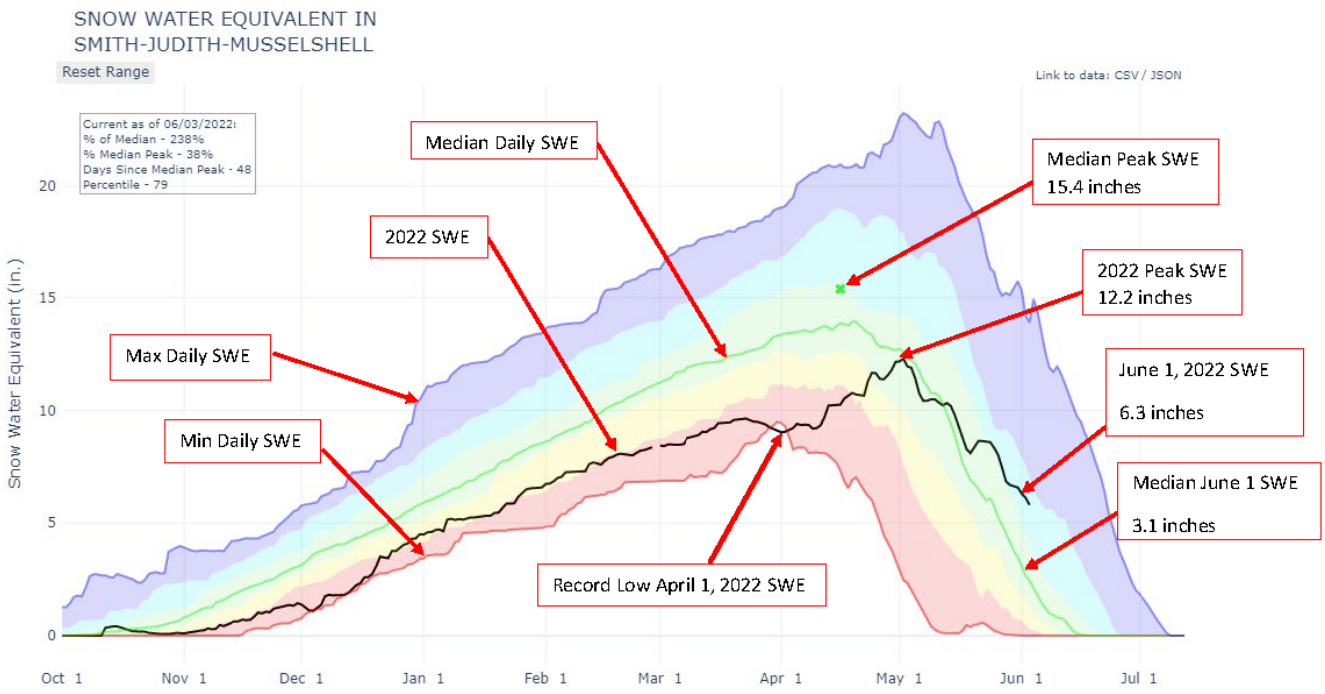
USDA
United States Department of Agriculture

Natural Resources
Conservation Service

Montana
Water Supply Outlook Report
June 1, 2022



The snowpack in the Smith-Judith-Musselshell (SJM) during water year 2022. On June 1 the snowpack percentage was 203% of the 1991-2020 median, which doesn't tell the story of the entire season.

Cool and wet weather arrived in April and continued through May. Precipitation was significant in most locations and included snow at upper elevations. Basin wide snowpack percentages are currently the highest they have been all season, which is partly due to the lack of snowmelt during May. While April and May weather patterns were ideal, a full recovery from the lack of snowfall earlier this season was not likely in southwest and central Montana. River basins west of the Continental Divide and along the northern Rocky Mountain Front had near normal early season precipitation and later than normal snowmelt and are forecasted to have above normal June through July streamflow runoff.

For more water supply information, contact:

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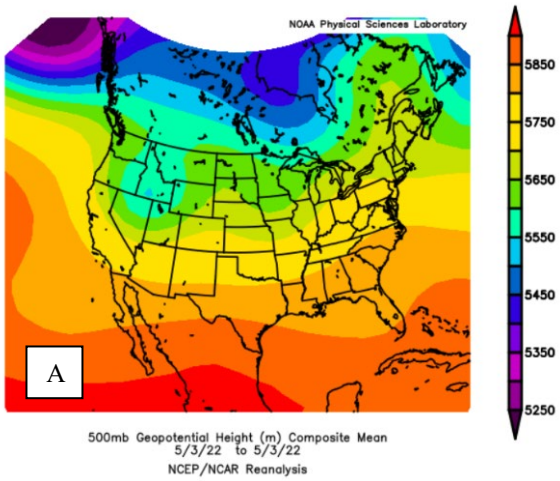
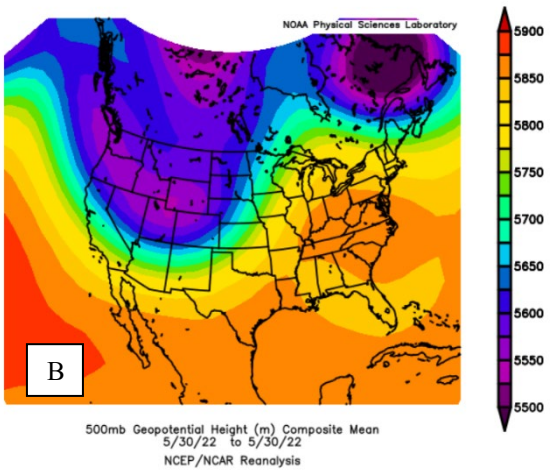
Weather and Climate

Circulation Patterns

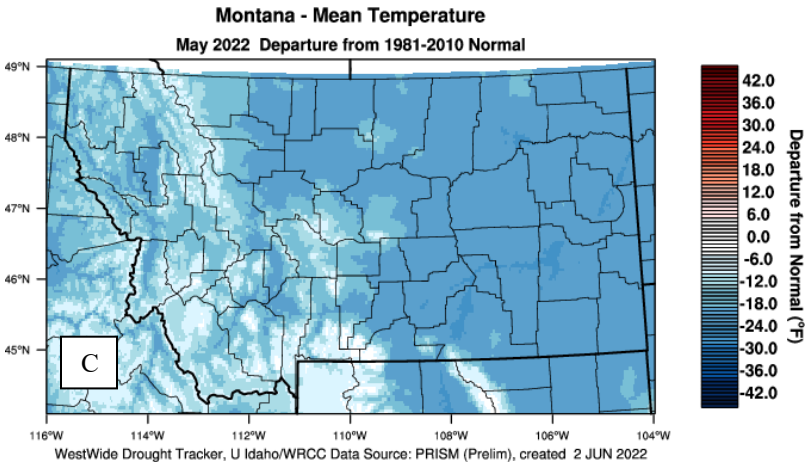
May continued the trend of cool and wet weather, driven by surface lows moving east through the Rockies and northern Plains. April's repeating pattern of southerly-dipping low pressure and cutoff lows continued into May with a little more variation including increased convection and thunderstorm activity. The month ended with a significant storm over Memorial Day weekend that dropped inches of water and feet of snow and stranded motorists on mountain passes during the holiday weekend. A large, slow moving, low pressure center dipped down from Canada all the way down into Utah and Colorado, and circulation patterns collided with topography to create dynamic lifting of the airmass that contributed to high snowfall and precipitation totals, especially in the Bighorn and Absaroka mountain ranges. An example of one of May's cutoff lows is visible in the 500mb Geopotential Height Composite Mean for May 3 (map A) and is even more pronounced during the Memorial Day weekend storm on May 30 (map B). This same system spawned severe weather in the Plains and Midwest as it moved eastward.





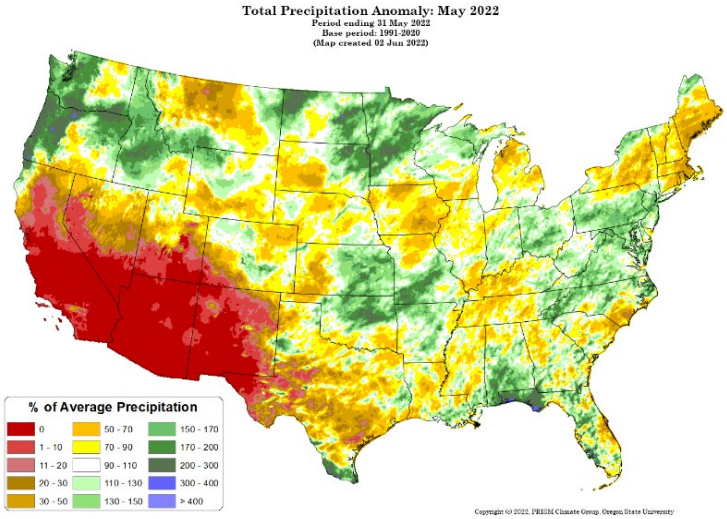
Temperature

May continued last month's trend of cooler than normal temperatures (C). Across the entire state, average temperatures were below normal, with eastern Montana and pockets of the central Rockies well below normal. This, combined with regular inputs of moisture and precipitation, helped mountainous areas hold onto snowpack and improve the water supply outlook for summer.



Precipitation

April marked the start of a major weather pattern change which brought much needed precipitation to Montana, and while April was a wet month, May was even wetter in certain areas. Some of the largest totals were in southwest Montana and northwest Wyoming where precipitation ranged from about 5 to 11 inches and set records for most May precipitation in over 40 years at some SNOTEL sites. The Bighorn mountains in Wyoming received 4 to 8 inches of precipitation in May, much of which occurred over Memorial Day weekend. For example, Sucker Creek SNOTEL (8880 feet), received 8.0 inches of precipitation in May with 5.4 inches of that falling from May 29 to May 31. Mountain precipitation was lowest in central Montana, the Flathead Lake area, and the Upper Clark Fork region where totals ranged from about 2 to 3 inches in May. Monthly mountain precipitation was near normal in the Flathead, Upper Clark Fork and Helena area, and below normal (<85%) in the Sun-Teton-Marias, Smith-Judith-Musselshell, and Milk River basins. All other major river basins received well above normal (>130%) mountain precipitation in May.



May 2022 precipitation compared to normal. Prism Climate Group

As a result of the above normal May, overall water year precipitation has seen some improvement since last month. All basins currently have near normal water year precipitation, except for the Smith-Judith-Musselshell and Milk River basins, which have received about 80% of normal precipitation since October 1. April and May combined brought more precipitation than January through March at most SNOTEL sites. Many sites, particularly in southwest Montana, received over 10 inches in the last 2 months. High elevations in the Beartooth, Northern Gallatin, and Tobacco Root mountains received over 15 inches in the last 2 months, which is double what they received in January through March. Historically June can be a large contributor to overall water year precipitation, particularly east of the Continental Divide where additional precipitation is currently needed most. Across all of Montana above normal precipitation over the next month would be ideal before heading into the typically drier summer months.

Snowpack

Temperatures were cooler than normal in May and precipitation, which was above normal in most locations, fell as snow at upper mountain elevations. The largest snow water equivalent accumulation in the region occurred during Memorial Day weekend. High elevation accumulations ranged from about 4 to 5 inches in the Absaroka mountains and 2 to 3 inches in southwest Montana and the Bighorn mountains. Northwest and central Montana did not benefit as much from the late May storm but did see large accumulations in early May where upper elevations received 1 to 5 inches of snow water accumulation. Significant snowpack accumulations across the state only occurred at high mountain elevations, some of which were the highest May accumulations on record. Examples are Shower Falls SNOTEL (8100 feet) south of Bozeman and Fisher Creek SNOTEL (9100 feet) near Cooke City, Montana both of which likely reached peak snow water equivalent on May 31. These and other similar high elevation sites did see some melt during May, but overall had net snow water equivalent gains in May when they are typically melting. At lower elevations most of the May precipitation fell as rain and increased melt rates for any remaining snow.

Currently basin wide snowpack percentages range from 140% in the Upper Yellowstone to over 500% of normal in portions of the Bighorn mountains. These percentages are higher than they were last month and much higher than anything earlier this water year. Those high percentages are currently being driven in part by lack of snowmelt in May and don't tell the whole story. A look at the entire winter season tells a different story of the snowpack. East of the Continental Divide lack of precipitation from mid-January through March did not build a substantial snowpack at all elevations. Low mountain elevations which typically only have significant accumulations during the colder winter months, were reporting some of the lowest snowpacks on record for April 1. April and May brought snow to upper elevations, but mid and low mountain elevations received rain and as a result that snowpack peaked early and low. Lower elevations in the Upper Yellowstone, Jefferson, and Smith-Judith-Musselshell basins peaked at their lowest levels on record and are currently melted out. As of April 1, upper elevation conditions were grim, but substantial precipitation and cool weather in April and May resulted in delayed snowmelt and some significant gains in upper elevation snowpack. Many high elevation SNOTEL sites reached peak snow water equivalent 25 or more days later than normal. Some are currently setting records for latest peak on record and may have not reached their seasonal peak with more precipitation forecasted over the next week. With that said, mid to low elevation snowpack is an important component of the seasonal snowpack and the lack of it this season will likely show in the water supply this summer.

Last month's Water Supply Outlook Report mentioned the best-case scenario moving forward was continued cool weather and precipitation, which was exactly what happened. However, it also mentioned that it would be difficult to make a full recovery from the lack of early season snow accumulation. This is still the case heading into June where precipitation will likely fall as rain at all elevations. The result of below normal snowpack peaks at all except the highest elevations will likely result in less overall snowmelt this season. The timing and duration of the snowmelt season will be determined by how warm and sunny it gets over the next month. Moving forward into the summer months above normal precipitation will be ideal to replace the lack of snowfall earlier this winter.

