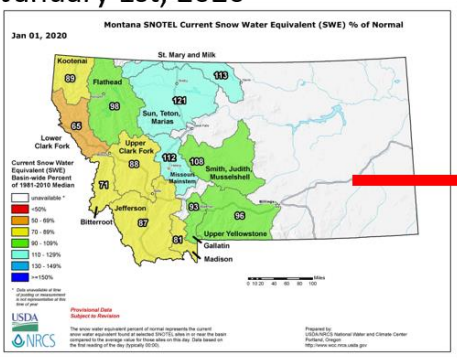
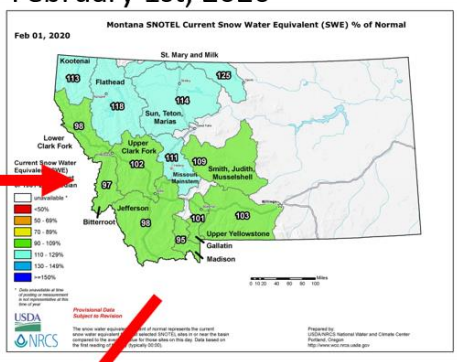
Montana
Water Supply Outlook Report
March 1st, 2020

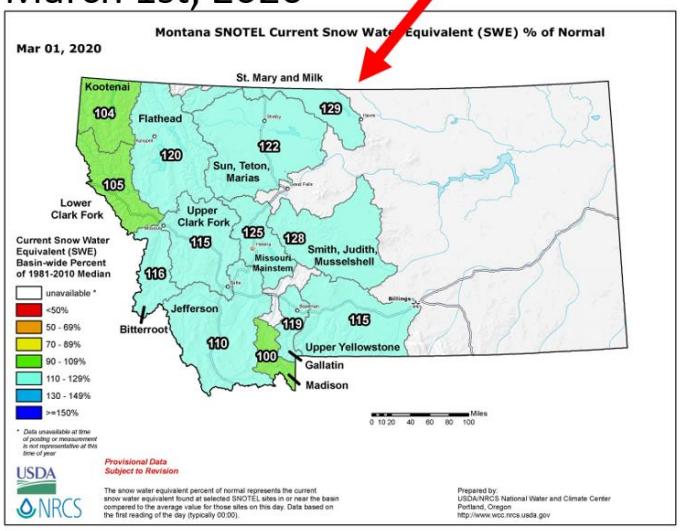
January 1st, 2020



February 1st, 2020



March 1st, 2020



January and February snowfall provided quite the turnaround for snowpack in Montana.
Compared to January 1st, when it seemed like the 2020 winter season was on track to be a bust along the Idaho/Montana border, snowpack conditions have vastly improved across the state. Unstable northwest flow (storms approaching from the northwest in Canada) during the first three weeks of February favored north-facing ranges, where well above normal to record-setting snowfall occurred during the month. Streamflow forecasts issued on March 1st for the April 1st through July 31st period indicate near to slightly above average streamflows could occur in many locations across Montana should favorable weather patterns persist into spring and summer.

For more water supply and resource management information, contact:

Lucas Zukiewicz
Water Supply Specialist
Federal Building
10 East Babcock, Room 443
Bozeman, MT 59715
Phone 406-587-6843
lucas.zukiewicz@usda.gov
http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/

Montana Water Supply Outlook Report as of March 1st, 2020

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C., 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

Changes to the Water Supply Outlook Report in Water Year 2020

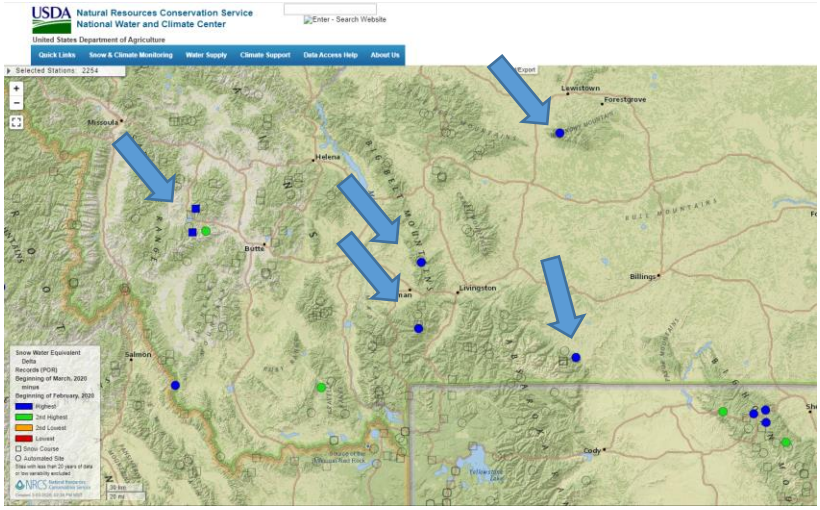
To reduce the file size of the Snowpack and Water Supply Outlook Report, and streamline its delivery to customers, the maps provided by the NRCS partnership with the Montana State Library will not be included in the monthly publication. However, the partnership will continue, and the high-quality statewide and basin maps will remain available through their website. The water supply maps, archived maps, as well as other useful tools developed through this partnership can be found here:

http://geoinfo.msl.mt.gov/nrcs_partnership/climate_and_water_supply

Snowpack - Overview

The north-northwesterly flow during the first three weeks of the month favored ranges with northern orientations, where the upslope flow would result in amazing snow totals. For example, after the significant wind event rolled through at the beginning of the month, the Red Lodge area would receive up to 2" of Snow Water Equivalent in less than 24 hours between February 2nd and 3rd, the equivalent of 20 inches of snow. That was just the beginning. Seven SNOTEL sites and snowcourses in southern and central Montana would record the highest monthly SWE totals on record for February, while two additional sites recorded the second-highest totals for the month. While the central and southern basins were most favored, other western and northern river basins also experienced above-normal snowfall during February. Only the Kootenai River basin in northwest Montana and Madison Plateau south of West Yellowstone would experience below-normal snowfall.

Snowpack totals for March 1st improved in all river basins except the Kootenai from February 1st. The news is good on March 1st, and all river basins are now reporting normal to above-normal snowpack for this date, a vastly different story than what was reported on January 1st. However, it's not time to assume we will have sufficient snowpack for spring and summer water supply just yet. At this point, roughly 75 to 85 percent of the peak snowpack has accumulated in basins west of the Divide, and 70 to 80 percent has accumulated east of the Divide. The remaining months of March and April are vital in helping to top off the mountain snowpack reservoir, which provides a prolonged release of water into rivers and streams during the spring and summer.

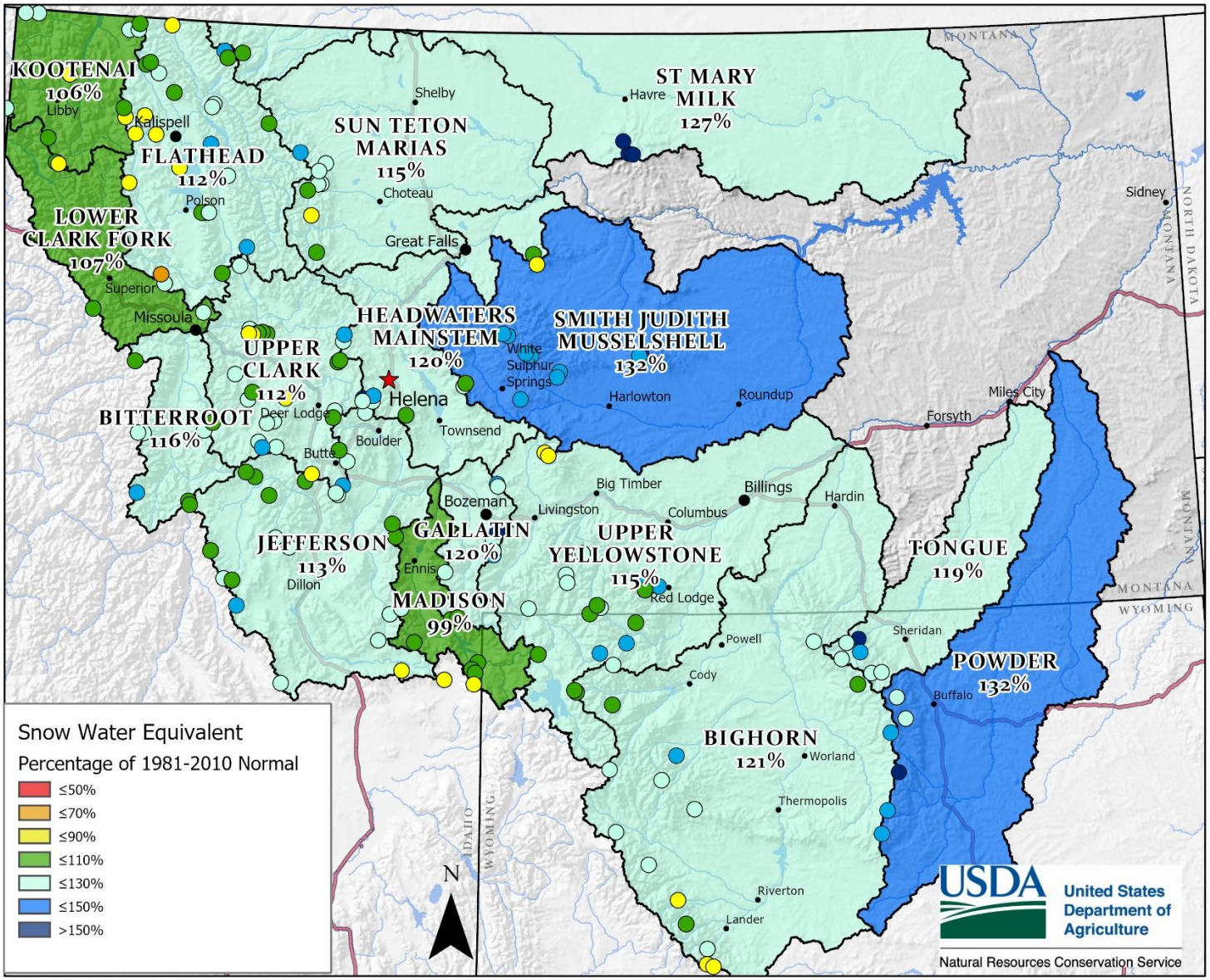


Locations where new February SWE records were reported. Arrows are included as a simple illustration of how range orientation and location influenced orographic (upslope) flow this month under persistent atmospheric flow from the north-northwest.

Snow Water Equivalent

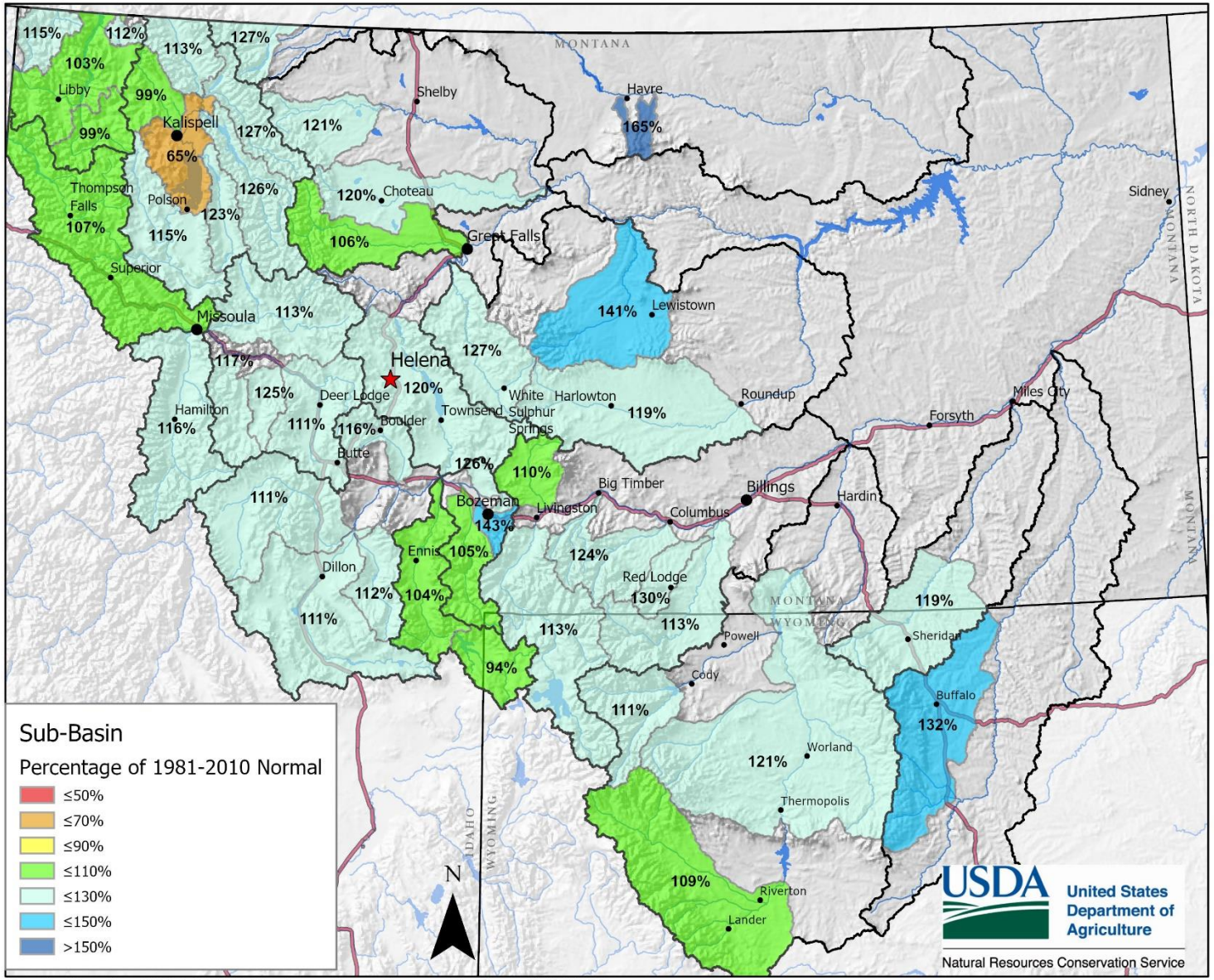
3/1/2020	*% Normal*	*% Last Year*
Columbia River Basin	**112**	**110**
Kootnenai in Montana	106	116
Flathead in Montana	112	120
Upper Clark Fork	112	96
Bitterroot	116	109
Lower Clark Fork	107	106
Missouri River Basin	**114**	**96**
Jefferson	113	97
Madison	99	77
Gallatin	120	98
Headwaters Mainstem	120	96
Smith-Judith-Musselshell	132	107
Sun-Teton-Marias	115	126
St. Mary-Milk	127	131
Yellowstone River Basin	**116**	**105**
Upper Yellowstone	115	96
Bighorn	121	115
Tongue	119	140
Powder	132	142
West of Divide	112	110
East of Divide	115	101
Montana State-Wide	**113**	**103**

Snow Water Equivalent - Percentage of 1981-2010 Normal
March 1st, 2020



Created by the USDA-NRCS Montana Snow Survey Staff on: 3/4/2020

Snow Water Equivalent - Percentage of 1981-2010 Normal
March 1st, 2020



Created by the USDA-NRCS Montana Snow Survey Staff on: 3/3/2020

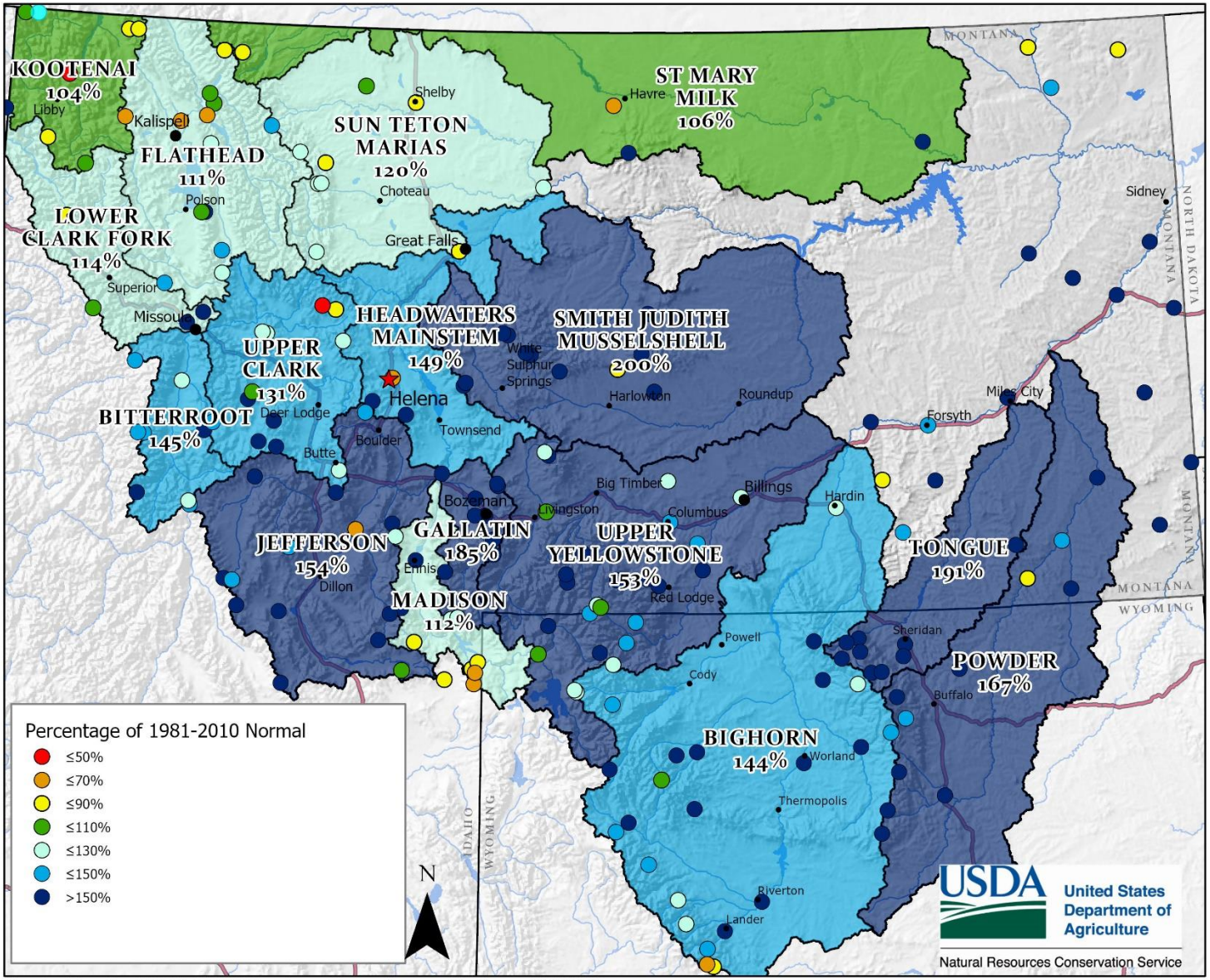
Precipitation - Overview

Mountain precipitation totals for February mimic the snowpack accumulation during the month, with most regions experiencing above-normal precipitation. However, the Kootenai River basin, parts of the Flathead River basin, and valley/plains locations in north-central Montana received below-normal precipitation. Looking back in time, there were substantial deficits in water year (beginning October 1st) totals on January 1st. While these deficits were made up in some locations due to the abundant moisture in January and February, overall water year deficits remain in some areas. The impact of the lack of early-season moisture remains somewhat uncertain when it comes to spring and summer runoff, but the low totals did impact the forecasts in some regions. While snowpack in certain areas is near or above normal for this date, the low overall precipitation totals decreased the volumes forecasted for some rivers and streams.

Precipitation

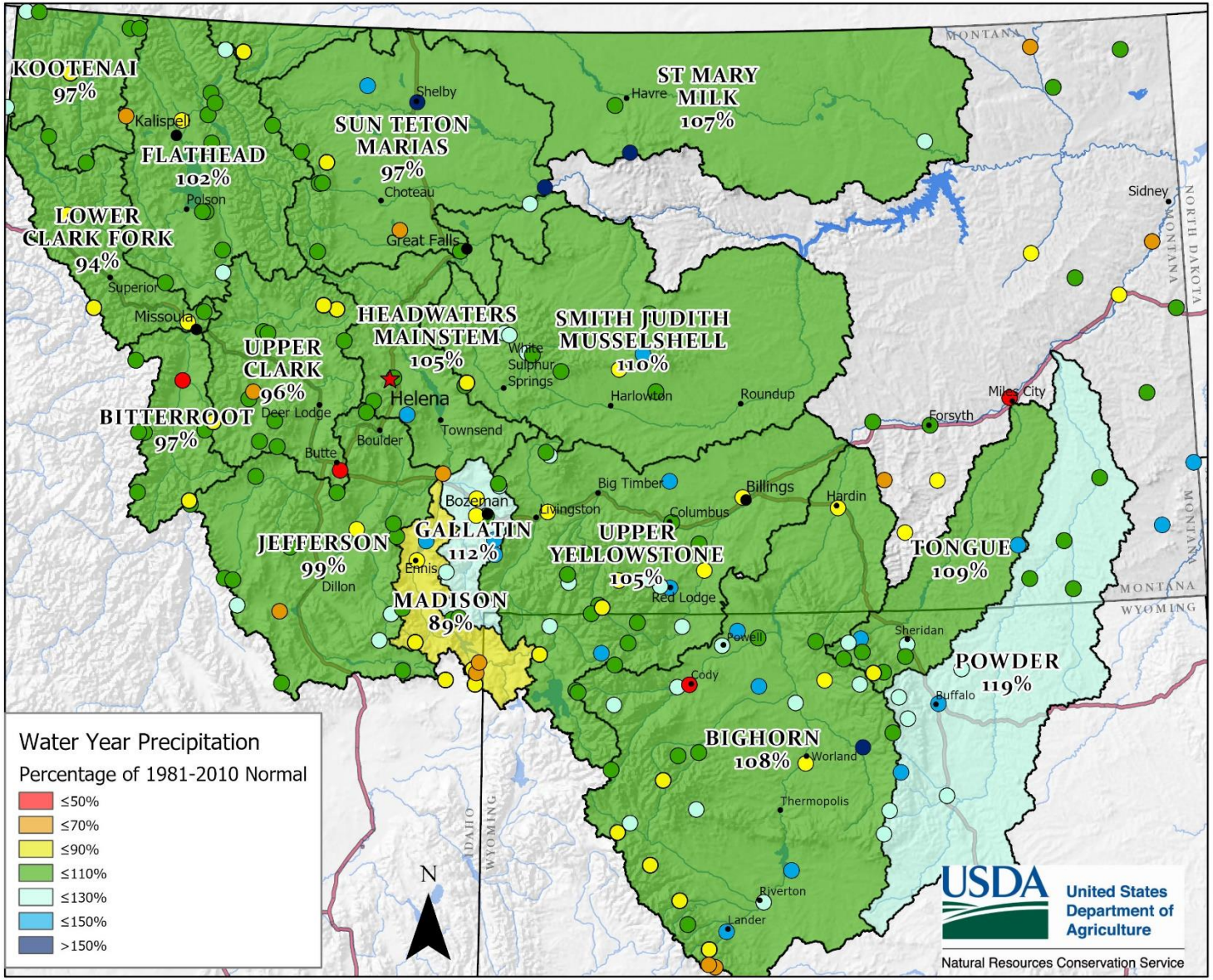
3/1/2020	*Monthly % Avg*	*Water Year % Avg*	*WY % Last Year*
Columbia River Basin	**121**	**98**	**103**
Kootnenai in Montana	104	97	117
Flathead in Montana	111	102	110
Upper Clark Fork	131	96	92
Bitterroot	145	97	93
Lower Clark Fork	114	94	100
Missouri River Basin	**152**	**101**	**86**
Jefferson	154	99	87
Madison	112	89	72
Gallatin	185	112	86
Headwaters Mainstem	149	105	85
Smith-Judith-Musselshell	200	110	94
Sun-Teton-Marias	120	97	109
St. Mary-Milk	106	107	114
Yellowstone River Basin	**162**	**104**	**97**
Upper Yellowstone	153	105	91
Bighorn	144	108	109
Tongue	191	109	133
Powder	167	119	142
West of Divide	121	98	103
East of Divide	148	101	92
Montana State-Wide	**137**	**100**	**93**

