USDA United States Department of Agriculture

Natural Resources Conservation Service

Idaho Water Supply Outlook Report

February 1, 2020

Ski and sled tracks near Banner Summit, ID, January 30, 2020
Photo courtesy of Peter Youngblood

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/
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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when 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 January and June forecasts, with little change anticipated for February, March, April, and May forecasts. For more information, please contact Danny Tappa (daniel.tappa@usda.gov)

IDAHO WATER SUPPLY OUTLOOK REPORT

February 1, 2020

SUMMARY

Precipitation

The New Year and decade brought not only the change of time and calendars, but also a change in the dominant weather pattern affecting the Pacific Northwest. The first in a series of potent weather systems began spreading across Idaho on New Year's Eve, bringing much needed precipitation to Idaho after a record dry November and a drier than normal December. January precipitation was much above normal for nearly all river basins in Idaho and ranged from ~125 to 175%, with a few exceptions in the Wood & Lost River basins where precipitation totals were ~80 to 100% of normal (**Figure 1**). Poor precipitation totals in December followed a historically dry November when new record low monthly precipitation was observed throughout much of the Idaho SNOTEL network. As a result, water-year precipitation (Oct. 1 to Feb. 1) totals are still below normal for most basins in Idaho (**Figure 2**), but conditions have improved significantly since Jan. 1. Currently, the biggest area of concern is in the Wood & Lost basins, where water-year precipitation is only 60 to 70% of normal. Near-term outlooks from NOAA's Climate Prediction Center suggest an increased likelihood for above normal precipitation in early February. If this is realized, water-year precipitation totals will continue to improve. Monthly and water-year precipitation data for all basins in Idaho can be accessed in tabular form here.

Snowpack

Cooler temperatures followed the pattern change to start January, resulting in snowfall for all elevations in Idaho, including the lowest valleys. NOAA weather stations in Boise and Lewiston, for example, each recorded approximately 9" of total snowfall for the month. With mild temperatures returning the second half of January, much of the lower elevation valley snow melted or sublimated. In Idaho's higher country, impressive monthly snow water equivalent (SWE) increases were observed during January from the Panhandle and Clearwater (10 to 20") to the West-Central and Upper Snake (6 to 12"), with lesser amounts along the southern border and in the Wood & Lost basins. As a result, most basins across Idaho are within +/-10% of normal snowpack (Figure 3). The main exception to this is in the Wood & Lost basin area, where snowpacks range from 65 to 80% of normal. Last month we suggested snowpack conditions were likely to improve by Feb. 1, and that came to fruition for nearly the entire state. Currently, it's a bit less clear what February will bring, so we suggest viewing our March 1 report. See **Figure 3** for a map of basin specific Feb. 1 snowpack conditions, or access the same information in tabular form here.

Reservoirs & Streamflow

All major reservoir projects in the Middle and Upper Snake basins are still holding above normal storage. A statewide summary of current reservoir storage can be accessed here. As expected with above normal precipitation and mountain snow during January, streamflow forecasts have increased since January 1. Current forecasts for the primary runoff periods are expected to be ~80 to 110% of normal for *most* of Idaho, full basin specific forecast details can be accessed here and in **Figure 4**.

Note: The streamflow volumes referenced in this report are the 50% Chance of Exceeding Forecast, unless otherwise noted.

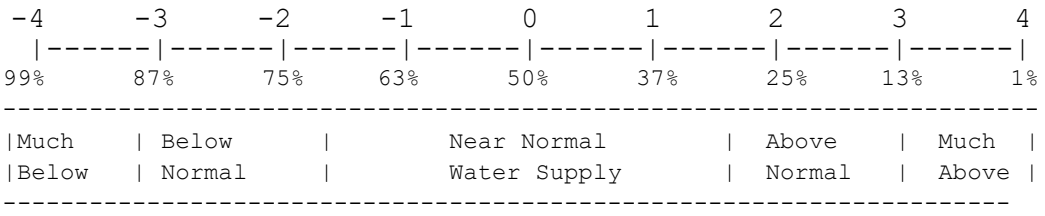
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) February 1, 2020

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

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

BASIN or REGION	*SWSI Value*	*Most Recent Year With Similar SWSI Value*	*Agricultural Water Supply Shortage May Occur When SWSI is Less Than*
Spokane	**- 0.1**	**2006**	**NA**
Clearwater	**- 0.1**	**2003**	**NA**
Salmon	**- 1.0**	**2003**	**NA**
Weiser	**- 0.1**	**2003**	**NA**
Payette	**- 1.3**	**2016**	**NA**
Boise	**- 0.7**	**2016**	**- 1.6**
Big Wood above Hailey	**- 1.3**	**2014**	**- 2.9**
Big Wood	**- 0.1**	**2016**	**0.5**
Little Wood	**- 1.0**	**2008**	**- 1.4**
Big Lost	**- 0.4**	**2016**	**0.5**
Little Lost	**-----**	**2015**	**1.2**
Teton	**0.1**	**2019**	**- 3.8**
Henrys Fork	**-----**	**-----**	**- 1.5**
Snake (Heise)	**1.3**	**2006**	**- 1.8**
Oakley	**2.1**	**2019**	**0.7**
Salmon Falls above Jackpot	**0.4**	**2010**	**NA**
Salmon Falls	**2.1**	**1999**	**- 0.7**
Bruneau	**0.7**	**2009**	**NA**
Owyhee	**1.8**	**2019**	**- 2.0**
Bear River	**3.1**	**2018**	**- 3.9**

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.