Basin-wide Snow Water Equivalent – May 1, 2022 vs. June 1, 2022

River Basin Name	May 1 SWE % Normal	June 1 SWE % Normal	SWE % Change
Bear Paw	0%		+0%
Beaverhead	89%	172%	+83%
Big Hole	99%	160%	+61%
Big Horn	107%	192%	+85%
Bitterroot	110%	213%	+103%
Blackfoot	96%	162%	+66%
Boulder (Jefferson)	104%	146%	+42%
Boulder (Yellowstone)	112%	170%	+58%
Clarks Fork Yellowstone	95%	133%	+38%
Fisher	118%		-118%
Flathead Lake	109%	128%	+19%
Flint	96%	137%	+41%
Gallatin ab Gateway	93%	155%	+62%
Greybull-Wood	114%	4100%	
Helena Valley	99%	160%	+61%
Judith	98%	197%	+99%
Kootenai in Canada	116%	170%	+54%
Kootenai in Montana	112%	194%	+82%
Little Bitterroot	148%		-148%
Lower Clark Fork	106%	190%	+84%
Madison ab Hebgen	82%	106%	+24%
Madison bw Hebgen	91%	170%	+79%
Marias	117%	133%	+16%
Middle Fork Flathead	126%	138%	+12%
Musselshell	94%	197%	+103%
North Fork Flathead	119%	167%	+48%
Northern Gallatin	91%	194%	+103%
Owl	200%		-200%
Powder	113%	461%	
Rock (Clark Fork)	100%	220%	+120%
Rock (Yellowstone)	106%	141%	+35%
Ruby	79%	165%	+86%
Shields	66%	110%	+44%
Shoshone	91%	163%	+72%
Smith	92%	164%	+72%
South Fork Flathead	93%	132%	+39%
Southern Flathead	107%	156%	+49%
St. Marys	130%	140%	+10%
Stillwater (Flathead)	124%	187%	+63%
Stillwater (Yellowstone)	98%	140%	+42%
Sun	126%	167%	+41%
Swan	98%	143%	+45%
Teton	121%	167%	+46%
Tongue	121%	705%	
Upper Clark	101%	138%	+37%
Wind	99%	206%	+107%
Yaak	114%	465%	
Yellowstone ab Livingston	95%	135%	+40%

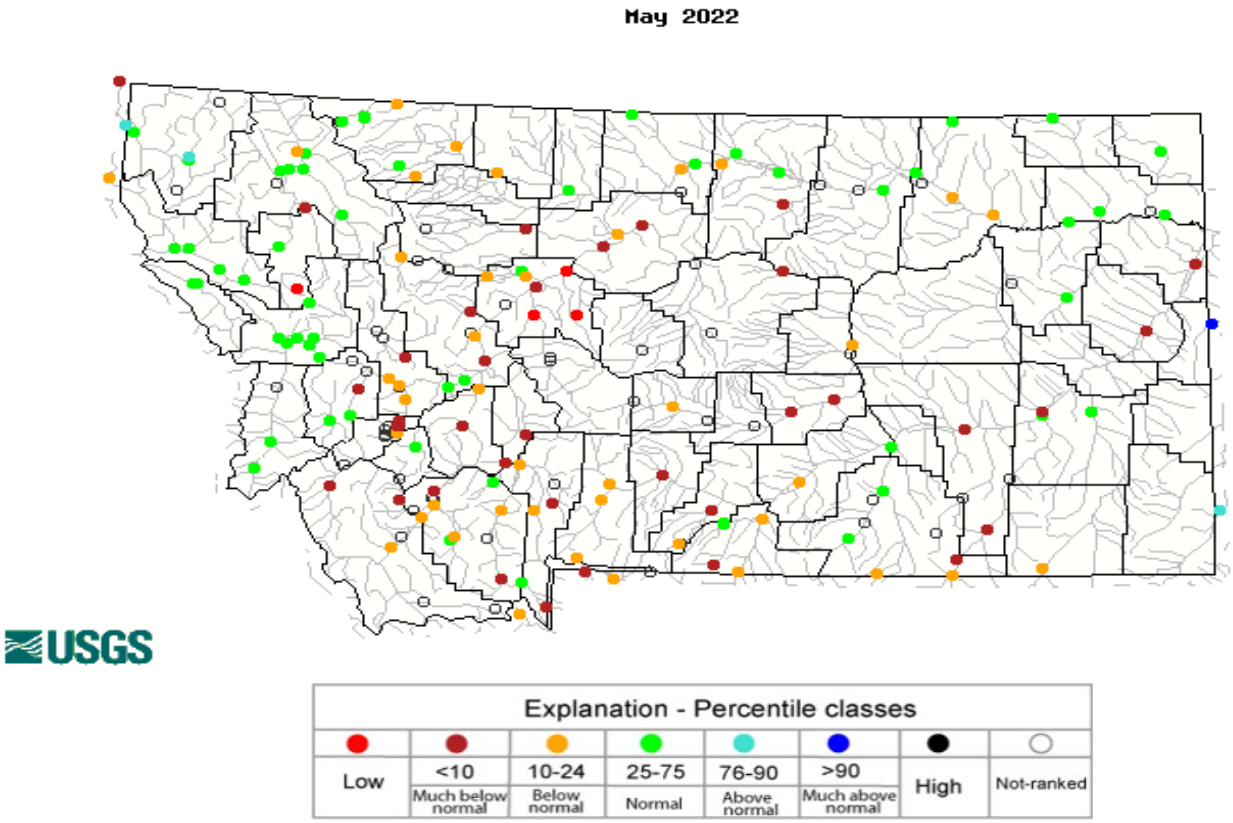
Reservoirs

End of May reservoir storage levels range from well below normal to above normal. Swift and Cooney are above normal (110-115%). Noxon, Thompson Falls, Flathead Lake, Hungry Horse, Tiber, Pishkun, Willow Creek, Holter, Lake Helena, Georgetown, Ennis Lake, Ruby Reservoir, Hebgen Lake, Bighorn Lake, and Tongue River Reservoir are at near normal levels. All other major reservoirs are well below normal (40-80%). In general, reservoir levels are higher than last month and lower than last year at this time.

Current Streamflows

With snowmelt runoff being a bit delayed in April it seemed like a good bet that flows would pick up in May and possibly even be above normal. It was not a winning bet; below normal temperatures continued to persist across the state throughout May which continued to delay melt. Multiple storm systems also brought significant precipitation in the form of snow at higher elevations which added to the existing snowpacks. This combination resulted in another month of below normal streamflows for most gages east of the Continental Divide.

In the northwest region of the state, snowmelt that began in earnest at the end of April continued to progress in May at rates that were close to normal. Below normal temperatures were also persistent in this area which prevented more rapid melt rates. As a result, most streams in the Kootenai, Flathead, Upper Clark Fork, Lower Clark Fork and Bitterroot basins observed flows in May that were normal for this time of year.



Drought Information

The most recent National Drought Monitor map, released on June 2, 2022, shows 74% of the state of Montana in some category of drought designation.

May precipitation has improved conditions substantially in eastern Montana, especially along the border with North and South Dakota. Southwest and southcentral Montana have also seen substantial improvements thanks to multiple storm systems continuing to bring snow to the mountains in these regions.

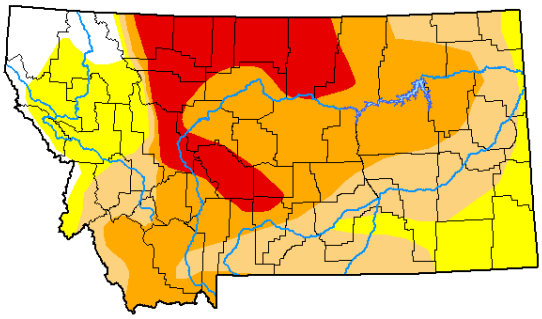
The northcentral portion of the state and a few counties in central Montana have missed out on the recent beneficial precipitation and as a result remain in extreme drought or the D3 category.

If we look back a year at the drought monitor issued on June 3, 2021, similar percentages of the state (around 15%) were categorized in D3 but the overall drought picture was better. The take home is that, last year the summer season began with a better drought picture than our current status and still ended up with entire state in severe to exceptional drought status by the fall.

The best case scenario is that we continue to experience cooler temperatures and beneficial precipitation across the state but especially in the northcentral region.

U.S. Drought Monitor

Montana



May 31, 2022

(Released Thursday, Jun. 2, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	5.34	94.66	76.00	49.02	15.57	0.00
Last Week *05-24-2022*	5.34	94.66	82.77	60.26	16.80	0.00
3 Months Ago *03-01-2022*	8.11	91.89	88.93	85.38	50.25	3.89
Start of Calendar Year *01-04-2022*	7.36	92.64	89.33	86.35	53.93	13.87
Start of Water Year *09-28-2021*	0.00	100.00	100.00	100.00	65.68	21.91
One Year Ago *06-01-2021*	18.10	81.90	54.23	30.69	15.56	0.00

Intensity:

None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
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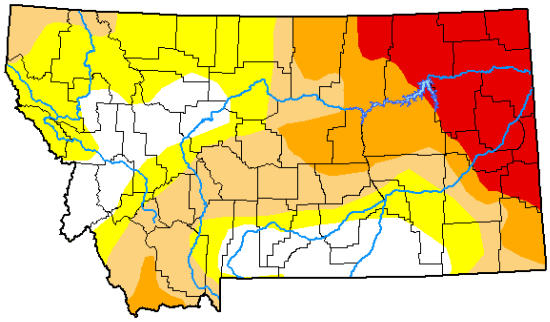
National Drought Mitigation Center

droughtmonitor.unl.edu

U.S. Drought Monitor

Montana



June 1, 2021

(Released Thursday, Jun. 3, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	18.10	81.90	54.23	30.69	15.56	0.00
Last Week *05-25-2021*	14.48	85.52	60.47	30.69	15.56	0.00
3 Months Ago *03-02-2021*	15.31	84.69	61.18	10.56	0.00	0.00
Start of Calendar Year *12-29-2020*	36.37	63.63	34.41	8.27	0.36	0.00
Start of Water Year *09-29-2020*	11.86	88.14	40.59	4.22	0.02	0.00
One Year Ago *06-02-2020*	57.83	42.17	5.45	0.00	0.00	0.00

Intensity:

None
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
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National Drought Mitigation Center

droughtmonitor.unl.edu

If you would like more information about current drought conditions or require assistance due to drought, the links below can help you gather information and assist you in getting in touch with the appropriate agencies.

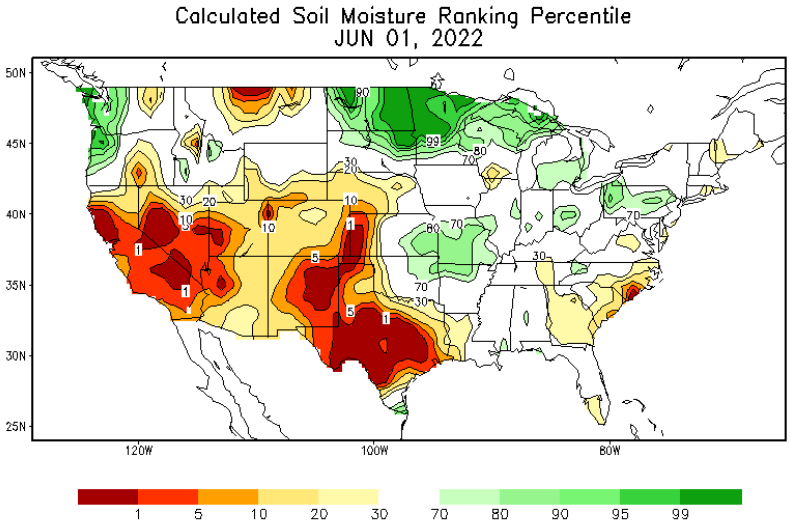
Drought Links:

- U.S. Drought Monitor
- National Integrated Drought Information System
- USDA Drought Portal (News and Resources)
- Farm Services Agency Montana News Releases (Information on Programs and Deadlines)
- Farm Services Agency Disaster Assistance Programs
- Montana Department of Natural Resources and Conservation Drought Management

Soil Moisture

Modeled soil moisture for June 1, 2022, shows the majority of the state in the 50th percentile (normal range) for moisture content.

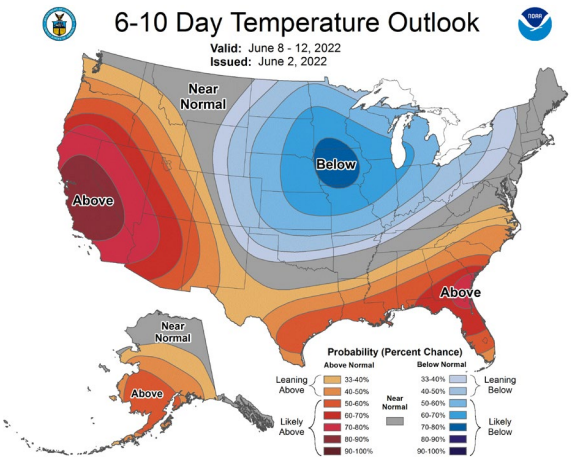
Deficits still remain in northcentral Montana which has been an area of concern for much of this spring. While most of the state has benefited greatly from spring precipitation this region has continually missed out on the storms and conditions continue to deteriorate.

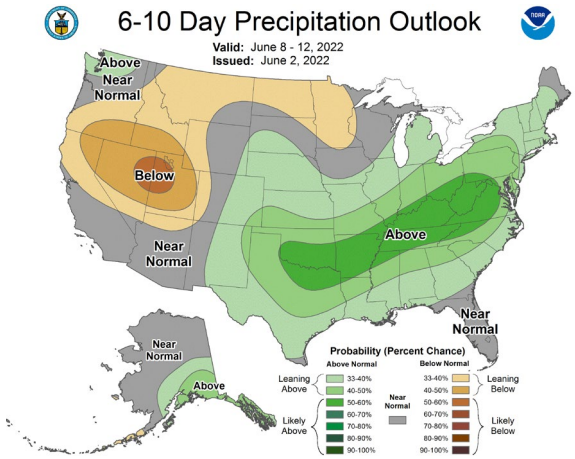


Weather and Climate Predictions

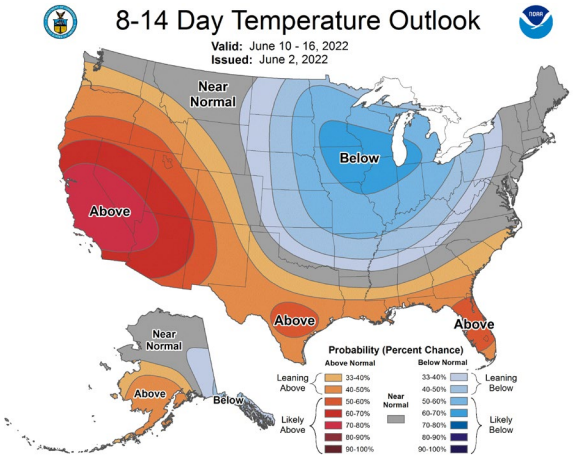
Alas, all good things come to an end: it appears that the chilly and showery pattern that has been bolstering the snowpack and delaying melt since early April will be tapering off over the next month. Outlooks from NOAA's Climate Prediction Center show that the next several weeks don't lean strongly toward above or below normal temperature or precipitation, and beyond that the outlook is for a warming and drying trend. Specifically, the three month outlook for June-July-August shows increased chances of above normal temperatures and below normal precipitation for the majority of Montana. Water managers in some basins may want to plan for limited water supplies and drought conditions as the summer progresses.