Monthly Precipitation - Percentage of 1981-2010 Normal
February 1st, 2020 - February 29th, 2020



Created by the USDA-NRCS Montana Snow Survey Staff on: 3/4/2020

Water Year Precipitation - Percentage of 1981-2010 Normal
March 1st, 2020



Created by the USDA-NRCS Montana Snow Survey Staff on: 3/4/2020

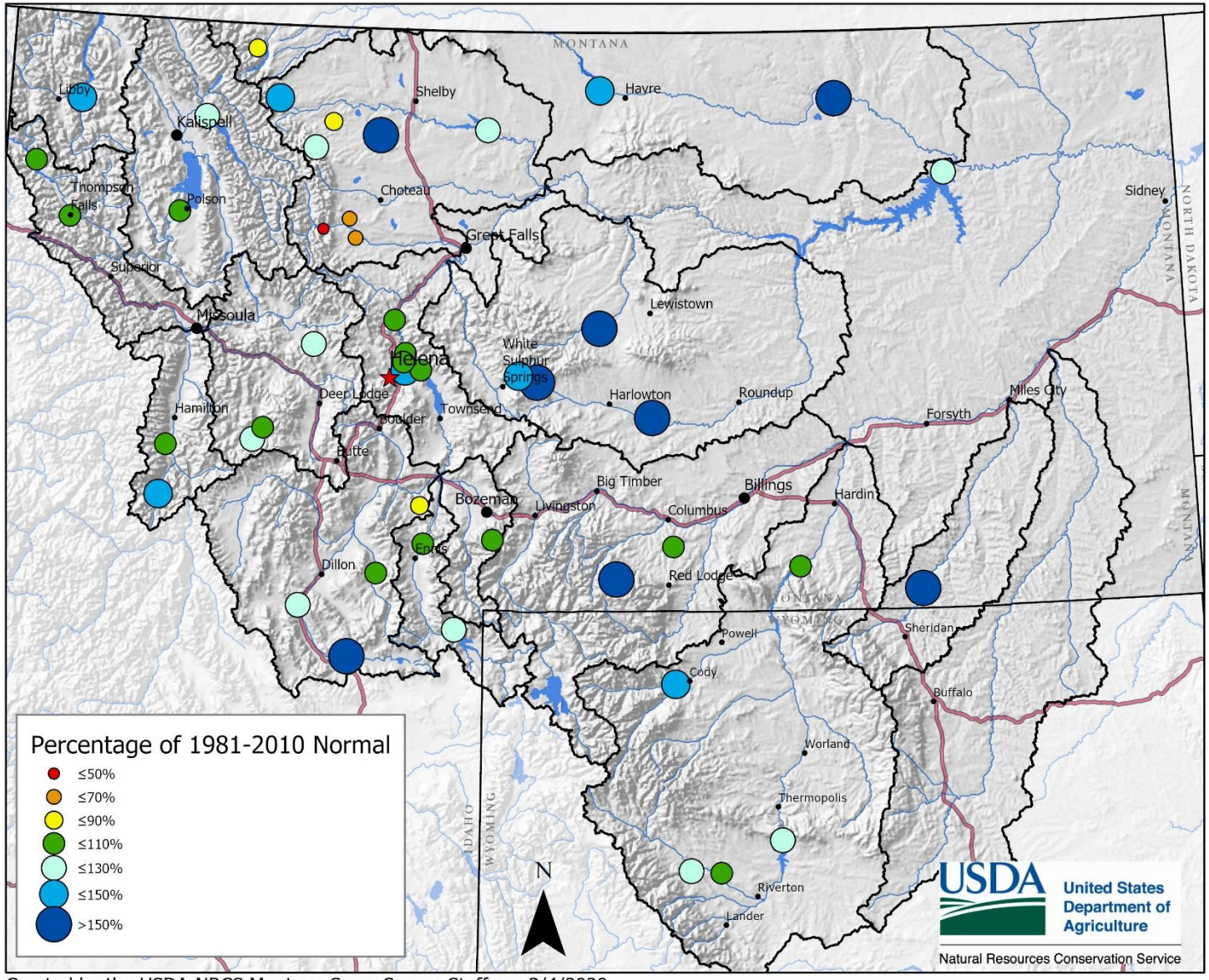
Reservoirs - Overview

Similar to last month, reservoir contents in the state are near to above average for most locations across Montana. Only a few reservoirs in north-central Montana are reporting below average reservoir contents for this date. However, the above-normal snowpack in the river basins that feed these reservoirs looks to be more than adequate to fill them before irrigation season this summer. Upstream reservoirs in the Wind, Bighorn, and Shoshone River basins in Wyoming are storing above average volumes for this date.

Reservoir Storage

3/1/2020	*% Average*	*% Capacity*	*% Last Year*
Columbia River Basin	**127**	**65**	**99**
Kootnenai in Montana	143	62	96
Flathead in Montana	116	67	102
Upper Clark Fork	111	78	104
Bitterroot	102	38	86
Lower Clark Fork	94	88	97
Missouri River Basin	**116**	**78**	**101**
Jefferson	124	60	98
Madison	111	80	98
Gallatin	100	53	101
Headwaters Mainstem	118	80	101
Smith-Judith-Musselshell	154	90	101
Sun-Teton-Marias	110	57	108
St. Mary-Milk	130	52	133
Yellowstone River Basin	**105**	**60**	**103**
Upper Yellowstone	117	50	97
Bighorn	103	60	104
Tongue	173	62	94
West of Divide	127	65	99
East of Divide	115	76	101
Montana State-Wide	**118**	**73**	**100**

Reservoir Contents - Percentage of 1981-2010 Normal
March 1st, 2020



Created by the USDA-NRCS Montana Snow Survey Staff on: 3/4/2020

Streamflow Forecasts

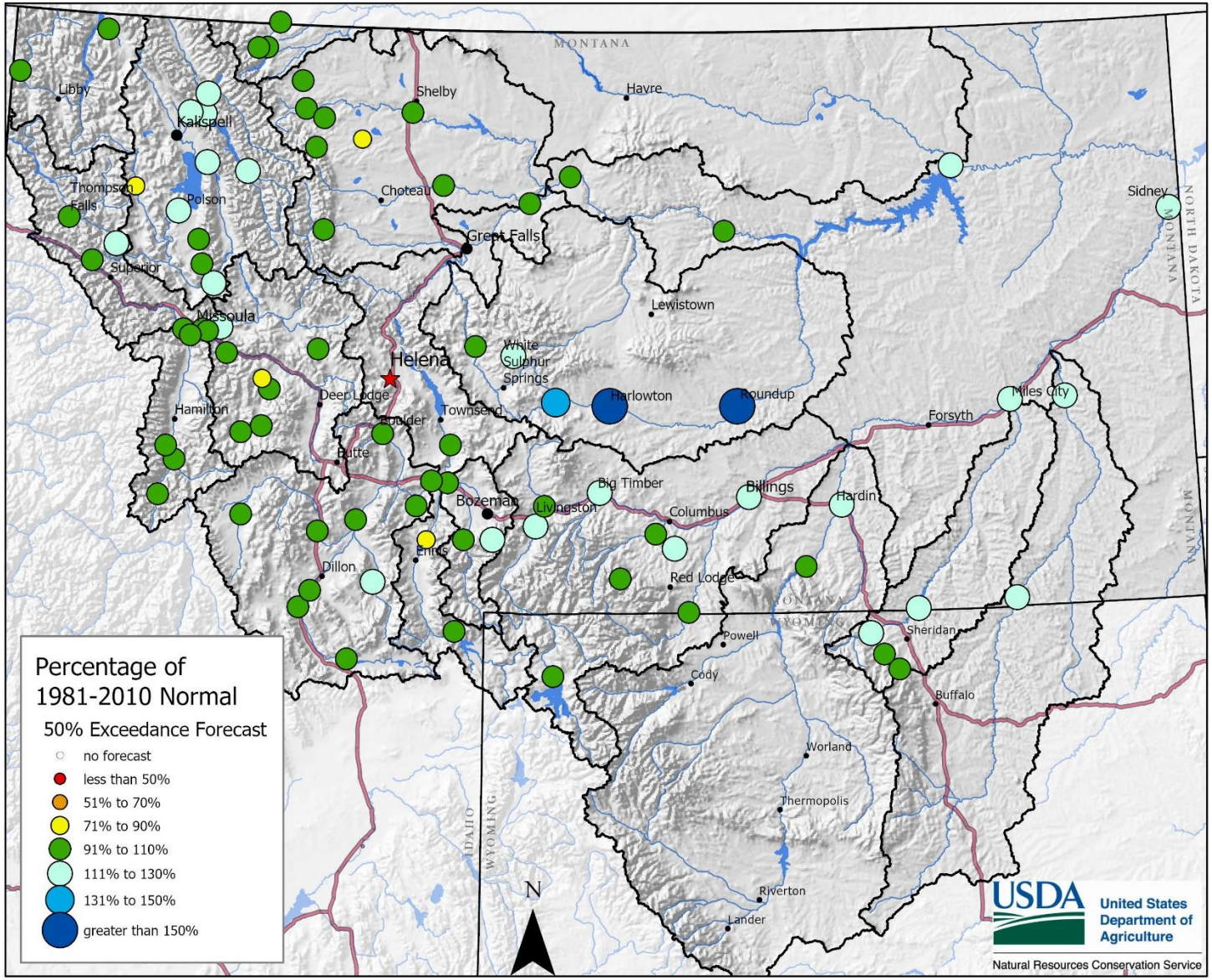
It has been an interesting winter and developing streamflow forecasts for spring and summer runoff this month followed suit. In some areas across the state, there are essentially two stories being told when you look at the data for March 1st. One story would tell more like a fairy tale, where Old Man Winter saved the mountains by delivering abundant snowfall since late December. The other story is more of a cautionary tale, where a dry November and most of December resulted in below-normal precipitation for the water year (Oct. 1st - current) on March 1st. Making sense of these two parallel narratives has been difficult, and fortunately, it isn't occurring everywhere across the state. The result, forecast wise, is that the spring and summer runoff volumes for some rivers and streams aren't as rosy as just looking at snowpack might indicate. While snowpack can be a dominant driver of spring and summer flows, it's not the only consideration when forecasting water supply. Forecasters consider snowpack, precipitation, and other predictive metrics to get a broader picture of the hydrologic system.

The areas where this situation is most exacerbated is for a few streams in the Rocky Mountain Front and the headwaters of the Madison River in southwest Montana. A few forecasts in these regions indicate a chance of slightly below average flows for the April 1st through July 31st period. Elsewhere, the sheer abundance of snow during January and February helped to erase the early season precipitation deficits, and streamflow forecasts for March 1st indicate near to above average volumes for spring and summer runoff. Water users are encouraged to look at the forecast tables within the river basin narratives for specific areas of interest.

Streamflow Forecasts	
3/1/2020	*Basin Average*
Columbia River Basin	
Kootnenai in Montana	105%
Flathead in Montana	111%
Upper Clark Fork	107%
Bitterroot	107%
Lower Clark Fork	102%
Missouri River Basin	
Jefferson	102%
Madison	91%
Gallatin	114%
Headwaters Mainstem	107%
Smith-Judith-Musselshell	139%
Sun-Teton-Marias	100%
St. Mary-Milk	108%
Yellowstone River Basin	
Upper Yellowstone	110%
Bighorn	106%
Tongue	109%
Powder	121%

Values above are an average of the 50% exceedance level forecasts within the basin for the April 1st - July 31st period. For individual forecast points, or forecasts at the 10%,30%,70%,90% levels consult the indidivual basin forecast tables.

Streamflow Forecasts (April 1st - July 31st) - Percentage of 1981-2010 Normal
March 1st, 2020

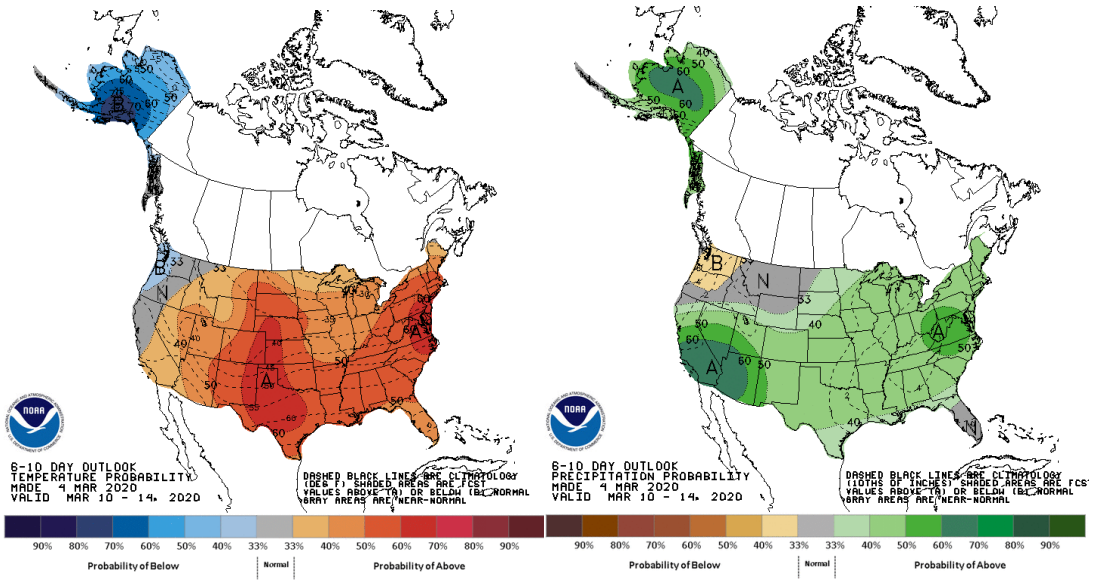


Created by the USDA-NRCS Montana Snow Survey Staff on: 3/5/2020

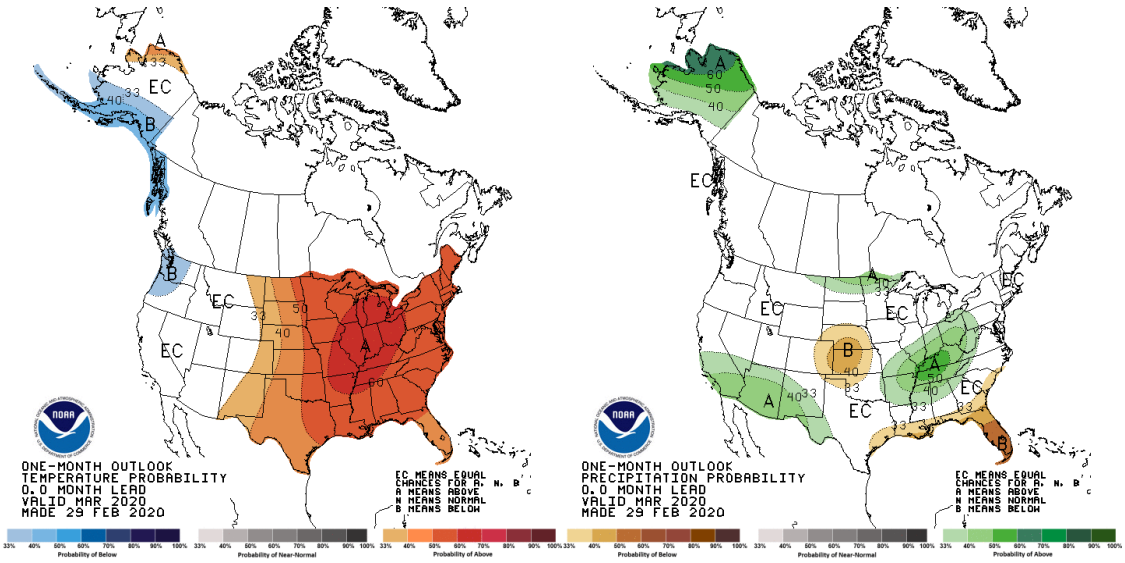
Looking Forward - Weather

As of March 4th, forecasts issued by [NOAA's Climate Prediction Center](#) indicate equal chances of normal precipitation through mid-month, but better than normal chances of above average temperatures. The one-month outlook, created on February 29th, indicates equal chances of normal precipitation for most of the state, and equal chances of near average temperatures for all but the far eastern border of Montana.

6 to 10 Day Outlook



One Month Outlook



Kootenai River Basin

After a near record-setting month of January, February would yield below normal snow totals in the mountains feeding the Kootenai River basin in Montana. The strong northwest flow, which dominated the first three weeks of the month, resulted in near to above normal snow totals north of the border in Canada. However, being on the lee side of the ranges in Montana, the mountains weren't able to take advantage of approaching storms. Although monthly totals were below normal, the abundance of snow from mid-December through the end of January was enough to make up for one below normal month, and only two sites within the basin (Banfield Mountain and Hand Creek SNOTELs) are below normal for snowpack at this time. Overall, the Kootenai River basin has snowpack that is slightly above normal for March 1st. The lack of early-season moisture in November and early December has been made up at many sites with regards to water year totals at mountain locations. Still, the two sites mentioned earlier have water year precipitation which is below normal for this date. Near to above normal snowpack in Canada and Montana has resulted in mainstem Kootenai forecasts which are near to slightly above average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Kootenai River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
KOOTENAY in CANADA	115%	85%
KOOTENAI MAINSTEM	103%	80%
TOBACCO	112%	91%
FISHER	99%	110%
YAAK	115%	94%
KOOTENAI RIVER BASIN in MONTANA	106%	91%
KOOTENAI ab BONNERS FERRY	108%	92%
Basin-Wide Snowpack	**106%**	**91%**

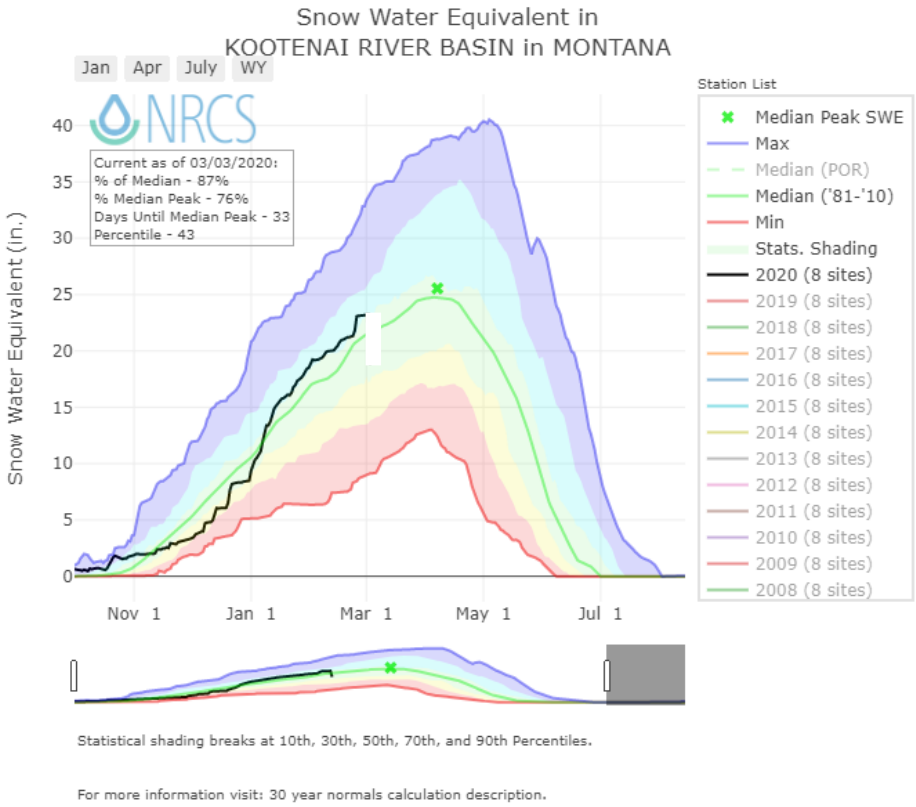
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	104%	97%	83%
Valley Precipitation	%	%	%
Basin-Wide Precipitation	**104%**	**97%**	**83%**

**WYTD Precipitation is October 1st- Current*

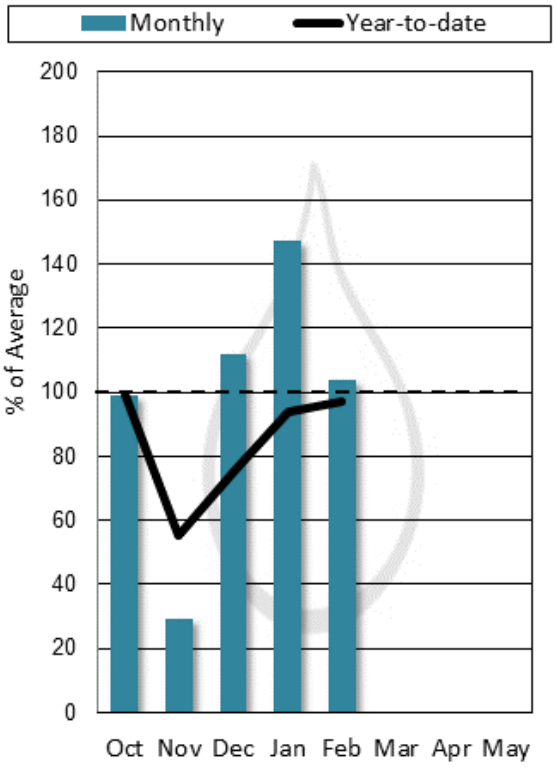
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Reservoir Storage	**143%**	**62%**	**149%**

**See Reservoir Storage Table for storage in individual reservoirs*

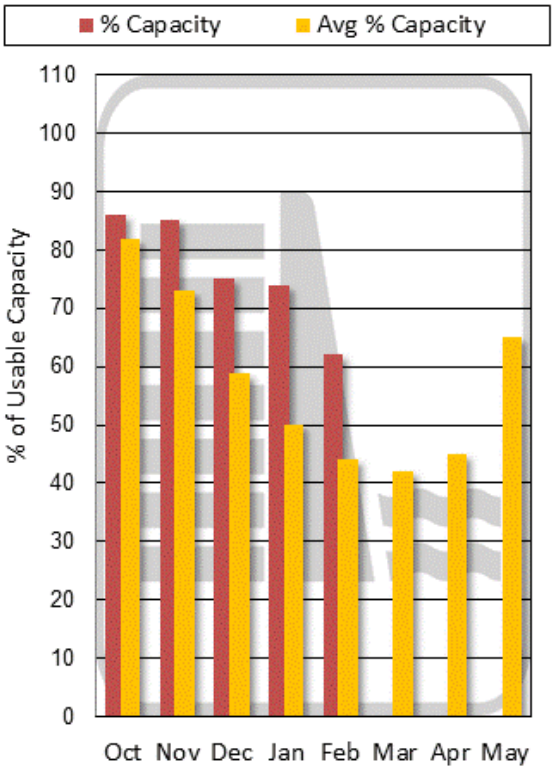
(click to navigate to online version with additional features)



Mountain and Valley Precipitation



End of Month Reservoir Storage

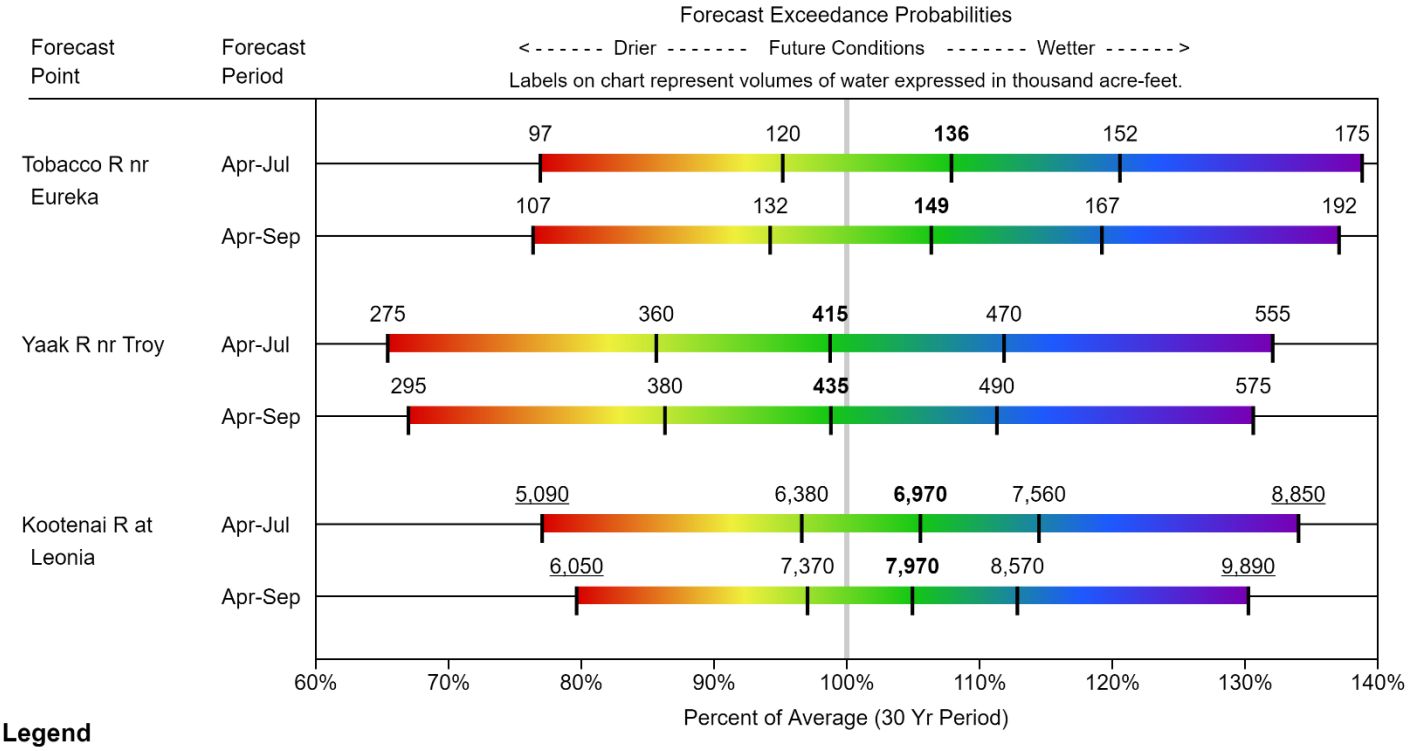


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

KOOTENAI RIVER BASIN in MONTANA

Water Supply Forecasts

March 1, 2020



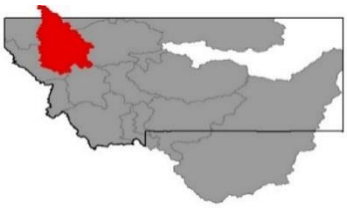
Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.



