24.4	50.0	191.5

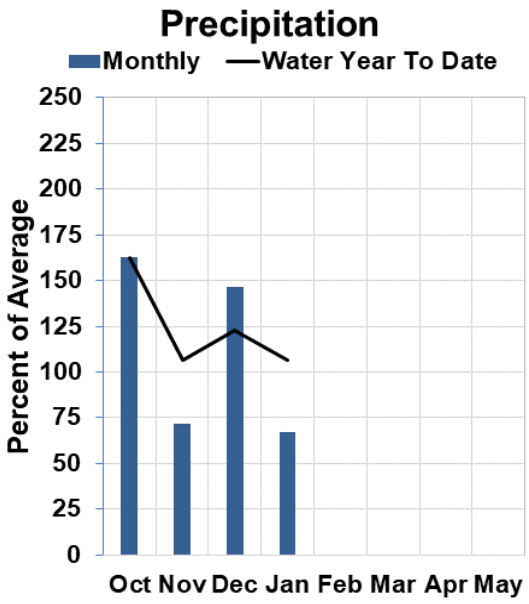
Watershed Snowpack Analysis: February 1, 2022

Basin Name	# of Sites	% of Median 2022	% of Median 2021
Camas-Beaver Creeks	4	90%	95%
Birch-Medicine Lodge Creeks	2	115%	70%
Little Lost River	3	120%	83%
Big Lost River ab Mackay	4	123%	81%
Big Lost Basin Total	5	123%	81%
Fish Creek	2	132%	72%
Little Wood ab Resv	4	122%	83%
Big Wood River ab Hailey	8	122%	93%
Camas Creek	4	95%	89%
Birch-Med Lodge-Camas-Beaver Total	6	100%	86%
Little Wood Basin Total	6	124%	80%
Big Wood Basin Total	12	113%	92%

Upper Snake River Basin

February 1, 2022





WATER SUPPLY OUTLOOK

Storms beginning in late December and lasting until January 8 brought precipitation to well above normal in early January. The remainder of the month brought very limited precipitation to the region. January precipitation was below normal for all major basins, ranging from ~60% to 80% (Fig.1). WY 2022 precipitation for the Upper Snake remains above normal with Henrys Fork-Teton, Snake Basin above Palisades, and Willow-Blackfoot-Portneuf at 106%, 108%, and 124% of normal, respectively (Fig. 2). Upper Snake Basins received record to near record high snowfall between January 1 and 8, but unfortunately record to near record low precipitation between January 8 and February 1. Colder than normal temperatures prevented melt during this dry period, but the snowpacks are all slightly below normal, from ~90% to 97%.

Reservoir storage in the Upper Snake system is well below normal for February 1, with Jackson Lake at 20% of capacity and 27% of normal, and Palisades at 36% capacity and 57% of normal. Henrys Fork-Teton and Willow-Blackfoot-Portneuf are near normal. Streamflow forecasts for the April to July runoff period are near normal, although the Henrys Fork and Teton Rivers are now ~85% of normal. We've seen things change significantly during the remaining winter months over the last several years, so be sure to check back in on future Water Supply Outlook Reports for up-to-date information.