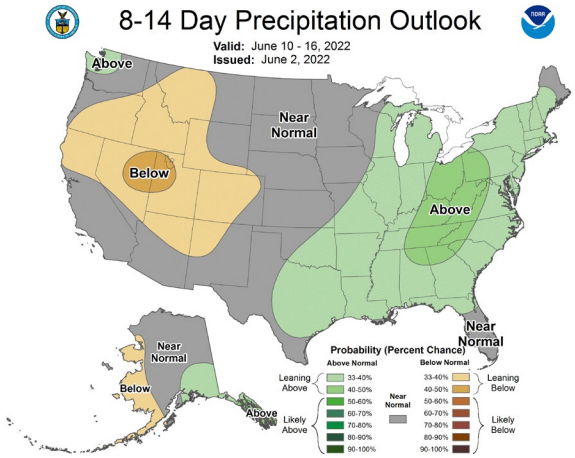
6-10 Day Outlook



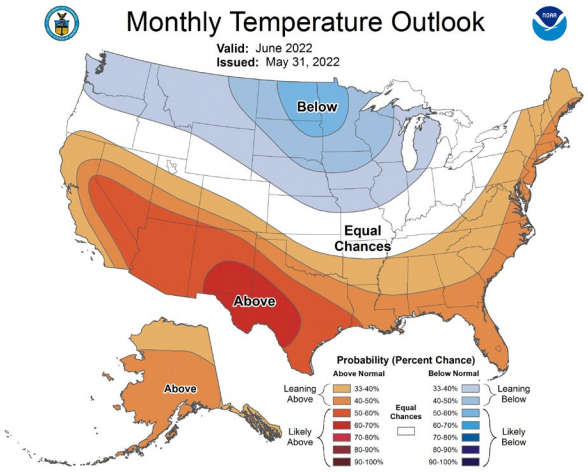


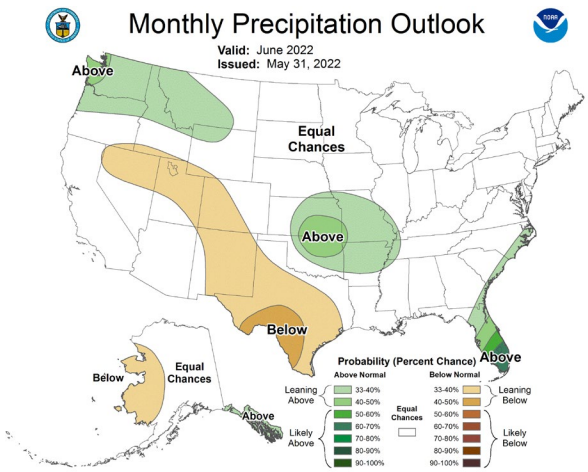
8-14 Day Outlook



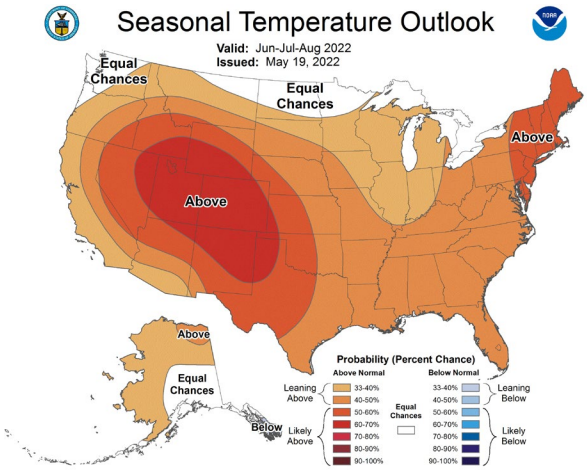


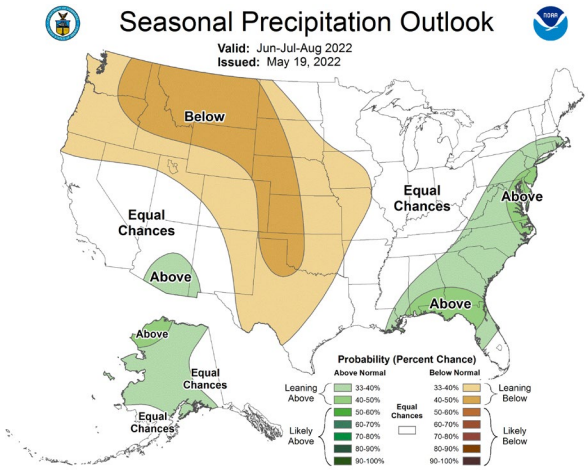
One Month Outlook





Three Month Outlook





Streamflow Forecasts

May brought the second month in a row of cool temperatures and above normal precipitation to Montana. The storm system that moved through the state the last weekend of the month brought inches of precipitation to southern Montana and northern Wyoming and feet of snow to the mountains in this region. This combination has significantly delayed snowmelt and increased the water available to melt from the snowpack and enter our streams in the coming months. Current streamflow forecasts for the June-July and June-September time periods reflect this and are above normal across much of Montana.

In the Kootenai and Flathead river basins, above normal snowpacks along with a late season storm in early May and much cooler than normal temperatures equate to a substantial amount of snow left to melt; forecasts in these basin are well above normal for the June-July period.

In the river basins in southwest Montana (Jefferson, Madison and Gallatin) multiple storms in May added to the high elevation snowpack but it's important to keep in mind these basins had a significant snowpack deficit to make up for going into this spring. Forecasts for June-July in these basins are well above normal but flows in April and May have been much below normal which means that streams may be full in June and July but the overall volume of water for the spring runoff season may only end up being normal.

As snow melt progresses this next month, a slow increase in temperatures versus a quick transition to summer will benefit areas that have been anticipating the runoff season starting as well as areas that still have significant snowpacks to melt.

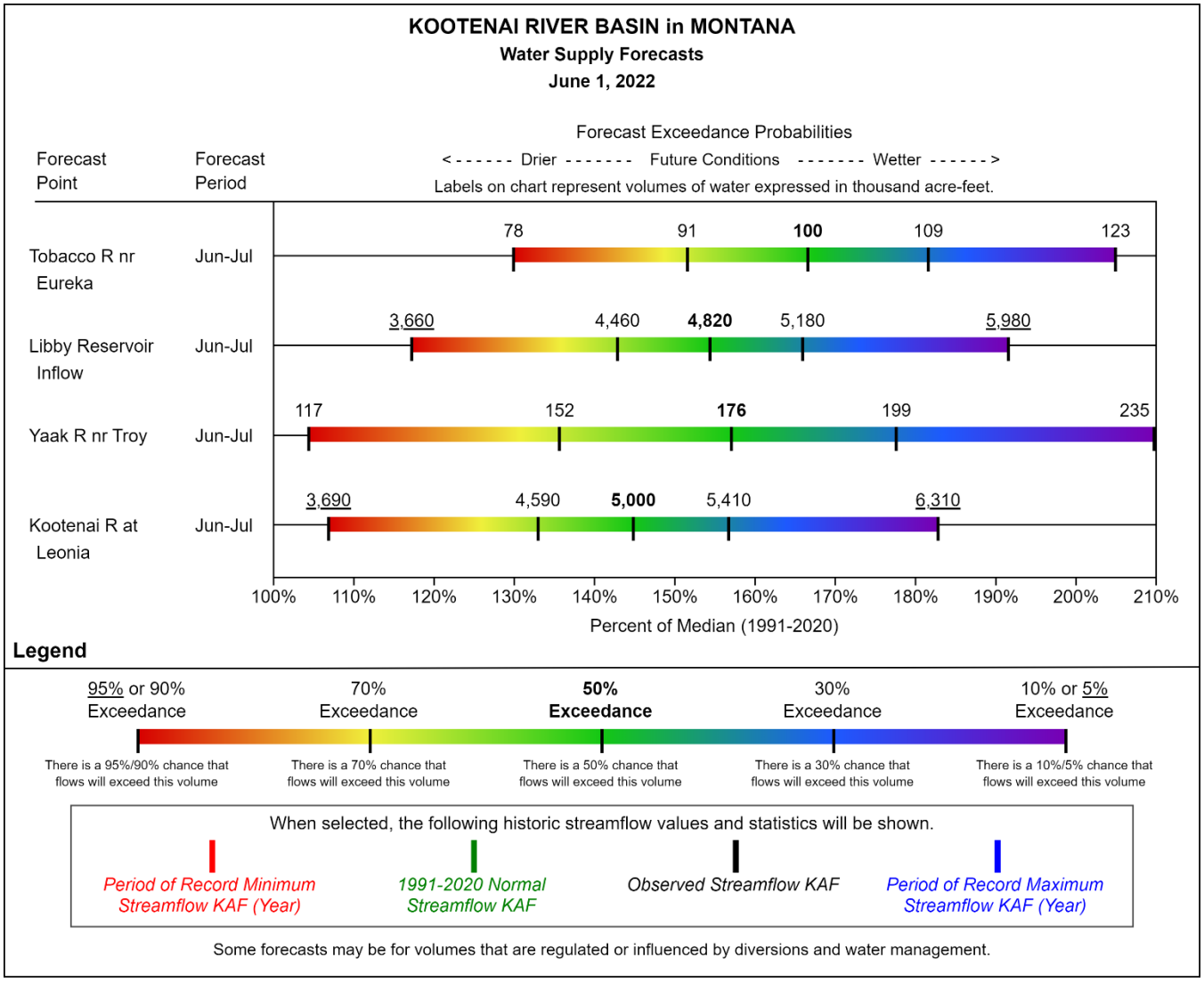
How Forecasts Are Made

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.

Snowpack measurements 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. At automated stations, snow depth and snow water equivalent as well as precipitation and temperature are monitored daily. 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 in the coming months; 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 forecasts.

Forecast Charts



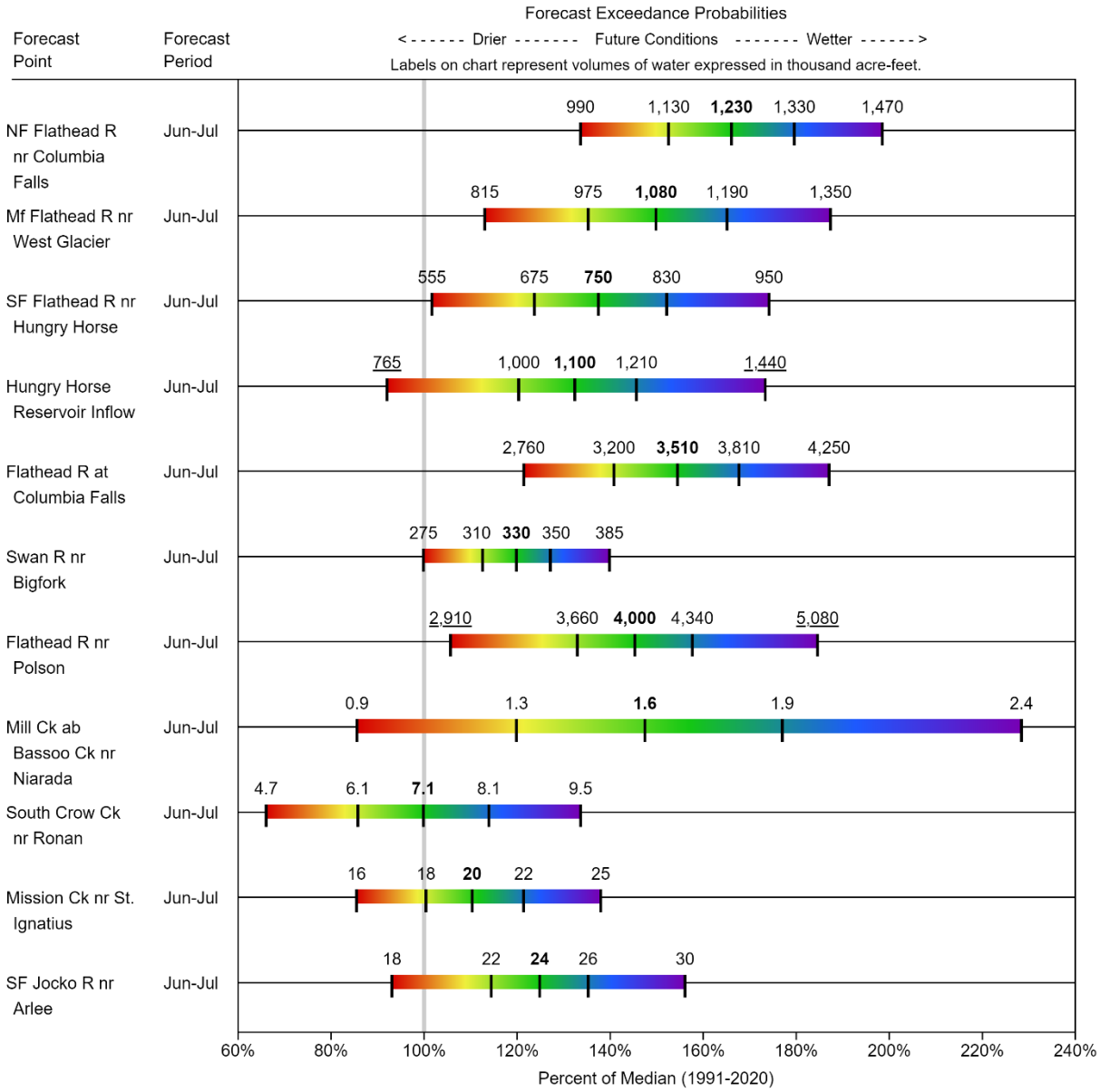
Legend

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

FLATHEAD RIVER BASIN

Water Supply Forecasts

June 1, 2022



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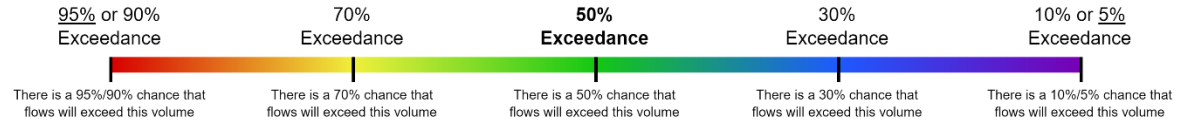