Flathead River Basin

Snowfall for February was above normal for the second straight month, a welcome change to the dry weather patterns which dominated November and most of December. The last two months have helped to build a snowpack that is above normal at most mountain locations within the Flathead River basin for March 1st. Early deficits in water year precipitation (starting Oct 1st) at mountain locations have been wiped out due to the abundance of precipitation during January and February. However, while mountain locations are near to above normal for this date, the valleys in the northern end of the Flathead River basin have water year precipitation totals that remain below average for March 1st due to the lack of November December and February precipitation. Near to above normal snowpack in Canada and Montana has resulted in mainstem Flathead River basin forecasts which are near to slightly above average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Flathead River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
NF FLATHEAD in CANADA	%	%
NF FLATHEAD in MONTANA	112%	88%
MIDDLE FORK FLATHEAD	127%	88%
SOUTH FORK FLATHEAD	126%	89%
STILLWATER-WHITEFISH	98%	95%
SWAN	123%	89%
MISSION VALLEY	106%	100%
LITTLE BITTERROOT-ASHLEY	68%	114%
JOCKO	115%	97%
FLATHEAD in MONTANA	112%	93%
Basin-Wide Snowpack	***112%***	***93%***

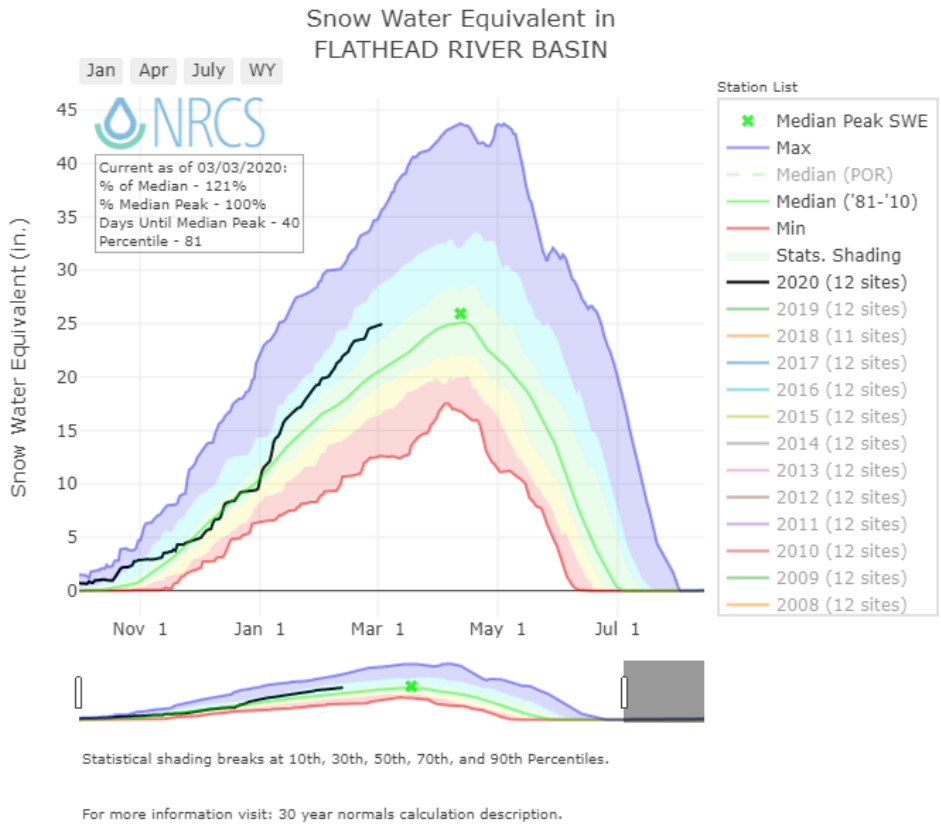
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	112%	102%	93%
Valley Precipitation	54%	82%	101%
Basin-Wide Precipitation	**111%**	**102%**	**93%**

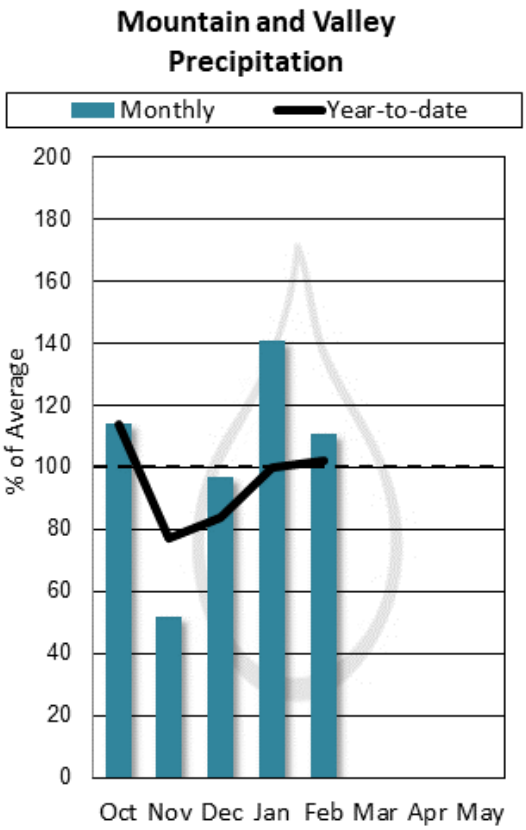
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

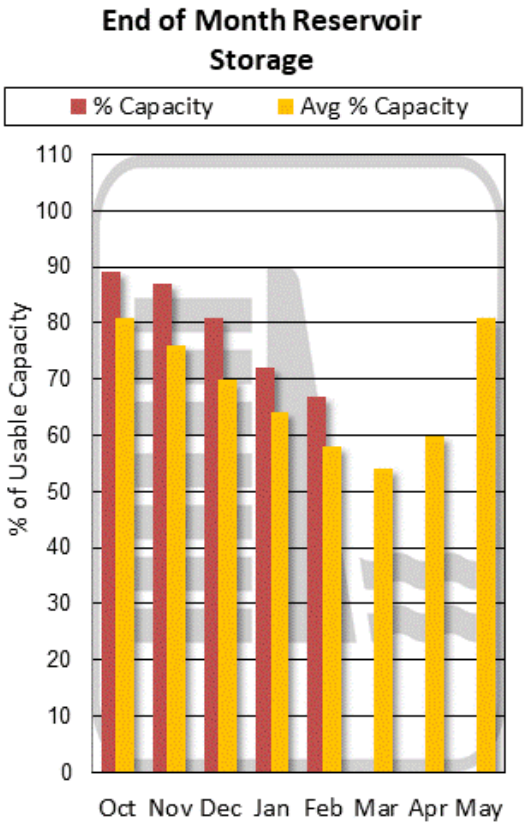
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Reservoir Storage	116%	67%	114%

**See Reservoir Storage Table for storage in individual reservoirs*

(click to navigate to online version with additional features)





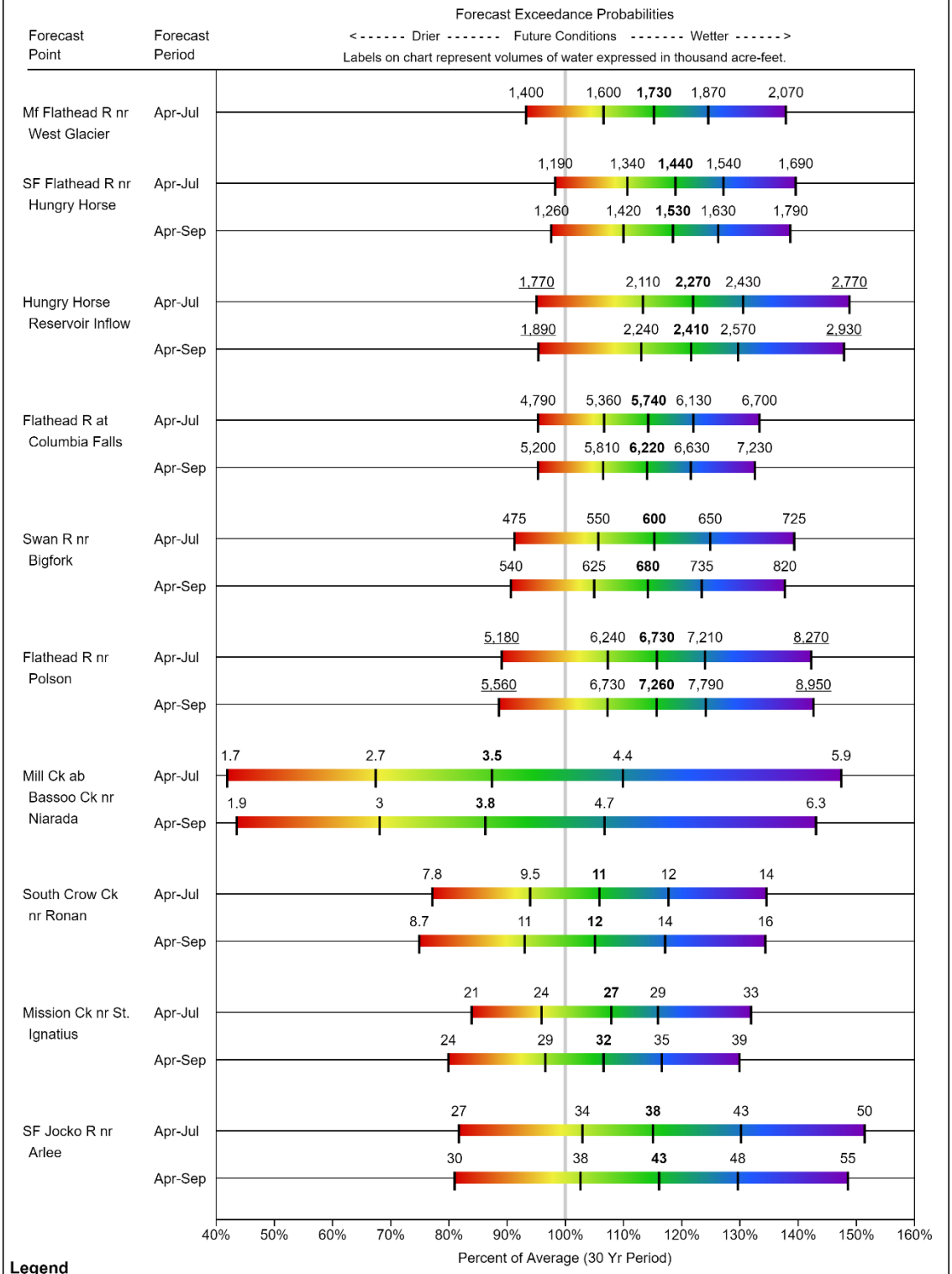


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

FLATHEAD RIVER BASIN

Water Supply Forecasts

March 1, 2020



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Upper Clark Fork River Basin

Storm patterns throughout the month were favorable for the mountain ranges feeding the Upper Clark Fork River basin. Monthly snowfall was well above normal across all the sub-basins feeding the Upper Clark Fork. SNOTEL sites in the Pintler Range received over 225 percent of normal snow accumulation for February, and this would set a new record for February snowfall at the high-elevation Barker Lakes SNOTEL site. Elsewhere, while snowpack wasn't record-setting, it was sufficient to help the basin snowpack totals to further improve from February 1st. Basin-wide snowpack is now above normal within the basin for this date. The abundance of moisture during the last two months has also helped to erase water year precipitation deficits that existed on February 1st due to the dry November and December at mountain locations. Most mountain sites are now reporting near to slightly above average water year precipitation. Near to above normal snowpack has resulted in Upper Clark Fork River basin forecasts which are near to slightly above average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Upper Clark Fork River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
CLARK FORK ab FLINT CREEK	108%	122%
FLINT CREEK	125%	130%
ROCK CREEK	117%	117%
CLARK FORK ab BLACKFOOT	111%	122%
BLACKFOOT	113%	109%
Basin-Wide Snowpack	**112%**	**117%**

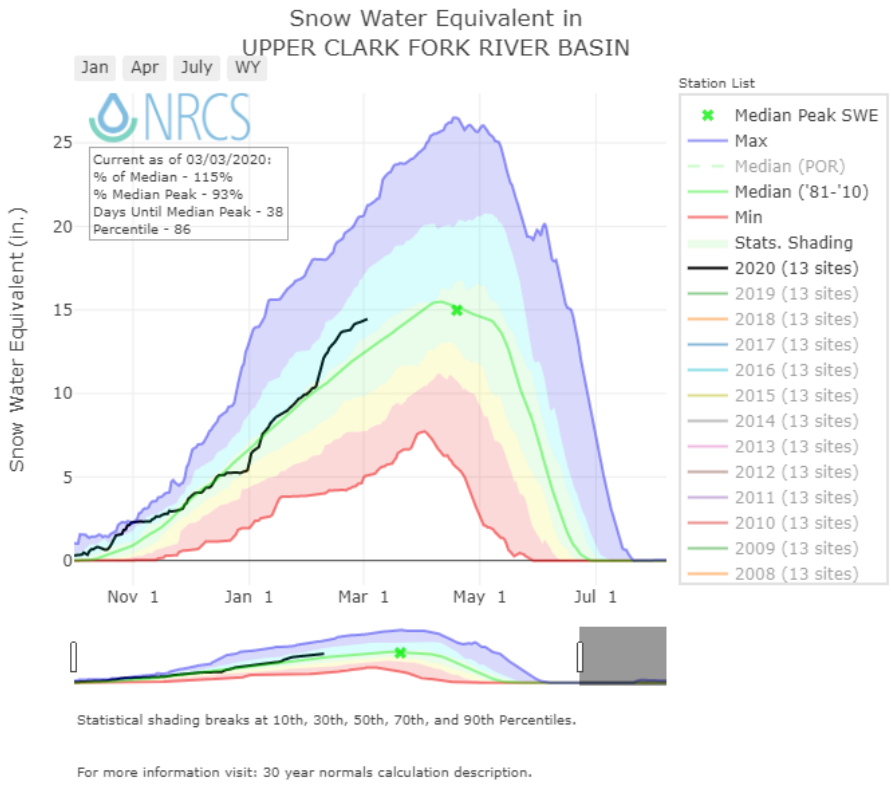
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	132%	97%	104%
Valley Precipitation	112%	43%	101%
Basin-Wide Precipitation	**131%**	**96%**	**104%**

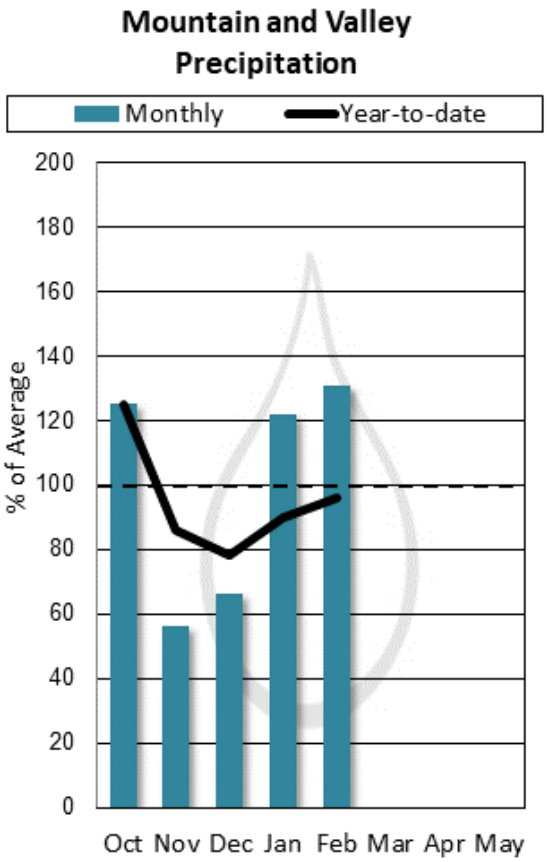
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

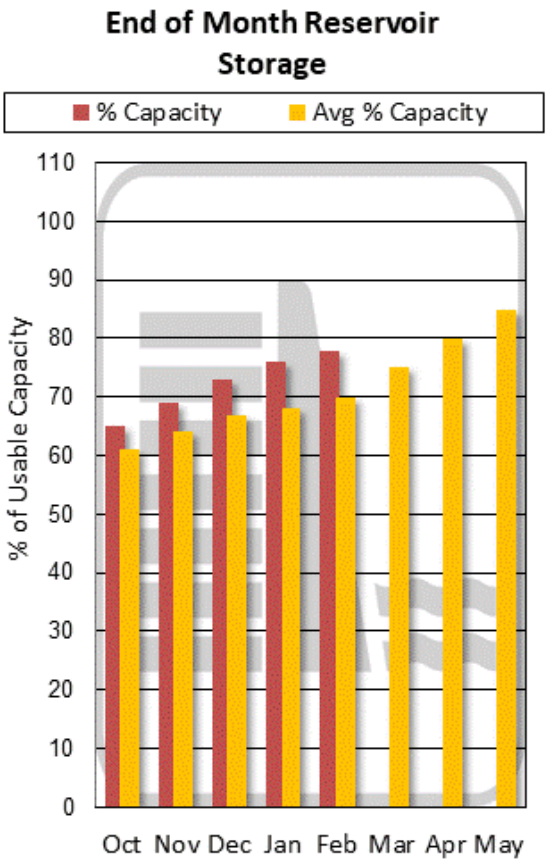
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**111%**	**78%**	**107%**

**See Reservoir Storage Table for storage in individual reservoirs*

(click to navigate to online version with additional features)







Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

UPPER CLARK FORK RIVER BASIN

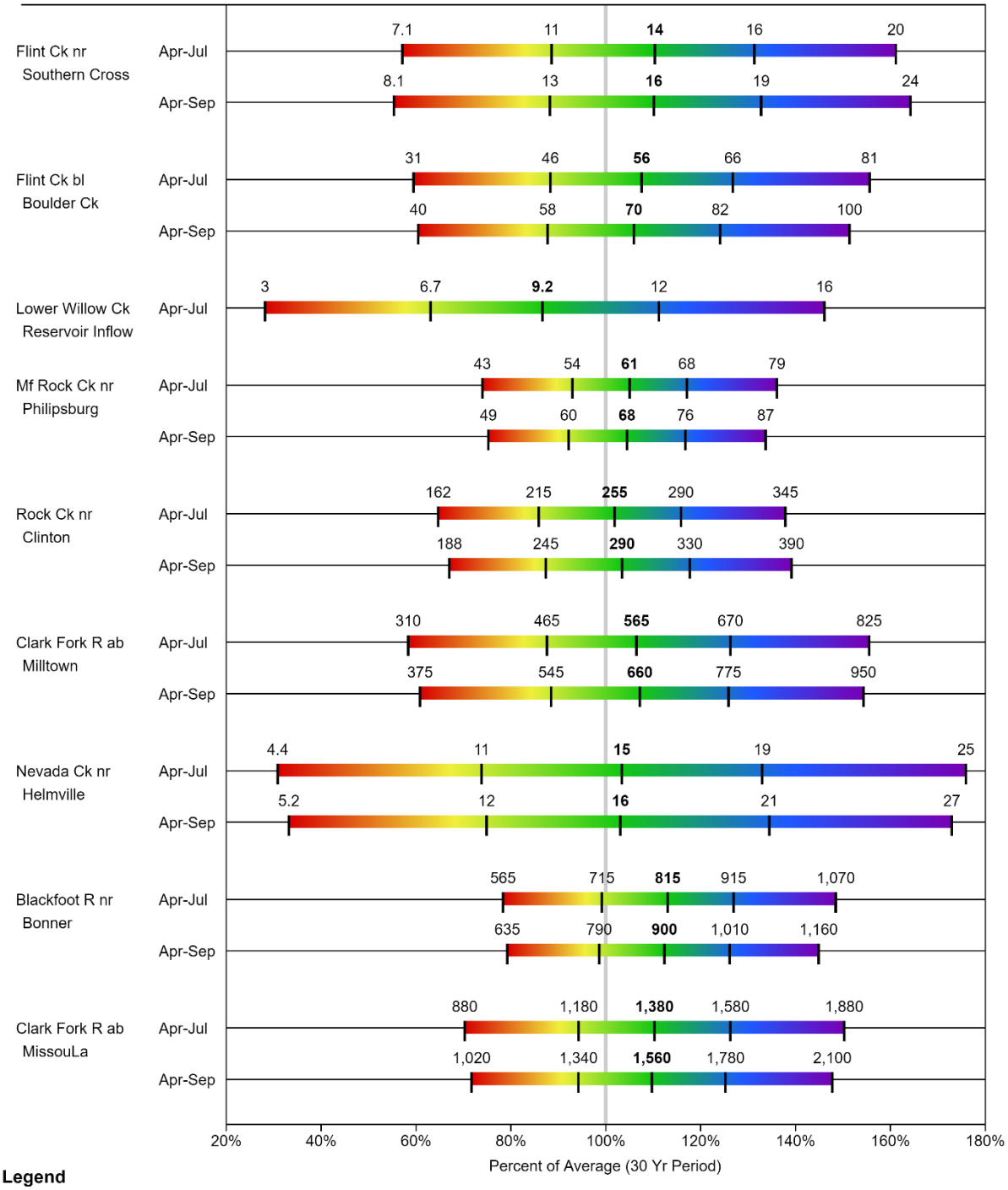
Water Supply Forecasts

March 1, 2020

Forecast Exceedance Probabilities

< - - - - - - Drier - - - - - - - Future Conditions - - - - - - - Wetter - - - - - - >

Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Bitterroot River Basin

This winter has been an interesting one, and quite the turnaround has occurred in the Bitterroot River basin since Jan 1st. For the second month in a row, the mountains feeding the Bitterroot River have experienced well above normal snow totals, boosting the overall basin-wide snowpack from near normal on February 1st to well above normal for March 1st. This is excellent news for water users within the basin. However, winter is far from over, and while low elevations have already exceeded their typical peak snowpack on March 1st, higher elevation sites still have a month or two of accumulation left to top off the mountain snowpack reservoir. The abundance of snowfall during the last two months has put a significant dent in mountain water year precipitation totals (starting Oct 1st), which had been lacking due to the dry November and December. Most mountain locations are now reporting near to slightly below normal water year precipitation. Near to above normal snowpack has resulted in Bitterroot River basin forecasts which are near to slightly above average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Bitterroot River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
WEST FORK BITTERROOT	118%	101%
EAST SIDE BITTERROOT	107%	103%
WEST SIDE BITTERROOT	119%	109%
Basin-Wide Snowpack	**116%**	**106%**

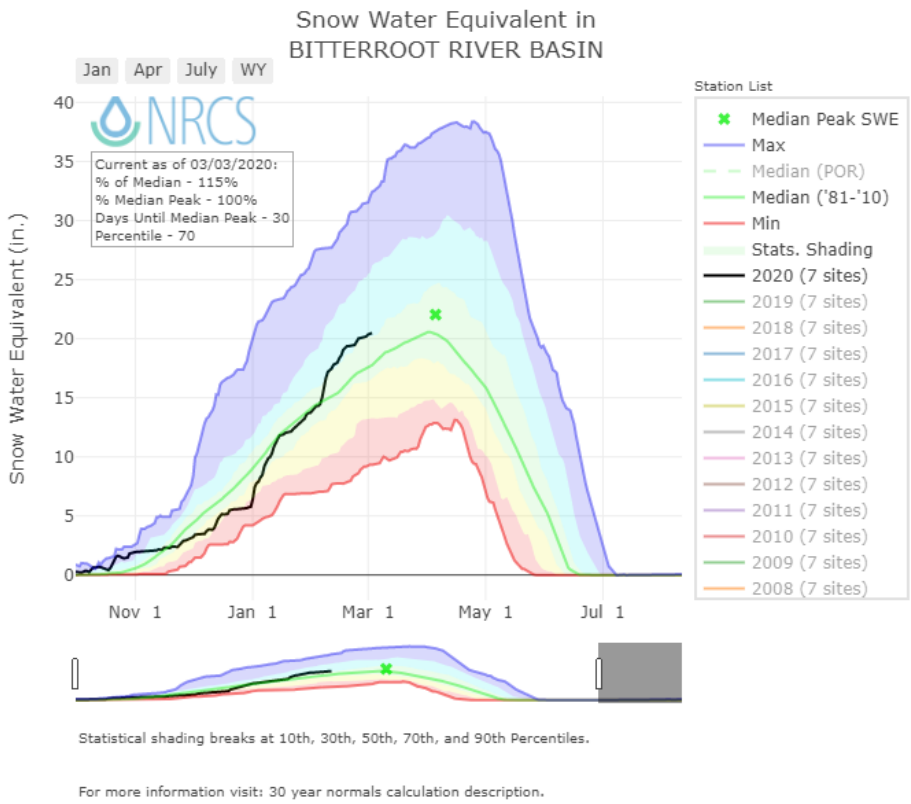
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	145%	97%	104%
Valley Precipitation	%	%	%
Basin-Wide Precipitation	**145%**	**97%**	**104%**

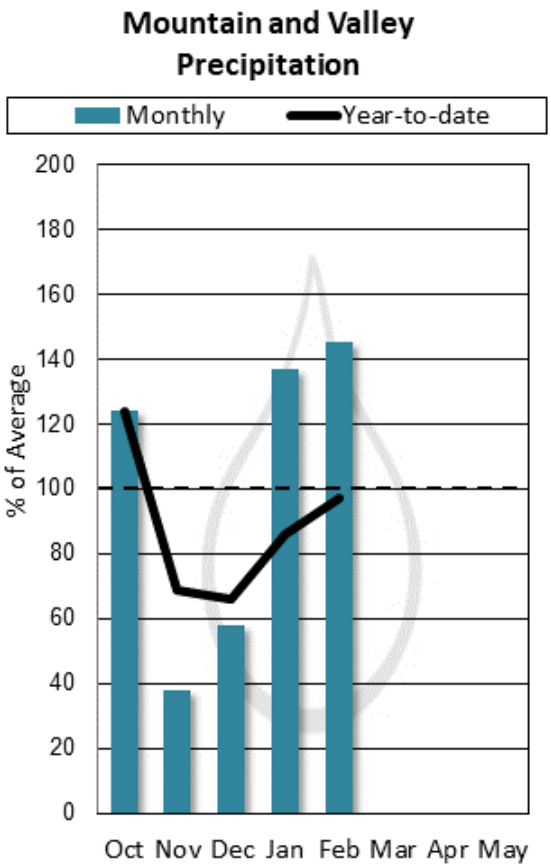
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

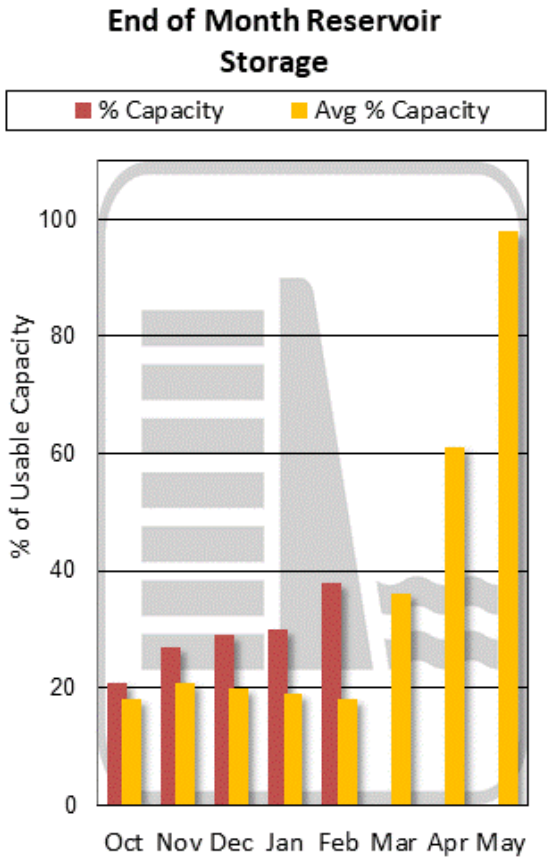
	Percentage of Average	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**102%**	**38%**	**118%**

**See Reservoir Storage Table for storage in individual reservoirs*

(click to navigate to online version with additional features)





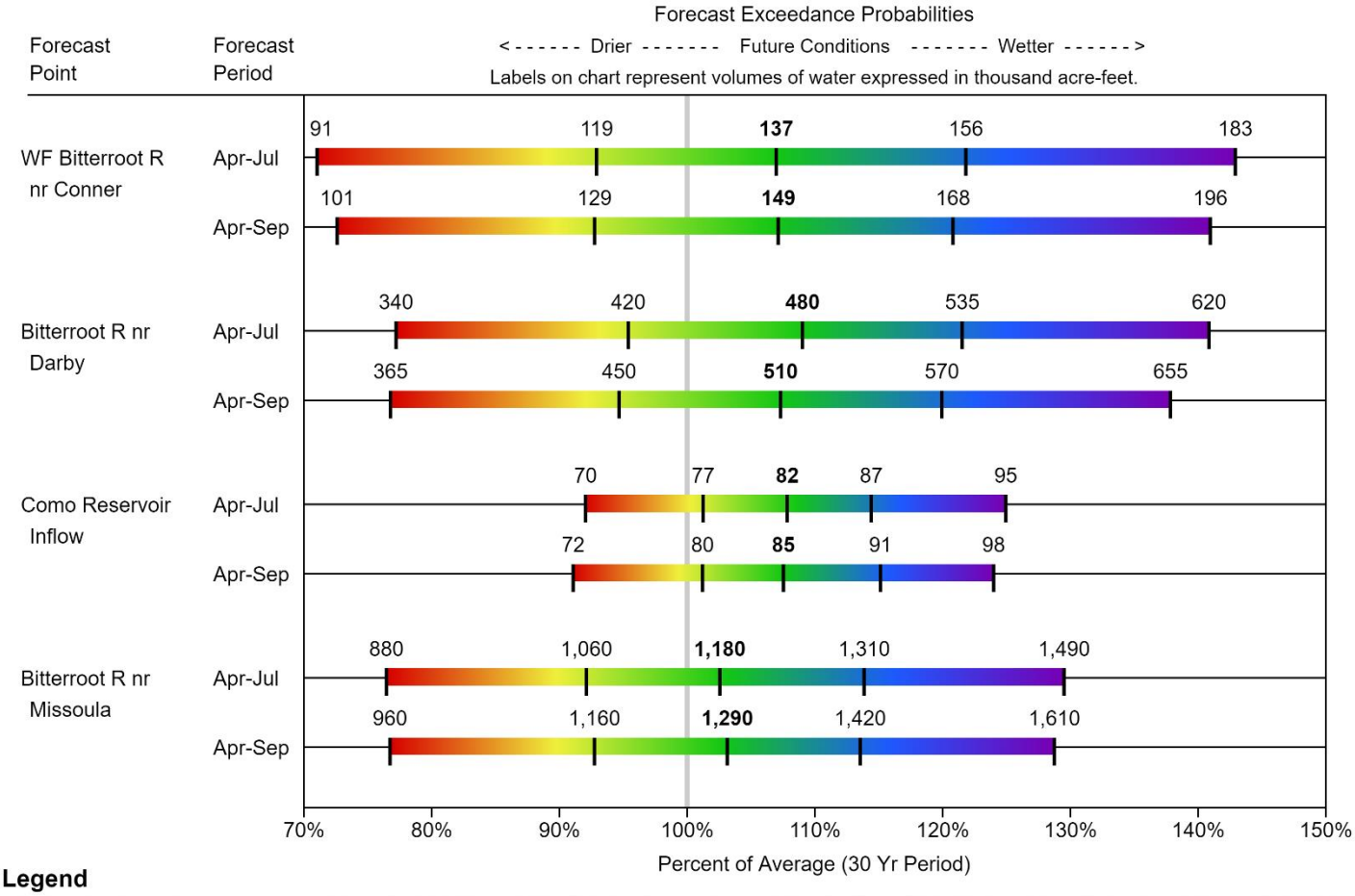


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

BITTERROOT RIVER BASIN

Water Supply Forecasts

March 1, 2020



Legend

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Lower Clark Fork River Basin

Aside from the far western end of the Lower Clark Fork River basin, snowfall was well above normal in the mountain ranges feeding the Lower Clark Fork for February. Only the Cabinet Range would experience below normal snow totals during the month. Even with below-normal snow totals in the Cabinets, basin-wide snowpack improved from slightly below normal on February 1st to slightly above normal on March 1st. Snowpack in the headwaters feeding the Clark Fork in the Upper Clark Fork, Bitterroot, and Flathead River basins is looking good for this date and is well above normal on March 1st. Water Year precipitation totals continue to recover from the early season deficits due to the dry November and December, but have improved since last month in most mountain locations due to the abundant February snowfall. Near to above normal snowpack has resulted in Lower Clark Fork River basin forecasts which are near to slightly above average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Lower Clark For River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
LOWER CLARK FORK RIVER BASIN	107%	101%
Basin-Wide	**107%**	**101%**

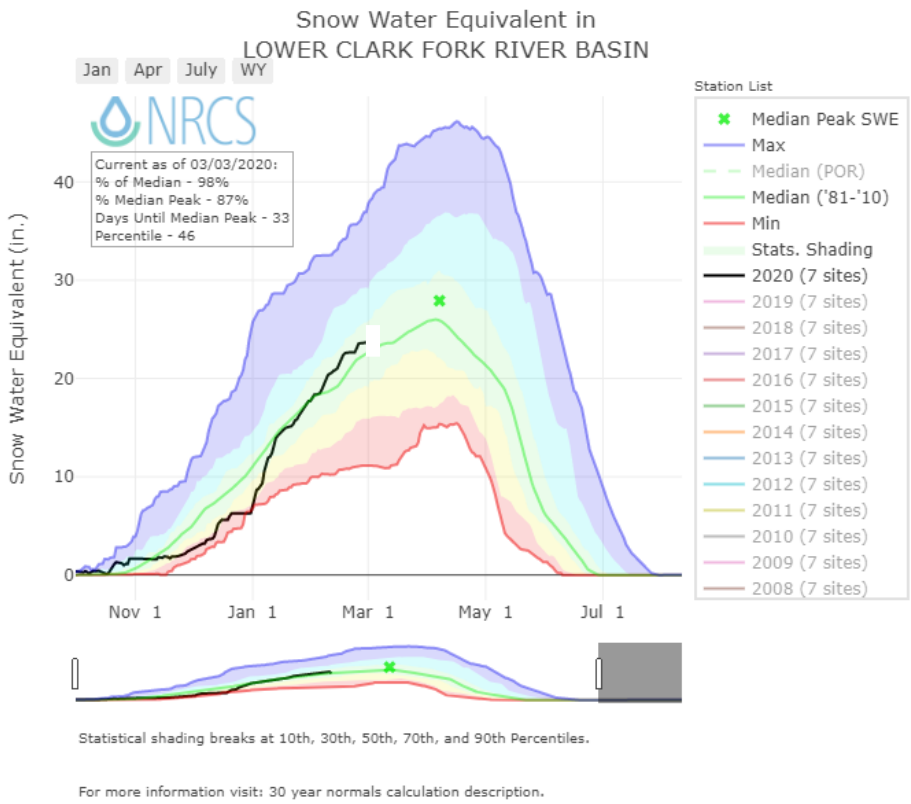
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	113%	94%	93%
Valley Precipitation	151%	90%	162%
Basin-Wide Precipitation	**114%**	**94%**	**94%**

*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

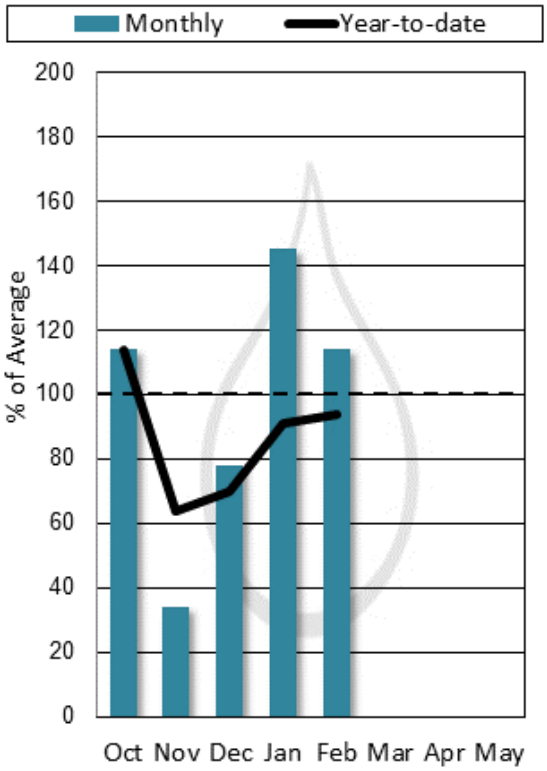
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**94%**	**88%**	**97%**

**See Reservoir Storage Table for storage in individual reservoirs*

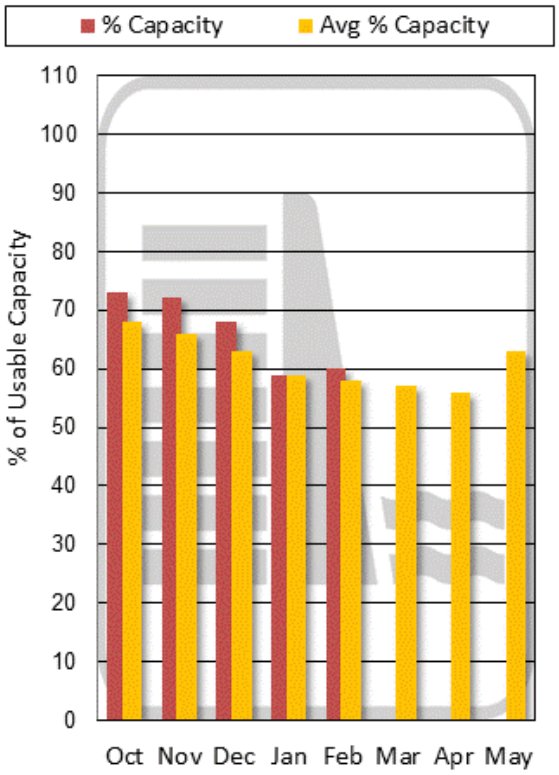
(click to navigate to online version with additional features)



Mountain and Valley Precipitation



End of Month Reservoir Storage

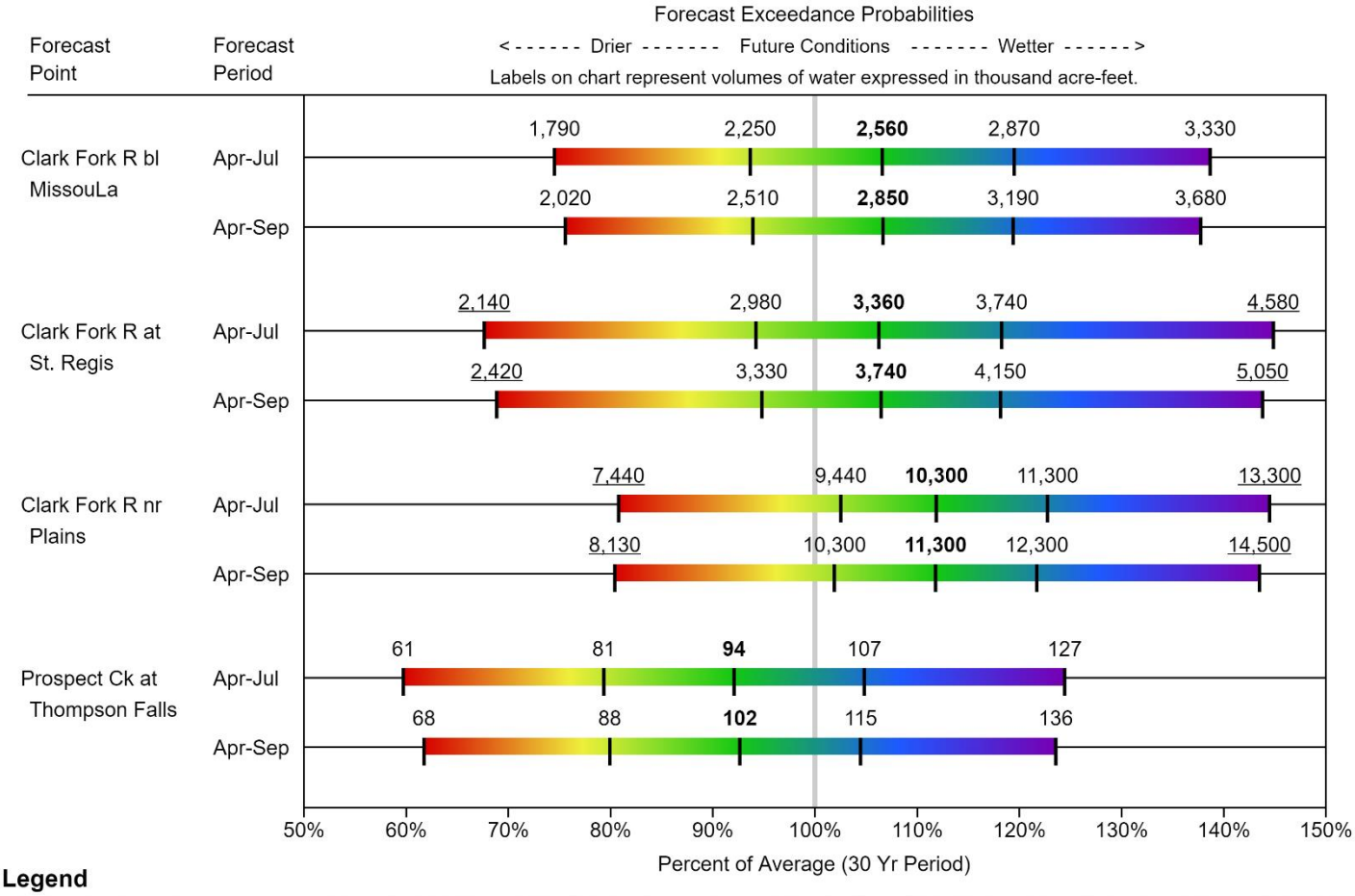


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

LOWER CLARK FORK RIVER BASIN

Water Supply Forecasts

March 1, 2020



Legend

When selected, the following historic streamflow values and statistics will be shown.

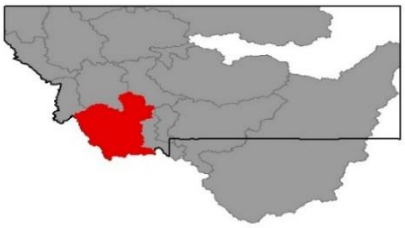
Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.