Upper Snake River Basin Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
Henrys Fk nr Ashton 2	APR-JUL	285	345	390	82%	430	490	475
	APR-SEP	415	485	530	84%	580	650	630
Falls R nr Ashton 2	APR-JUL	255	305	335	85%	370	415	395
	APR-SEP	310	365	405	85%	450	505	475
Teton R nr Driggs	APR-JUL	67	97	118	81%	139	169	146
	APR-SEP	87	125	151	85%	177	215	178
Teton R nr St Anthony	APR-JUL	185	250	290	82%	335	395	355
	APR-SEP	225	300	350	82%	405	475	425
Henrys Fk nr Rexburg 2	APR-JUL	730	915	1040	86%	1170	1350	1210
	APR-SEP	940	1170	1330	84%	1480	1710	1580
Snake R at Flagg Ranch	APR-JUL	340	415	465	100%	515	590	465
	APR-SEP	375	455	510	101%	560	645	505
Snake R nr Moran 2	APR-JUL	570	680	755	103%	835	945	730
	APR-SEP	630	750	835	103%	920	1040	810
Pacific Ck at Moran	APR-JUL	110	134	150	97%	166	190	154
	APR-SEP	116	141	158	99%	175	200	160
Buffalo Fk ab Lava Ck nr Moran	APR-JUL	205	250	280	98%	315	360	285
	APR-SEP	230	285	320	103%	355	405	310
Snake R ab Reservoir nr Alpine 2	APR-JUL	1540	1900	2140	100%	2390	2750	2140
	APR-SEP	1780	2180	2450	101%	2730	3130	2430
Greys R ab Reservoir nr Alpine	APR-JUL	240	290	320	102%	355	405	315
	APR-SEP	275	335	375	103%	415	470	365
Salt R ab Reservoir nr Etna	APR-JUL	215	280	325	107%	365	430	305
	APR-SEP	270	340	390	103%	445	515	380
Snake R nr Irwin 2	APR-JUL	2160	2660	3000	102%	3350	3850	2930
	APR-SEP	2520	3090	3470	101%	3860	4430	3420
Snake R nr Heise 2	APR-JUL	2360	2860	3210	103%	3550	4050	3130
	APR-SEP	2770	3350	3740	102%	4130	4700	3660
Willow Ck nr Ririe 2	MAR-JUL	26	44	60	140%	78	109	43
Portneuf R at Topaz	MAR-JUL	45	56	65	107%	73	87	61
	MAR-SEP	56	69	79	105%	89	105	75
Snake R at Neeley 2	APR-JUL	640	1480	2040	85%	2610	3440	2390
	APR-SEP	570	1470	2080	88%	2690	3590	2360

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

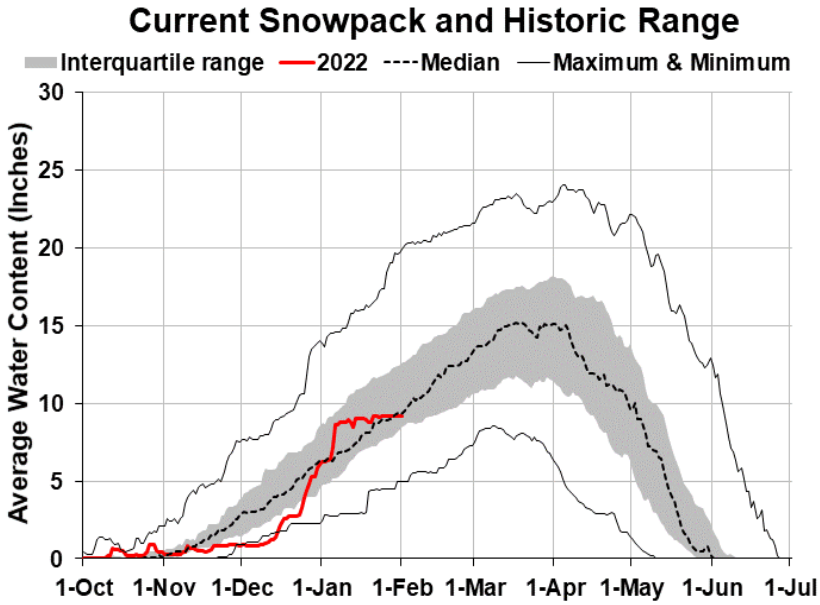
Reservoir Name	Current (KAF)	Last YR	Median (KAF)	Capacity (KAF)
Jackson Lake	169.8	655.9	620.4	847.0
Palisades Reservoir	502.0	1021.0	874.5	1400.0
Sub-Basin Total	**671.9**	**1676.9**	**1494.9**	**2247.0**
Henrys Lake	80.5	84.1	84.1	90.4
Island Park Reservoir	108.4	116.0	105.0	135.2
Grassy Lake	10.3	12.2	12.7	15.2
Sub-Basin Total	**199.2**	**212.4**	**201.8**	**240.8**
Ririe Reservoir	45.2	47.3	41.8	80.5
Blackfoot Reservoir		250.6	180.6	337.0
American Falls Reservoir	961.0	1203.1	1142.0	1672.6
Basin-Wide Total	**1877.4**	**3390.4**	**3061.1**	**4577.9**