When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

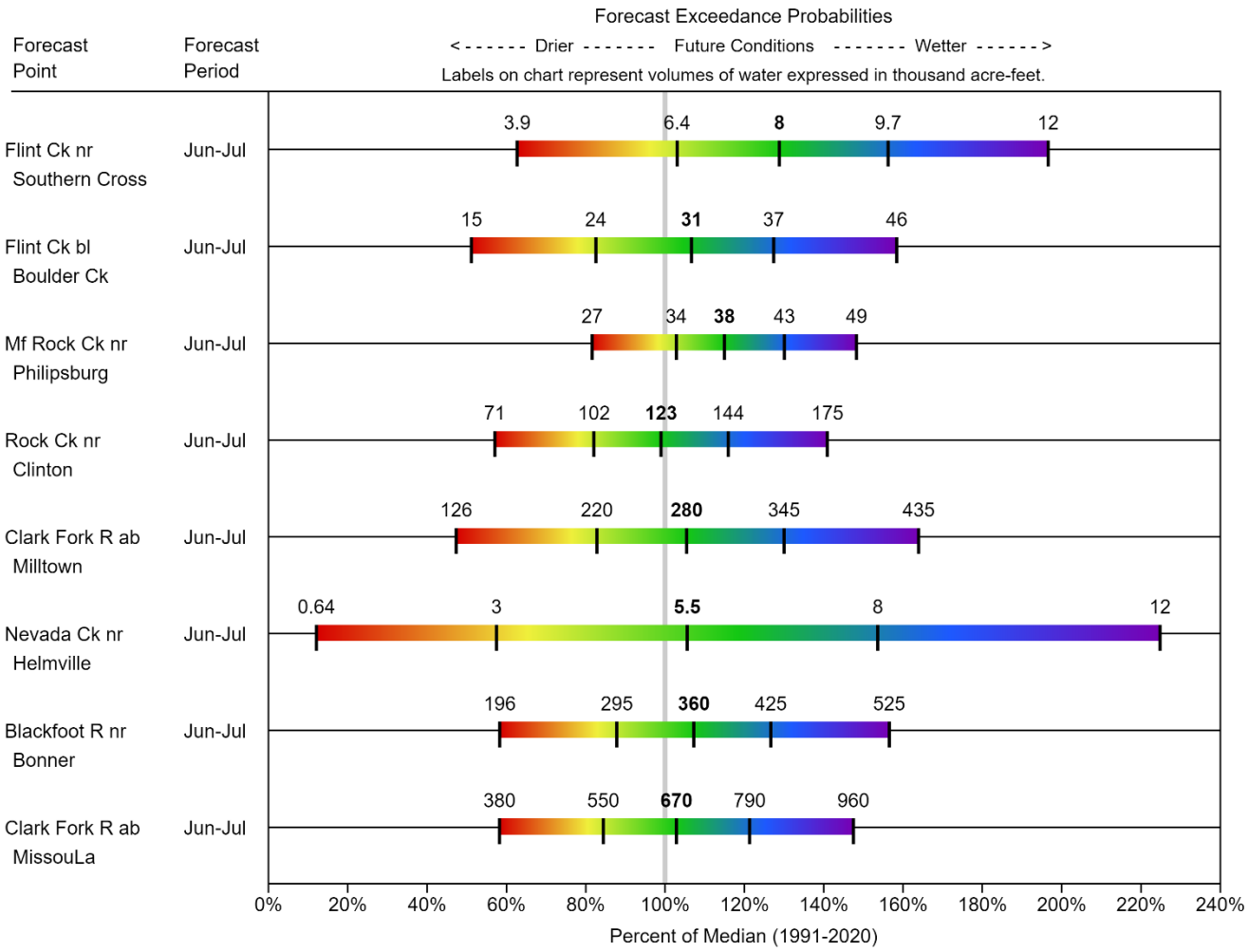
Period of Record Maximum Streamflow KAF (Year)

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

UPPER CLARK FORK RIVER BASIN

Water Supply Forecasts

June 1, 2022



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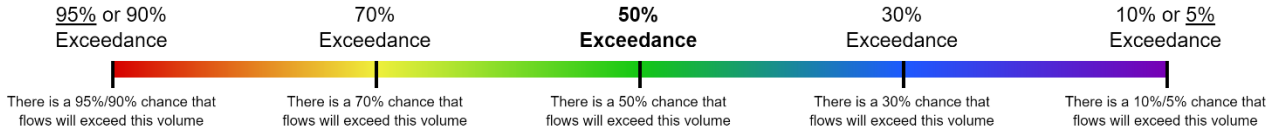

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Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

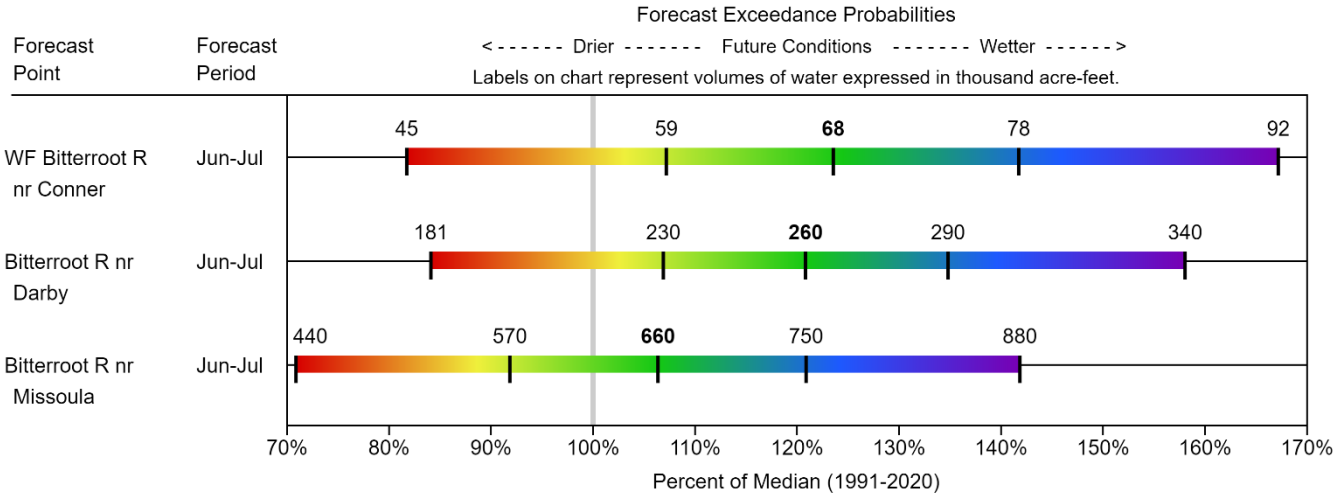
Period of Record Maximum Streamflow KAF (Year)

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

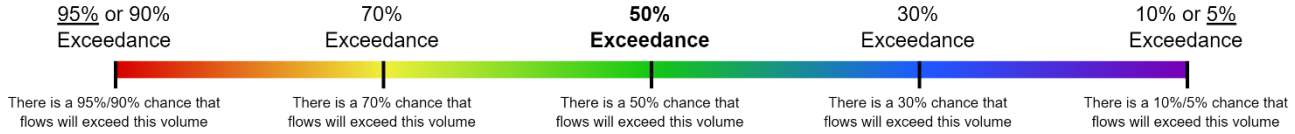
BITTERROOT RIVER BASIN

Water Supply Forecasts

June 1, 2022



Legend



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

Period of Record Minimum Streamflow KAF (Year)

1991-2020 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

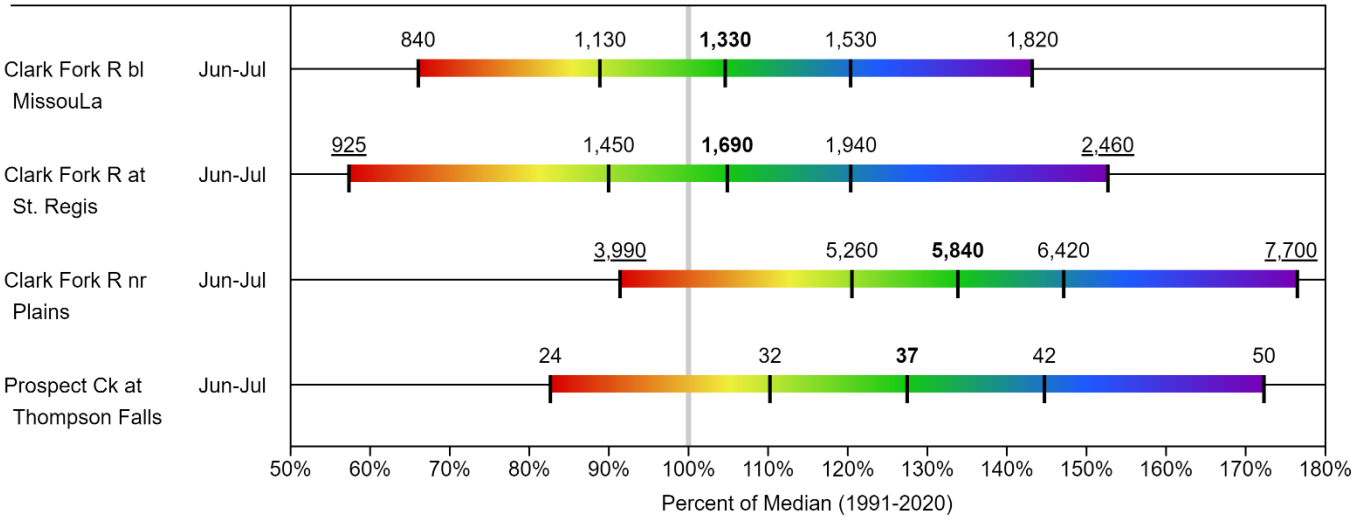
Water Supply Forecasts

June 1, 2022

Forecast Exceedance Probabilities

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

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



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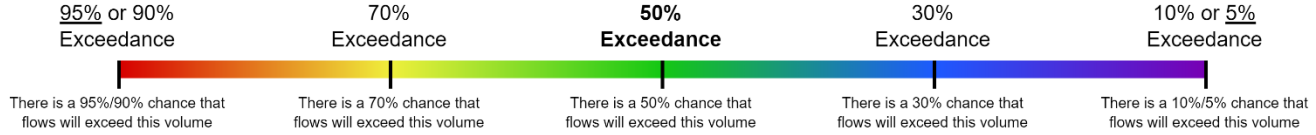


When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

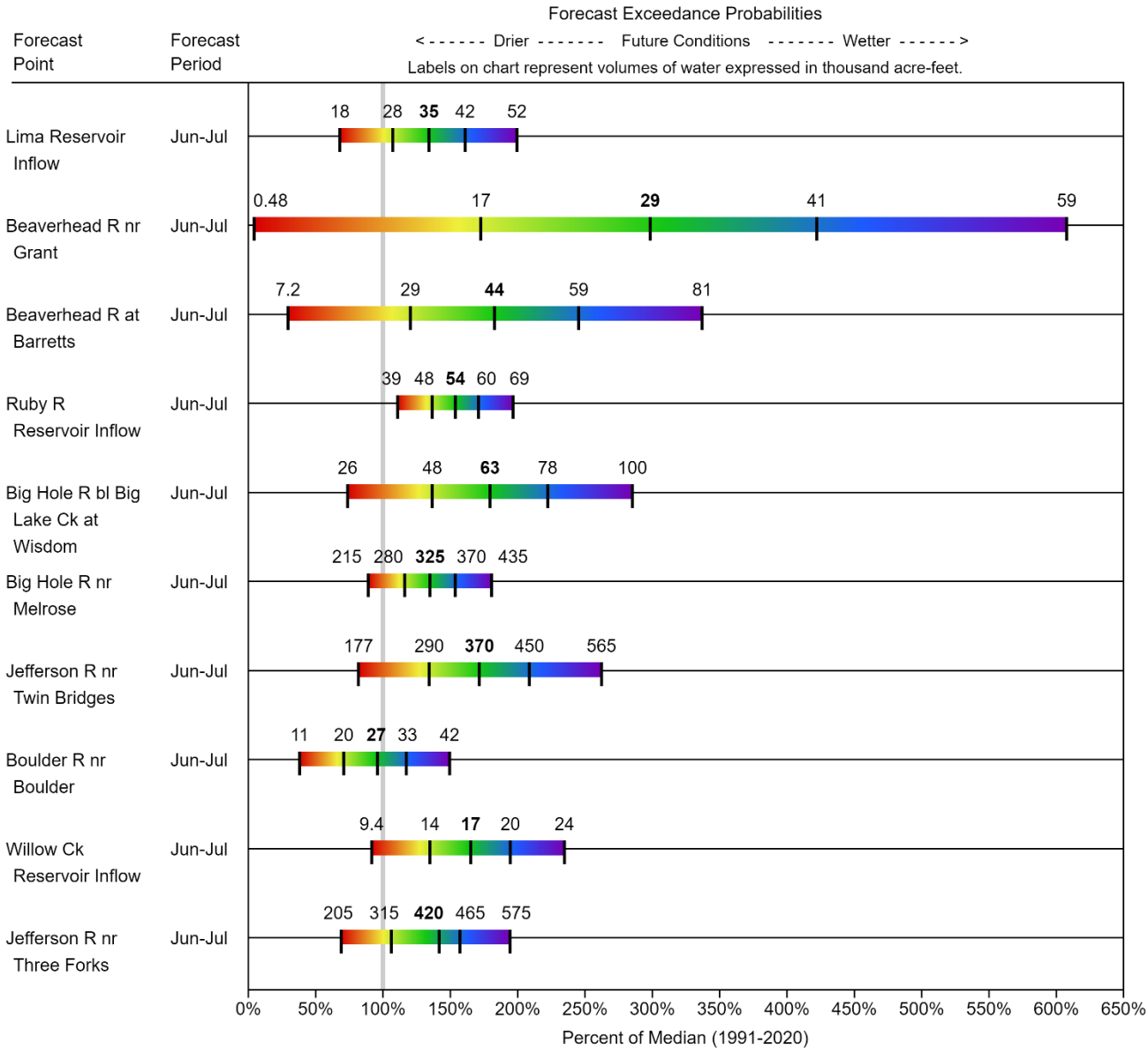
Period of Record Maximum Streamflow KAF (Year)

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

JEFFERSON RIVER BASIN

Water Supply Forecasts

June 1, 2022



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)	*1991-2020 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

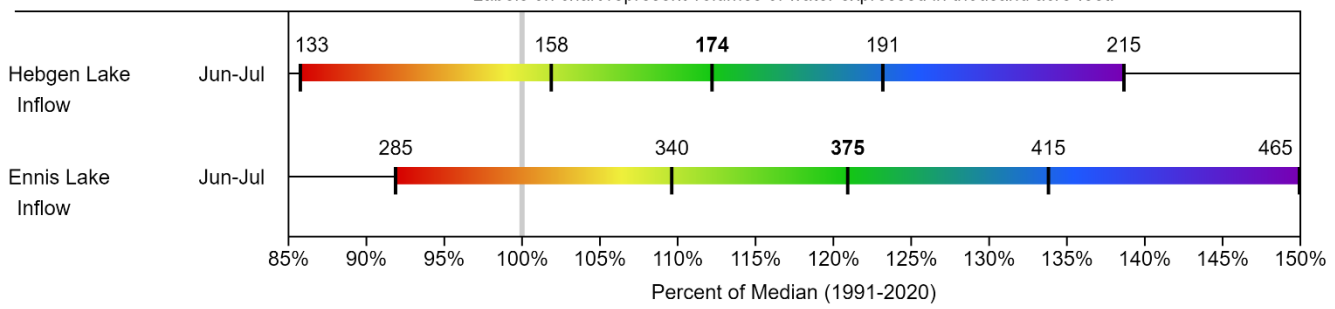
Water Supply Forecasts

June 1, 2022

Forecast Exceedance Probabilities

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

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



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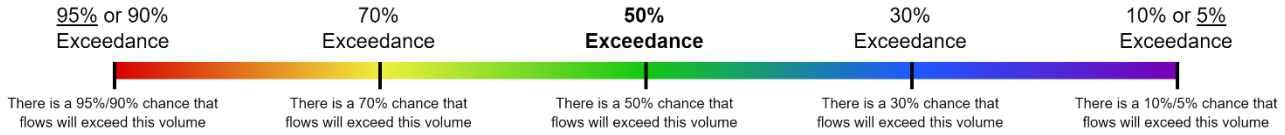