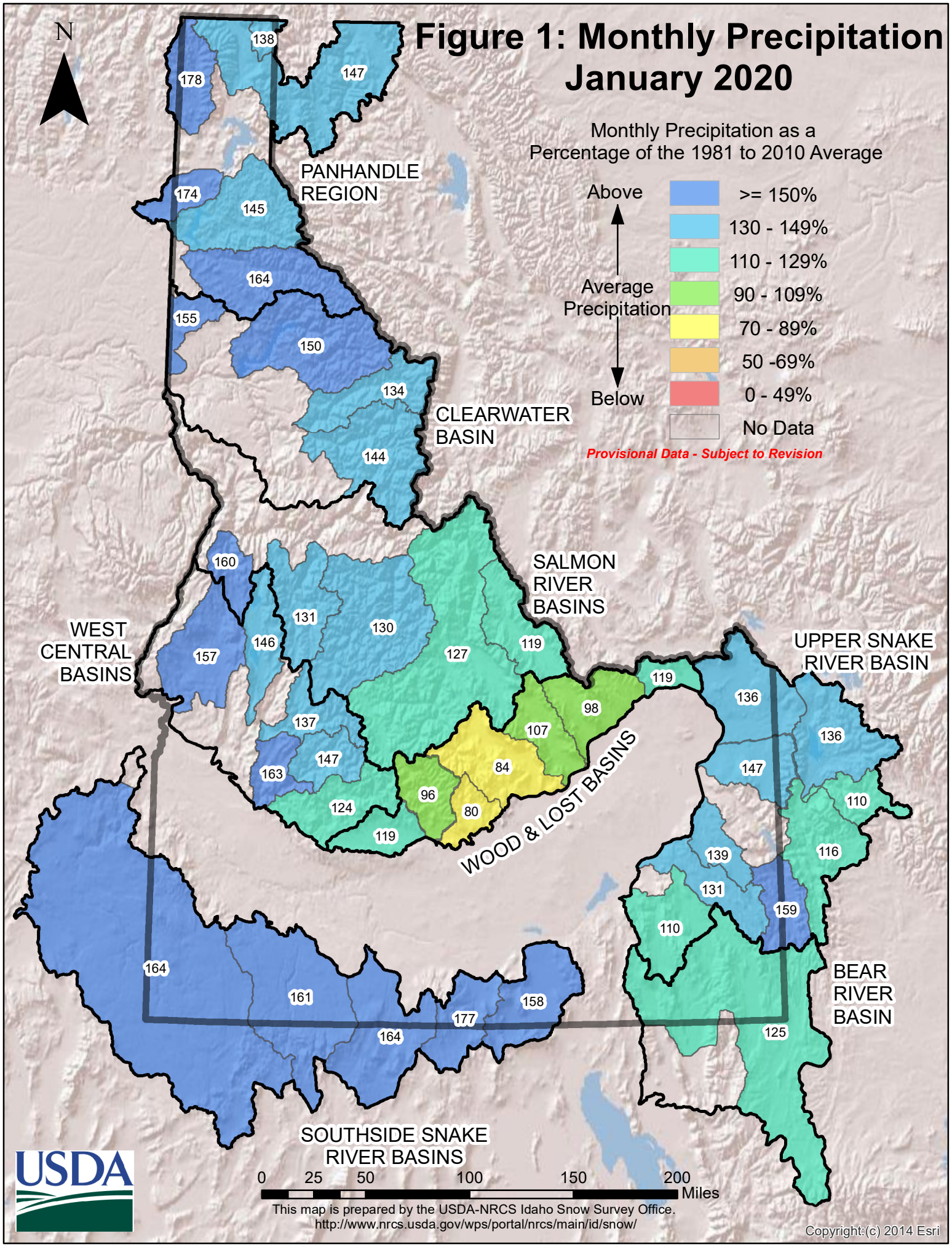

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Figure 1: Monthly Precipitation
January 2020
Monthly Precipitation as a
Percentage of the 1981 to 2010 Average
Above
Average
Precipitation
Below
>= 150%
130 - 149%
110 - 129%
90 - 109%
70 - 89%
50 -69%
0 - 49%
No Data
Provisional Data - Subject to Revision
PANHANDLE
REGION
CLEARWATER
BASIN
SALMON
RIVER
BASINS
WEST
CENTRAL
BASINS
UPPER SNAKE
RIVER BASIN
WOOD & LOST BASINS
BEAR
RIVER
BASIN
SOUTHSIDE SNAKE
RIVER BASINS
138
147
178
174
145
164
155
150
134
144
160
131
130
146
157
127
119
119
136
98
107
137
147
163
84
136
147
110
96
80
124
119
139
116
131
159
110
164
161
158
177
164
125
0
25
50
100
150
200
Miles
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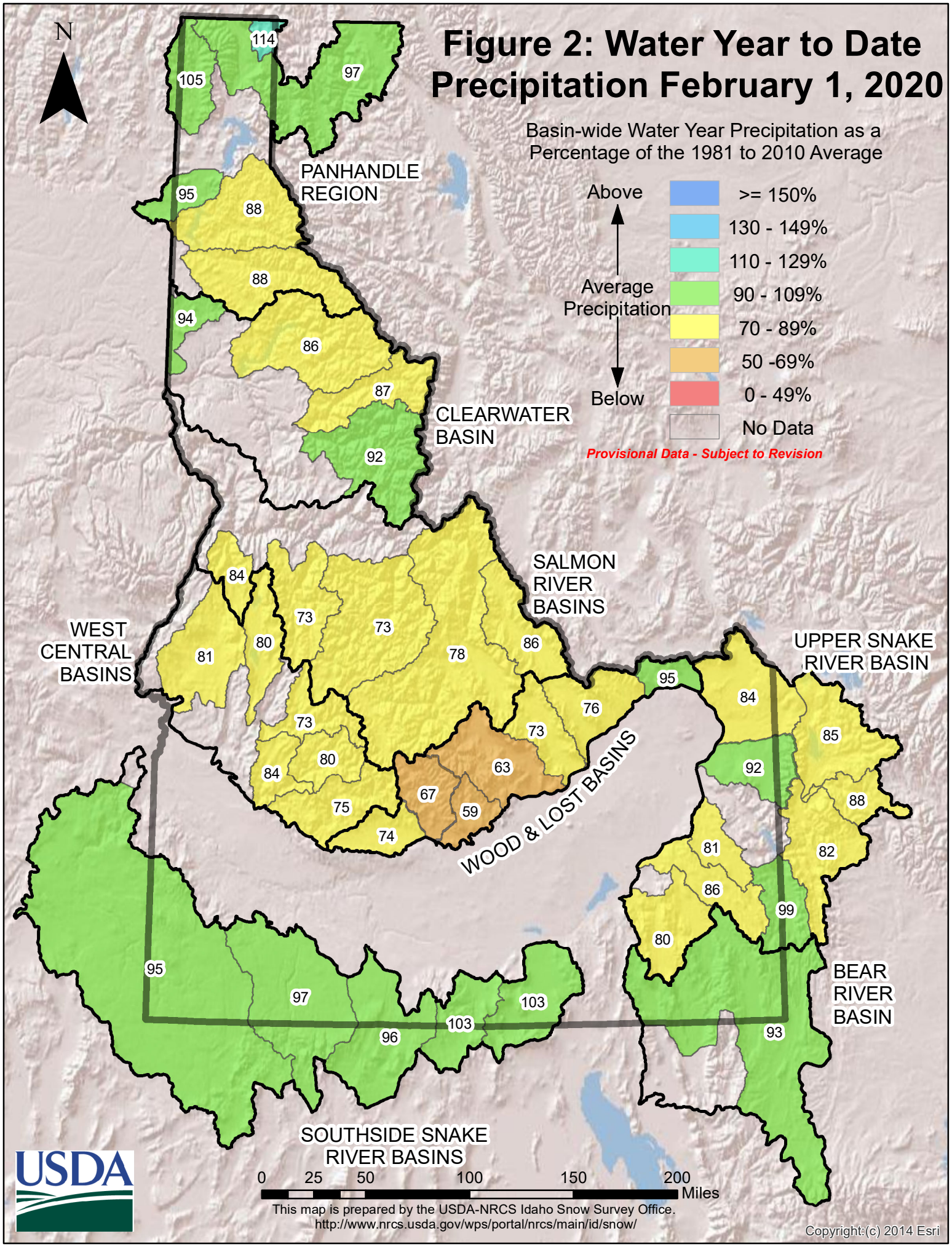
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Figure 2: Water Year to Date Precipitation February 1, 2020
Basin-wide Water Year Precipitation as a Percentage of the 1981 to 2010 Average
Above
Average Precipitation
Below
>= 150%
130 - 149%
110 - 129%
90 - 109%
70 - 89%
50 -69%
0 - 49%
No Data
Provisional Data - Subject to Revision
PANHANDLE REGION
CLEARWATER BASIN
SALMON RIVER BASINS
WEST CENTRAL BASINS
UPPER SNAKE RIVER BASIN
WOOD & LOST BASINS
BEAR RIVER BASIN
SOUTHSIDE SNAKE RIVER BASINS
114
105
97
95
88
88
94
86
87
92
84
73
73
80
81
78
86
95
84
76
73
73
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63
67
75
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99
80
95
97
103
103
96
93
0 25 50 100 150 200 Miles
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USDA