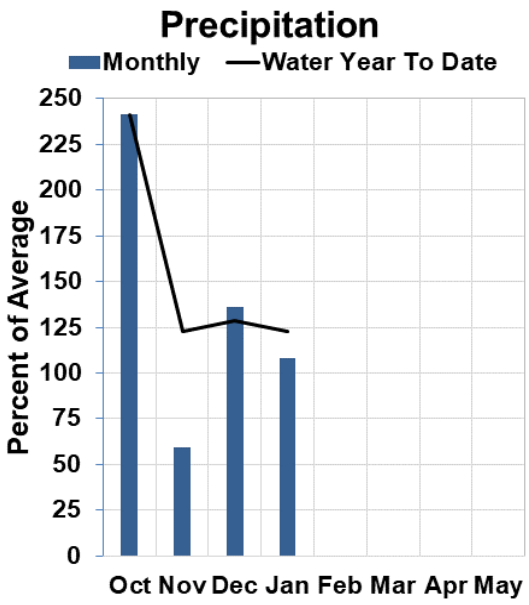
Watershed Snowpack Analysis: February 1, 2022

Basin Name	# of Sites	% of Median 2022	% of Median 2021
Henrys Fork-Falls River	10	91%	89%
Teton River	9	85%	94%
Henrys Fork-Teton	17	89%	90%
Snake River ab Jackson Lake	12	92%	81%
Pacific Creek	4	97%	89%
Buffalo Fork	4	93%	84%
Gros Ventre River	4	96%	86%
Hoback River	5	104%	76%
Greys River	5	98%	81%
Salt River	6	100%	82%
Snake ab Palisades Resv	34	94%	82%
Willow Creek	5	98%	81%
Blackfoot River	5	103%	77%
Portneuf River	6	87%	63%
Willow-Blackfoot-Portneuf	15	94%	74%

Southside Snake River Basins

February 1, 2022





WATER SUPPLY OUTLOOK

January precipitation totals resulted in a unique divergence across the individual sub-basins comprising the Southern Snake Basins. The Owyhee and Bruneau basins received below normal monthly totals, 55% and 79%, respectively. Conversely, the Salmon Falls, Goose Creek, and Raft River basins received between ~110 and 125%, which were the highest totals with respect to normal in Idaho (Fig. 1). The higher totals in the Salmon Falls, Goose Creek, and Raft River basins are likely due to topography and storm tracks (west-northwest), which together create favorable upsloping conditions. WY precipitation totals are more consistent across the area, and now range from ~110 to 120% of normal (Fig. 2). Snowpack totals range from ~85 to 120% of normal, with the lowest totals in the Bruneau and Owyhee basins (Fig. 3).

Reservoir storage is below normal across the area, except Wild Horse Reservoir in the upper Owyhee basin which is 116% of normal. Current reservoir storage as percent of capacity are: Salmon Falls 9%, Oakley 18%, Owyhee 20%, Wild Horse 49%, so there's plentiful room to capture the spring runoff! Streamflow forecasts range ~100% to 115% of normal, except for the Owyhee near Gold Creek, which is only 75% of normal. If a February rain event occurs, it's likely we will see significant low elevation melt and runoff in the Owyhee River basin.