When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

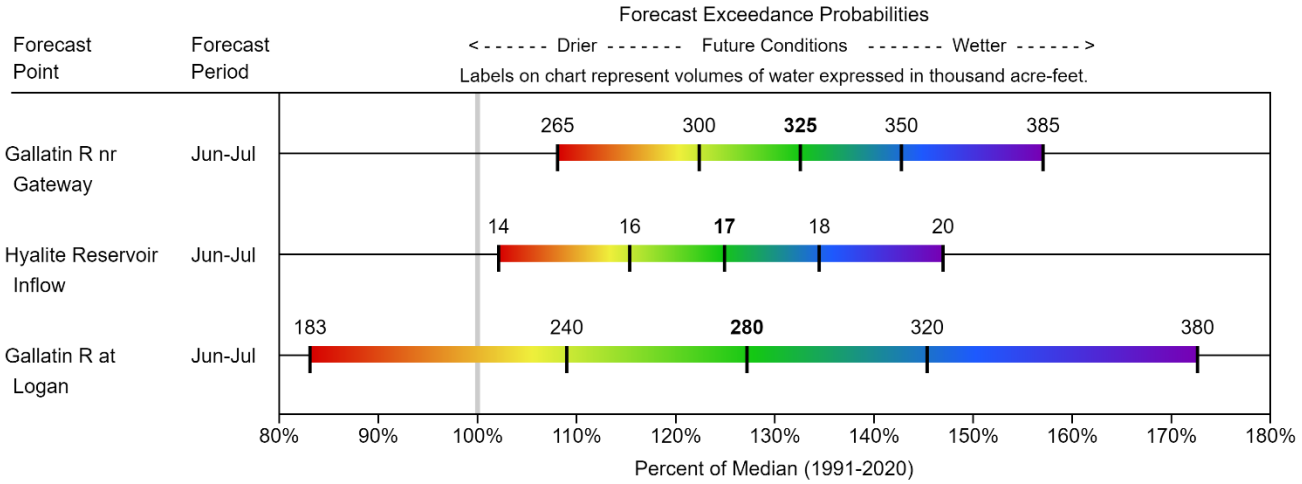
Period of Record Maximum Streamflow KAF (Year)

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

GALLATIN RIVER BASIN

Water Supply Forecasts

June 1, 2022



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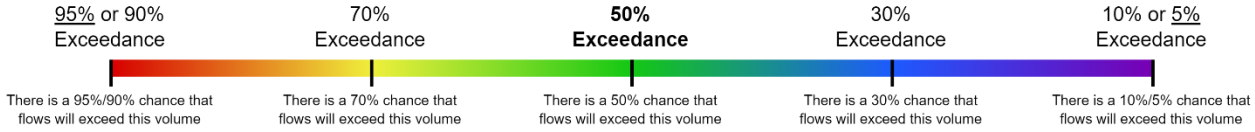


When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

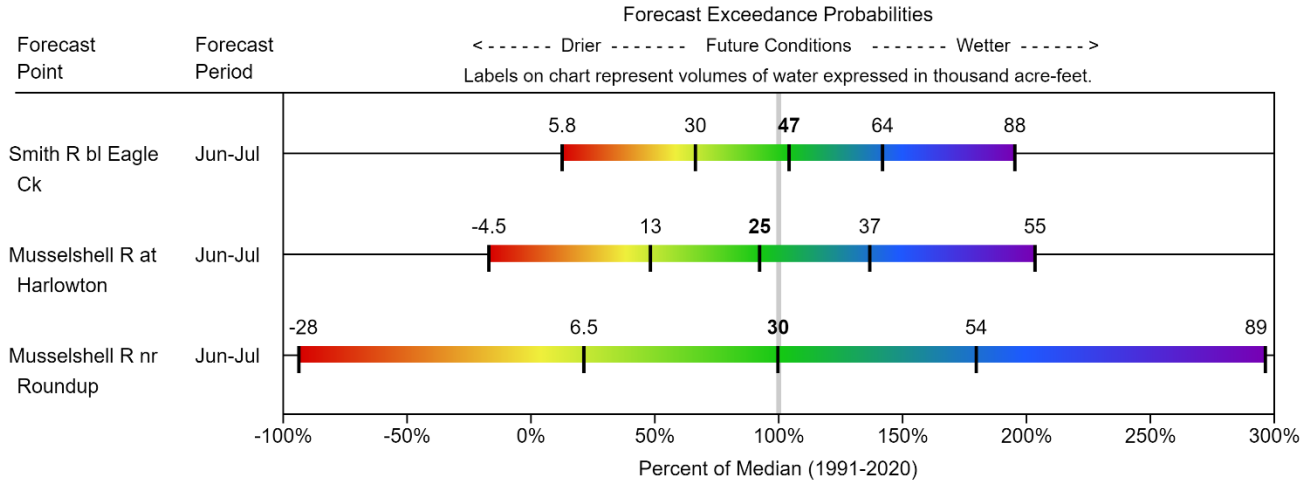
Period of Record Maximum Streamflow KAF (Year)

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

SMITH-JUDITH-MUSSELSHELL

Water Supply Forecasts

June 1, 2022



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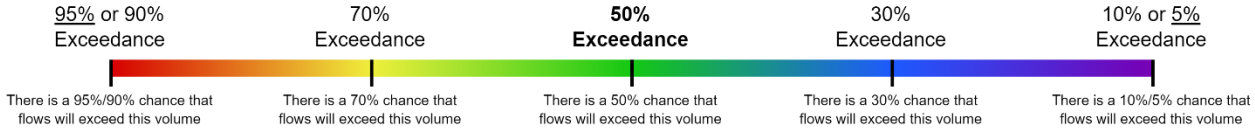


When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

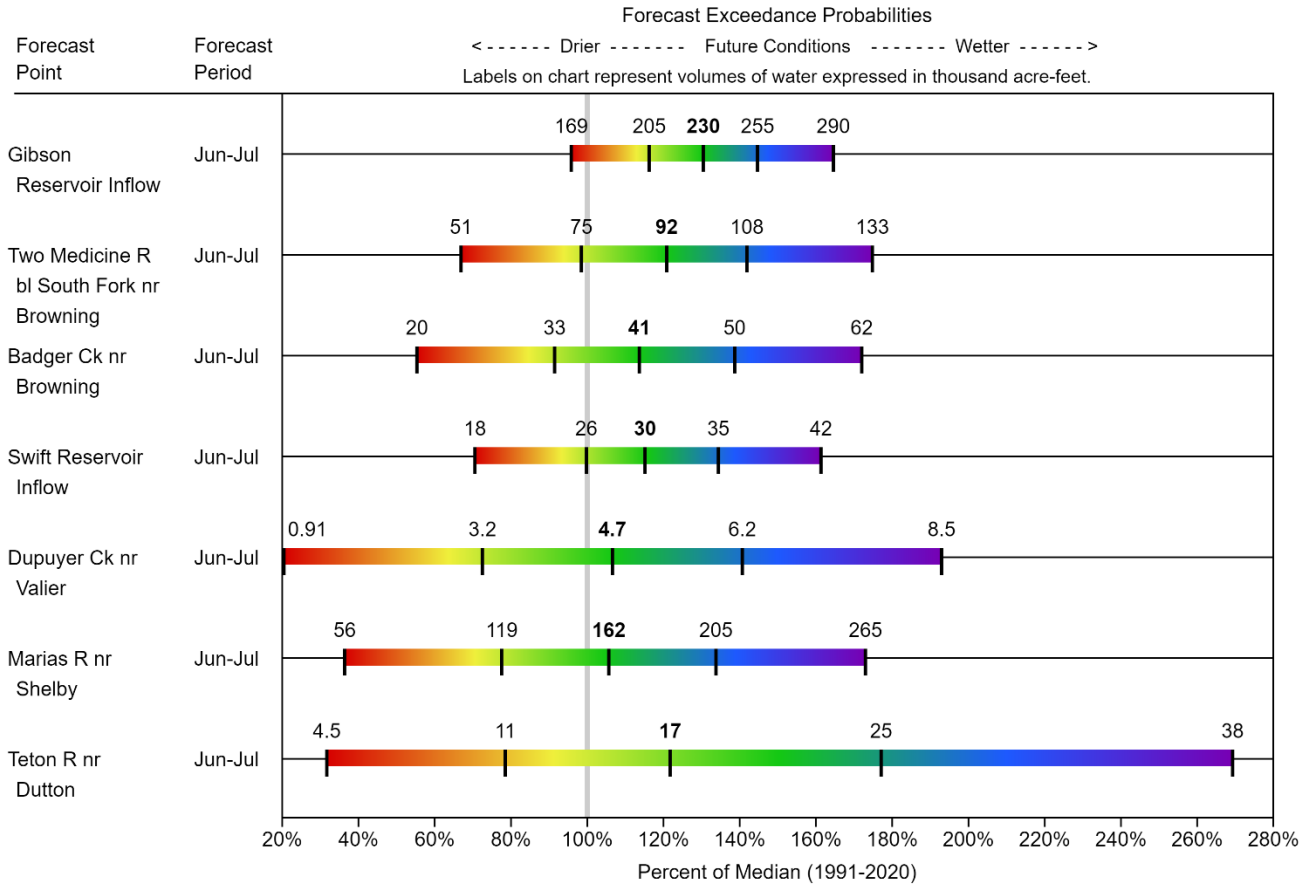
Period of Record Maximum Streamflow KAF (Year)

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

SUN-TETON-MARIAS

Water Supply Forecasts

June 1, 2022



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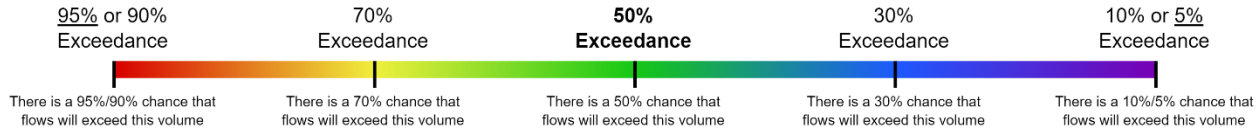


When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

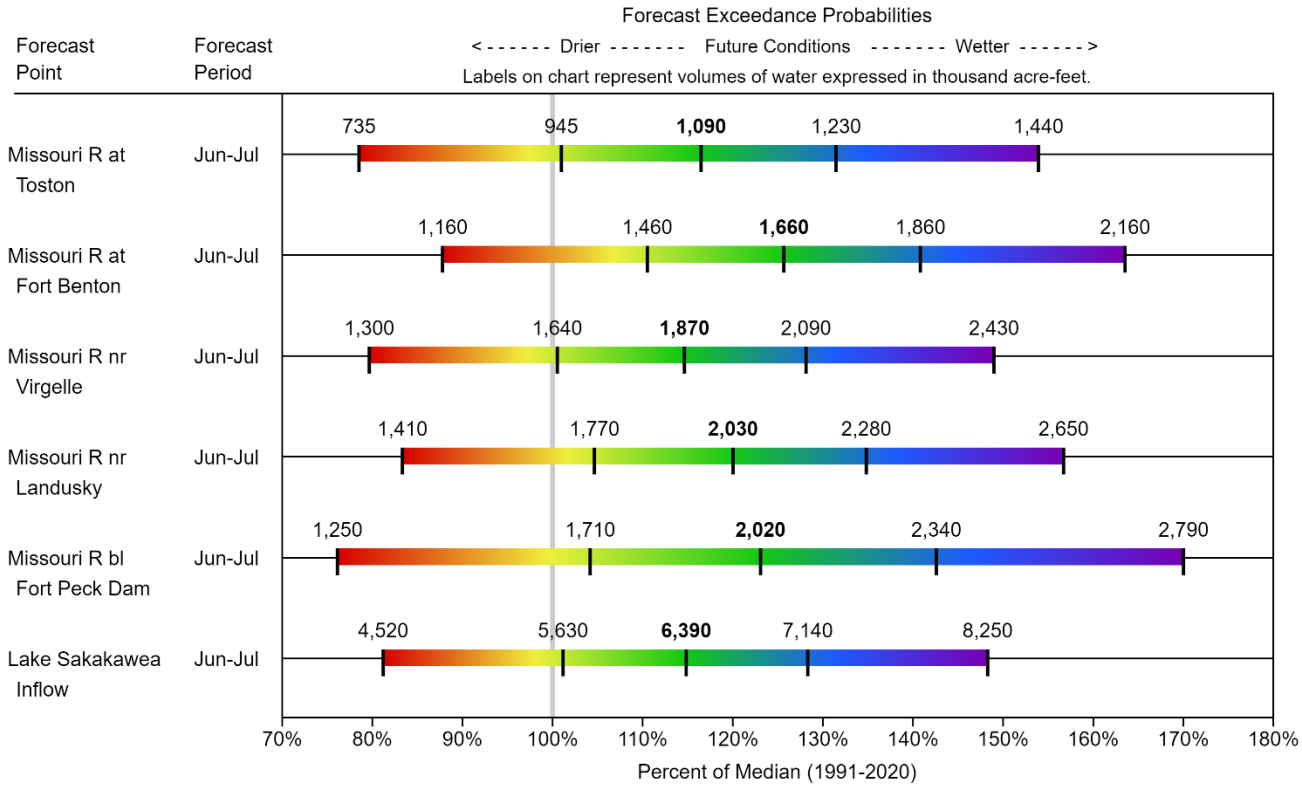
Period of Record Maximum Streamflow KAF (Year)

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

MISSOURI MAINSTEM BASIN

Water Supply Forecasts

June 1, 2022



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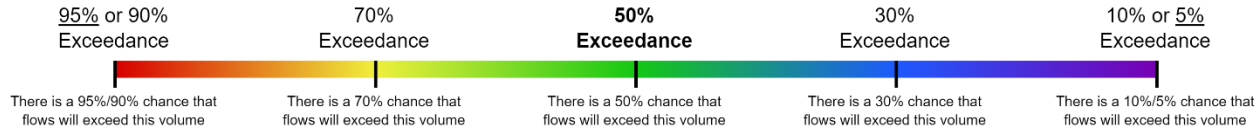


When selected, the following historic streamflow values and statistics will be shown.

