



United States Department of Agriculture

Natural Resources  
Conservation Service

# Montana

## Water Supply Outlook Report

### January 1, 2023



Snow Surveyors Elena Garcia and Zachary Denison measuring [Norris Basin Snow Course](#) in Yellowstone National Park on January 1, 2023. They found 4.4" of snow water equivalent at the snow course, which is above normal for January 1 and similar to conditions across the rest of the region. The snowpack is off to a good start this year and across Montana conditions are [currently above normal](#). The timing of snowpack onset this season was near normal, and precipitation has been consistent since October, however there are still 3 to 4 months left in the snowpack accumulation season. Continued active weather in the months ahead will be necessary to reach normal spring snowpack levels.

*For more water supply information, contact:*

**Eric Larson**

**Water Supply Specialist**

**Federal Building**

**10 East Babcock, Room 443**

**Bozeman, MT 59715**

**406-599-9697**

[eric.larson@usda.gov](mailto:eric.larson@usda.gov)

<https://www.nrcs.usda.gov/wps/portal/wcc/home/quicklinks/states/montana/>

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.

# Operational News

## Expanding Monitoring Coverage: New SNOTEL Stations for 2023 Water Year

Montana Snow Survey staff had a busy field season in summer 2022. Besides carrying out the usual annual maintenance on existing stations, we installed two brand new SNOTELs and completed an overhaul on a third, all with below normal staffing levels. The new SNOTEL stations included Bassoo Peak, which was formerly a SNOLITE station, and Chicago Ridge, formerly a manual snow course measured monthly during the winter by Forest Service cooperators. Many Glacier SNOTEL received an overhaul, its first since the original install in the 1970s.

The Bassoo Peak station is on Confederated Salish and Kootenai tribal land in the mountains west of Flathead Lake and has been measured as a manual snow course since 1961. In 2017 it was outfitted with SNOLITE sensors (snow depth, precipitation, and temperature) on a tip-up pole. The expansion of Bassoo Peak into a full SNOTEL in 2022 means that it now also has a snow pillow, an eight foot shelter to house electronics, and two towers for sensors. The addition of SWE data from the snow pillow will help quantify regional snowpack more effectively and improve streamflow forecasts. Three staff installed the SNOTEL in late June, when temperatures reached into the 90s. It was tough work but well worth the effort to have expanded sensors and improved data!



*Left: Bassoo Peak SNOLITE, prior to upgrade. Right: Finished Bassoo Peak SNOTEL on June 30, 2022.*

Chicago Ridge, in the southern Cabinet Mountains, has been measured as a manual snow course since 2003, and along with the Government Saddle and Rock Creek Meadows snow courses, provides important snowpack data for the Lower Clark Fork and Kootenai River basins. The installation of an automated SNOTEL station at Chicago Ridge has been a multi-year cooperative effort by the NRCS and Forest Service, and it faced additional practical challenges during the installation week, including difficult road access and shallow bedrock. Luckily, five Snow Survey staff had assistance from five local Forest Service staff and with considerable effort from everyone involved, we were able to complete the job. As of early September, SWE, snow depth, precipitation, air temperature, and wind data are now available to the public on a hourly basis.



*Left: Constructing a 16 foot shelter with the help of a winch. Right: Completed SNOTEL station at Chicago Ridge.*

Finally, Many Glacier SNOTEL received a total overhaul, including a new snow pillow, all new plumbing for the precipitation gage, a new 12 foot shelter, and new solar panels. Snow Survey staff worked with NPS staff in Glacier National Park over winter 2021-22 to acquire necessary permits for the work, which was then carried out in June 2022. This SNOTEL is important for streamflow forecasts in the St. Mary River basin along the eastern Rocky Mountain front, and aging sensors and infrastructure at the SNOTEL were long overdue for an upgrade. The new sensors will ensure that quality data continues to be collected from this station.