Jefferson River Basin

Another month of above-normal snowfall in the Jefferson River basin has increased snowpack totals from near normal on February 1st to well above normal on March 1st. The storms that impacted the region between February 5th and February 13h would drop significant amounts of snow across the Jefferson River basin. In the headwaters of the Big Hole River basin, the Darkhorse Lake SNOTEL site received 4.8" of Snow Water Equivalent during this period, more than the site typically receives during the entire month of February. The neighboring mid-elevation Lemhi Ridge SNOTEL site in the headwaters of Horse Prairie Creek would go on to set a tie a record for February snowfall, in large part due to this one storm event. Snow would trickle in through the rest of the month in most mountain ranges, however the headwaters of the Beaverhead River were left high and dry during the second half of February. Only one SNOTEL site within the entire Jefferson River basin is below normal for March 1st, the Lakeview Ridge SNOTEL site, located on the north side of the Centennial Range in the Red Rock River basin. Near to above normal snowpack has resulted in Jefferson River basin forecasts that are near to slightly above average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Jefferson River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
BEAVERHEAD	114%	117%
RUBY	112%	119%
BIGHOLE	111%	110%
BOULDER	116%	123%
Basin-Wide Snowpack	**113%**	**116%**

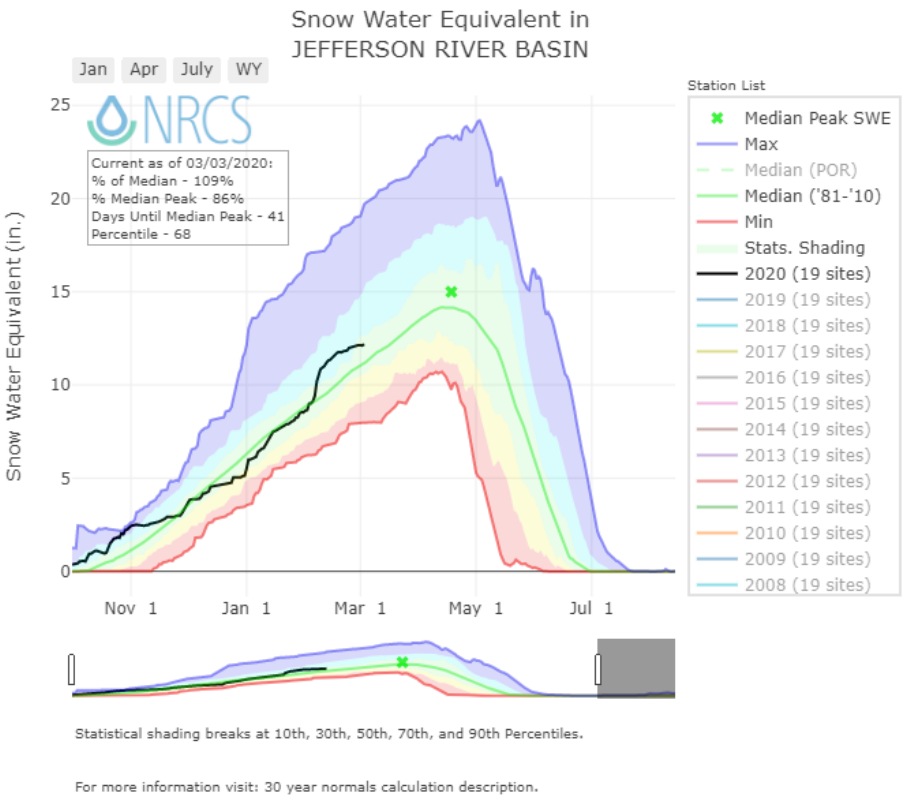
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	154%	99%	114%
Valley Precipitation	%	%	%
Basin-Wide Precipitation	**154%**	**99%**	**114%**

*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

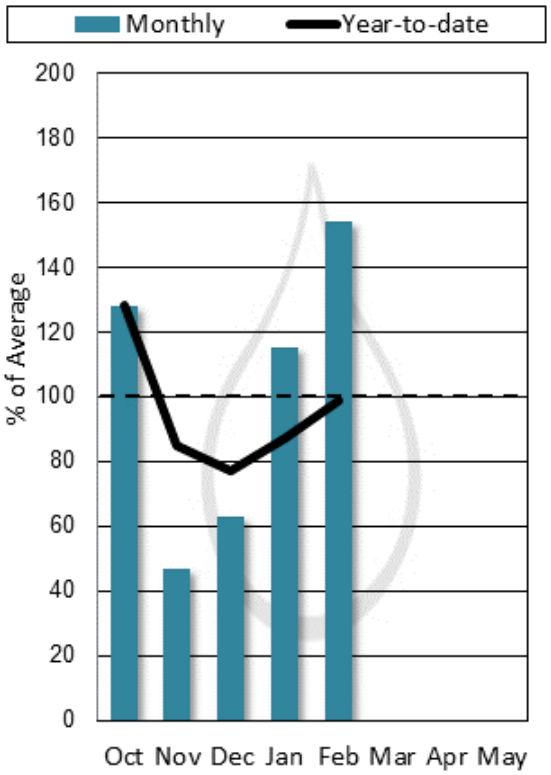
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**124%**	**60%**	**127%**

**See Reservoir Storage Table for storage in individual reservoirs*

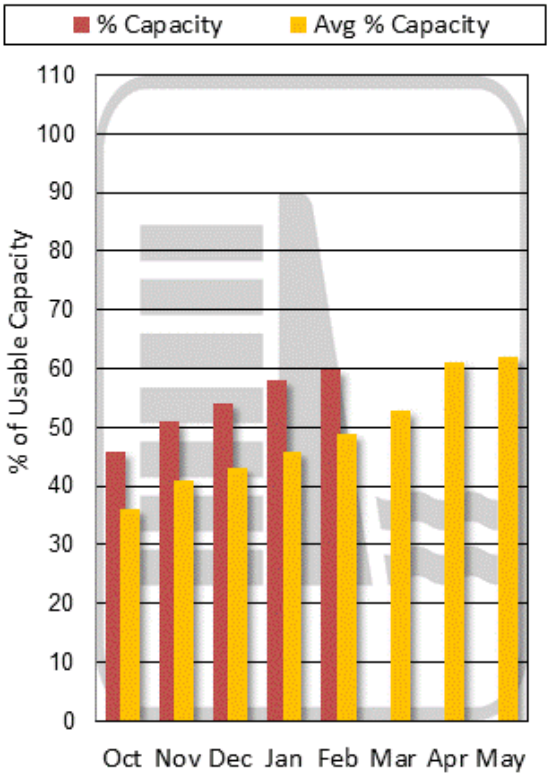
(click to navigate to online version with additional features)



Mountain and Valley Precipitation



End of Month Reservoir Storage



Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

JEFFERSON RIVER BASIN

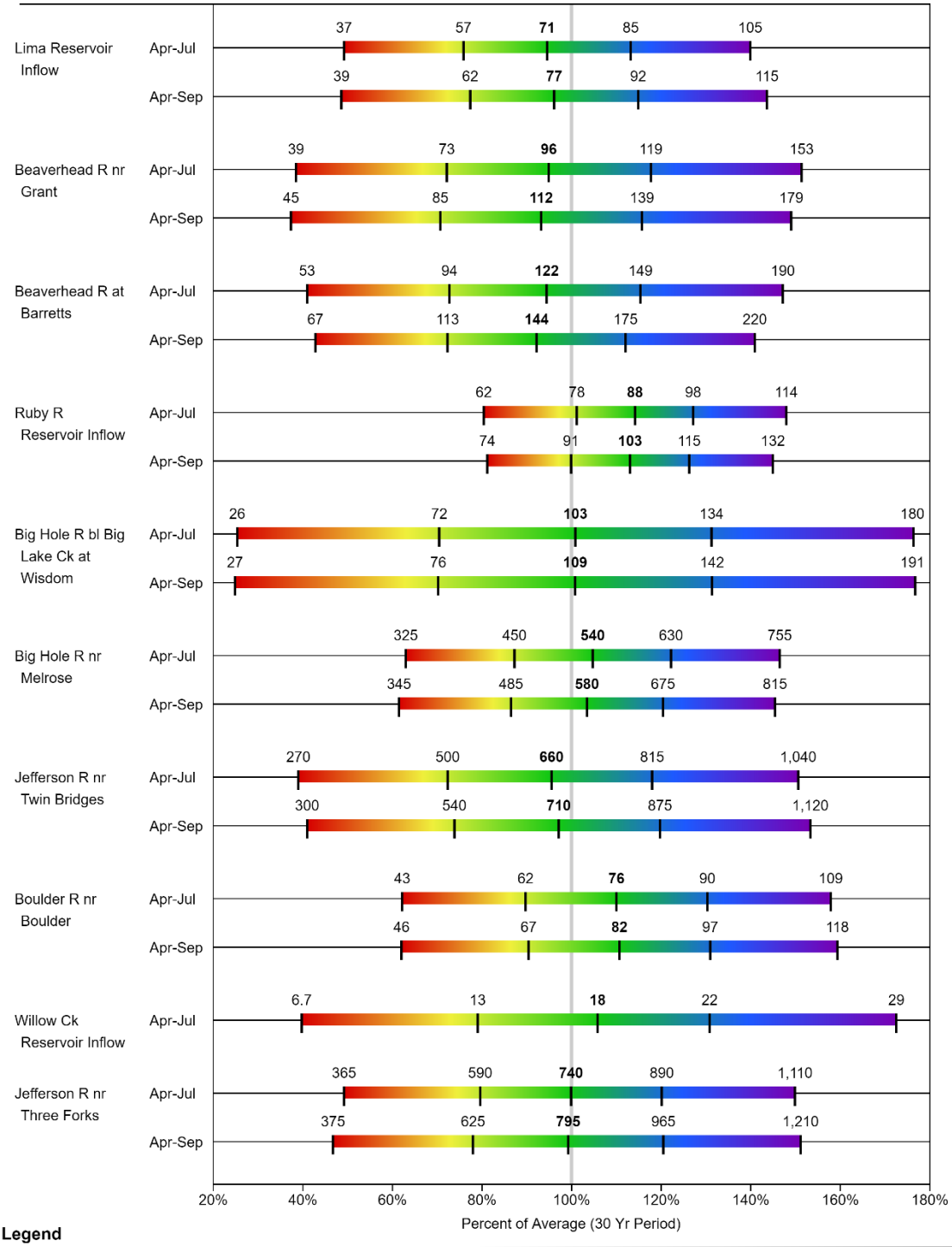
Water Supply Forecasts

March 1, 2020

Forecast Exceedance Probabilities

< - - - - - - Drier - - - - - - - Future Conditions - - - - - - - Wetter - - - - - - >

Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend

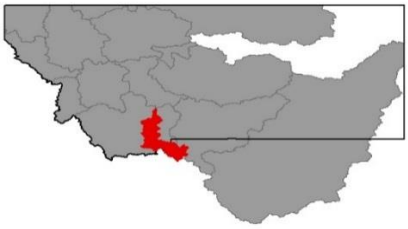
95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Madison River Basin



The unstable northwest flow, which dominated the month of February, resulted in some impressive snow totals in the mountain ranges downstream (northwest) of Hebgen Lake, helping the snowpack to further recover from the dry November and December. Only one region experienced snowfall which was below normal for the month, the SNOTEL sites located on the Madison Plateau south of West Yellowstone all experienced below normal totals for February. Before panic sets it, it should be noted that this region is heavily favored by southwest flow, which is more common during the spring months, and thanks to the abundant snowfall in January, the snowpack in this region near normal for Snow Water Equivalent on March 1st. Elsewhere to the north, the snowpack has improved from near normal on February 1st to above normal in the Gravelly, Madison, and Tobacco Root Mountain ranges. Streamflow forecasts, which factor in both snowpack and water year precipitation (which begins on Oct 1st), are slightly below average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Madison River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
MADISON abv HEBGEN LAKE	93%	130%
MADISON blw HEBGEN LAKE	104%	125%
Basin-Wide Snowpack	**99%**	**128%**

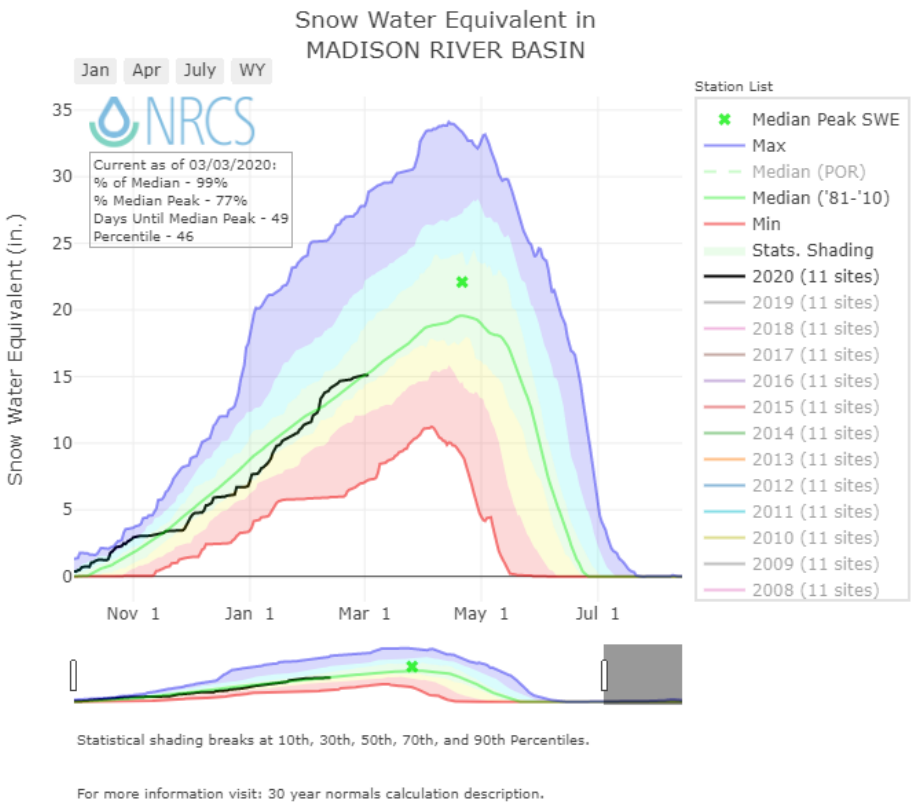
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	109%	88%	119%
Valley Precipitation	238%	116%	214%
Basin-Wide Precipitation	**112%**	**89%**	**123%**

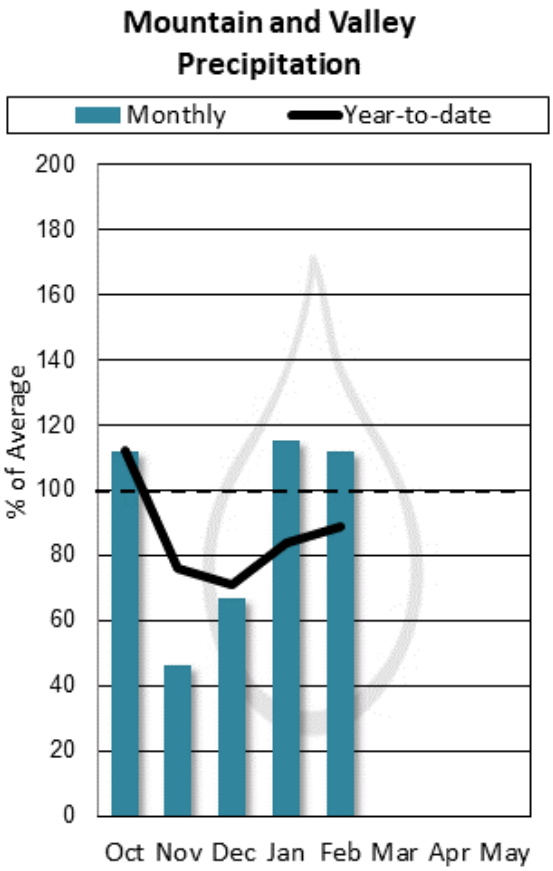
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

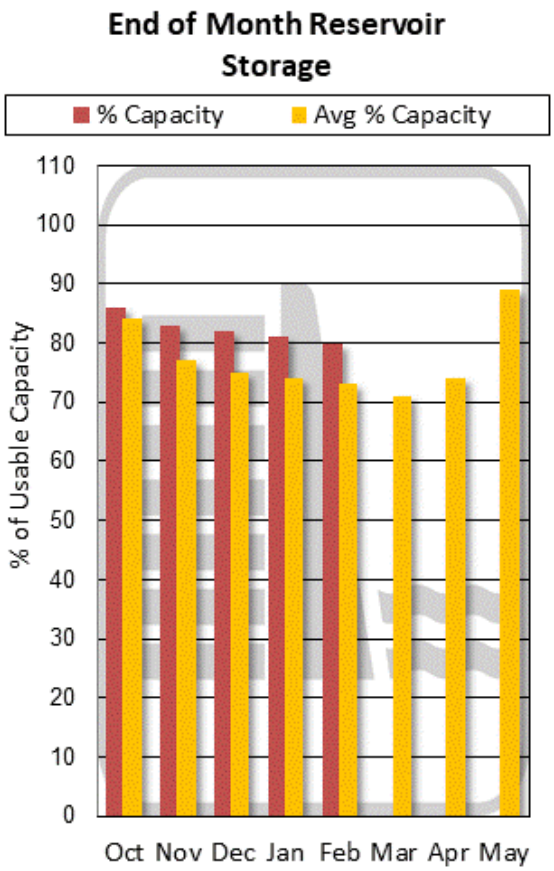
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**111%**	**80%**	**113%**

**See Reservoir Storage Table for storage in individual reservoirs*

(click to navigate to online version with additional features)





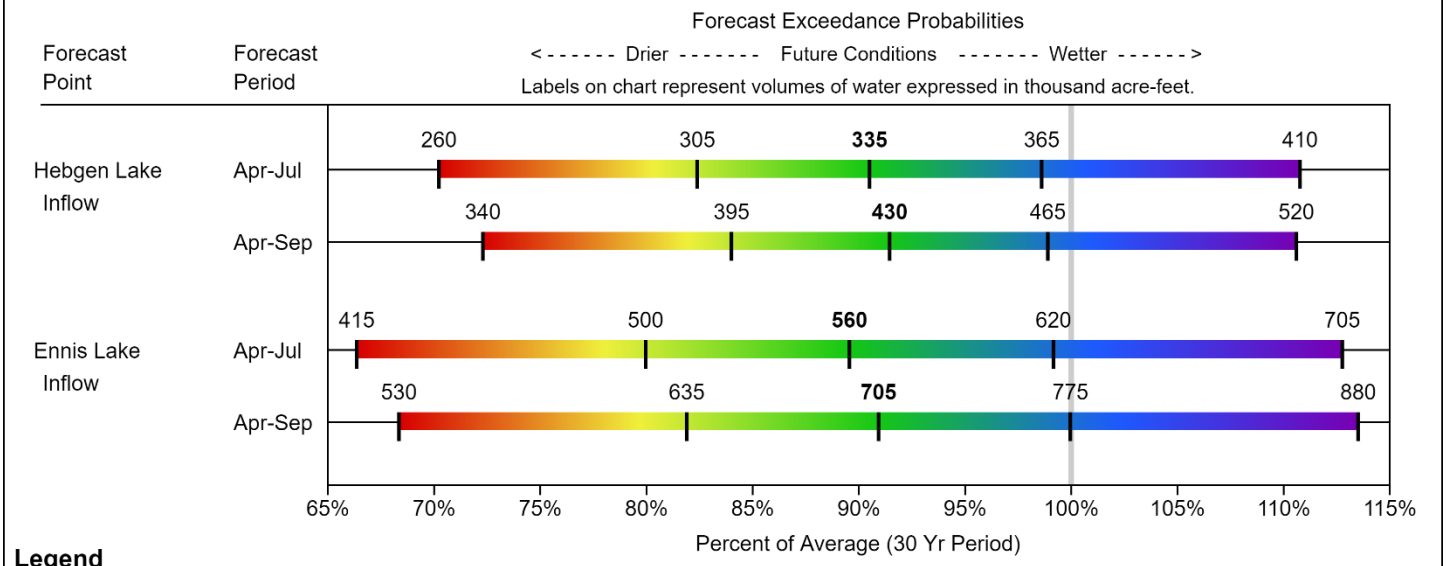


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

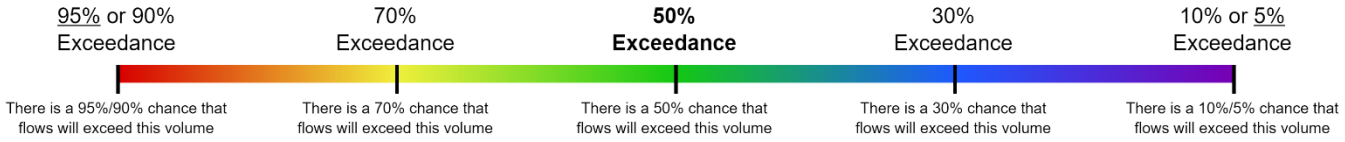
MADISON RIVER BASIN

Water Supply Forecasts

March 1, 2020



Legend



When selected, the following historic streamflow values and statistics will be shown.

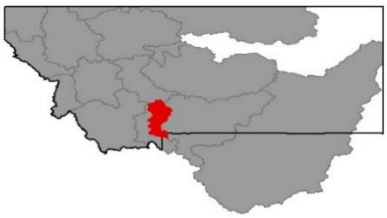
Period of Record Minimum Streamflow KAF (Year)

1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.



Gallatin River Basin

If there is one recipe for abundant snowfall in the Bridger and northern Gallatin and Madison Ranges, it is a persistent unstable northwest flow. The first two weeks of the month yielded a substantial amount of snowfall in these areas. During the first two weeks of the month, the high elevation Shower Falls SNOTEL site, located just below Hyalite Lake in the northern Gallatin Range, added 5.1 inches of Snow Water Equivalent (SWE) to the snowpack, almost doubling what they site typically receives for the whole month in 14 days. The total SWE received during the month at this site would go on to set a new record for February. The storms would also benefit the northern Madison Range, where the Lone Mountain SNOTEL site, located at Big Sky Resort, would report the fourth-highest February SWE total. Further south, the mountains feeding the headwaters of the Gallatin experienced snow totals that were slightly above normal for the month. January and February have yielded quite the turnaround snowpack wise in the headwaters of the Gallatin. Due to this month's abundant snowfall, the basin-wide snowpack has improved during February, and the snowpack is now near to well above normal for March 1st. Near to above normal snowpack has resulted in Gallatin River basin forecasts that are slightly above average for the April 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Gallatin River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
UPPER GALLATIN	*105%*	*121%*
HYALITE	*143%*	*116%*
BRIDGER	*126%*	*140%*
Basin-Wide Snowpack	**120%**	**123%**

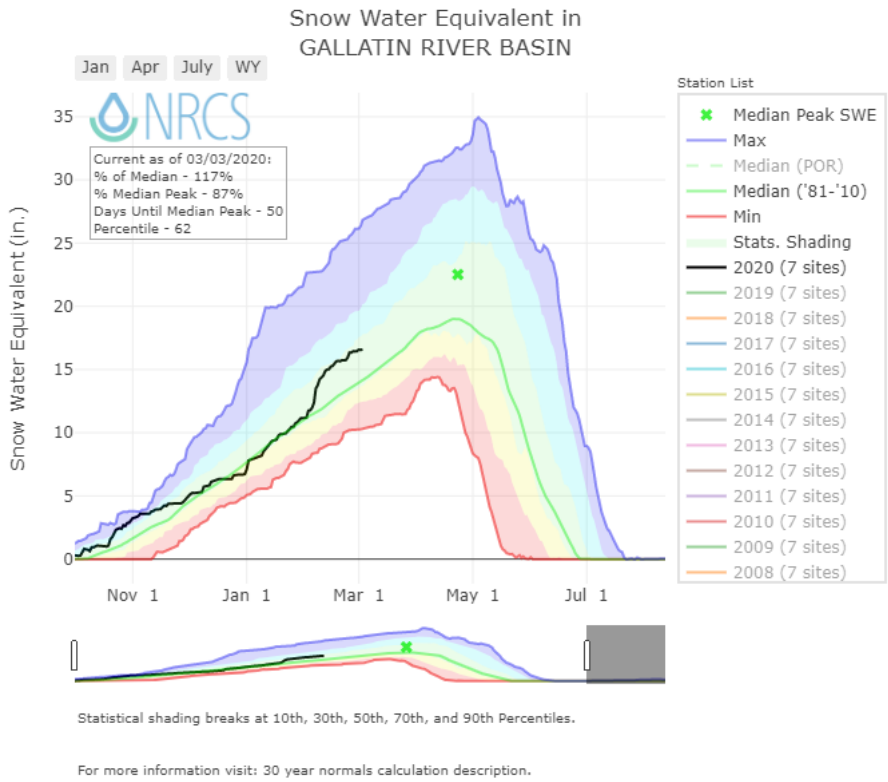
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	183%	113%	130%
Valley Precipitation	213%	98%	131%
Basin-Wide Precipitation	**185%**	**112%**	**130%**