Southside Snake River Basins Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
Goose Ck ab Trapper Ck nr Oakley	MAR-JUL	9.4	15.4	20	118%	26	35	16.9
	MAR-SEP	9.9	16.1	21	121%	27	37	17.3
Trapper Ck nr Oakley	MAR-JUL	4.2	5.1	5.7	116%	6.4	7.6	4.9
	MAR-SEP	5.2	6.2	6.9	115%	7.6	8.8	6
Oakley Reservoir Inflow	MAR-JUL	14.6	22	27	123%	34	44	22
	MAR-SEP	16.2	24	30	125%	36	47	24
Salmon Falls Ck nr San Jacinto	MAR-JUL	37	55	69	108%	86	113	64
	MAR-SEP	39	58	73	111%	89	116	66
Bruneau R nr Hot Spring	MAR-JUL	91	135	170	98%	210	275	173
	MAR-SEP	96	142	177	99%	220	285	179
Reynolds Ck at Tollgate	MAR-JUL	4.8	6.8	8.4	115%	10.1	12.9	7.3
	MAR-SEP	4.8	6.8	8.4	114%	10.2	13.1	7.4
Owyhee R nr Gold Ck 2	MAR-JUL	4.8	10.9	16.5	75%	23	35	22
	APR-JUL	1.47	6.2	11.4	66%	18	31	17.2
Owyhee R nr Rome	FEB-JUL	174	300	405	108%	525	735	375
	FEB-SEP	185	315	420	108%	545	755	390
	APR-JUL	60	151	240	117%	345	535	205
Owyhee R bl Owyhee Dam 2	FEB-JUL	210	345	450	107%	575	780	420
	FEB-SEP	235	370	480	107%	605	810	450
	APR-JUL	83	181	270	115%	375	560	235

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

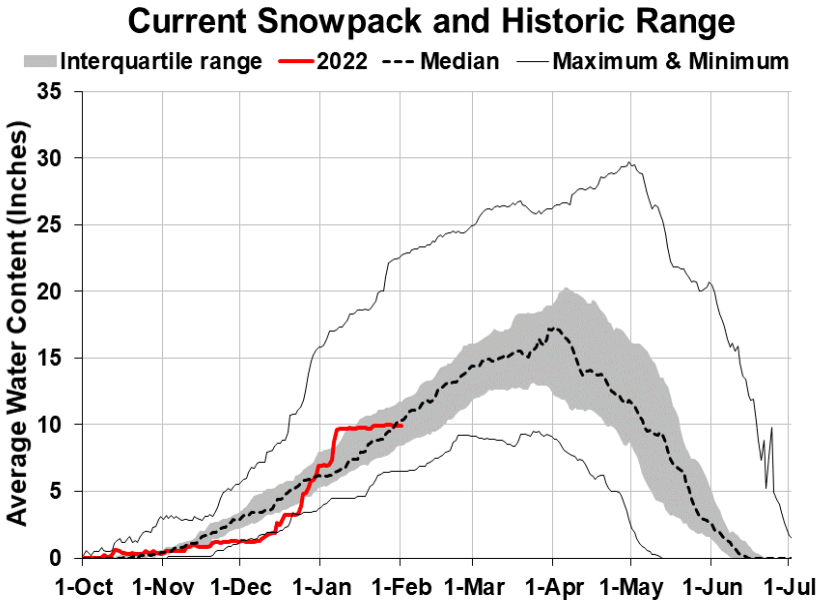
Reservoir Name	Current (KAF)	Last YR	Median (KAF)	Capacity (KAF)
Oakley Reservoir	13.3	22.7	19.1	75.6
Salmon Falls Reservoir	15.8	45.7	34.5	182.6
Wild Horse Reservoir	35.3	48.3	30.5	71.5
Lake Owyhee	144.1	347.8	258.8	715.0
Brownlee Reservoir	1026.1	962.6	1230.0	1420.0

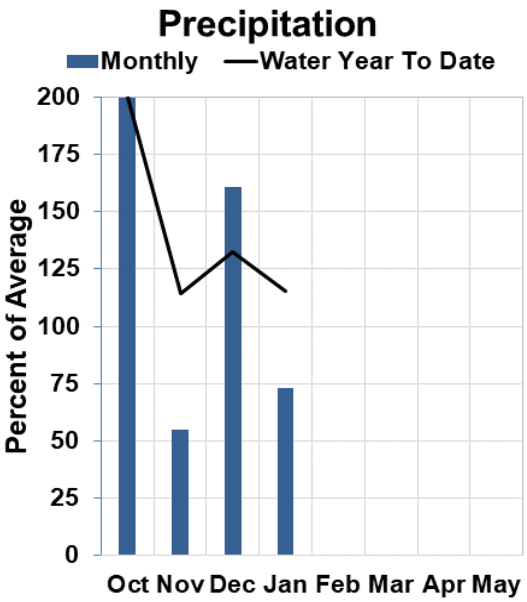
Watershed Snowpack Analysis: February 1, 2022