Period of Record Minimum Streamflow KAF (Year)

1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

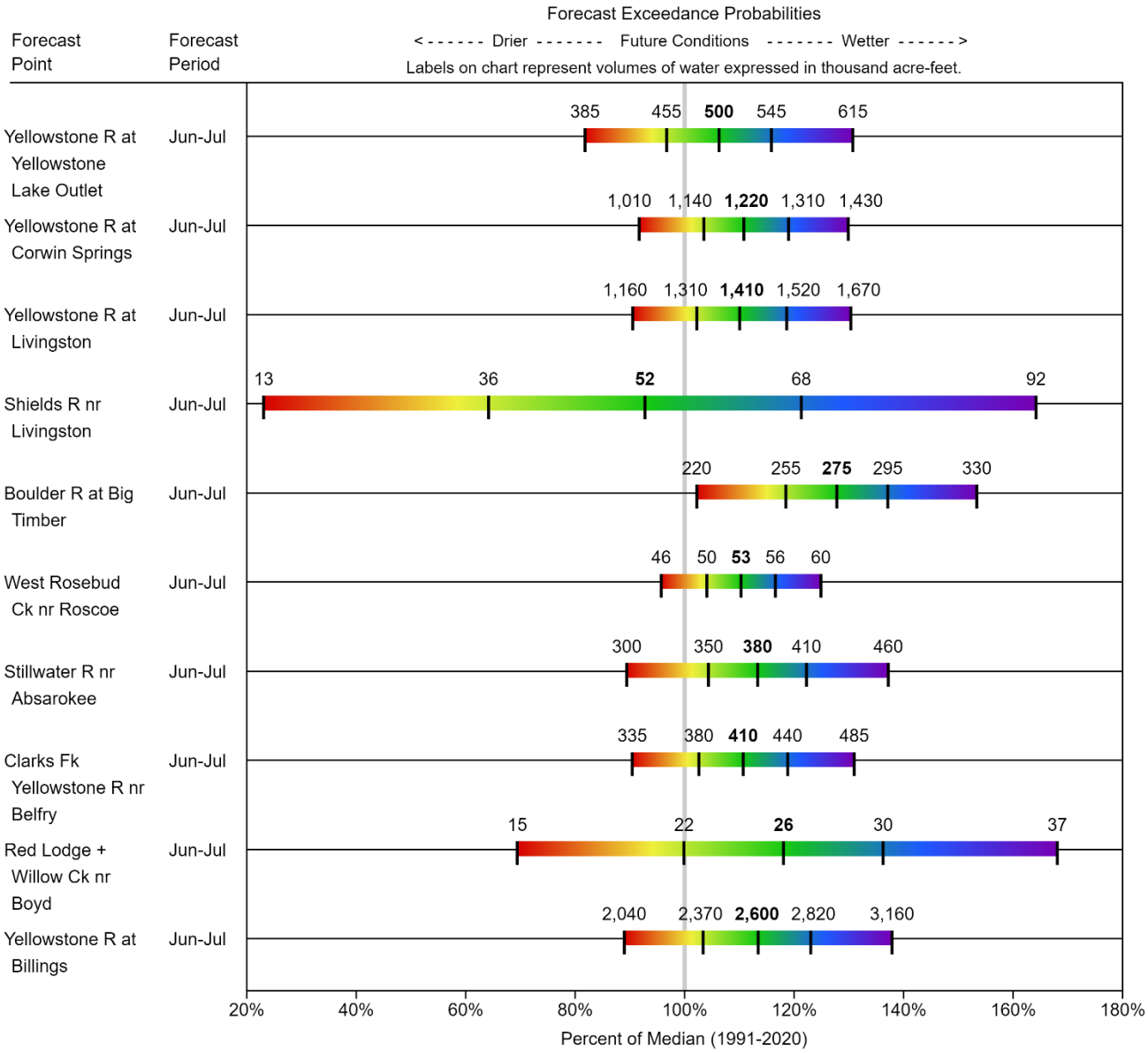
Period of Record Maximum Streamflow KAF (Year)

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

UPPER YELLOWSTONE RIVER BASIN

Water Supply Forecasts

June 1, 2022



Legend

95% or 90% Exceedance	70% Exceedance	**50% Exceedance**	30% Exceedance	10% or 5% Exceedance
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When selected, the following historic streamflow values and statistics will be shown.

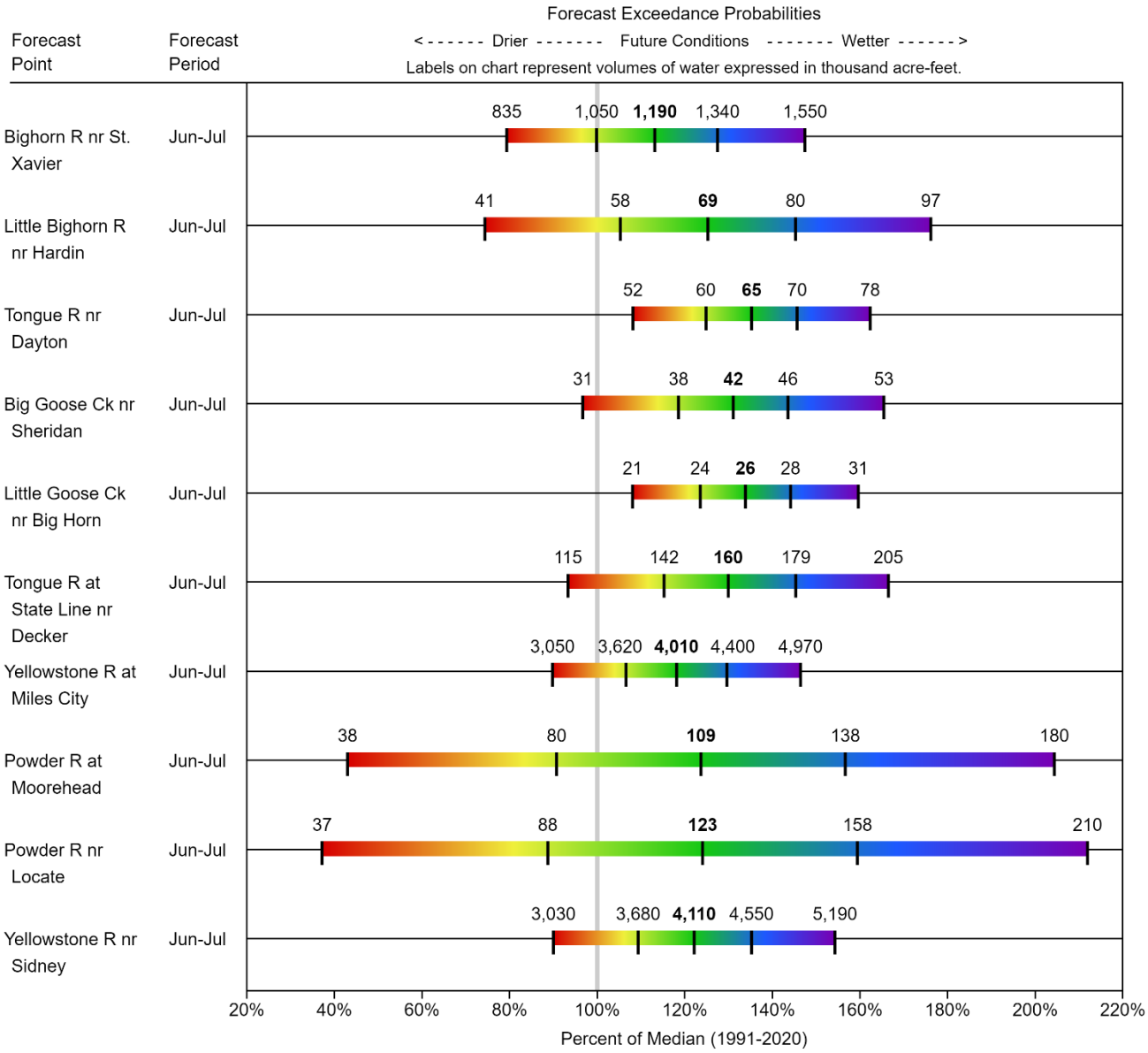
Period of Record Minimum Streamflow KAF (Year)	*1991-2020 Normal Streamflow KAF*	*Observed Streamflow KAF*	*Period of Record Maximum Streamflow KAF (Year)*

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

LOWER YELLOWSTONE RIVER BASIN (Wyoming)

Water Supply Forecasts

June 1, 2022



Legend

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Period of Record Minimum Streamflow KAF (Year)	*1991-2020 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 BASINS

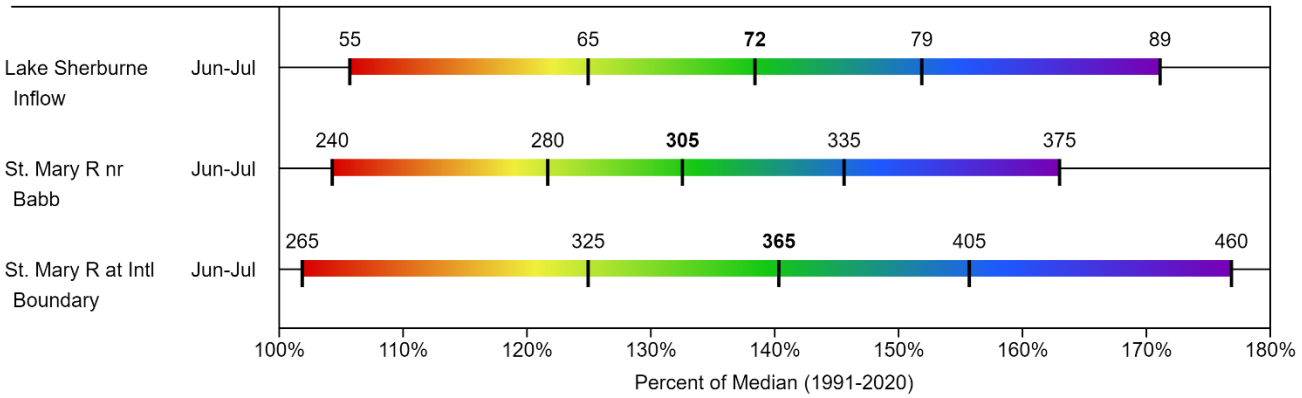
Water Supply Forecasts

June 1, 2022

Forecast Exceedance Probabilities

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

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



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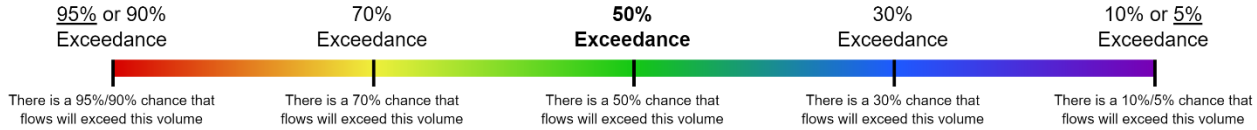

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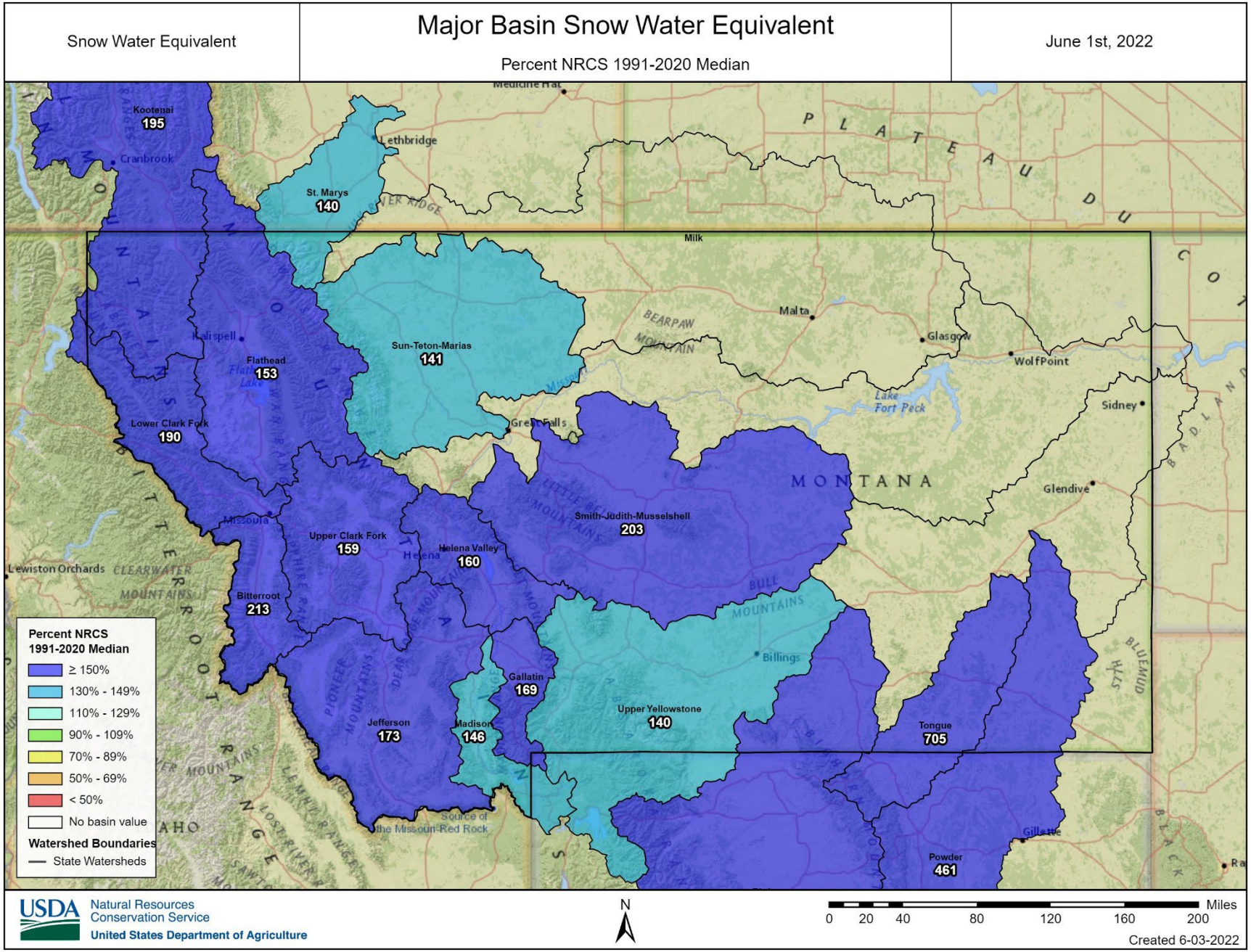
1991-2020 Normal Streamflow KAF