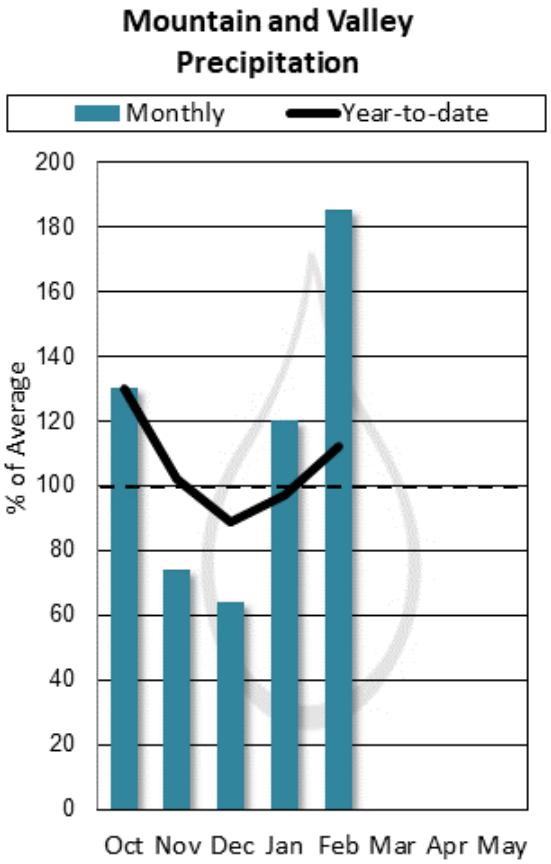
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

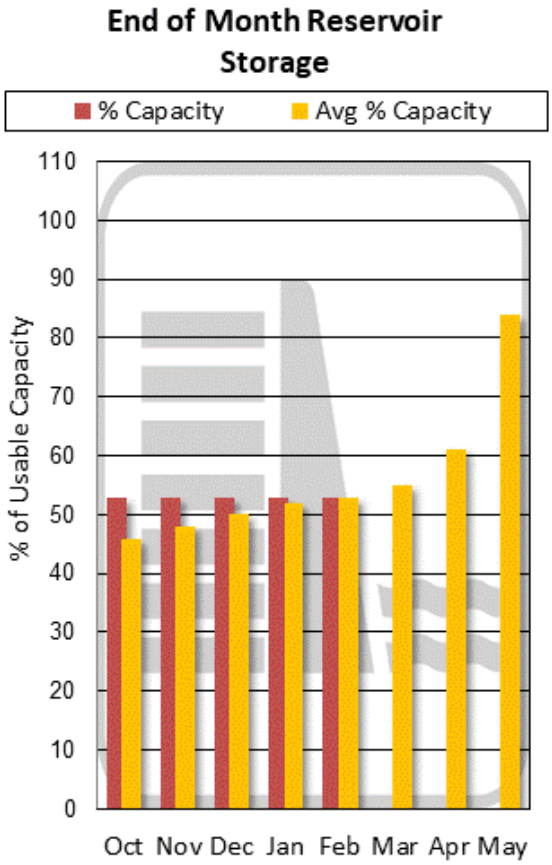
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**100%**	**53%**	**100%**

**See Reservoir Storage Table for storage in individual reservoirs*

(click to navigate to online version with additional features)





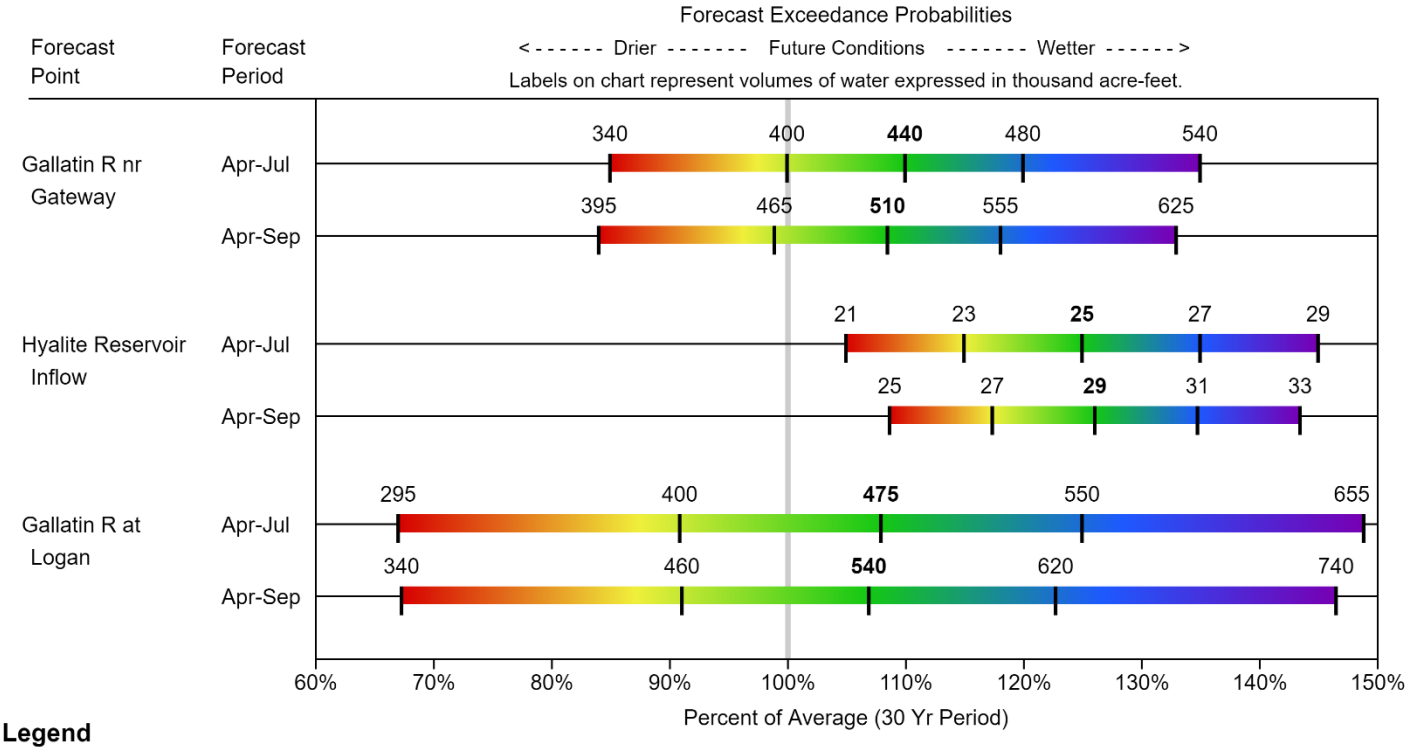


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

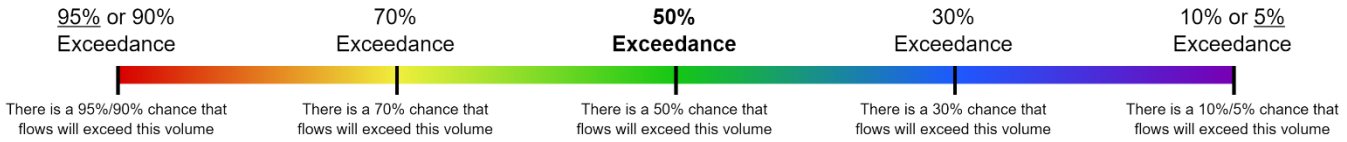
GALLATIN RIVER BASIN

Water Supply Forecasts

March 1, 2020



Legend



When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

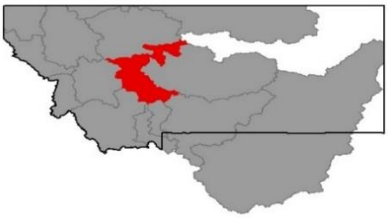
1981-2010 Normal Streamflow KAF

Observed Streamflow KAF

Period of Record Maximum Streamflow KAF (Year)

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Headwaters Mainstem (Missouri) River Basin



After the dry December and January in the valley between Helena and Townsend, it might seem like this winter has been a bust. Interestingly, this month precipitation was again below average in the Helena valley, while further south Townsend reported 248% of average precipitation for the month. Fortunately, the dry pattern gave way in January at mountain locations, and February yielded significant snowfall to the mountains in the region. While not record-setting like last February, monthly snow totals were well above normal in all ranges that feed rivers and streams in the area, ranging from 113 percent to 214 percent of normal. Overall, basin-wide snowpack is well above normal for this date, and increased percentage-wise from February 1st. Streamflow forecasts for the Missouri River feeding Canyon Ferry and downstream lakes and reservoirs reflect the near to above-normal snowpack in both the headwaters (Jefferson, Madison, and Gallatin) and local snowpack. Streamflow forecasts indicate near to above-average flows for the April 1st through July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Headwaters Missouri Mainstem River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
HEADWATERS MAINSTEM	120%	125%
Basin-Wide Snowpack	**120%**	**125%**

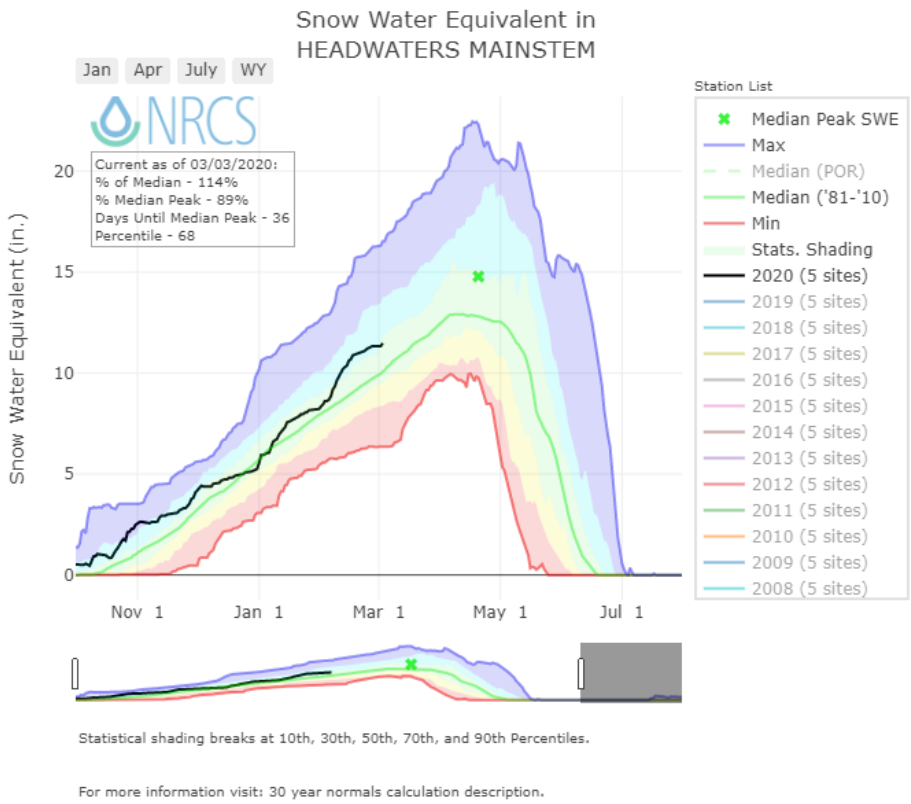
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	152%	105%	121%
Valley Precipitation	67%	96%	165%
Basin-Wide Precipitation	**149%**	**105%**	**123%**

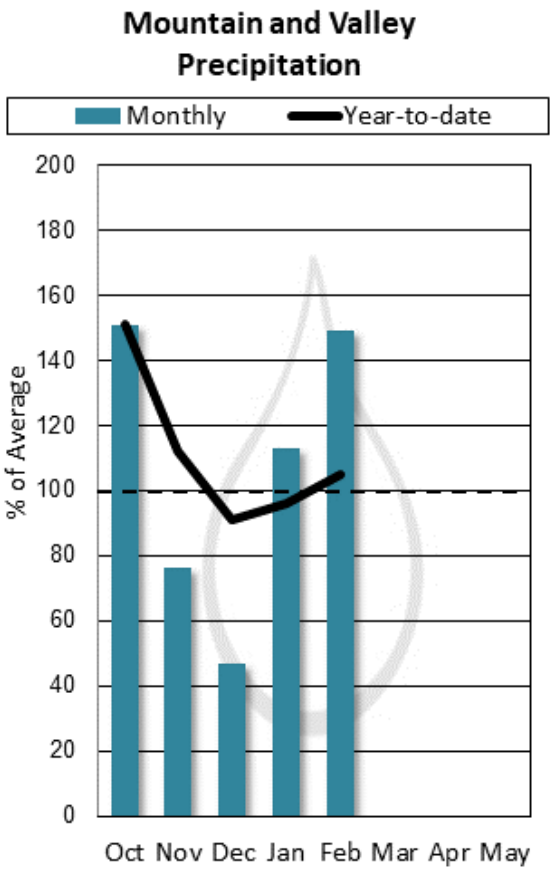
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

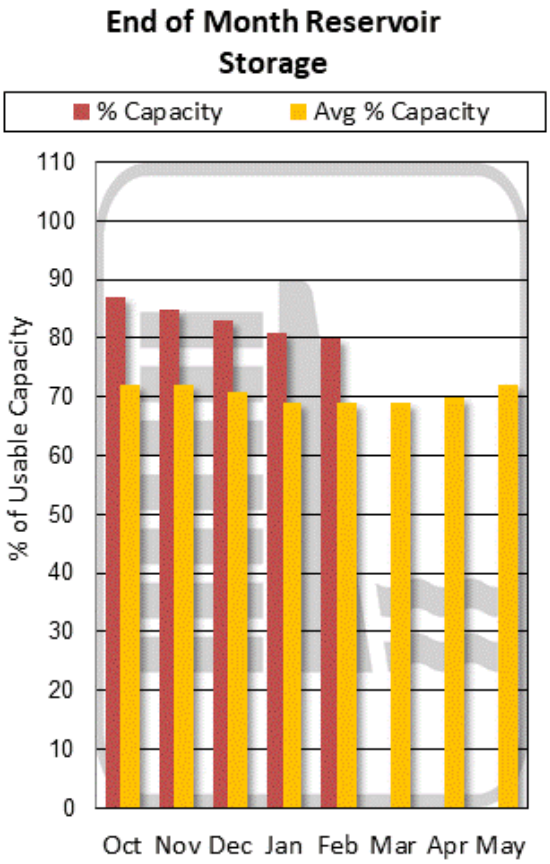
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**116%**	**80%**	**115%**

**See Reservoir Storage Table for storage in individual reservoirs*

(click to navigate to online version with additional features)





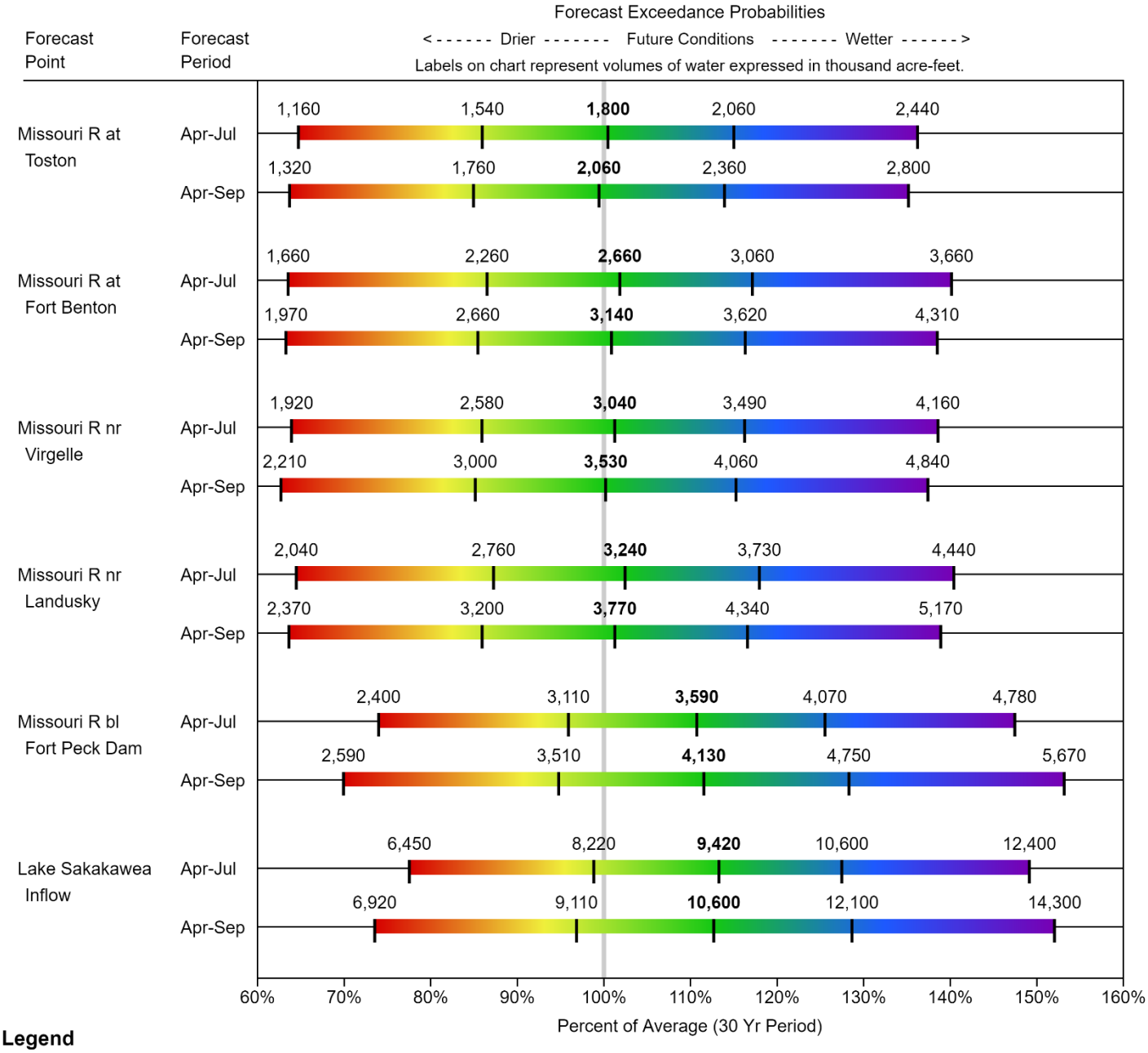


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

MISSOURI MAINSTEM BASIN

Water Supply Forecasts

March 1, 2020



Legend

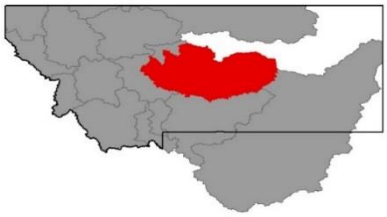
95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Smith-Judith-Musselshell River Basin



Precipitation was well above average at mountain locations in the Smith-Judith-Musselshell River basin during February. Snow accumulated throughout most of the month, but mid-month brought the most significant snowfall. Most sites in the basin received double to triple their typical February snow totals. Crystal Lake SNOTEL in the Big Snowy Mountains had its highest February snow water increase in 42 years of record. The basin-wide snowpack is currently well above normal, and it is near its typical annual peak, which doesn't usually occur until mid-April. Water year precipitation in the Smith-Judith-Musselshell River basin ranges from near average in the Big Belt Mountains to above average in the Little Belt and Big Snowy Mountains. Above normal snowpack has resulted in forecasts within the basin which range from above average to well above average for the Apr 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Smith Judith Musselshell River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
SMITH	130%	123%
HIGHWOOD	83%	145%
JUDITH	141%	121%
MUSSELSHELL	127%	134%
Basin-Wide Snowpack	**132%**	**123%**

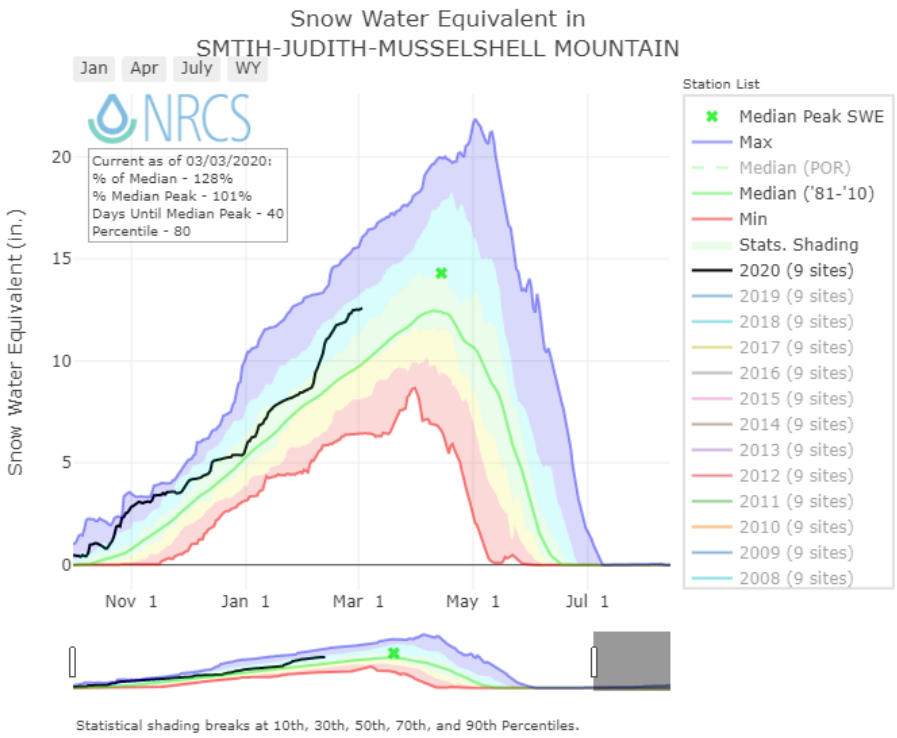
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	201%	110%	116%
Valley Precipitation	170%	108%	126%
Basin-Wide Precipitation	**200%**	**110%**	**117%**

*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

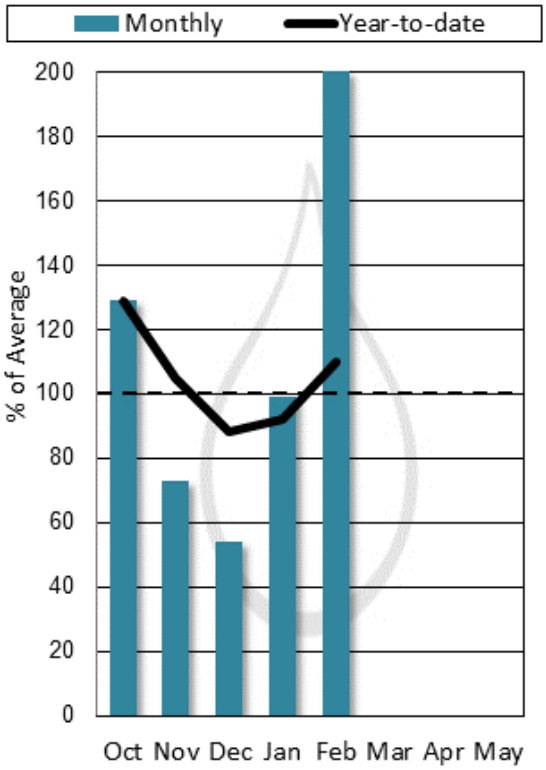
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**154%**	**90%**	**153%**