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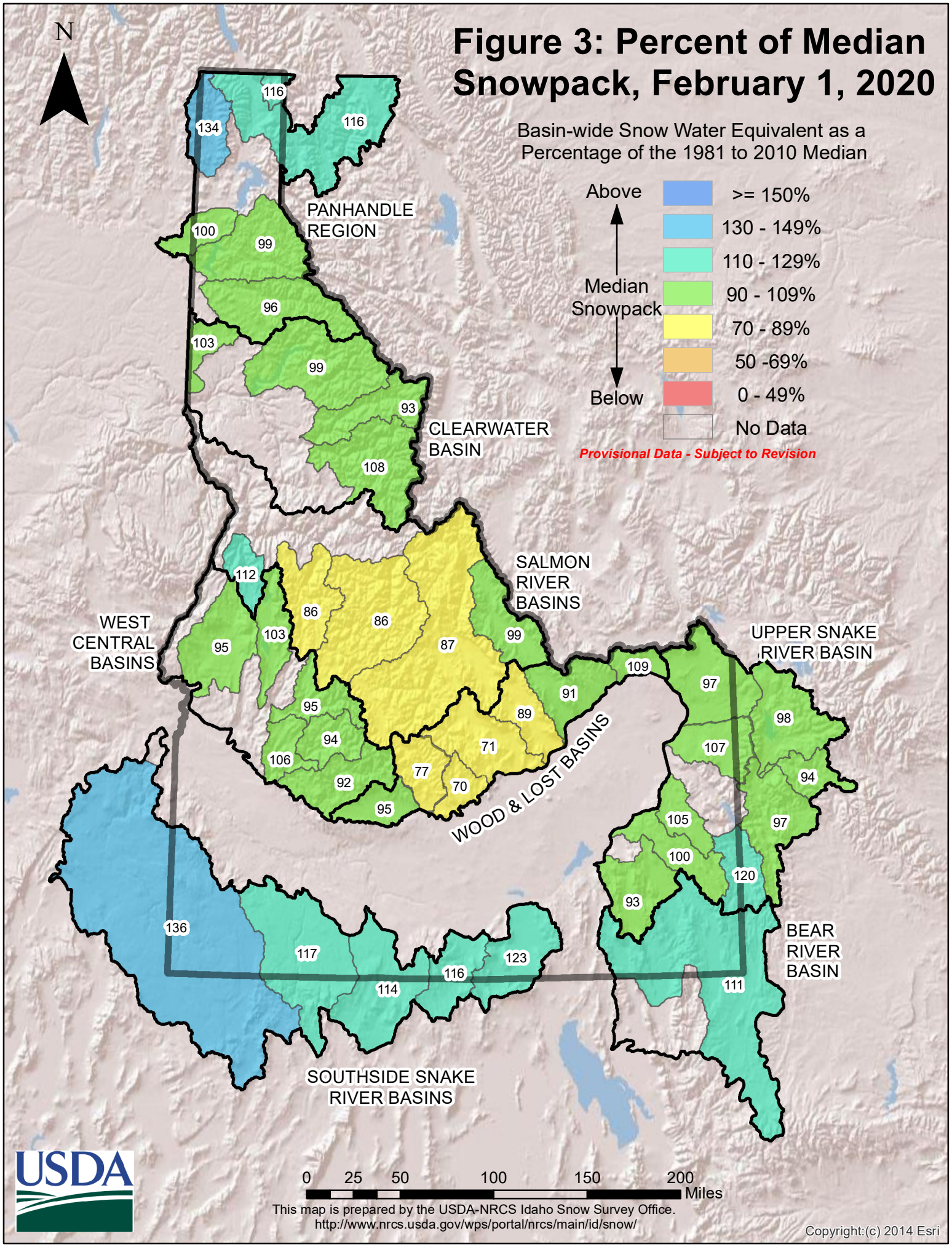
N
Figure 3: Percent of Median Snowpack, February 1, 2020
Basin-wide Snow Water Equivalent as a Percentage of the 1981 to 2010 Median
Above
Median Snowpack
Below
>= 150%
130 - 149%
110 - 129%
90 - 109%
70 - 89%
50 -69%
0 - 49%
No Data
Provisional Data - Subject to Revision
PANHANDLE REGION
CLEARWATER BASIN
SALMON RIVER BASINS
WEST CENTRAL BASINS
WOOD & LOST BASINS
UPPER SNAKE RIVER BASIN
BEAR RIVER BASIN
SOUTHSIDE SNAKE RIVER BASINS
116
134
116
100
99
96
103
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93
108
112
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98
107
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94
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92
95
89
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100
120
97
93
136
117
123
116
114
111
USDA
0 25 50 100 150 200
Miles
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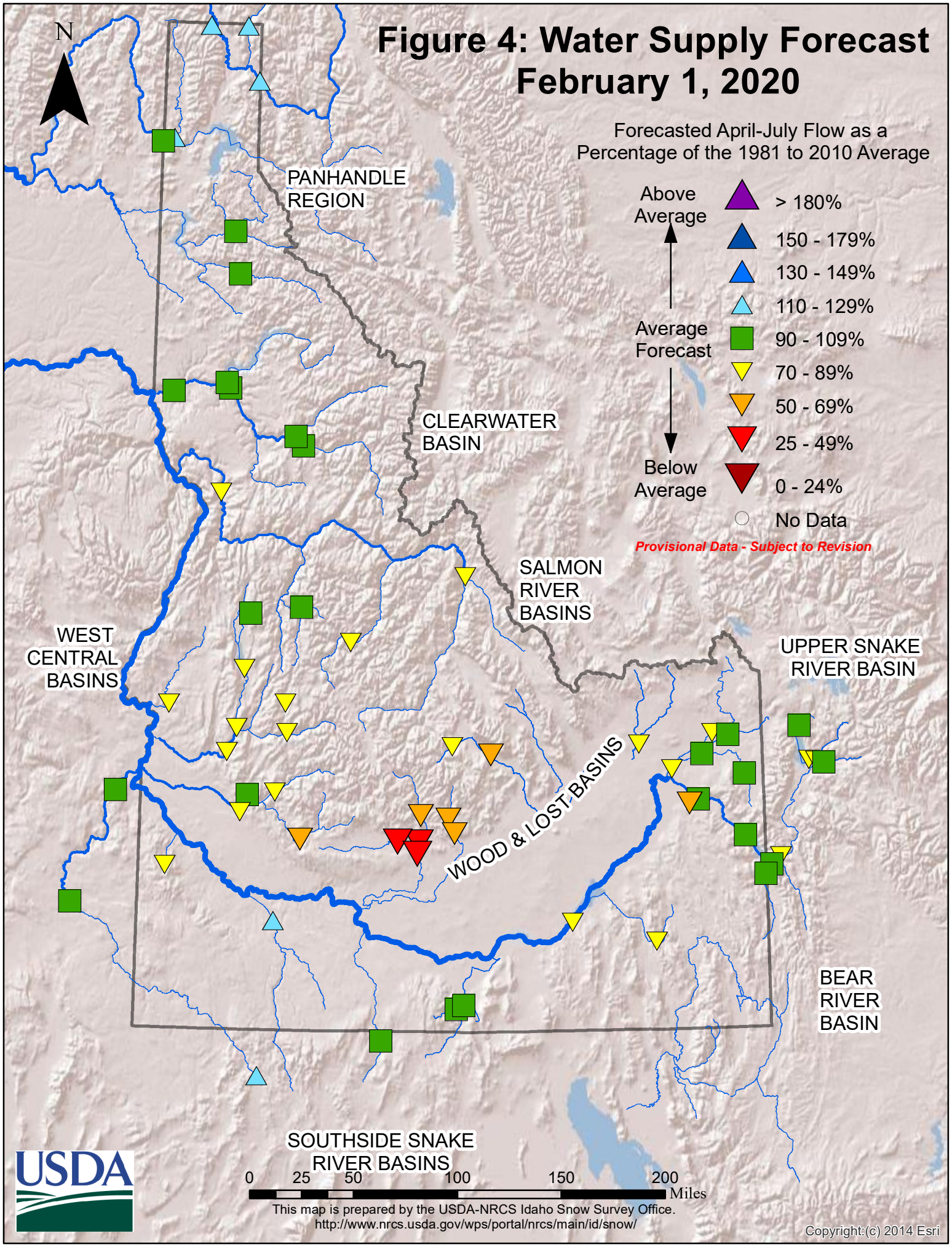
Figure 4: Water Supply Forecast
February 1, 2020
Forecasted April-July Flow as a
Percentage of the 1981 to 2010 Average
Above Average
Average Forecast
Below Average
> 180%
150 - 179%
130 - 149%
110 - 129%
90 - 109%
70 - 89%
50 - 69%
25 - 49%
0 - 24%
No Data
Provisional Data - Subject to Revision
N
PANHANDLE REGION
CLEARWATER BASIN
SALMON RIVER BASINS
WEST CENTRAL BASINS
UPPER SNAKE RIVER BASIN
WOOD & LOST BASINS
BEAR RIVER BASIN
SOUTHSIDE SNAKE RIVER BASINS
0 25 50 100 150 200
Miles
USDA
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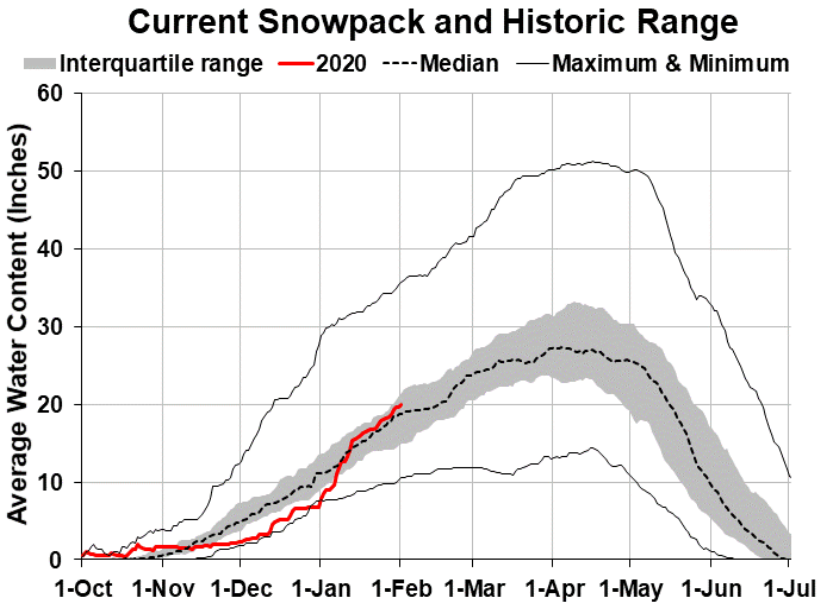
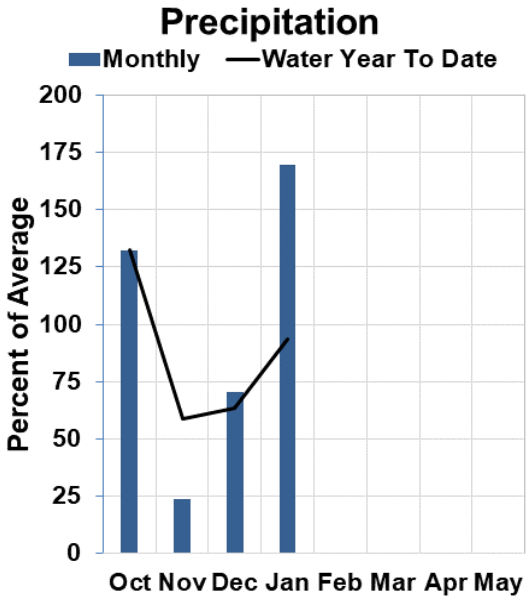
Panhandle Region