Basin Name	# of Sites	% of Median 2022	% of Median 2021
Raft River	2	118%	67%
Goose-Trapper Creeks	2	101%	70%
Salmon Falls Creek	6	96%	61%
Bruneau River	8	84%	59%
Reynolds Creek	7	103%	90%
Upper Owyhee	13	88%	55%
Owyhee Basin Total	20	98%	62%

Bear River Basin

February 1, 2022





WATER SUPPLY OUTLOOK

Although early December through early January was remarkably wet, consistent high-pressure systems set up over the western U.S. have blocked significant additional precipitation since early January. January precipitation in the Bear River Basin was 77% of normal (Fig. 1). WY precipitation is 122% of normal (Fig. 2), remaining well above normal for now. The February 1 snowpack is 105% of normal (Fig. 3). Mirroring conditions across central and southern Idaho, snowpack density in the Bear River Basin has markedly increased during the continued dry spell, and snowpack density is both above normal and higher than it has been on February 1 for at least the past five years. Soil moisture is still above normal, which continues to be a good sign for springtime runoff efficiency.

Reservoir storage is 111% of normal in the Bear River Basin. Streamflow forecasts are 95% to 115% of normal. The Climate Prediction Center's 30-Day Outlook suggests equal chances for normal temperatures and precipitation, however, the current 10-day forecast does not suggest significant precipitation is on the way soon.

Bear River Basin Streamflow Forecasts - February 1, 2022

Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <--Drier----------Projected Volume----------Wetter--> 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Med (KAF)
Bear R nr UT-WY State Line	APR-JUL	66	89	105	104%	121	144	101
	APR-SEP	76	101	118	104%	135	160	114
Bear R ab Resv nr Woodruff	APR-JUL	22	70	102	111%	134	182	92
	APR-SEP	20	71	106	107%	141	192	99
Big Ck nr Randolph	APR-JUL	0.1	2	3.6	113%	5.2	7.5	3.2
Smiths Fk nr Border	APR-JUL	52	70	82	95%	94	111	86
	APR-SEP	62	82	96	96%	109	130	100
Bear R bl Stewart Dam 2	FEB-JUL	38	87	132	99%	186	280	133
	FEB-SEP	39	91	140	97%	199	305	145
	MAR-JUL	31	77	120	95%	172	265	126

Normals based on 1991-2020 reference period: streamflow, snowpack, precipitation, & reservoir normals are medians.

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

Reservoir Name	Current (KAF)	Last YR	Median (KAF)	Capacity (KAF)
Bear Lake	546.0	795.4	467.9	1302.0
Montpelier Reservoir		2.2	2.1	4.0

Watershed Snowpack Analysis: February 1, 2022

Basin Name	# of Sites	% of Median 2022	% of Median 2021
Smiths-Thomas Forks	5	101%	82%
Bear Lake	7	102%	73%
Montpelier Creek	2	99%	70%
Mink Creek	0		
Cub River	1	107%	60%
Bear River Total	23	105%	71%
Malad River	1	91%	63%

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. 2018).**

Panhandle Region

Kootenai R at Leonia, MT (2)
+ Lake Koocanusa storage change

Moyie R at Eastport – no corrections

Boundary Ck nr Porthill – no corrections

Clark Fork R bl Cabinet Gorge (2)
+ Hungry Horse storage change
+ Flathead Lake storage change
+ Noxon Res storage change
Whitehorse Rapid gage used create longer term record

Pend Oreille Lake Inflow (2)
+ Pend Oreille R at Newport, WA
+ Hungry Horse Res storage change
+ Flathead Lake storage change
+ Noxon Res storage change
+ Lake Pend Oreille storage change
+ Priest Lake storage change

Priest R nr Priest R (2)
+ Priest Lake storage change

NF Coeur d' Alene R at Enaville - no corrections

St. Joe R at Calder- no corrections

Spokane R nr Post Falls (2)
+ Lake Coeur d' Alene storage change

Spokane R at Long Lake, WA (2)
+ Lake Coeur d' Alene 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 (2)
+ Clearwater R nr Peck
- Clearwater R at Orofino
+ Dworshak Res storage change