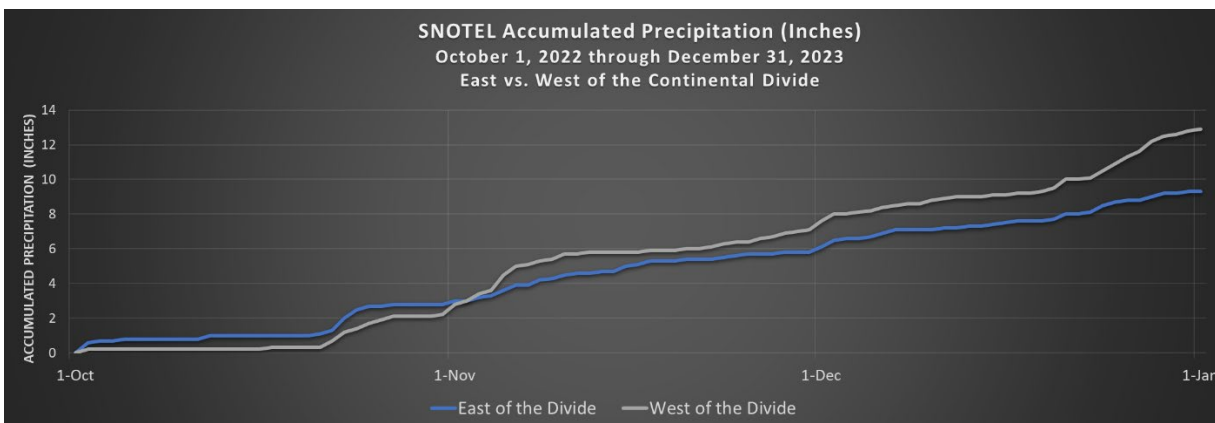
*Wet snow and muddy conditions (left) gave way to a much-improved Many Glacier SNOTEL (right).*

# Precipitation

Excluding the western boundary of Montana, the last six months have brought near to above normal precipitation to most of the state. [July-September precipitation](#) was well above normal in central Montana and parts of northern Wyoming. Records for both highest and lowest [precipitation](#) (1991-2020) were set for the 3-month period (July-September), which is generally the driest time of the year in Montana. July-September precipitation at Bald Mountain SNOTEL in the northern Bighorn Mountains was 9.2 inches (30-year median = 4.2 inches) and the highest since 1991. July-September precipitation at Spur Park SNOTEL in the Little Belts of central Montana was 10.4 inches (30-year median = 4.2 inches) and the second highest since 1991. Record low precipitation (July-September) occurred further west in the Beaverhead Mountains and also in the Purcell Mountains of northwest Montana, where SNOTEL stations record less than half of their normal 3-month precipitation.

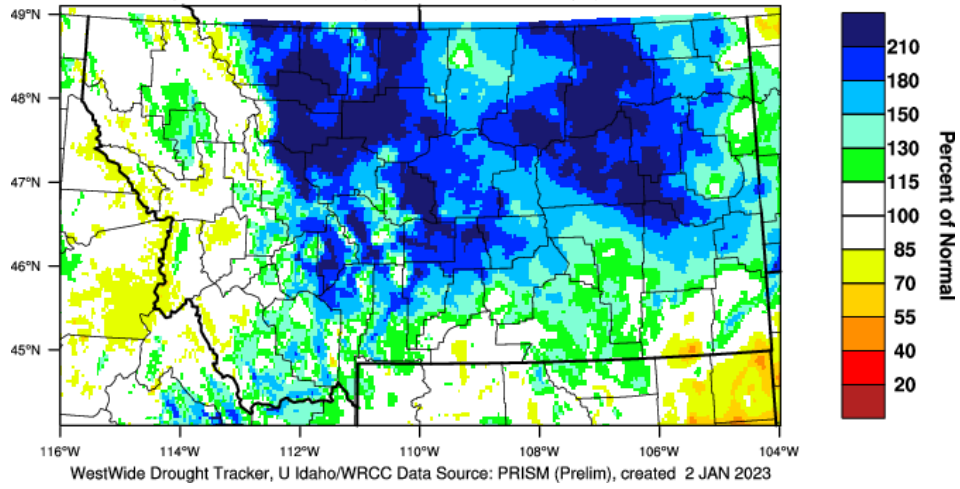
On October 1, Water Year 2023 began with a bang in basins east of the Continental Divide and also the Upper Clark Fork River Basin. [3-day precipitation](#) (October 1 - 3) at SNOTEL stations totaled about 1.5 to 2.5 inches in the region extending from the eastern Pintler Mountains to the Little Belt Mountains and about 0.5 to 1.0 inch in the Jefferson, Madison, Gallatin, and Yellowstone River basins. All but the highest elevations received rain during this storm. Northwest Montana was dry up until the third week of October, which marked a major seasonal change to the weather across the entire region. This [3-day storm](#) brought widespread precipitation to all of Montana. Most locations received 1-2 inches of precipitation with the larger totals (2-3 inches) occurring in the Swan/Mission Mountains and a swath extending through the Centennial, Madison, Gallatin, Crazy, and Big Snowy Mountains.