February 1, 2020





WATER SUPPLY OUTLOOK

The Panhandle region was struck by consistent storms through the month of January. Monthly precipitation totals ranged from 130 to 270% of normal, and water-year precipitation now ranges from 90 to 130% of normal. Feb, 1 snowpack totals are between ~95 to 135% of normal. Several SNOTEL sites in the Selkirk Mountains northwest of Coeur d'Alene, southwest of Lake Pend Oreille, and south of the St. Joe River set new records for snow accumulation for the month of January, where SWE increased by as much as 21 inches!

Current reservoir storage across the Panhandle region ranges from 76 to 134% of normal. Streamflow forecasts are currently near normal for all forecasts points around the region. Outlooks for February favor above normal precipitation for the region, which would help secure plentiful streamflow runoff during spring and summer.

Panhandle Region Streamflow Forecasts - February 1, 2020

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)
Moyie R at Eastport	APR-JUL	345	410	455	121%	505	570	375
	APR-SEP	360	425	470	122%	520	585	385
Kootenai R at Leonia 1 & 2	APR-JUL	5290	6690	7330	111%	7970	9370	6600
	APR-SEP	6350	7750	8380	110%	9010	10400	7590
Boundary Ck nr Porthill	APR-JUL	104	122	135	115%	147	166	117
	APR-SEP	110	128	141	115%	153	172	123
Clark Fork R bl Cabinet Gorge Dam 2	APR-JUL	8040	9760	10900	106%	12100	13800	10300
	APR-SEP	8770	10600	11800	104%	13100	14900	11300
Pend Oreille Lake Inflow 2	APR-JUL	9240	11300	12600	107%	14000	16000	11800
	APR-SEP	10100	12200	13600	106%	15100	17200	12800
Priest R nr Priest River 2	APR-JUL	665	825	935	120%	1040	1200	780
	APR-SEP	725	890	1000	120%	1120	1280	830
NF Coeur dAlene R at Enaville	APR-JUL	465	640	765	109%	885	1060	700
	APR-SEP	500	680	800	108%	925	1100	740
St. Joe R at Calder 2	APR-JUL	730	930	1060	101%	1200	1400	1050
	APR-SEP	785	990	1130	101%	1270	1470	1120
Spokane R nr Post Falls 2	APR-JUL	1550	2120	2500	105%	2890	3460	2390
	APR-SEP	1630	2200	2590	104%	2980	3550	2480
Spokane R at Long Lake	APR-JUL	1810	2390	2780	106%	3180	3760	2620
	APR-SEP	1990	2580	2990	105%	3390	3980	2850

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE normals are medians.

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

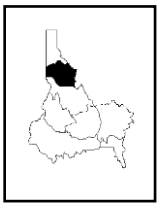
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Reservoir Storage (KAF): End of January

Reservoir Name	Current (KAF)	Last YR	Average (KAF)	Capacity (KAF)
Hungry Horse Lake	2888.9	2805.6	2375.0	3451.0
Flathead Lake	906.3	944.8	955.6	1791.0
Noxon Rapids Reservoir	312.9	305.8	315.0	335.0
Lake Pend Oreille	572.7	566.6	753.9	1561.3
Priest Lake	54.6	52.5	56.7	119.3
Lake Coeur d' Alene	129.1	51.2	96.3	238.5

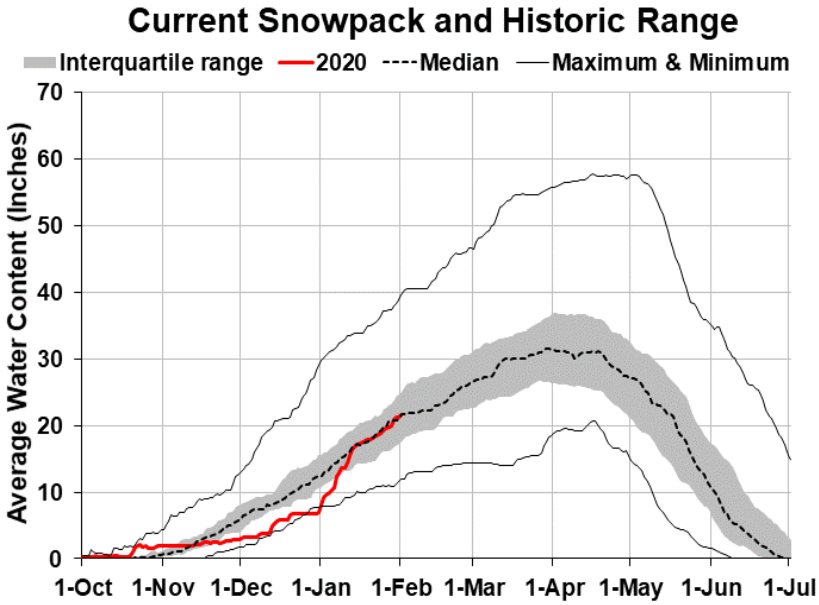
Watershed Snowpack Analysis: February 1, 2020

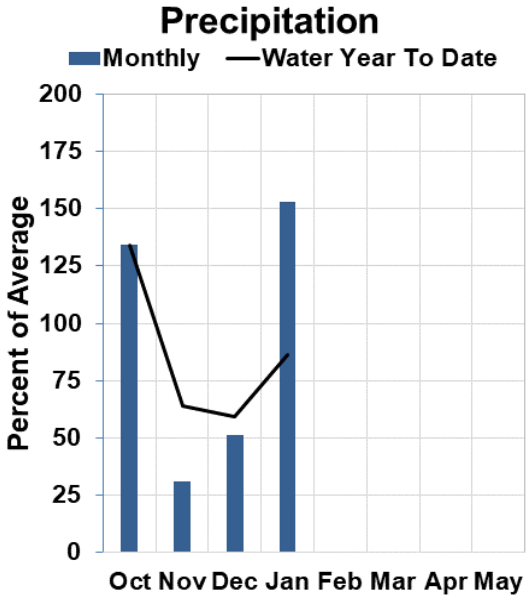
Basin Name	# of Sites	% of Median 2020	% of Median 2019
Moyie River	6	116%	92%
Priest River	5	134%	87%
Rathdrum Creek	3	109%	80%
Coeur d' Alene River	6	99%	75%
St. Joe River	3	96%	77%
Spokane River	12	100%	77%
Palouse River	2	103%	80%
Kootenai ab Bonners Ferry	19	116%	86%



Clearwater River Basin

February 1, 2020





WATER SUPPLY OUTLOOK

Storms continually moved through the Clearwater Basin leaving January precipitation totals between 110 to 175% of normal. The favorable storm track in January increased water-year precipitation for Feb. 1 to ~90%, improving significantly from January 1st totals of ~65%. Feb. 1 snowpack has recovered to near-normal, and monthly SWE values increased by ~10 to 20" across the basin for elevations above 4,000 ft. Monthly SWE records for January were broken at sites in the Palouse Range, and near the town of Pierce in the Clearwater Mountains.

Reservoir storage at Dworshak Reservoir is 94% of normal and 64% of capacity, so the largest reservoir in Idaho has plenty of room to capture the spring snowmelt. Like the Panhandle, streamflow forecasts are near normal for all forecast points in the Clearwater Basin. If February storms persist, water availability should be more than adequate.

Clearwater River Basin Streamflow Forecasts - February 1, 2020

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)
Selway R nr Lowell	APR-JUL	1440	1730	1930	101%	2130	2430	1920
	APR-SEP	1520	1820	2030	100%	2230	2540	2020
Lochsa R nr Lowell	APR-JUL	1010	1220	1360	96%	1500	1710	1410
	APR-SEP	1070	1280	1430	97%	1570	1780	1480
Dworshak Reservoir Inflow 2	APR-JUL	1710	2110	2380	99%	2660	3060	2410
	APR-SEP	1840	2250	2530	98%	2810	3220	2570
Clearwater R at Orofino	APR-JUL	3180	3850	4300	100%	4760	5430	4310
	APR-SEP	3370	4060	4520	100%	4990	5670	4540
Clearwater R at Spalding 2	APR-JUL	4970	6110	6880	100%	7660	8800	6890
	APR-SEP	5290	6460	7250	100%	8040	9210	7270

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE normals are medians.

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

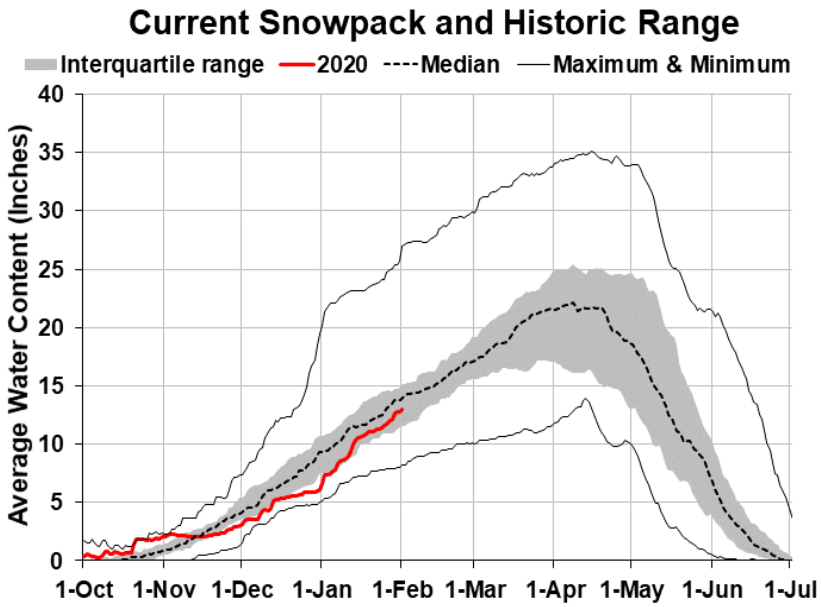
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