Observed Streamflow KAF

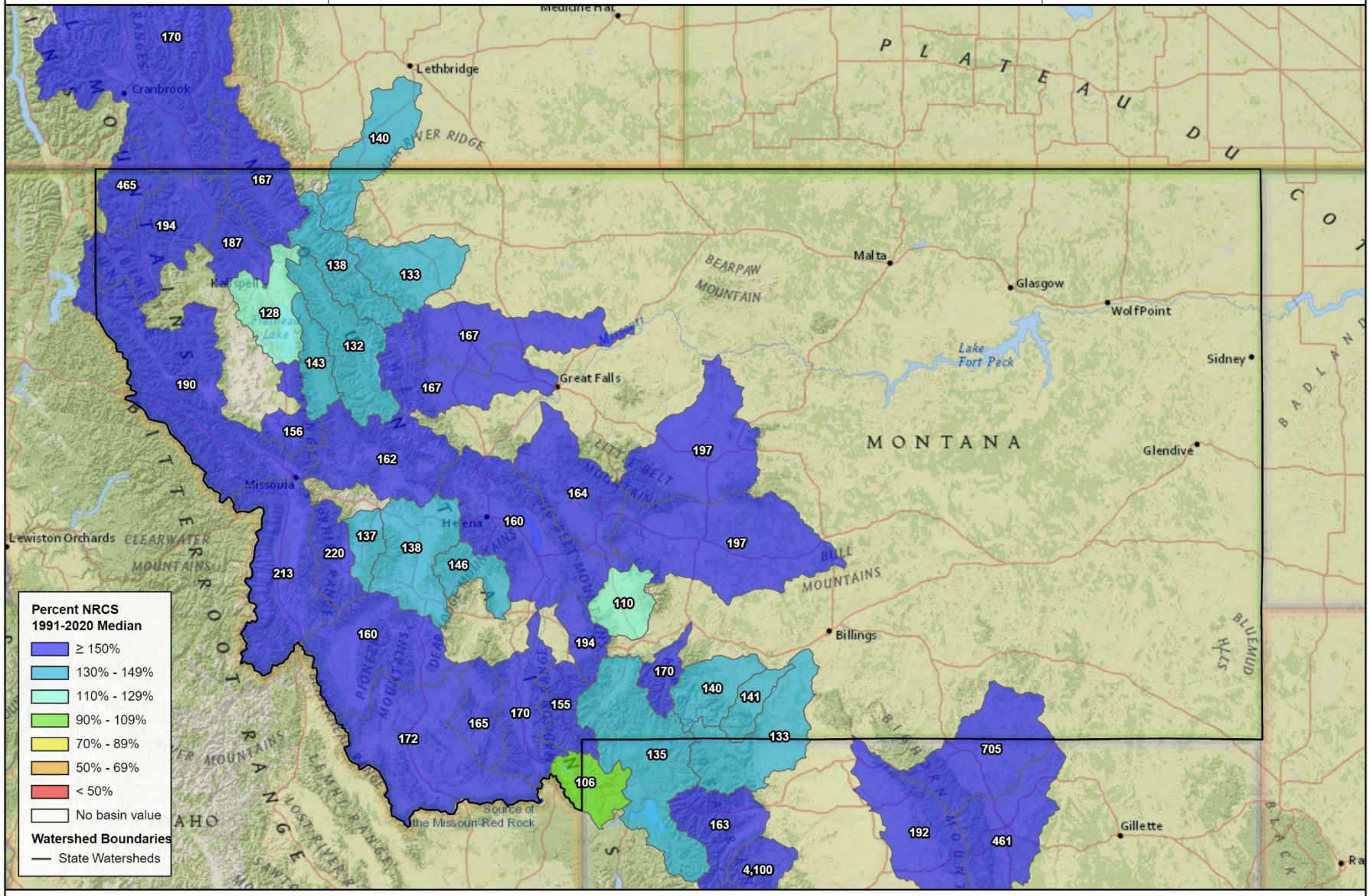
Period of Record Maximum Streamflow KAF (Year)

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

Maps


Snow Water Equivalent
Major Basin Snow Water Equivalent
Percent NRCS 1991-2020 Median
June 1st, 2022
Kootenai
195
Cranbrook
Lethbridge
St. Marys
140
Milk
Malta
Glasgow
Wolf Point
Sidney
Glendive
Kalispell
Flathead
153
Sun-Teton-Marias
141
Lower Clark Fork
190
Great Falls
Missoula
Upper Clark Fork
159
Helena
Helena Valley
160
Smith-Judith-Musselshell
203
Bitterroot
213
Billings
Gallatin
169
Upper Yellowstone
140
Jefferson
173
Madison
146
Tongue
705
Powder
461
Gillette
Lewiston Orchards
Source of the Missouri-Red Rock
MONTANA
Percent NRCS 1991-2020 Median
≥ 150%
130% - 149%
110% - 129%
90% - 109%
70% - 89%
50% - 69%
< 50%
No basin value
Watershed Boundaries
State Watersheds
USDA
Natural Resources Conservation Service
United States Department of Agriculture
N
0 20 40 80 120 160 200 Miles
Created 6-03-2022

Snow Water Equivalent	Sub-Basin Snow Water Equivalent Percent NRCS 1991-2020 Median	June 1st, 2022



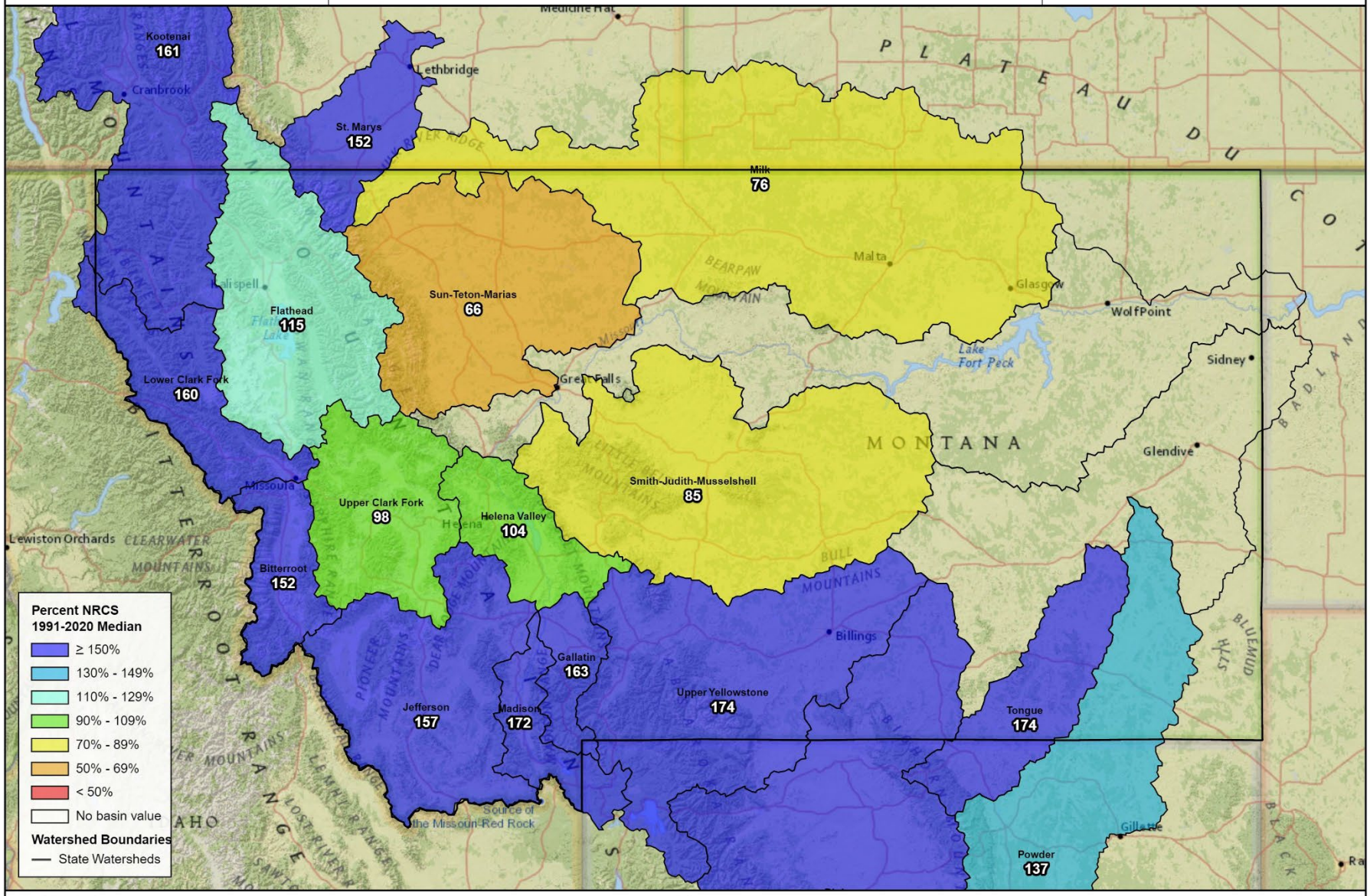
USDA Natural Resources Conservation Service
United States Department of Agriculture

N

0 20 40 80 120 160 200 Miles

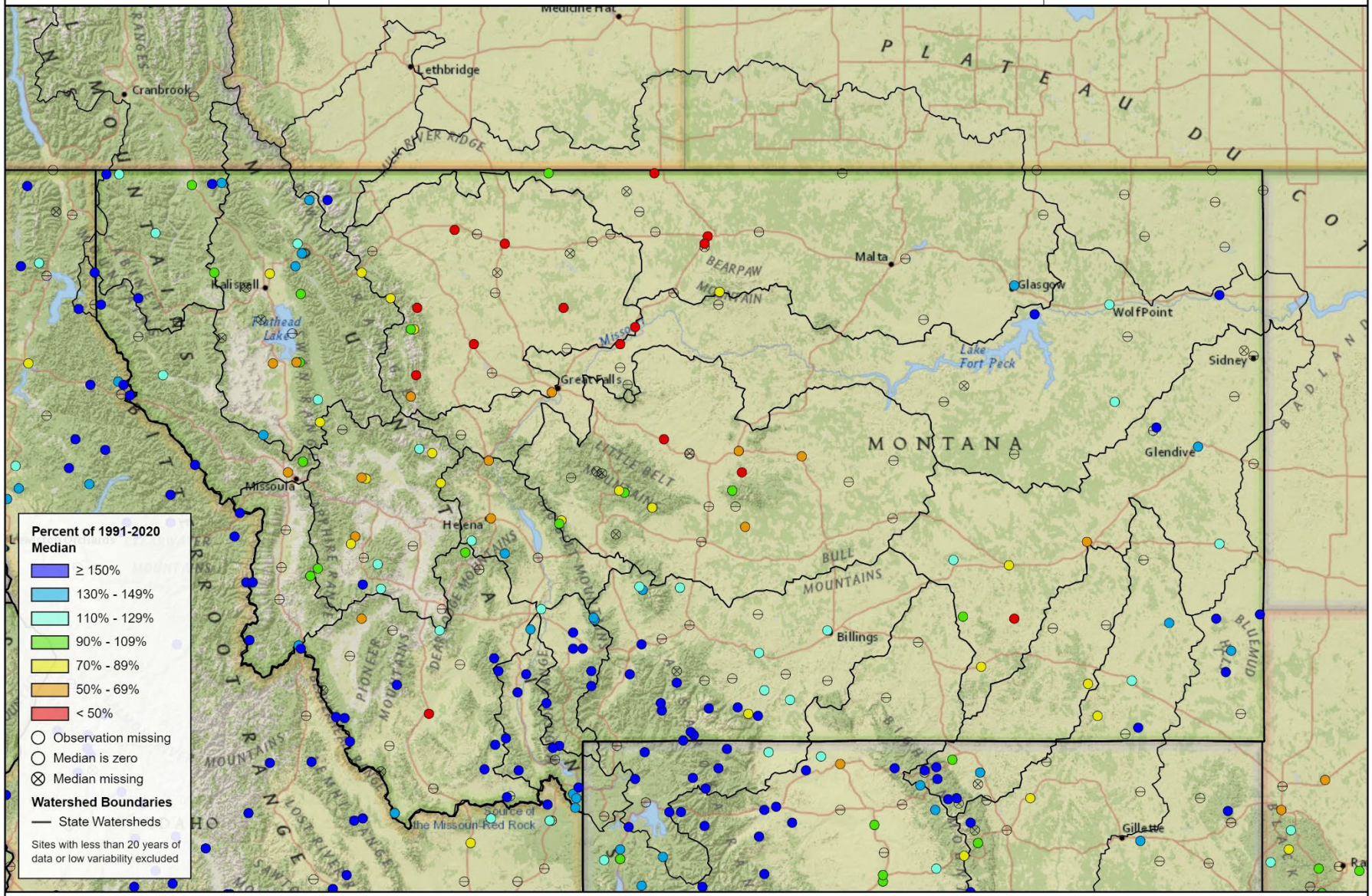
Created 6-03-2022

1 month Precipitation	Monthly Precipitation Percent NRCS 1991-2020 Median	May 1, 2022 - May 31, 2022



USDA Natural Resources Conservation Service
United States Department of Agriculture

1 month Precipitation	Monthly Precipitation Percent of 1991-2020 Median	May 1, 2022 - May 31, 2022



USDA Natural Resources Conservation Service
United States Department of Agriculture

N

0 20 40 80 120 160 200 Miles

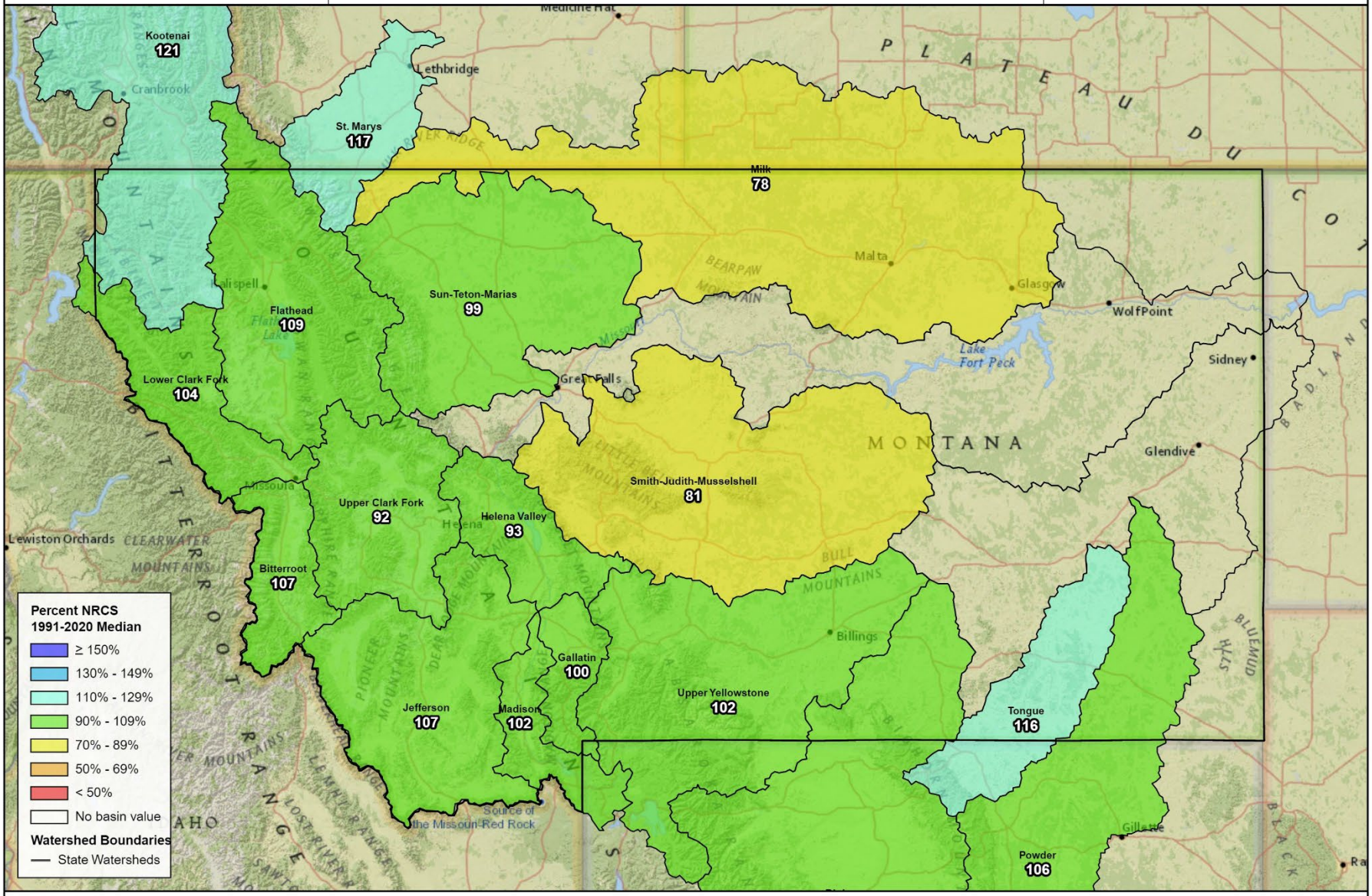
Created 6-03-2022

Water Year to Date Precipitation

Water Year Precipitation

Percent NRCS 1991-2020 Median

October 1, 2021 - May 31, 2022



USDA Natural Resources Conservation Service
United States Department of Agriculture