Clearwater R at Orofino - no corrections

Clearwater R at Spalding (2)
+ Dworshak Res storage change

Salmon River Basin

Salmon R at Salmon - no corrections

Lemhi R nr Lemhi – no corrections

MF Salmon R at MF Lodge – no corrections
SF Salmon gage used to create longer term record

SF Salmon R nr Krassel Ranger Station – no corrections

Johnson Creek at Yellow pine – no corrections

Salmon R at White Bird - no corrections

West Central Basins

Boise R nr Twin Springs - no corrections

SF Boise R at Anderson Ranch Dam (2)
+ Anderson Ranch Res storage change

Mores Ck nr Arrowrock Dam – no corrections

Boise R nr Boise (2)
+ Anderson Ranch Res storage change
+ Arrowrock Res storage change
+ Lucky Peak Res storage change

SF Payette R at Lowman - no corrections

Deadwood Res Inflow (2)
+ Deadwood R bl Deadwood Res nr Lowman
+ Deadwood Res storage change

Lake Fork Payette R nr McCall – no corrections

NF Payette R at Cascade (2)
+ Payette Lake storage change
+ Cascade Res storage change

NF Payette R nr Banks (2)
+ Payette Lake storage change
+ Cascade Res storage change

Payette R nr Horseshoe Bend (2)
+ Deadwood Res storage change
+ Payette Lake storage change
+ Cascade Res storage change

Weiser R nr Weiser - no corrections

Wood and Lost Basins

Little Lost R bl Wet Ck nr Howe - no corrections

Big Lost R at Howell Ranch - no corrections

Big Lost R bl Mackay Res nr Mackay (2)
+ Mackay Res storage change

Little Wood R ab High Five Ck – no corrections

Little Wood R nr Carey (2)
+ Little Wood Res storage change

Big Wood R at Hailey - no corrections

Big Wood R ab Magic Res (2)
+ Big Wood R nr Bellevue (1912-1996)
+ Big Wood R at Stanton Crossing nr Bellevue (1997 to present)
+ Willow Ck (1997 to present)

Camas Ck nr Blaine – no corrections

Magic Res Inflow (2)
+ Big Wood R bl Magic Dam
+ Magic Res storage change

Upper Snake River Basin

Falls R nr Ashton (2)
+ Grassy Lake storage change
+ Diversions from Falls R ab nr Ashton

Henrys Fork nr Ashton (2)
+ Henrys Lake storage change
+ Island Park Res storage change

Teton R nr Driggs - no corrections

Teton R nr St. Anthony (2)
- Cross Cut Canal into Teton R
+ Sum of Diversions for Teton R ab St. Anthony
+ Teton Dam for water year 1976 only

Henrys Fork nr Rexburg (2)
+ Henrys Lake storage change
+ Island Park Res storage change
+ Grassy Lake storage change
+ 3 Diversions from Falls R ab Ashton-Chester
+ 6 Diversions from Falls R abv Ashton
+ 7 Diversions from Henrys Fk btw Ashton to St. Anthony
+ 21 Diversions from Henrys Fk btw St. Anthony to Rexburg
Snake R nr Flagg Ranch, WY – no corrections
Snake R nr Moran, WY (2)
+ Jackson Lake storage change
Pacific Ck at Moran, WY - no corrections
Buffalo Fork ab Lava nr Moran, WY - no corrections
Snake R ab Res nr Alpine, WY (2)
+ Jackson Lake storage change
Greys R nr Alpine, WY - no corrections
Salt R nr Etna, WY - no corrections
Palisades Res Inflow (2)
+ Snake R nr Irwin
+ Jackson Lake storage change
+ Palisades Res storage change
Snake R nr Heise (2)
+ Jackson Lake storage change
+ Palisades Res storage change
Ririe Res Inflow (2)
+ Willow Ck nr Ririe
+ Ririe Res storage change
The forecasted natural volume for Willow Creek nr Ririe does not include Grays Lake water diverted from Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.
Blackfoot R ab Res nr Henry (2)
+ Blackfoot Res storage change
The forecasted Blackfoot Reservoir Inflow includes Grays Lake water diverted from the Willow Creek drainage through the Clarks Cut diversion and into Blackfoot Reservoir.
Portneuf R at Topaz - no corrections
American Falls Res Inflow (2)
+ Snake R at Neeley
+ Jackson Lake storage change
+ Palisades Res storage change
+ American Falls storage change
+ Teton Dam for water year 1976 only