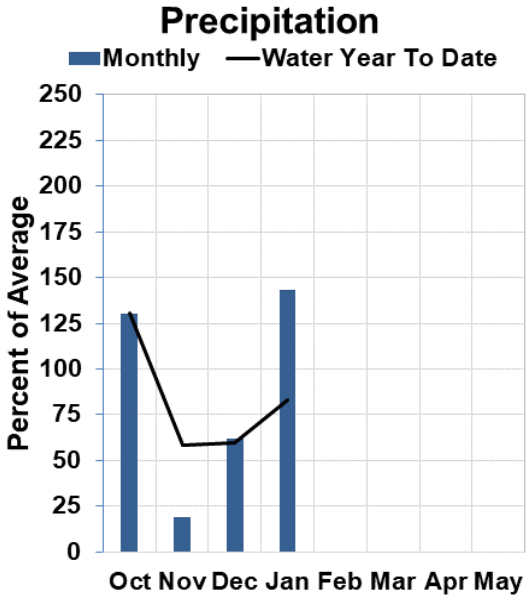
Reservoir Storage (KAF): End of January				
Reservoir Name	Current (KAF)	Last YR	Average (KAF)	Capacity (KAF)
Dworshak Reservoir	2204.5	2266.0	2335.0	3468.0

Watershed Snowpack Analysis: February 1, 2020			
Basin Name	# of Sites	% of Median 2020	2019
NF Clearwater River	7	99%	84%
Lochsa River	2	93%	84%
Selway River	4	108%	94%
Clearwater Basin Total	14	101%	86%

Salmon River Basin

February 1, 2020





WATER SUPPLY OUTLOOK

The Salmon River basin received ~135% of normal precipitation in January. Despite significantly above normal monthly precipitation, water-year precipitation for the Salmon River basins is still below normal at 80%. The snowpack also was not able to completely recover from November and December but is getting close to normal at 95% for the Salmon River basin as a whole. Snowpack for all sub drainages range from ~80%-110 of normal.

There no major reservoirs to report on in the Salmon River watershed. Median forecasts for the Salmon are currently all in the ~80-90% range for runoff season. A wetter than normal February will help secure plentiful runoff during the summer season.

Salmon River Streamflow Forecasts - February 1, 2020

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)
Salmon R at Salmon	APR-JUL	305	495	625	81%	755	945	775
	APR-SEP	365	580	725	81%	870	1080	900
Lemhi R nr Lemhi								
MF Salmon R at MF Lodge	APR-JUL	305	475	590	86%	705	875	690
	APR-SEP	355	535	660	86%	785	965	770
SF Salmon R nr Krassel Ranger Station	APR-JUL	130	187	225	83%	265	325	270
	APR-SEP	143	200	245	84%	285	345	290
Johnson Ck at Yellow Pine	APR-JUL	97	142	172	90%	200	245	191
	APR-SEP	105	152	183	89%	215	260	205
Salmon R at White Bird	APR-JUL	2940	3920	4590	85%	5260	6250	5370
	APR-SEP	3310	4370	5090	86%	5810	6870	5940

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE normals are medians.

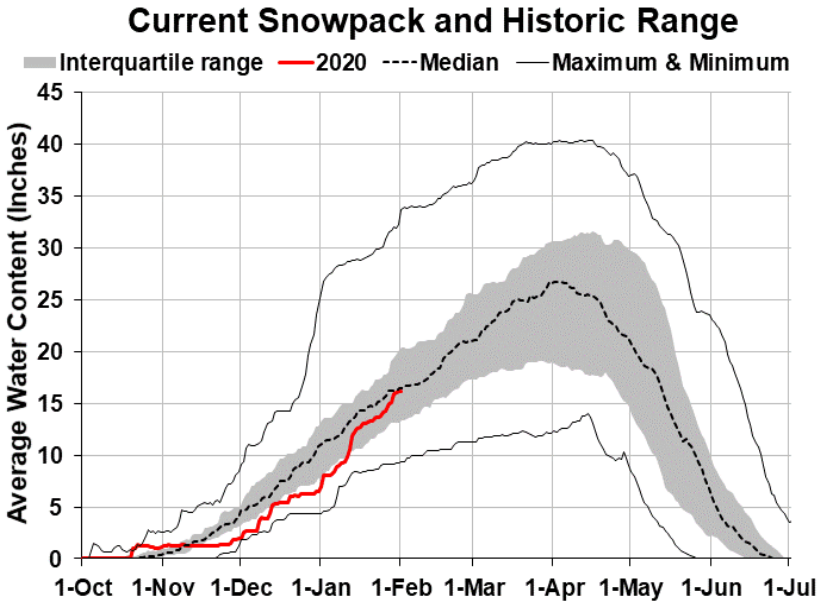
1) 90% and 10% exceedance probabilities are actually 95% and 5%

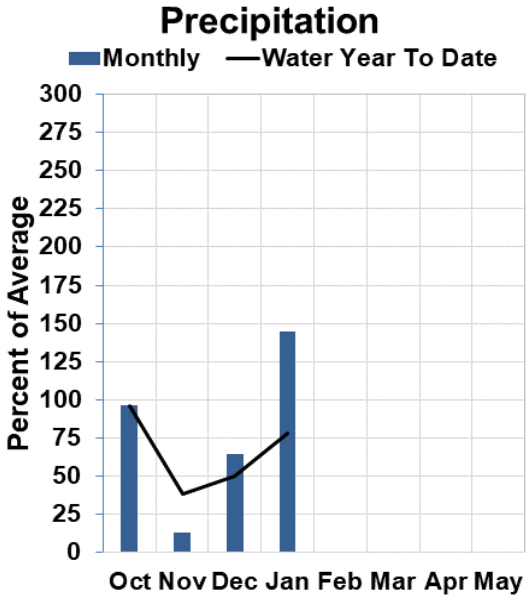
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Watershed Snowpack Analysis: February 1, 2020			
Basin Name	# of Sites	% of Median 2020	2019
Salmon River ab Salmon	7	87%	75%
Lemhi River	7	99%	79%
MF Salmon River	3	86%	71%
SF Salmon River	3	86%	75%
Little Salmon River	4	112%	98%
Salmon Basin Total	24	95%	80%

West Central Basins

February 1, 2020





WATER SUPPLY OUTLOOK

January saw marked improvement in precipitation for the West Central basins. Monthly precipitation ranged between ~140 and 155% of normal, with the Weiser receiving the largest percentage of normal. Water-year-to-date precipitation is now ~80% of normal for the three West Central basins. Although this is still below normal it is vastly improved from the ~50 to 55% at the beginning of January. Several snowstorms have the snowpack in the West Central basins ranging from ~95 to 100% of normal.

Boise System storage (Anderson Ranch, Arrowrock, and Lucky Peak) is currently 117% of normal. Payette System storage (Deadwood, Cascade) is approximately normal to start February. Median runoff forecasts currently range from ~70%-105%. Due in large part to plentiful storage carryover, the current outlook is promising for water users in the West Central basins.

West Central Basins Streamflow Forecasts - February 1, 2020

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)
SF Boise R at Anderson Ranch Dam 2	APR-JUL	148	255	330	69%	405	515	475
	APR-SEP	169	280	360	71%	435	550	510
Boise R nr Twin Springs	APR-JUL	305	425	510	87%	595	715	585
	APR-SEP	340	465	555	87%	640	770	635
Mores Ck nr Arrowrock Dam	APR-JUL	47	80	103	90%	126	159	115
	APR-SEP	49	84	107	90%	130	164	119
Boise R nr Boise 2	APR-JUL	585	855	1040	83%	1220	1490	1260
	APR-SEP	615	900	1090	80%	1290	1570	1360
Lake Fork Payette R nr McCall	APR-JUL	52	66	75	94%	84	98	80
	APR-SEP	54	68	77	93%	87	101	83
NF Payette R at Cascade 2	APR-JUL	255	355	425	88%	495	595	485
	APR-SEP	260	365	435	88%	505	610	495
NF Payette R nr Banks 2	APR-JUL	305	445	540	86%	635	775	625
	APR-SEP	310	455	555	87%	650	795	640
SF Payette R at Lowman	APR-JUL	215	290	345	86%	395	470	400
	APR-SEP	250	335	390	86%	445	530	455
Deadwood Reservoir Inflow 2	APR-JUL	60	84	100	81%	117	140	123
	APR-SEP	65	91	108	82%	126	152	131
Payette R nr Horseshoe Bend 2	APR-JUL	735	1060	1290	87%	1510	1840	1480
	APR-SEP	800	1150	1380	85%	1620	1970	1630
Weiser R nr Weiser	FEB-JUL	300	440	550	89%	675	875	615
	APR-JUL	177	260	325	88%	400	520	370
	APR-SEP	196	285	350	88%	425	550	400

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE 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