**See Reservoir Storage Table for storage in individual reservoirs*

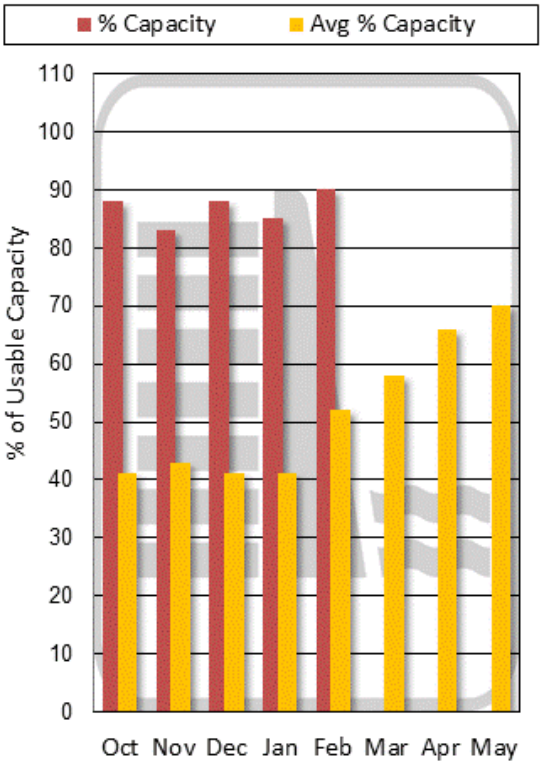
(click to navigate to online version with additional features)



Mountain and Valley Precipitation



End of Month Reservoir Storage

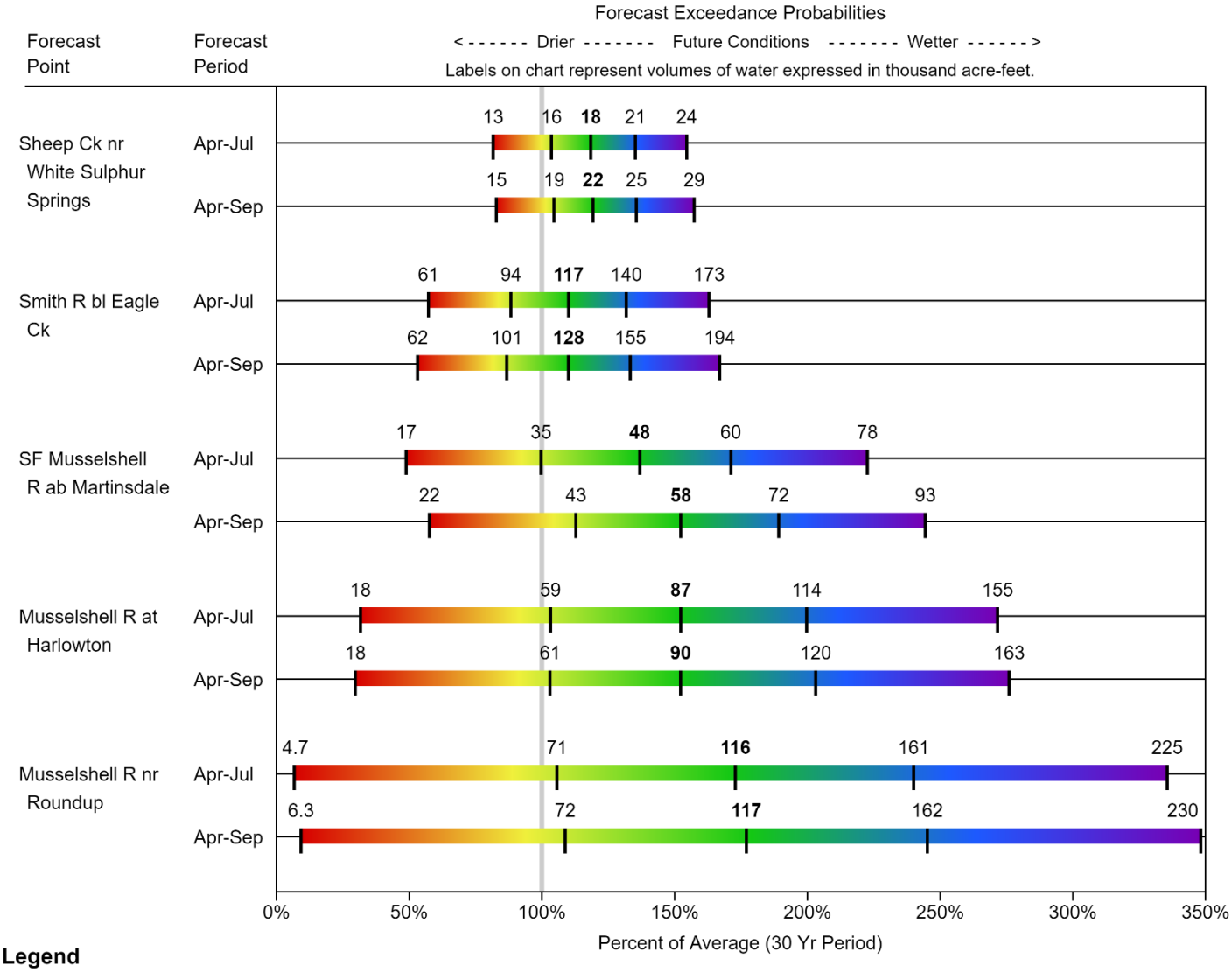


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

SMITH-JUDITH-MUSSELSHELL

Water Supply Forecasts

March 1, 2020



Legend

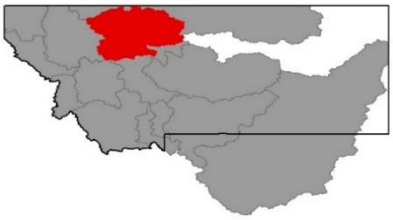
95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Sun-Teton-Marias River Basin



Precipitation was above average at mountain locations in the Sun-Teton-Marias River basin during February. No significant snowstorms stand out in February, but mountain snowfall was consistent throughout the month. New snow was recorded 22 of 29 days during February at Mount Lockhart SNOTEL. The basin-wide snowpack is currently well above normal, and it is near its typical annual peak, which doesn't usually occur until mid-April. With that said, water year precipitation is currently near to below average in the Sun-Teton-Marias River basin. This difference can be attributed to the significant amount of snow that fell before October 1st and the relatively dry November and December. Near to above normal snowpack has resulted in forecasts within the basin which are near to slightly above average for the Apr 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Sun-Teton-Marias River Basin Data Summary

Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
SUN	106%	92%
TETON	120%	94%
MARIAS	121%	90%
Basin-Wide Snowpack	**115%**	**91%**

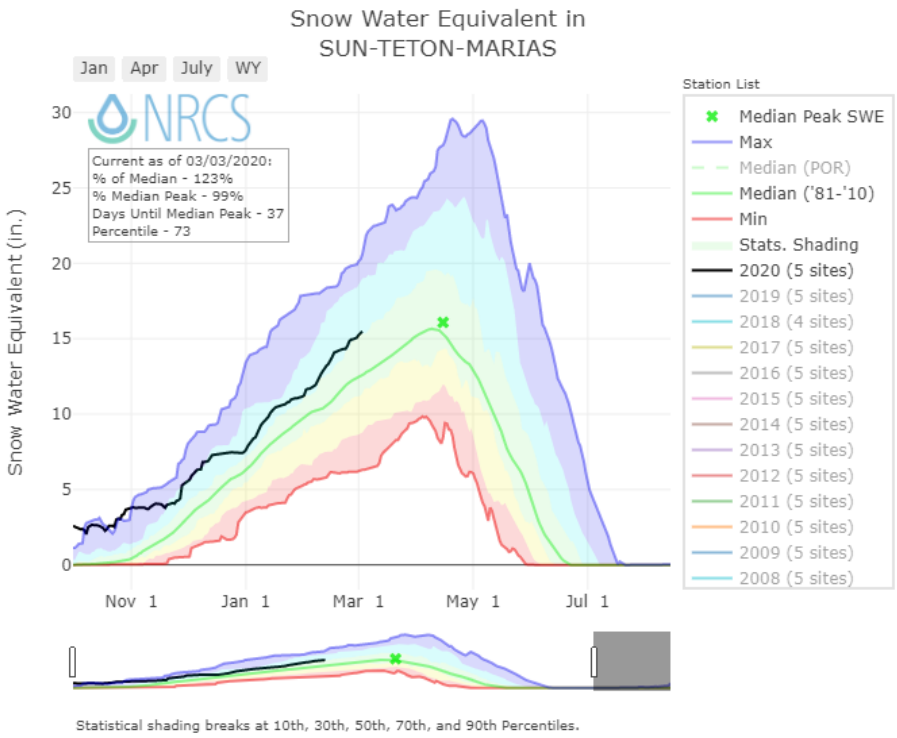
Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	120%	96%	88%
Valley Precipitation	95%	134%	160%
Basin-Wide Precipitation	**120%**	**97%**	**89%**

*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

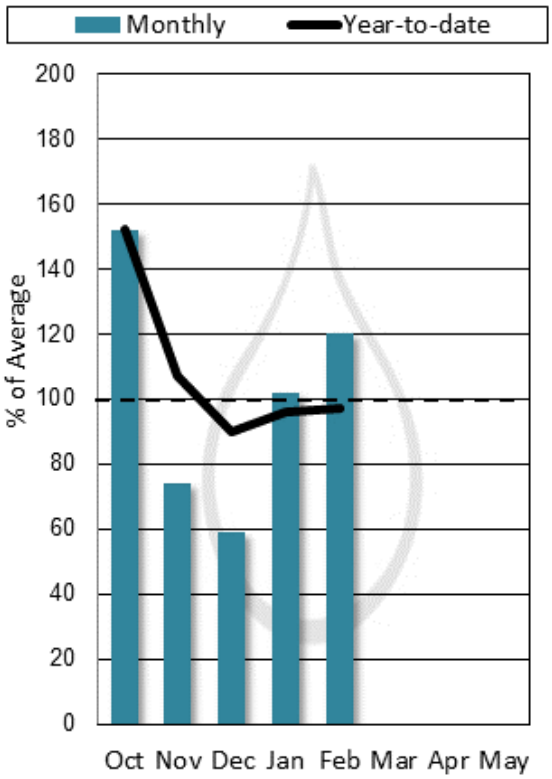
Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**110%**	**57%**	**102%**

**See Reservoir Storage Table for storage in individual reservoirs*

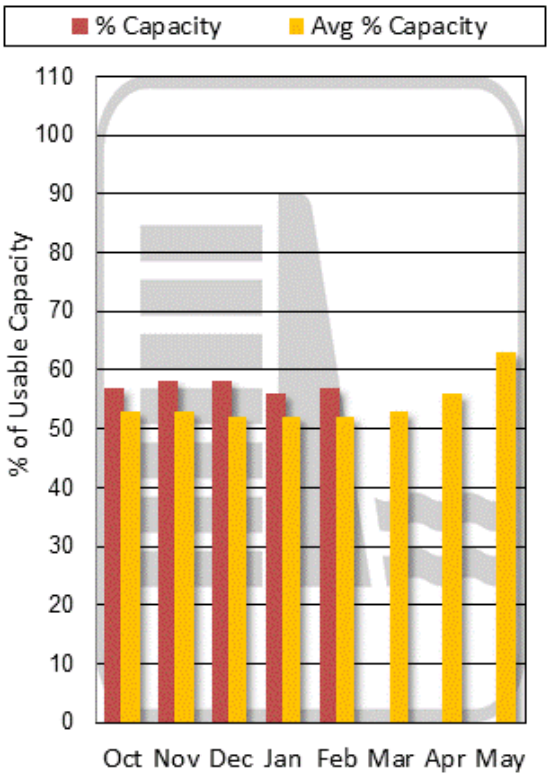
(click to navigate to online version with additional features)



Mountain and Valley Precipitation

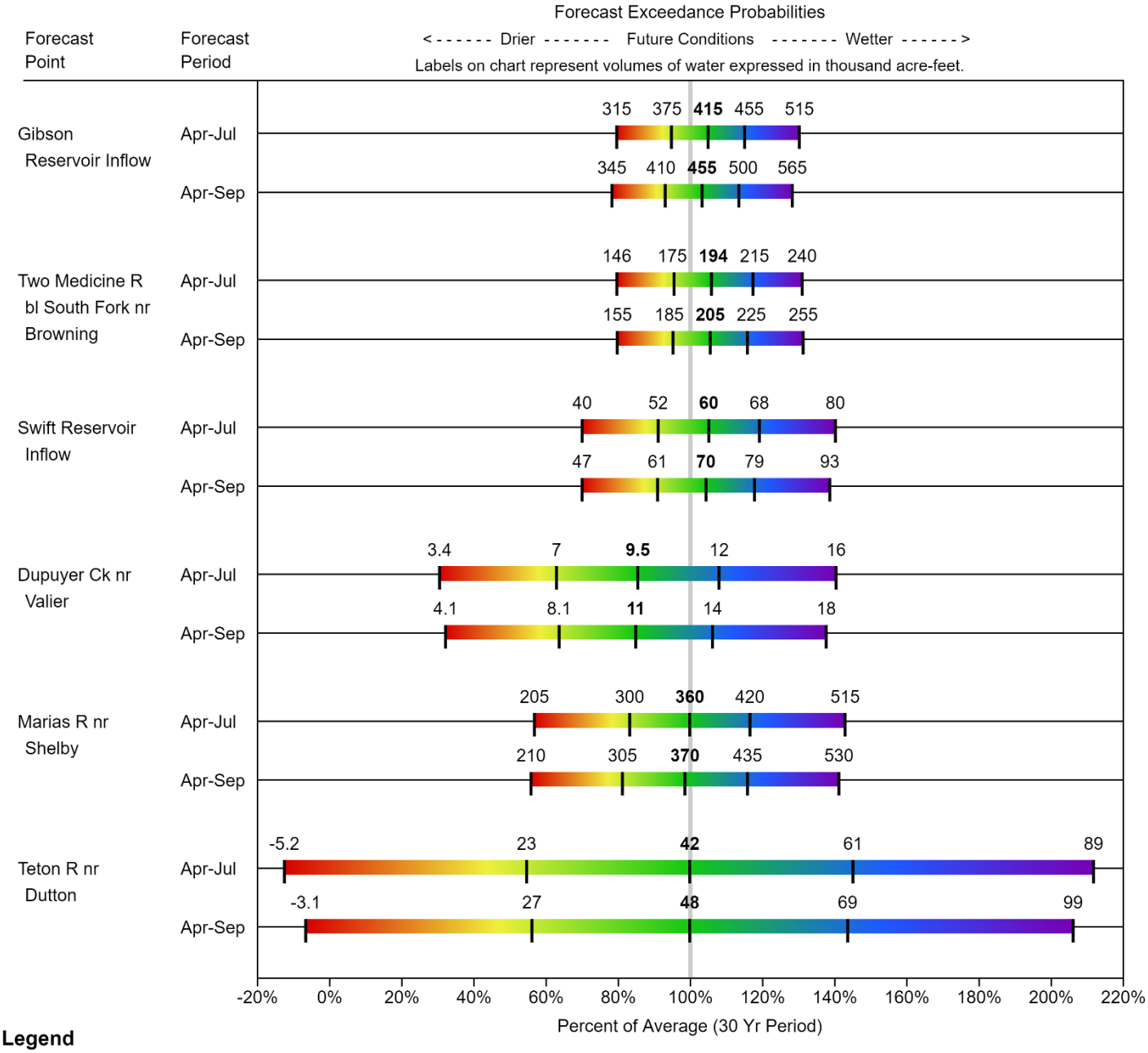


End of Month Reservoir Storage



Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

SUN-TETON-MARIAS
Water Supply Forecasts
March 1, 2020



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

St. Mary-Milk River Basin

February mountain precipitation ranged from below average on the eastern side of Glacier National Park to well above average in the Bears Paw Mountains. Snow Courses in the Cypress Hills of Alberta are reporting 20-30 inches of depth and have a record snowpack. Mitchell Creek Upper Snow Course has its highest snow water content in 20 years of record. Both Upper and Lower Gros Ventre Snow Course have their 2nd highest snowpack on record. Much higher in elevation, Flattop Mountain SNOTEL is reporting over 46 inches of stored water in the snowpack. This ranks in the 84th percentile for all historic March 1st data. Overall, water year precipitation is above average, and the basin-wide snowpack is well above normal in the Saint Mary-Milk River basin. Near to above normal snowpack has resulted in forecasts within the basin which are above average for the Apr 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

St. Mary-Milk River Basin Data Summary

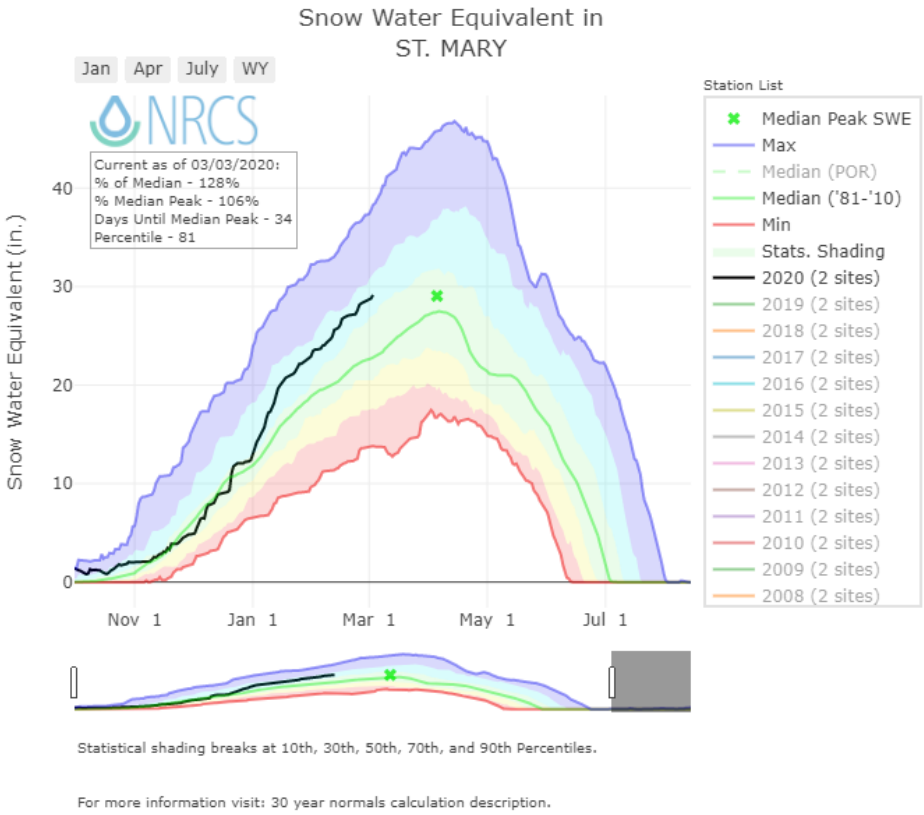
Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
ST. MARY	124%	91%
BEARPAW MOUNTAINS	165%	170%
MILK RIVER BASIN	165%	170%
Basin-Wide	**127%**	**97%**

Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation (St. Mary)	89%	102%	84%
Mountain Precipitation (Bearpaw Mtns)	233%	152%	154%
Valley Precipitation	129%	106%	134%
Basin-Wide Precipitation	**106%**	**107%**	**94%**

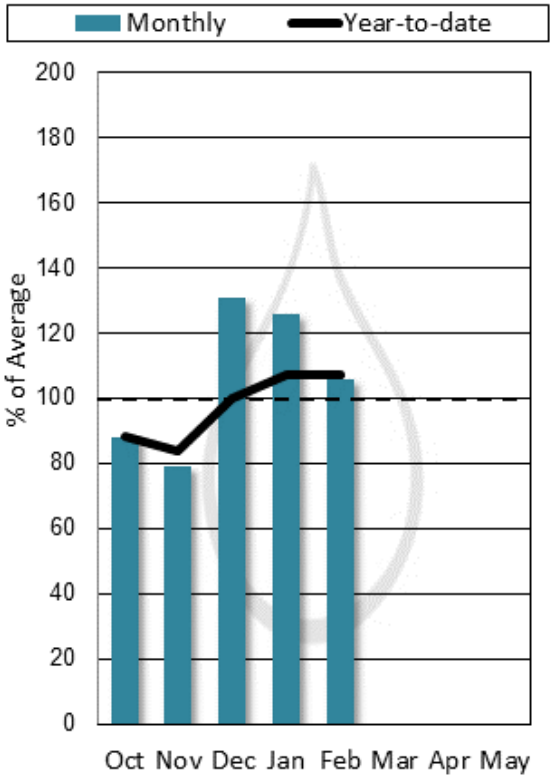
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**130%**	**52%**	**98%**

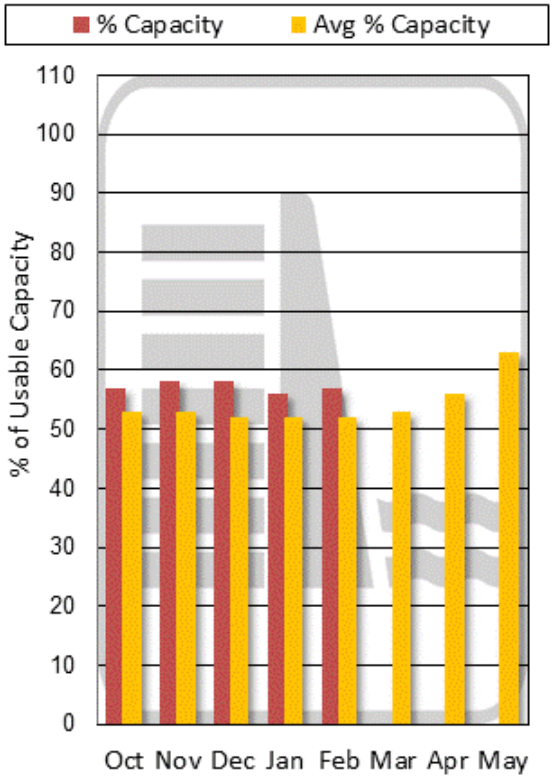
(click to navigate to online version with additional features)



Mountain and Valley Precipitation



End of Month Reservoir Storage

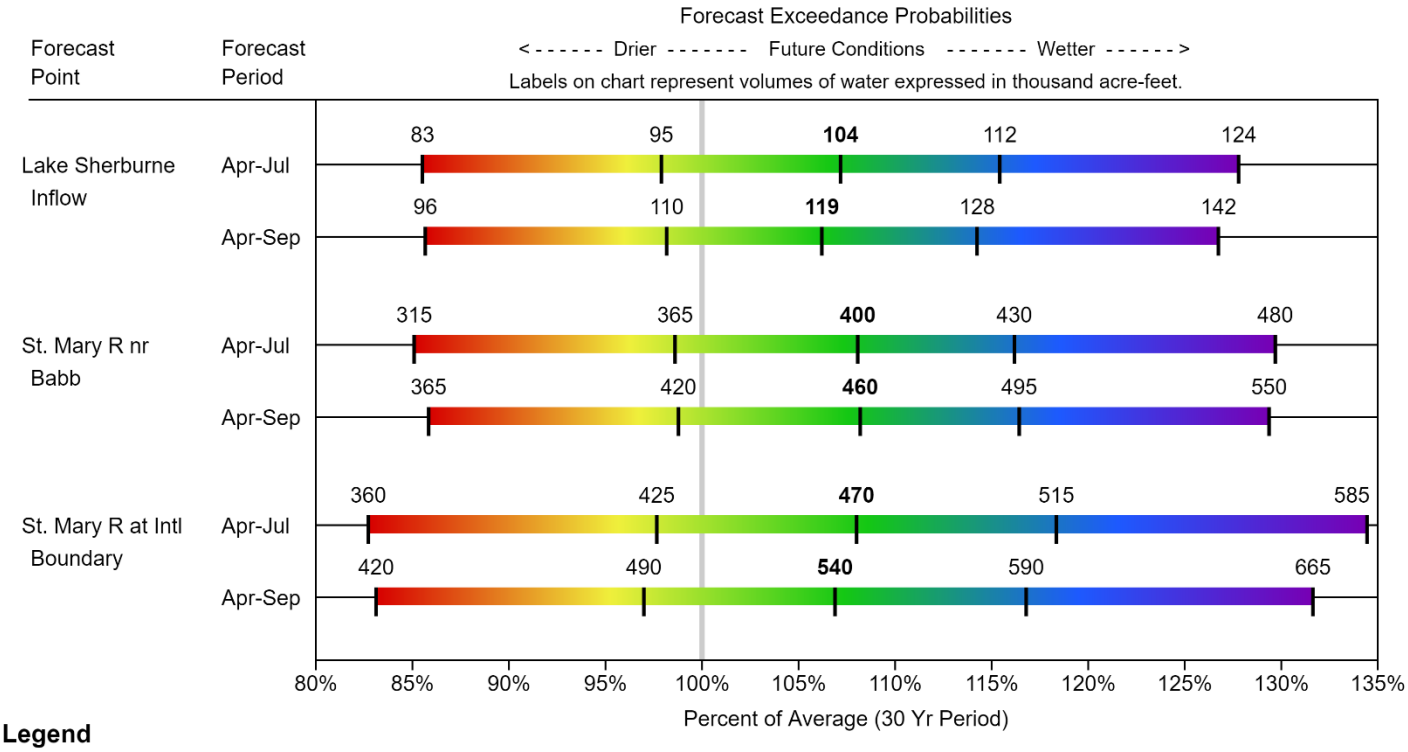


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

ST. MARY & MILK BASINS

Water Supply Forecasts

March 1, 2020



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Upper Yellowstone River Basin