Southside Snake River Basins

Goose Ck nr Oakley - no adjustments
Trapper Ck nr Oakley - no adjustments
Oakley Res Inflow - *flow does not include Birch Creek*
+ Goose Ck
+ Trapper Ck
Salmon Falls Ck nr San Jacinto, NV - no corrections
Bruneau R nr Hot Springs - no corrections
Reynolds Ck at Tollgate - no corrections
Owyhee R nr Gold Ck, NV (2)
+ Wildhorse Res storage change
Owyhee R nr Rome, OR – no Corrections
Owyhee Res Inflow (2)
+ Owyhee R bl Owyhee Dam, OR
+ Lake Owyhee storage change
+ Diversions to North and South Canals

Bear River Basin

Bear R nr UT-WY Stateline, UT- no corrections
Bear R abv Res nr Woodruff, UT- no corrections
Big Ck nr Randolph, UT - no corrections
Smiths Fork nr Border, WY - no corrections
Bear R bl Stewart Dam (2)
+ Bear R bl Stewart Dam
+ Rainbow Inlet Canal
Little Bear R at Paradise, UT - no corrections
Logan R nr Logan, UT - no corrections
Blacksmith Fk nr Hyrum, UT - no corrections

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

Different agencies use various definitions when reporting reservoir capacity and contents. Reservoir storage terms include dead, inactive, active, and surcharge storage. This table lists the 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/or inactive storage. **(Revised Feb. 2015)**

Basin- Lake or 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	Unknown	---	**335.00**	---	**335.0**	Active
Lake Pend Oreille	**406.20**	**112.40**	**1042.70**	**---**	**1561.3**	Dead + Inactive + Active
Lake 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
West Central Basins						
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
Deadwood	Unknown	---	**161.90**	**---**	**161.9**	Active
Cascade	Unknown	**46.70**	**646.50**	**---**	**693.2**	Inactive + Active
Mann Creek	1.61	0.24	**11.10**	**---**	**11.1**	Active
Wood and Lost Basins						
Mackay	0.13	---	**44.37**	**---**	**44.4**	Active
Little Wood	Unknown	---	**30.00**	**---**	**30.0**	Active
Magic	Unknown	---	**191.50**	**---**	**191.5**	Active
Upper Snake Basin						
Jackson Lake	Unknown	---	**847.00**	**---**	**847.0**	Active
Palisades	44.10	**155.50**	**1200.00**	**---**	**1400.0**	Dead +Inactive +Active
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
Ririe	4.00	6.00	**80.54**	10.00	**80.5**	Active
Blackfoot	0.00	---	**333.50**	3.50	**333.50**	Active (rev. 2/1/2015)
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
Wild Horse	Unknown	---	**71.50**	**---**	**71.5**	Active
Lake 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**	**---**	**1302.0**	Active:
Capacity does not include 119 KAF that can be used, historic values below this level are rounded to zero						
Montpelier	**0.21**	**---**	**3.84**	**---**	**4.0**	Dead + Active

Interpreting Water Supply Forecasts

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 Median. The 30-year median streamflow for each forecast period is provided for comparison. The median is based on data from 1991-2020. The % MED column compares the 50% chance of exceedance forecast to the 30-year median streamflow; values above 100% denote when the 50% chance of exceedance forecast would be greater than the 30-year median streamflow.

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

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.

<u>Forecast use example:</u>

Using the 50 Percent Exceedance Forecast. Using the example forecasts shown on the next page, there is a 50% chance that actual streamflow volume at the Henry's Fork near Ashton will be less than 280 KAF between June 1 and Sept. 30. There is also a 50% chance that actual streamflow volume will be greater than 280 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 245 KAF during Jun 1 through September 30 (from the 70 percent exceedance forecast). There is a 30% chance of receiving *less* than 245 KAF.