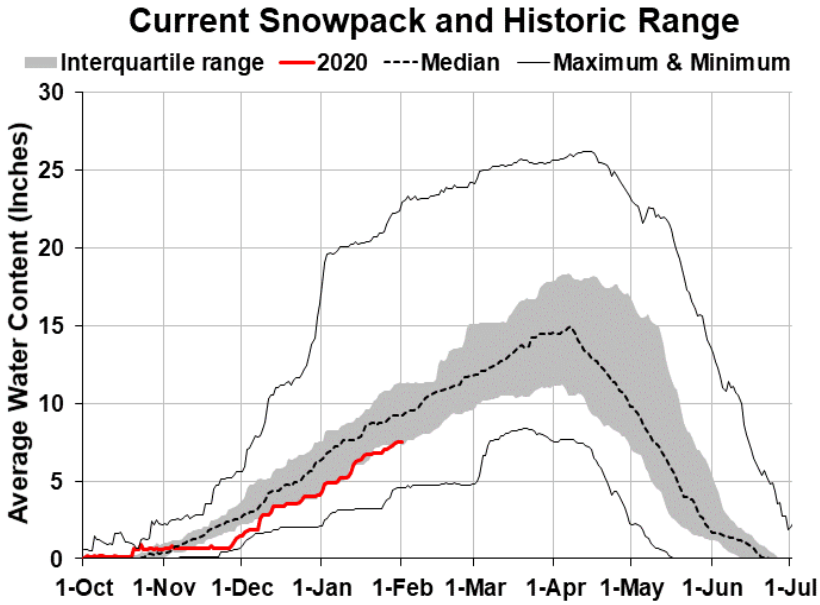
Reservoir Name	Current (KAF)	Last YR	Average (KAF)	Capacity (KAF)
Anderson Ranch Reservoir	315.5	270.1	256.4	450.2
Arrowrock Reservoir	224.0	175.1	174.8	272.2
Lucky Peak Reservoir	88.4	84.1	103.5	293.2
Sub-Basin Total	**627.9**	**529.3**	**534.7**	**1015.6**
Deadwood Reservoir	90.5	86.3	87.9	161.9
Cascade Reservoir	443.6	437.1	455.5	693.2
Sub-Basin Total	**534.0**	**523.4**	**543.4**	**855.1**
Lake Lowell	107.2	94.6	92.8	165.2
Mann Creek Reservoir	3.0	1.0	3.6	11.1

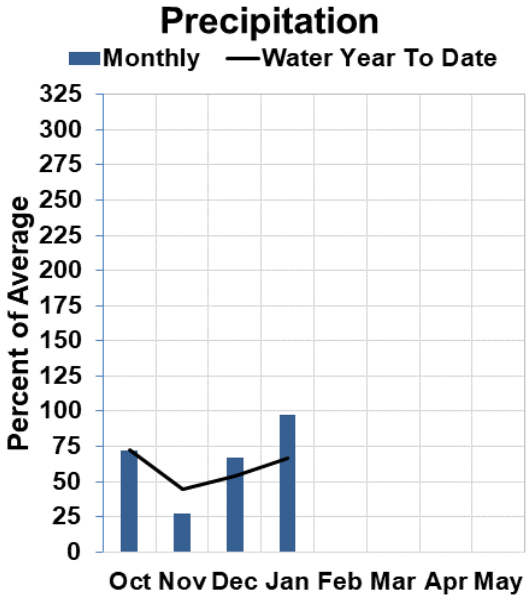
Watershed Snowpack Analysis: February 1, 2020

Basin Name	# of Sites	% of Median 2020	% of Median 2019
SF Boise River	8	92%	77%
MF & NF Boise Rivers	6	94%	71%
Mores Creek	4	106%	77%
Canyon Creek	4	96%	72%
Boise Basin Total	17	98%	76%
NF Payette River	8	103%	88%
SF Payette River	5	95%	76%
Payette Basin Total	14	98%	82%
Mann Creek	1	95%	95%
Weiser Basin Total	6	95%	90%

Wood & Lost River Basin

February 1, 2020





WATER SUPPLY OUTLOOK

Precipitation in January was a step in the right direction for the Wood and Lost basins, but due to predominant north and northwest storm tracks these basins did not receive nearly as much as the rest of the state. Monthly precipitation ranged from ~80 to 105% of normal for January. Water-year precipitation is the lowest in Idaho, and now ranges from 60 to 75% of normal. Snowpack for these basins as of Feb. 1 ranges from ~70% in the Little Wood to ~90% in the Little Lost. Things can change rapidly — both 2017 and 2019 come to mind — so keep an eye on the March outlook.

Reservoir storage continues to reflect strong 2019 carryover. Currently, Mackay and Little Wood are 75 and 70% full, respectively, while Magic is 44% full. With respect to normal for this time of year, all reservoirs range from ~140 to 190%. Median streamflow forecasts for the runoff season are quite low, ranging from ~35 to 70% of average. The water outlook picture is becoming concerning for users in the Wood and Lost; an above normal month of precipitation would help to alleviate some of the growing concern.

Wood and Lost Basins Streamflow Forecasts - February 1, 2020

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)
Camas Ck at Camas	APR-JUL	5.6	13.3	20	71%	29	44	28
Little Lost R bl Wet Ck nr Howe								
Big Lost R at Howell Ranch	APR-JUL	41	85	114	72%	144	188	159
	APR-SEP	46	96	130	72%	163	215	180
Big Lost R bl Mackay Reservoir	APR-JUL	5	50	80	65%	111	155	123
	APR-SEP	17.5	68	103	69%	138	189	150
Little Wood R ab High Five Ck	MAR-JUL	15.6	29	41	53%	55	79	77
	MAR-SEP	17.1	32	45	55%	59	85	82
Little Wood R nr Carey 2	MAR-JUL	15.4	30	43	50%	59	85	86
	MAR-SEP	16.7	33	46	50%	63	91	92
Big Wood R at Hailey	APR-JUL	22	99	151	64%	205	280	235
	APR-SEP	29	114	172	65%	230	315	265
Big Wood R ab Magic Reservoir	APR-JUL	13.4	45	78	46%	119	196	170
	APR-SEP	15.6	51	86	47%	131	215	182
Camas Ck nr Blaine	APR-JUL	4.6	16.2	28	34%	43	72	82
	APR-SEP	4.8	16.5	29	35%	44	72	83
Big Wood R bl Magic Dam 2	APR-JUL	24	66	105	42%	154	245	250
	APR-SEP	29	74	116	44%	168	260	265

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE 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

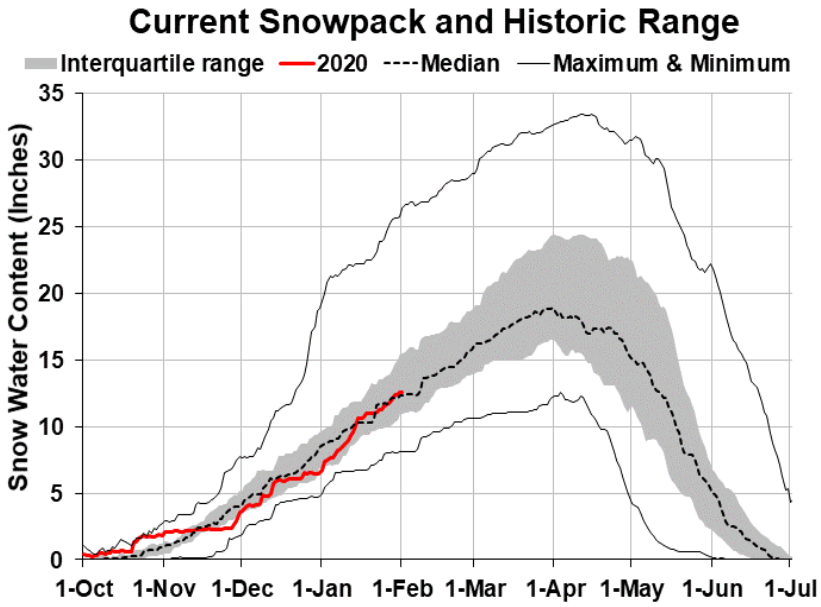
Reservoir Name	Current (KAF)	Last YR	Average (KAF)	Capacity (KAF)
Mackay Reservoir	37.5	33.5	26.0	44.4
Little Wood Reservoir	22.3	21.1	16.3	30.0
Magic Reservoir	128.8	83.3	68.9	191.5

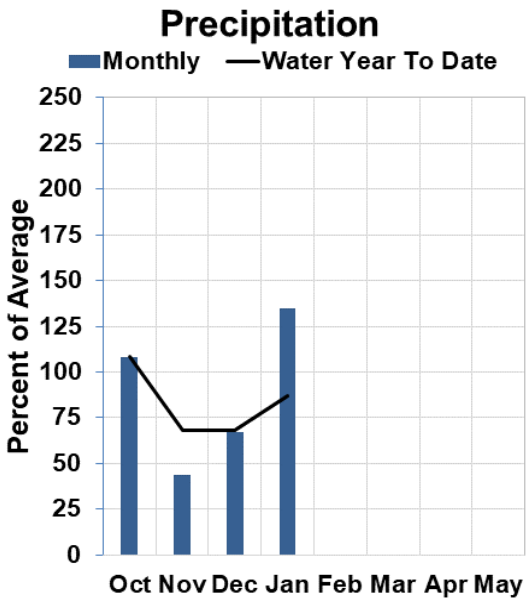
Watershed Snowpack Analysis: February 1, 2020

Basin Name	# of Sites	% of Median 2020	2019
Camas-Beaver Creeks	4	109%	76%
Birch-Medicine Lodge Creeks	2	91%	68%
Little Lost River	3	89%	70%
Big Lost River ab Mackay	6	68%	67%
Big Lost Basin Total	7	71%	67%
Fish Creek	3	80%	89%
Little Wood River	4	70%	86%
Big Wood River ab Hailey	7	77%	71%
Camas Creek	5	95%	87%
Big Wood Basin Total	12	83%	77%

Upper Snake River Basin

February 1, 2020





WATER SUPPLY OUTLOOK

January precipitation for the Upper Snake ranged from ~125 to 160% of normal. This influx of precipitation helped these basins to recover from a rough November. Currently, water-year precipitation ranges from 80 to 100% of normal for all drainages within the Upper Snake basin. Snowpack ranges from ~100%-120% of normal after most SNOTEL sites received >130% of normal SWE increase during January.