The persistent northwest flow during the firth three weeks of February was the perfect recipe for abundant snowfall in the Upper Yellowstone River basin. The east-west orientation of the Beartooth Plateau, and predominance of north-facing aspects in the mountains, meant that moist upslope flow would favor mountain locations in the northern half of the basin. These regions would receive well above normal to record-setting amounts of snowfall during February. Further south, the headwaters of the Upper Yellowstone within Yellowstone National Park would receive above-normal snowfall, but totals did not approach record-setting amounts like basins further north. Snowpack for March 1st is well above normal for the basin as a whole, but highest in the Boulder and Rock Creek basins. The Upper Yellowstone is one of the latest peaking basins in the state due to the high elevation nature of the ranges that feed the rivers, and streams and spring precipitation is critical in ensuring mid to late summer flows. For now, the snowpack is looking good, but until we know the seasonal peak snowpack, uncertainty remains with regards to summer volumes. Streamflows forecasts issued on March 1st reflect the current above-normal snowpack and are near to above average for the April 1st through July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Upper Yellowstone River Basin Data Summary

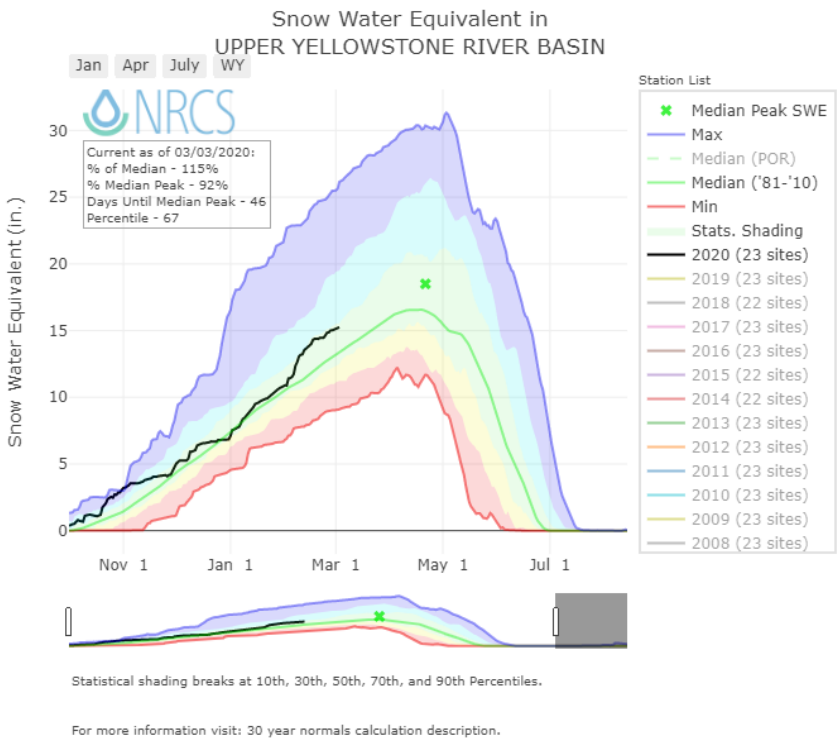
Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
YELLOWSTONE ab LIVINGSTON	113%	114%
SHIELDS	110%	137%
BOULDER-STILLWATER	124%	121%
RED LODGE-ROCK CREEK	130%	148%
CLARK'S FORK	113%	112%
Basin-Wide Snowpack	**115%**	**120%**

Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	150%	105%	116%
Valley Precipitation	201%	108%	127%
Basin-Wide Precipitation	**153%**	**105%**	**116%**

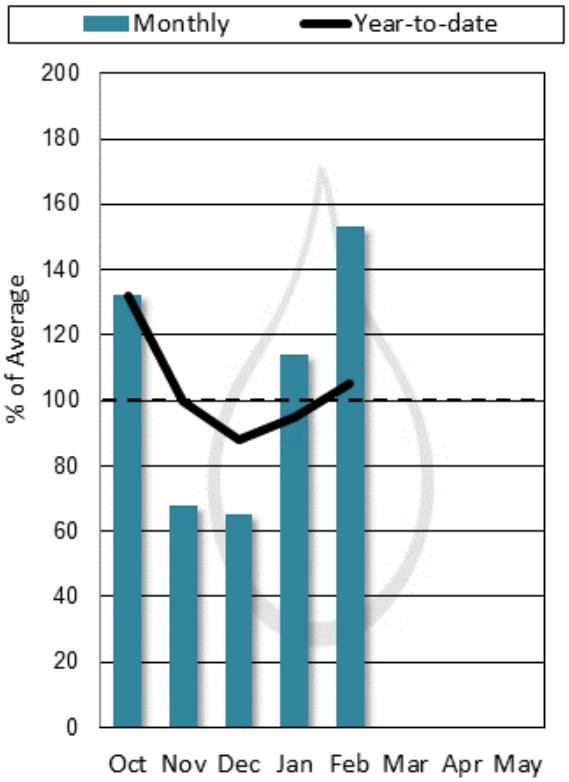
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**117%**	**50%**	**121%**

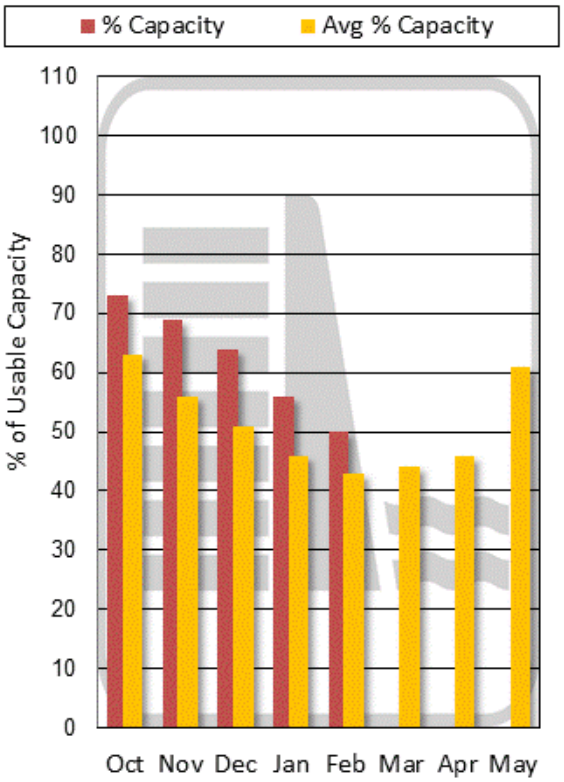
(click to navigate to online version with additional features)



Mountain and Valley Precipitation



End of Month Reservoir Storage

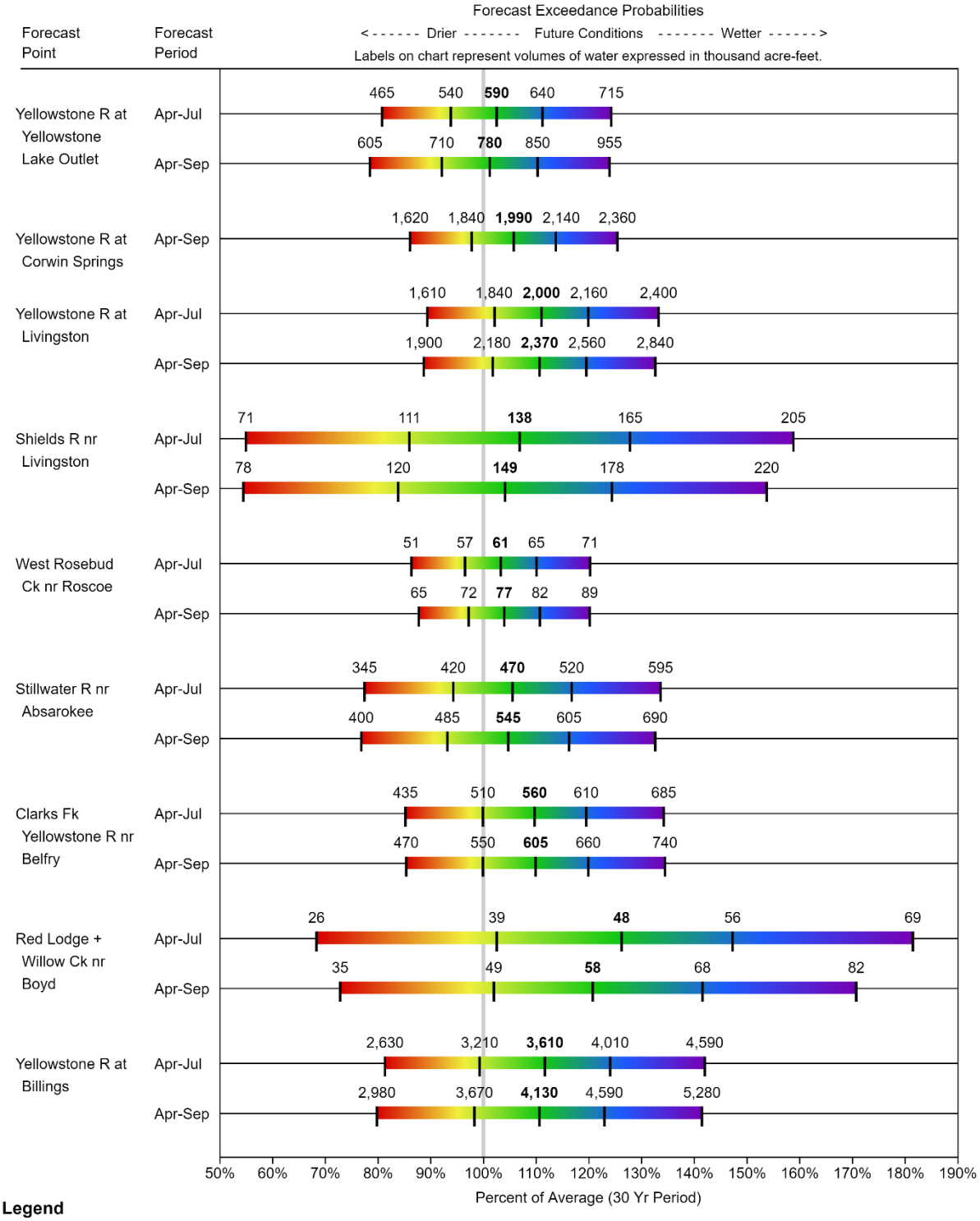


Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

UPPER YELLOWSTONE RIVER BASIN

Water Supply Forecasts

March 1, 2020



Legend

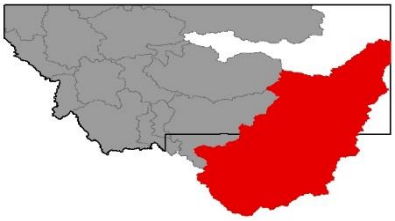
95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Lower Yellowstone River Basin



Overall, February precipitation was above average in the Lower Yellowstone River Basin. The Bighorn Mountains were no exception. Burgess Junction, Tie Creek, and Sucker Creek SNOTEL sites all recorded their largest February snow water accumulation on record. Since February 1st, Tie Creek has received 3.7 inches of snow water and now has its highest March 1st value in 26 years of record. The Absaroka and most of the Wind River Mountains also received above-average February precipitation. The southernmost end of the Wind River Mountains was the exception, receiving below average February precipitation. Overall, the snowpack in the Lower Yellowstone River basin is above normal. Near to above normal snowpack has resulted in forecasts within the basin which range from near to slightly above average for the Apr 1st – July 31st period. Individual streamflow forecasts can be seen in the forecast table below.

Lower Yellowstone River Basin Data Summary

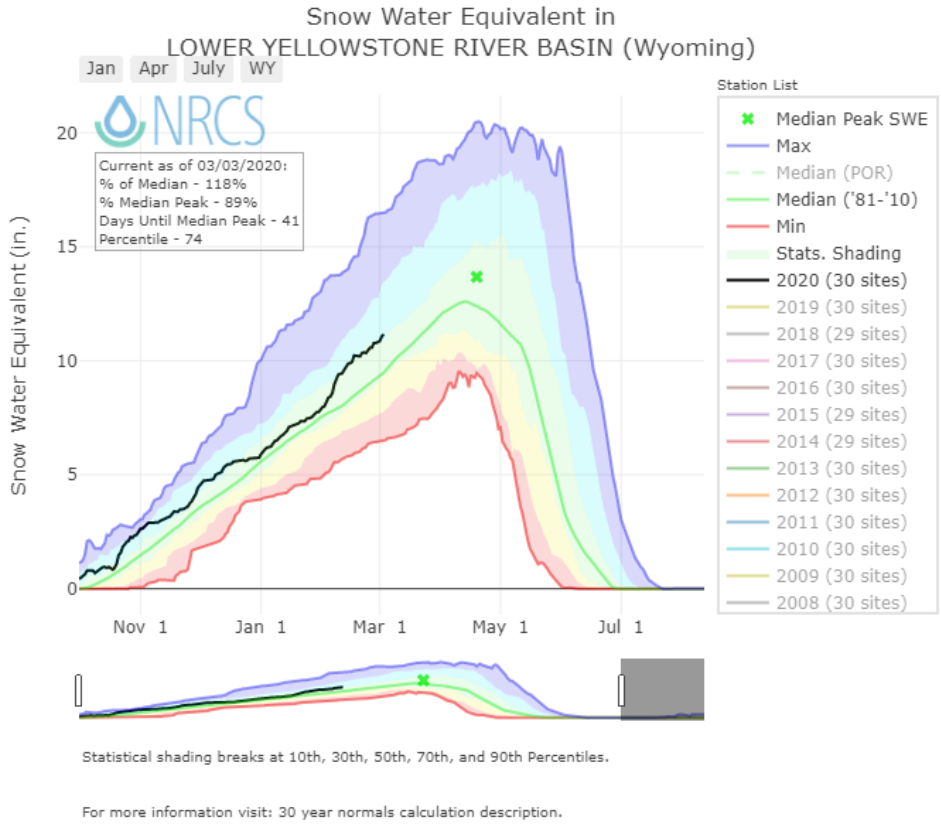
Snowpack	**Percent of 1981-2010 Normal (Median)**	**Last Year Percentage of Normal (Median)**
WIND RIVER BASIN	109%	110%
SHOSHONE RIVER BASIN	111%	114%
BIGHORN RIVER BASIN	121%	105%
LITTLE BIGHORN BASIN	117%	86%
TONGUE RIVER BASIN	119%	85%
POWDER RIVER BASIN	132%	93%
Basin-Wide Snowpack	**117%**	**102%**

Precipitation	**Monthly Percentage of Average**	**WYTD Percentage of 1981-2010 Average***	**WYTD Last Year Percentage of Average**
Mountain Precipitation	150%	101%	94%
Valley Precipitation	232%	109%	117%
Basin-Wide Precipitation	**166%**	**103%**	**99%**

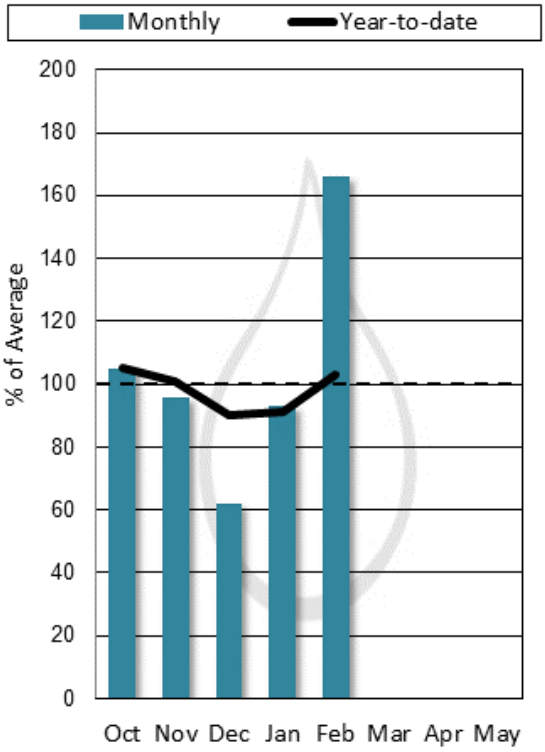
*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

Reservoir Storage	**Percentage of Average**	**Percentage of Capacity (Total)**	**Last Year Percentage of Average**
Basin-Wide Storage	**105%**	**60%**	**101%**

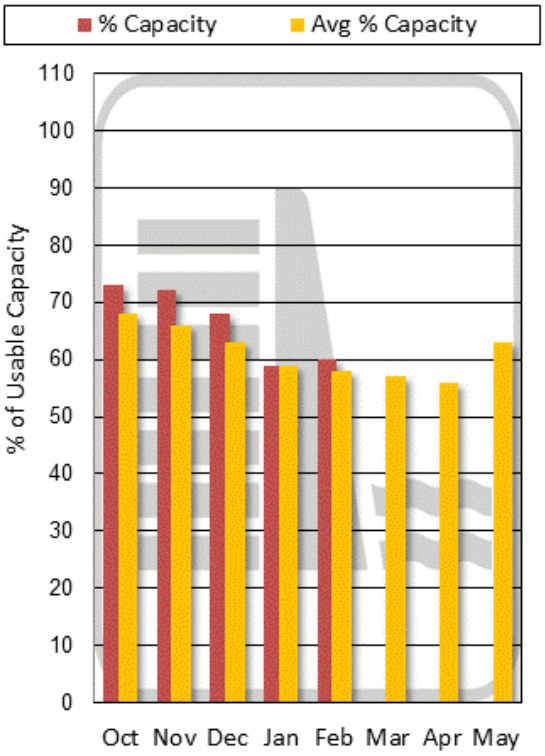
(click to navigate to online version with additional features)



Mountain and Valley Precipitation



End of Month Reservoir Storage



Storage above is averaged for all reservoirs in the basin. For individual reservoirs see table below.

LOWER YELLOWSTONE RIVER BASIN (Wyoming)

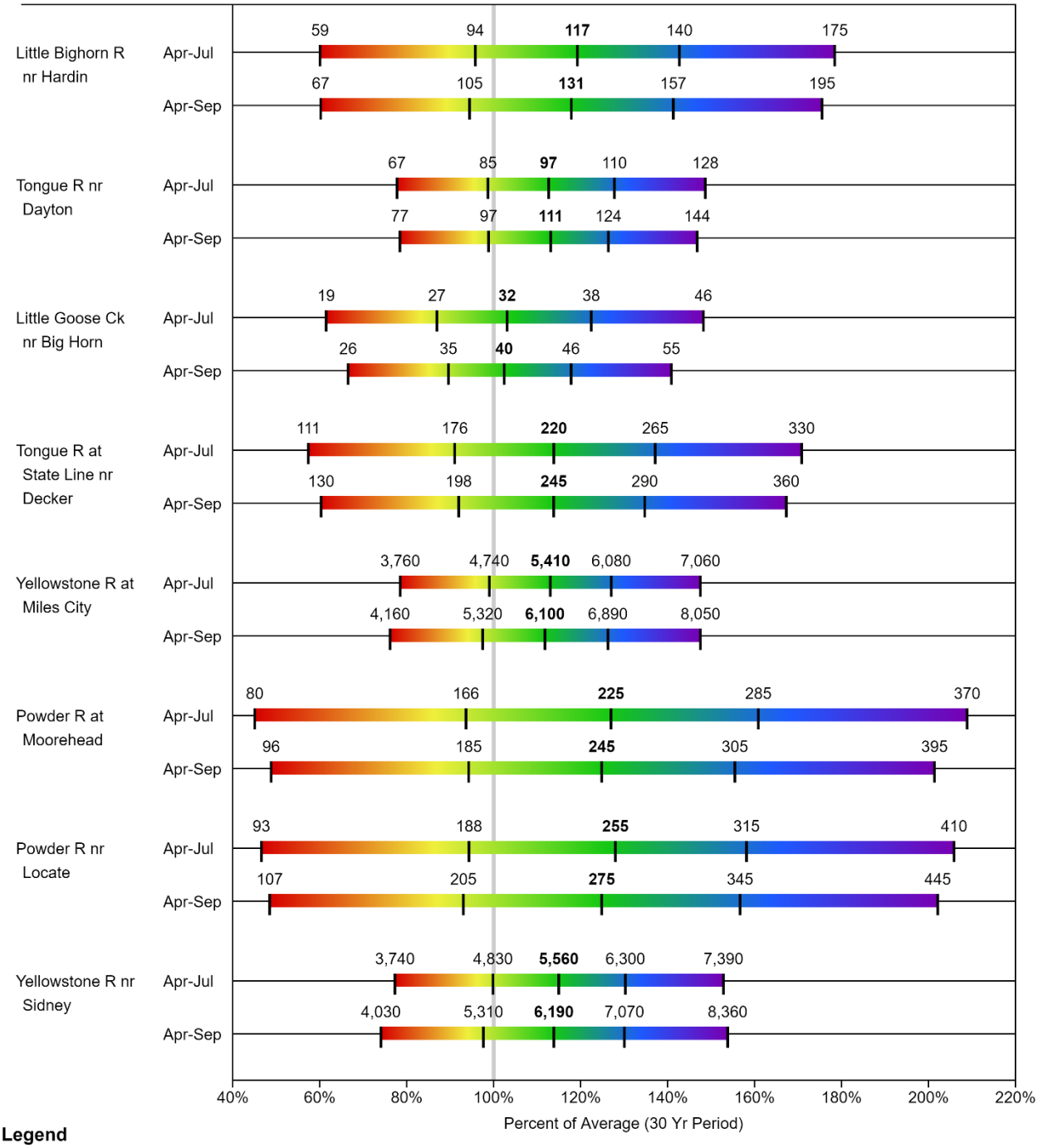
Water Supply Forecasts

March 1, 2020

Forecast Exceedance Probabilities

<------- Drier ------- Future Conditions ------- Wetter ------->

Labels on chart represent volumes of water expressed in thousand acre-feet.



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
There is a 95%/90% chance that flows will exceed this volume	There is a 70% chance that flows will exceed this volume	There is a 50% chance that flows will exceed this volume	There is a 30% chance that flows will exceed this volume	There is a 10%/5% chance that flows will exceed this volume

When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)	*1981-2010 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

Some forecasts may be for volumes that are regulated or influenced by diversions and water management.

Issued by:

Matt Lohr
Chief
Natural Resources Conservation Service
U.S. Department of Agriculture

Released by:

Tom Watson
State Conservationist
Natural Resources Conservation Service
Bozeman, Montana

Report Created by:

Montana Snow Survey Staff
10 East Babcock St, Room 443
Bozeman, MT 59715
Email: MT-nrcs-snow@one.usda.gov

Montana Water Supply Outlook Report

Natural Resources Conservation Service