N

0 20 40 80 120 160 200 Miles

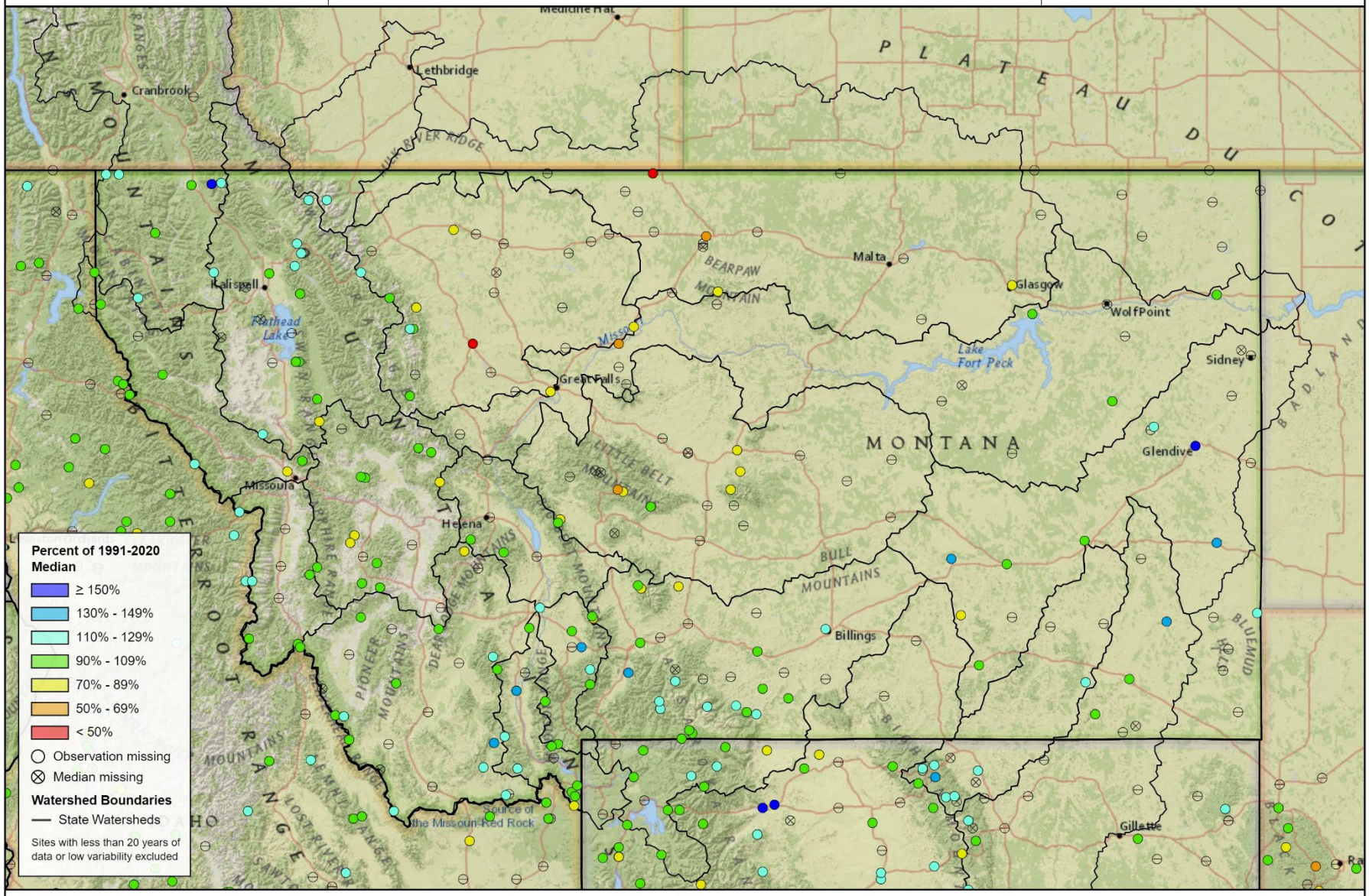
Created 6-03-2022

Water Year to Date Precipitation

Water Year Precipitation

Percent of 1991-2020 Median

October 1, 2021 - May 31, 2022



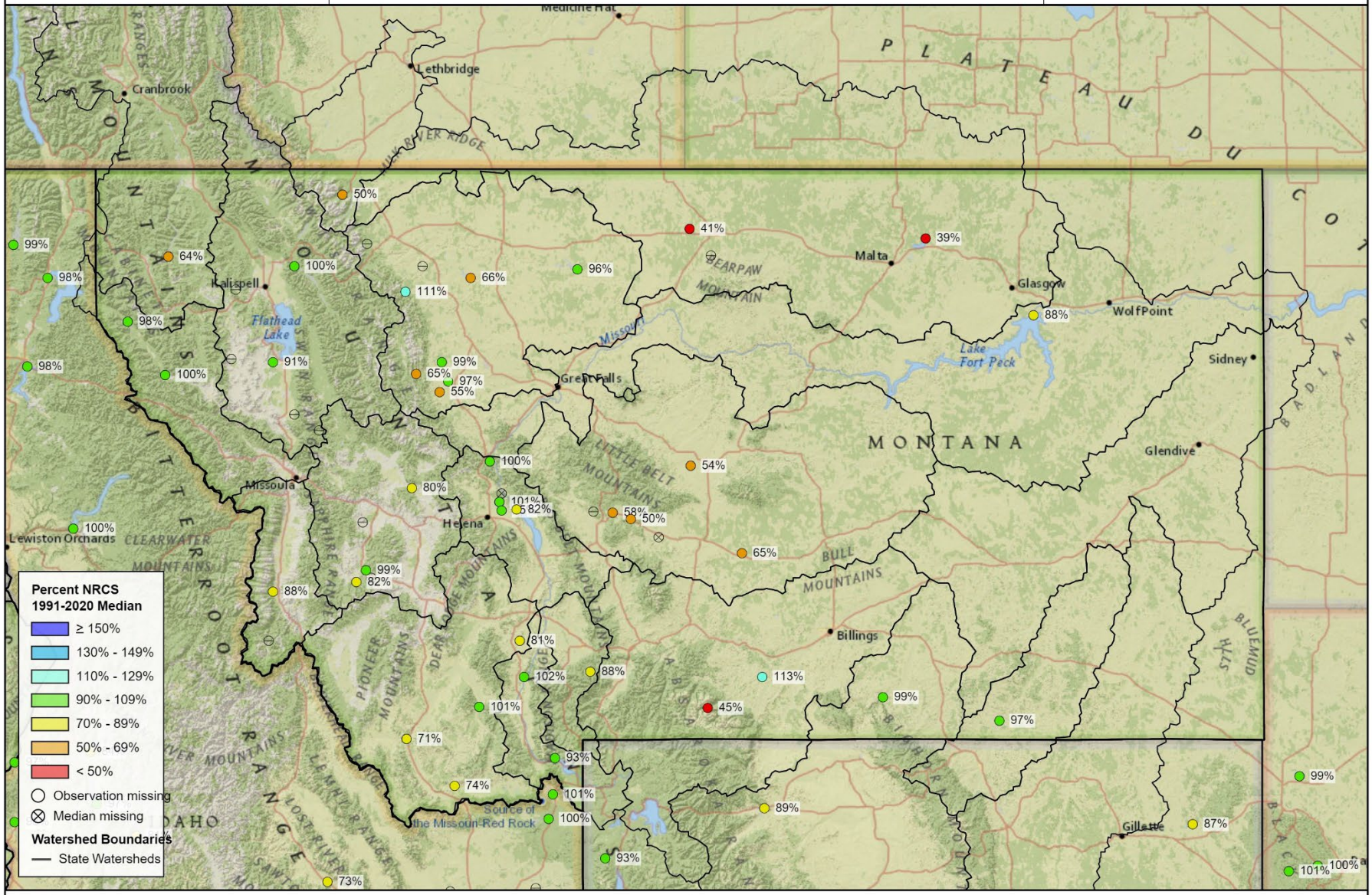
USDA Natural Resources Conservation Service
United States Department of Agriculture

N

0 20 40 80 120 160 200 Miles

Created 6-03-2022

Reservoir Storage	Reservoir Storage Percent NRCS 1991-2020 Median	June 1st, 2022



USDA Natural Resources Conservation Service
United States Department of Agriculture

N

0 20 40 80 120 160 200 Miles

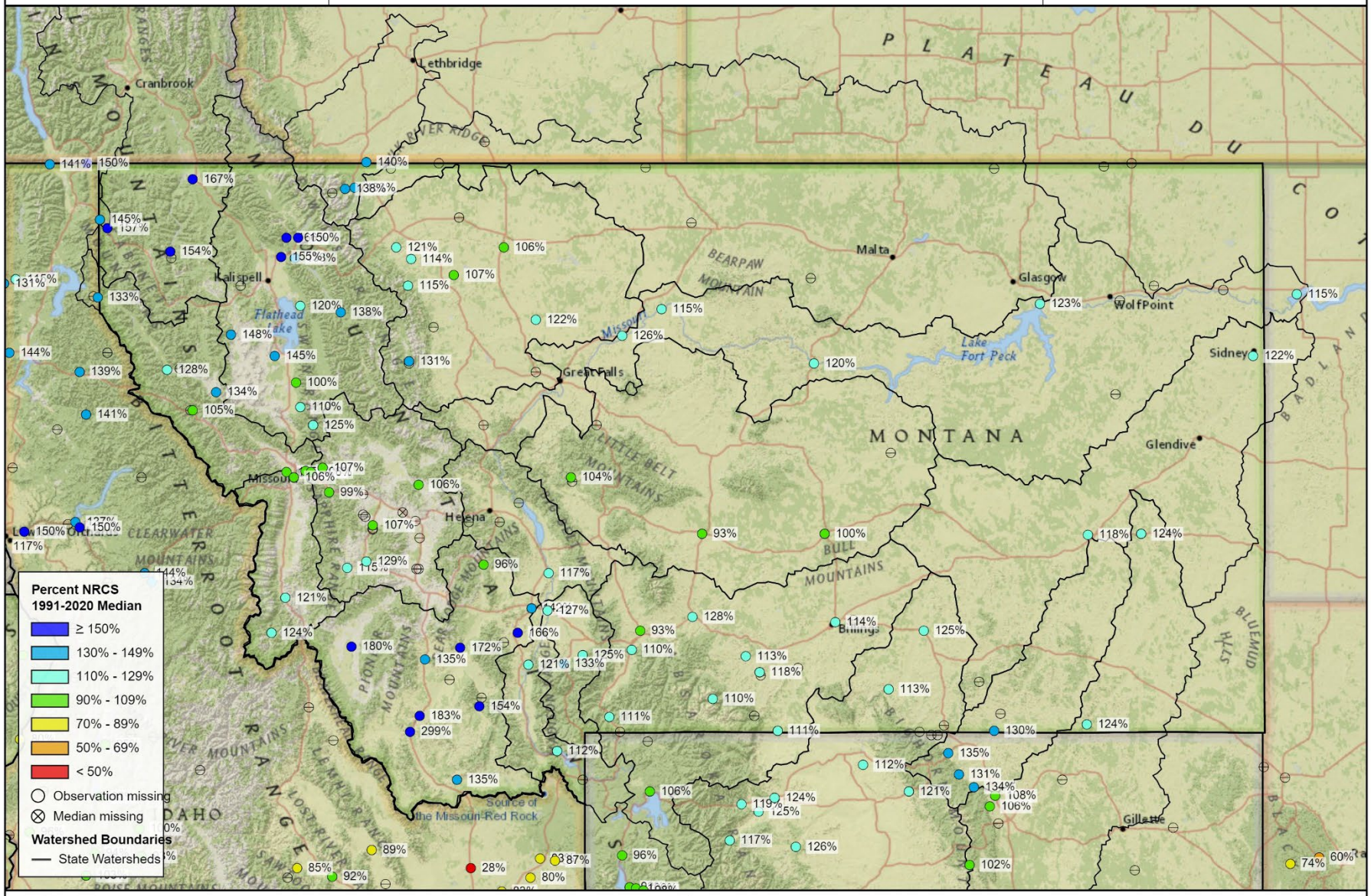
Created 6-03-2022

Forecast Volume,
50% Exceedance Probability

Streamflow Forecasts: June 1st - July 31st, 2022

Percent NRCS 1991-2020 Median

June - July, June 1, 2022



USDA Natural Resources Conservation Service
United States Department of Agriculture

N

0 20 40 80 120 160 200 Miles

Created 6-06-2022

WSOR Web Page Access

The links below will take you to web pages dedicated to the individual river basins and statewide overview for presenting the monthly data. Users are encouraged to interact with the maps presented, select different maps using the drop-down menu, and hover over or click on points or basins of interest to view data and plots.

Monthly Data - Interactive Web Pages		
Monthly Data - Statewide Overview		
Monthly Statewide Overview		
Monthly Data - River Basin Summaries		
Columbia River Basin	**Missouri River Basin**	**Yellowstone River Basin**
Kootenai	**Jefferson**	**U. Yellowstone**
Flathead	**Madison**	**Wyoming**
Upper Clark	**Gallatin**	
Bitterroot	**Helena Valley**	
Lower Clark	**Smith-Judith**	
	Sun-Teton	
	St. Mary	
	Milk	

Issued by:

Terry Cosby
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@usda.gov

Montana Water Supply Outlook Report

Natural Resources Conservation Service