Reservoirs in the Upper Snake are looking good with 83% of normal capacity which is 131% of normal storage. Jackson-Palisades system is currently 144% of normal storage. Median streamflow forecasts largely reflect the snowpack and range from ~85 to 105%.

Upper Snake River Basin Streamflow Forecasts - February 1, 2020

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 2	APR-JUL	330	395	440	83%	485	550	530
	APR-SEP	480	550	605	85%	655	730	710
Falls R nr Ashton 2	APR-JUL	275	320	355	97%	390	435	365
	APR-SEP	330	390	435	100%	475	535	435
Teton R nr Driggs	APR-JUL	106	134	154	100%	173	200	154
	APR-SEP	130	167	192	99%	215	255	193
Teton R nr St Anthony	APR-JUL	265	325	365	100%	410	470	365
	APR-SEP	315	385	435	100%	485	560	435
Henrys Fk nr Rexburg 2	APR-JUL	895	1090	1220	87%	1360	1550	1400
	APR-SEP	1160	1410	1580	88%	1740	1990	1790
Snake R at Flagg Ranch	APR-JUL	300	375	425	91%	480	555	465
	APR-SEP	325	410	465	91%	520	605	510
Snake R nr Moran 2	APR-JUL	490	605	680	89%	755	865	765
	APR-SEP	545	670	750	89%	835	960	845
Pacific Ck at Moran	APR-JUL	98	124	141	86%	159	185	164
	APR-SEP	105	131	150	87%	168	195	173
Buffalo Fk ab Lava Ck nr Moran	APR-JUL	190	230	260	93%	290	330	280
	APR-SEP	215	260	295	92%	325	375	320
Snake R ab Reservoir nr Alpine 2	APR-JUL	1330	1660	1890	87%	2120	2450	2170
	APR-SEP	1540	1920	2170	87%	2430	2810	2500
Greys R ab Reservoir nr Alpine	APR-JUL	230	275	310	102%	340	385	305
	APR-SEP	270	320	360	100%	395	450	360
Salt R ab Reservoir nr Etna	APR-JUL	184	255	300	100%	345	415	300
	APR-SEP	230	315	370	100%	425	505	370
Snake R nr Irwin 2	APR-JUL	1910	2380	2700	90%	3010	3480	3010
	APR-SEP	2240	2770	3140	90%	3500	4040	3500
Snake R nr Heise 2	APR-JUL	2100	2580	2900	90%	3230	3700	3240
	APR-SEP	2470	3020	3400	90%	3770	4330	3780
Willow Ck nr Ririe 2	MAR-JUL	14.5	29	42	63%	58	85	67
	MAR-SEP	15	31	44	#DIV/0!	60	89	0
Portneuf R at Topaz	MAR-JUL	33	45	54	71%	64	80	76
	MAR-SEP	41	55	67	72%	79	99	93
Snake R at Neeley 2	APR-JUL	830	1430	1930	73%	2510	3490	2650
	APR-SEP	835	1480	2010	72%	2630	3690	2810

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE 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

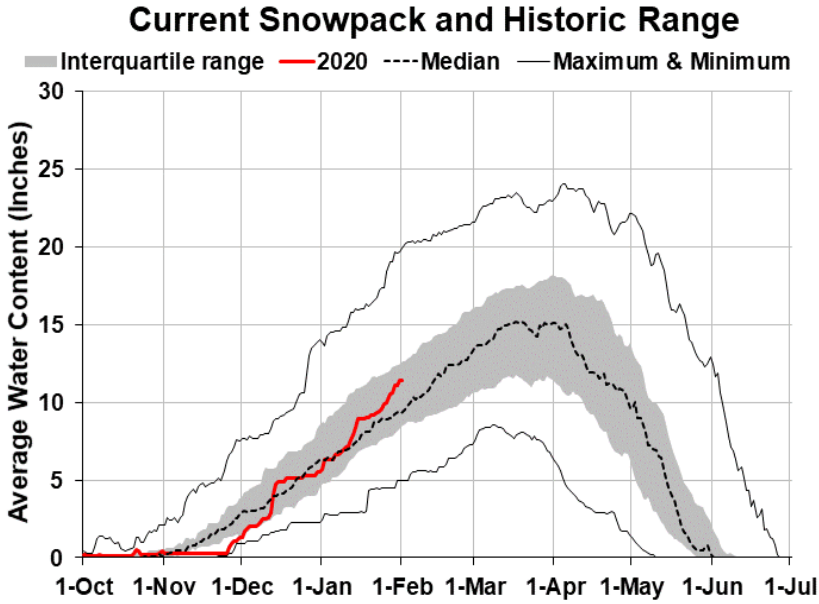
Reservoir Name	Current (KAF)	Last YR	Average (KAF)	Capacity (KAF)
Jackson Lake	613.4	657.1	431.2	847.0
Palisades Reservoir	1314.0	1124.7	911.2	1400.0
Sub-Basin Total	**1927.4**	**1781.8**	**1342.4**	**2247.0**
Henrys Lake	85.8	83.4	80.1	90.4
Island Park Reservoir	120.0	119.3	100.0	135.2
Grassy Lake	12.8	12.7	11.9	15.2
Sub-Basin Total	**218.6**	**215.4**	**192.0**	**240.8**
Ririe Reservoir	49.0	47.5	38.7	80.5
Blackfoot Reservoir		258.6	176.3	337.0
American Falls Reservoir	1314.3	1356.1	1116.0	1672.6
Basin-Wide Total	**3509.4**	**3659.5**	**2865.4**	**4577.9**

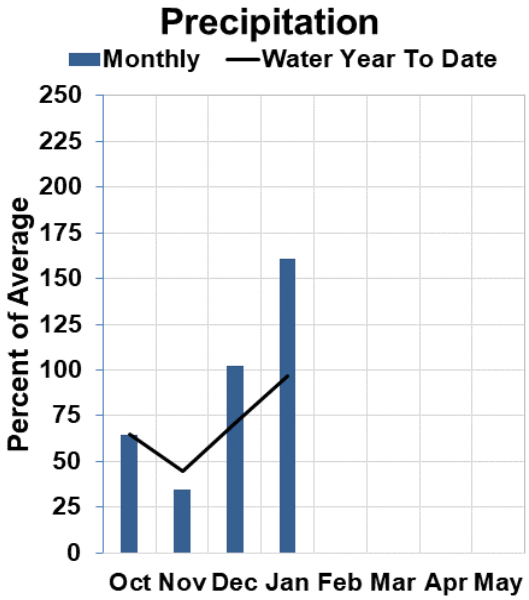
Watershed Snowpack Analysis: February 1, 2020

Basin Name	# of Sites	% of Median 2020	2019
Henrys Fork-Falls River	8	97%	79%
Teton River	9	107%	92%
Henrys Fork ab Rexburg	17	102%	85%
Snake River ab Jackson Lake	12	98%	77%
Pacific Creek	4	100%	87%
Buffalo Fork	3	102%	92%
Gros Ventre River	3	94%	79%
Hoback River	6	97%	77%
Greys River	4	115%	85%
Salt River	5	120%	86%
Snake ab Palisades Resv	32	101%	80%
Willow Creek - Ririe	7	105%	92%
Blackfoot River	4	100%	90%
Portneuf River	6	93%	95%

Southside Snake River Basins

February 1, 2020





WATER SUPPLY OUTLOOK

January was wetter than normal and water-year-to-date precipitation for the Southside Snake improved to near normal for all basins (~95 to 105%). Likewise, snowpack conditions have increased and now range from 115 to 140 % of normal. The discrepancy between water-year precipitation and total snowpack started during the dry November experienced in this area and across the Pacific Northwest. Warmer than average temperatures during January led to a couple of rain on snow events for elevations lower than 6,500 ft., but there has not been any significant decrease in SWE observed at SNOTEL sites. Current sub-basin snowpacks with respect to normal are Goose-Trapper Creeks at 116%, Salmon Falls at 114%, Bruneau River at 117%, and Owyhee at 130%.

Current reservoir storage expressed as a percent of average is the following for area reservoirs: Oakley 143%, Salmon Falls 189%, Wild Horse 179%, Lake Owyhee 147%. An above-normal current snowpack coupled with plentiful reservoir storage bodes well for the many users in these basins.