Alternatively, if users determine the risk of using the 70 percent exceedance forecast is too great, then they might plan on receiving 198 KAF (from the **90** percent exceedance forecast). There is 10% chance of receiving less than 72 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 315 KAF between June 1 and Sept. 30 (from the 30 percent exceedance forecast). There is a 30% chance of receiving *more* than 315 KAF.

Alternatively, if users determine the risk of using the 30 percent exceedance forecast is too great, then they might plan on receiving 360 KAF (from the 10 percent exceedance forecast). There is a 10% chance of receiving more than 360 KAF. Users could also choose a volume in between any of these values to reflect their desired risk level.

Upper Snake River Basin Streamflow Forecasts - June 1, 2015

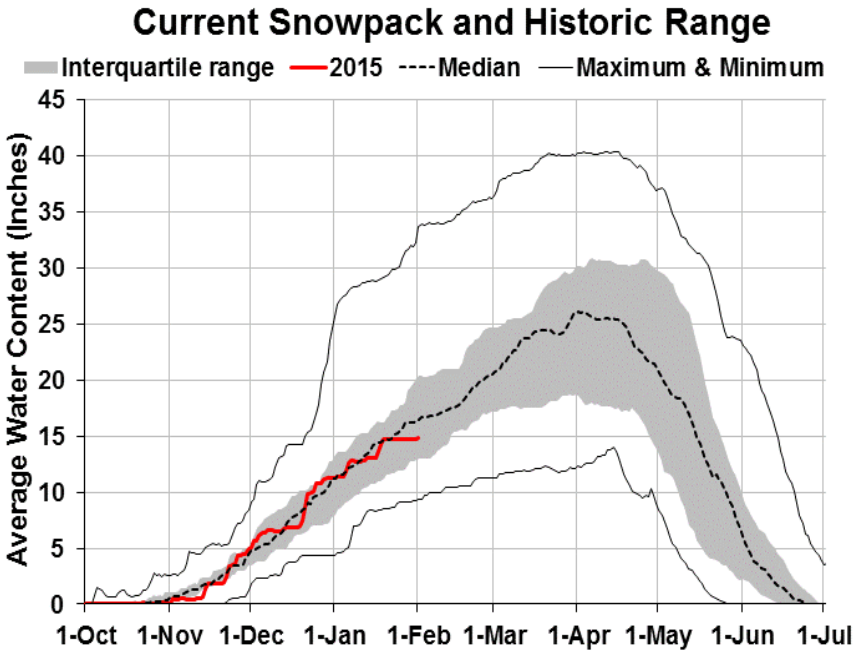
Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <---Drier----------Projected Volume----------Wetter---> 90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Henrys Fk nr Ashton	JUN-JUL	72	106	129	56	152	186	230
	JUN-SEP	198	245	280	68	315	360	410

Interpreting Snowpack Plots

Basin snowpack plots represent snow water equivalent indices using the average daily SNOTEL data[1] from several sites in or near individual basins. The solid red line (2015), which represents the current water year snowpack water content, can be compared to the normal dashed black line (Median) which is considered "normal", as well as the SNOTEL observed historical snowpack range for each basin. This allows users to gather important information about the current year's snowpack as well as the historical variability of snowpack in each basin.

The gray shaded area represents the interquartile range (also known as the "middle fifty"), which is the 25th to 75th percentiles of the historical daily snowpack data for each basin. Percentiles depict the value of the average snowpack below which the given percent of historical years fall. For example, the top part of the interquartile range (75th percentile) indicates that the snowpack index has been below this line for 75 percent of the period of record, whereas the reverse is true for the lower part of the interquartile range (25th percentile). This means 50 percent of the time the snowpack index is within the interquartile range (gray area) during the period of record.

[1] All data used for these plots come from daily SNOTEL data only and does not include snow course data (collected monthly), whereas the official basin snowpack percent of normal includes both SNOTEL and snow course data, potentially leading to slight discrepancies between plots and official basin percent of normal.



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This publication is dedicated to the people, agencies and organizations utilizing this data, information and forecasts for short and long term water management, planning, preparation, recreation and otherwise, for the enhancement of the economy and enrichment of livelihoods.