Southside Snake River Basins Streamflow Forecasts - February 1, 2020

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)
Goose Ck ab Trapper Ck nr Oakley	MAR-JUL	11.4	18	23	105%	29	39	22
	MAR-SEP	11.9	18.9	25	104%	31	42	24
Trapper Ck nr Oakley	MAR-JUL	3.9	5	5.8	98%	6.7	8.1	5.9
	MAR-SEP	4.9	6.1	7	99%	8	9.5	7.1
Oakley Reservoir Inflow	MAR-JUL	14.2	21	27	96%	34	44	28
	MAR-SEP	15.6	23	30	97%	37	48	31
Salmon Falls Ck nr San Jacinto	MAR-JUL	43	61	75	93%	91	117	81
	MAR-SEP	46	64	79	93%	95	122	85
Bruneau R nr Hot Spring	MAR-JUL	140	187	225	110%	265	325	205
	MAR-SEP	146	195	230	107%	275	340	215
Reynolds Ck at Tollgate	MAR-JUL	4.3	6.1	7.5	83%	9.1	11.7	9
	MAR-SEP	4.2	6	7.4	81%	9	11.5	9.1
Owyhee R nr Gold Ck 2	MAR-JUL	14.5	23	31	111%	39	53	28
	APR-JUL	8	16.1	23	105%	31	46	22
Owyhee R nr Rome	FEB-JUL	250	405	535	92%	680	925	580
	FEB-SEP	260	420	550	92%	700	950	595
	APR-JUL	104	210	300	87%	410	600	345
Owyhee R bl Owyhee Dam 2	FEB-JUL	285	450	585	92%	740	995	635
	FEB-SEP	310	480	615	92%	765	1020	665
	APR-JUL	128	235	330	88%	435	620	375

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE 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

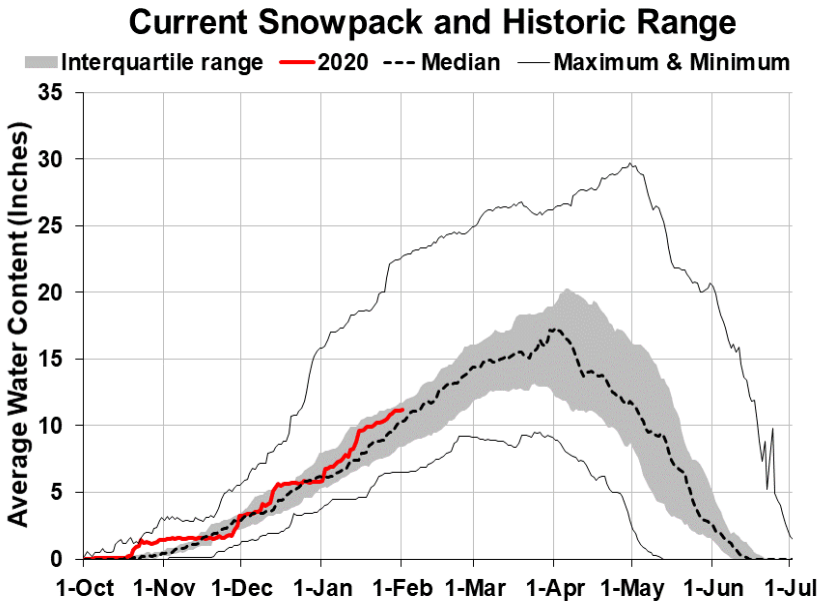
Reservoir Name	Current (KAF)	Last YR	Average (KAF)	Capacity (KAF)
Oakley Reservoir	32.1	18.9	22.5	75.6
Salmon Falls Reservoir	81.8	39.1	43.3	182.6
Wild Horse Reservoir	59.5	48.8	33.2	71.5
Lake Owyhee	508.7	273.8	345.3	715.0
Brownlee Reservoir		1171.7	1189.0	1420.0

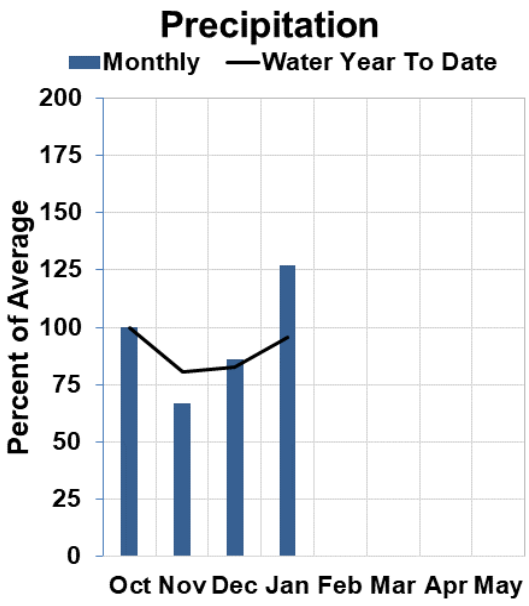
Watershed Snowpack Analysis: February 1, 2020

Basin Name	# of Sites	% of Median 2020	2019
Raft River	2	123%	92%
Goose-Trapper Creeks	2	116%	86%
Salmon Falls Creek	7	114%	92%
Bruneau River	8	117%	91%
Reynolds Creek	1	139%	139%
Owyhee Basin Total	16	136%	87%
Owyhee Basin Snotel Total	8	128%	93%

Bear River Basin

February 1, 2020





WATER SUPPLY OUTLOOK

The Bear River Basin received above-normal precipitation during January, and water-year precipitation ranges between 85 and 105% of normal. Despite warmer than average temperatures for most of January, the Bear River Basin snowpack is around normal (111%) for Feb. 1. Compared to November and December, precipitation in January fell more consistently throughout the month and this has kept the basin snowpack within the 50th percentile of historic data, indicated by the proximity of the black and red lines in the above snowpack chart. The following sub-basins snowpack with respect to normal are: Malad River 92%, Cub River 109%, Mink Creek 98%, Montpelier Creek 113%.

Bear Lake is 70% full and 156% of average, and Montpelier Reservoir is currently unknown due to an avalanche blocking the road that's needed to access the reservoir gage. Streamflow forecasts are near normal for the primary runoff period and range from ~95 to 115%. The water outlook looks promising for the many water users throughout the Bear River basin.

Bear River Basin Streamflow Forecasts - February 1, 2020

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)
Bear R nr UT-WY State Line	APR-JUL	74	98	115	103%	131	155	112
	APR-SEP	82	108	126	102%	144	171	123
Bear R ab Resv nr Woodruff	APR-JUL	38	90	125	103%	161	215	121
	APR-SEP	37	94	132	103%	171	230	128
Big Ck nr Randolph	APR-JUL	0.34	2.7	4.3	113%	5.9	8.3	3.8
Smiths Fk nr Border	APR-JUL	60	77	89	100%	101	119	89
	APR-SEP	70	90	104	100%	118	138	104
Bear R bl Stewart Dam 2	FEB-JUL	61	153	215	100%	275	370	215
	FEB-SEP	66	168	240	100%	310	410	240
	MAR-JUL	53	144	205	100%	265	355	205
Little Bear at Paradise	APR-JUL	20	36	46	102%	56	72	45
Logan R nr Logan	APR-JUL	70	96	113	102%	130	156	111
Blacksmith Fk nr Hyrum	APR-JUL	24	37	46	107%	55	68	43

Normals based on 1981-2010 reference period: streamflow, precipitation, & reservoir normals are averages, SWE 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	Average (KAF)	Capacity (KAF)
Bear Lake	912.3	820.7	584.8	1302.0
Montpelier Reservoir		1.7	1.7	4.0

Watershed Snowpack Analysis: February 1, 2020			
Basin Name	# of Sites	% of Median 2020	2019
Smiths-Thomas Forks	4	112%	86%
Bear River ab WY-ID Line	10	115%	94%
Montpelier Creek	2	113%	79%
Mink Creek	1	98%	78%
Cub River	1	109%	77%
Bear River ab ID-UT Line	18	111%	88%
Malad River	1	92%	77%

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

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

Forecast use example:

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

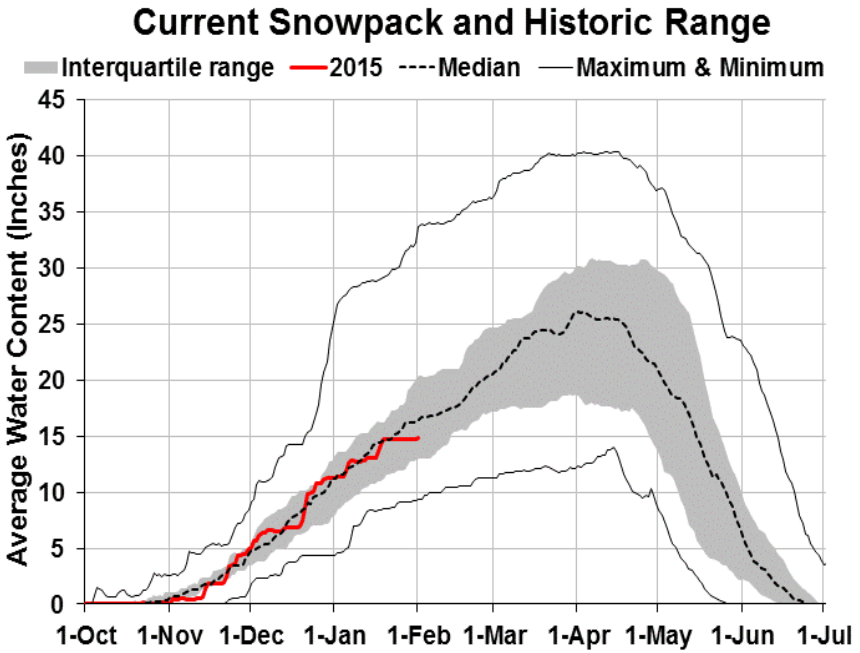
Forecast Point	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment <---Drier----------Projected Volume----------Wetter---> 90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Henrys Fk nr Ashton	JUN-JUL	72	106	129	56	152	186	230
	JUN-SEP	198	245	280	68	315	360	410

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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