Cool and wet weather continued into November and December and delivered above normal precipitation across most of Montana. Mid-month November and December experienced a lull, other than that precipitation was consistent during the last 2 months. [Water year precipitation](#) is currently near-to-above normal across Montana except the Lower Clark Fork and Bitterroot River basins which have only received about 85% of normal precipitation since October 1. River basins west of the Continental Divide generally receive the bulk of their water year precipitation November through March, so there is time to recover from the small deficit. Spring can be some of the wettest months in river basins east of the Continental Divide and assuming this is year is not an exception then that region is on track for a normal spring snowpack.



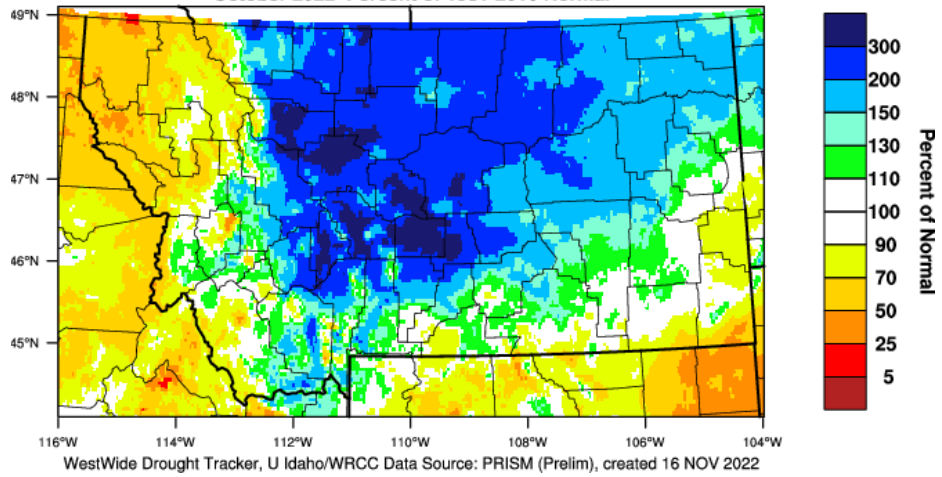
### Montana - Precipitation

October-December 2022 Percent of 1981-2010 Normal



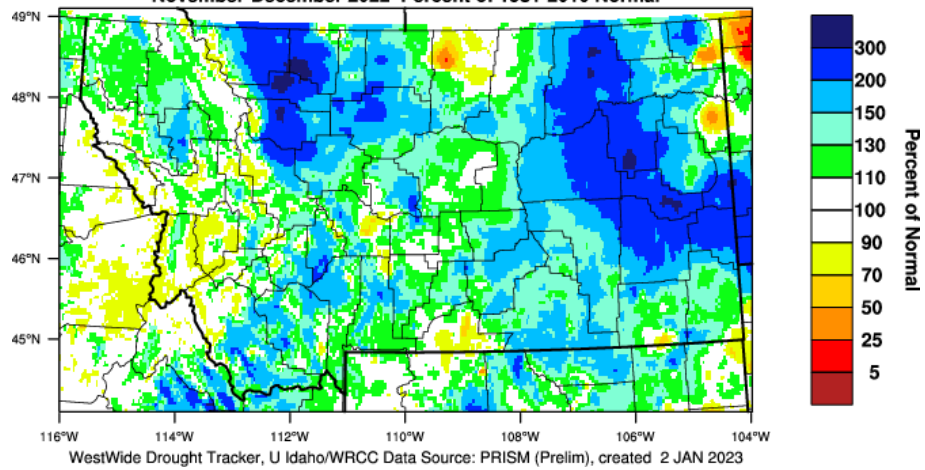
### Montana - Precipitation

October 2022 Percent of 1981-2010 Normal



### Montana - Precipitation

November-December 2022 Percent of 1981-2010 Normal

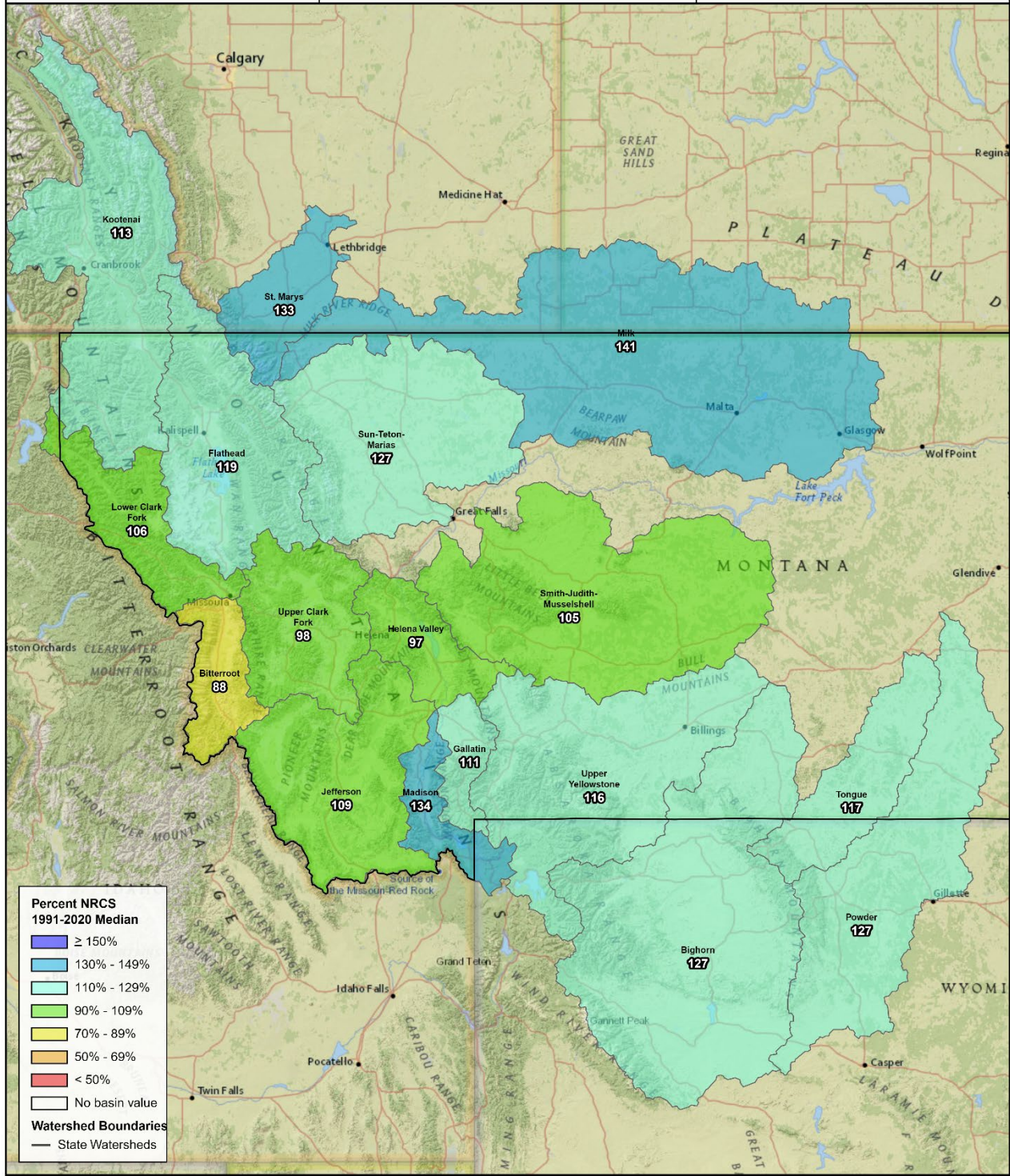


1 month Precipitation

# Monthly SNOTEL Precipitation

Percent NRCS 1991-2020 Median

December 1, 2022 -  
December 31, 2022

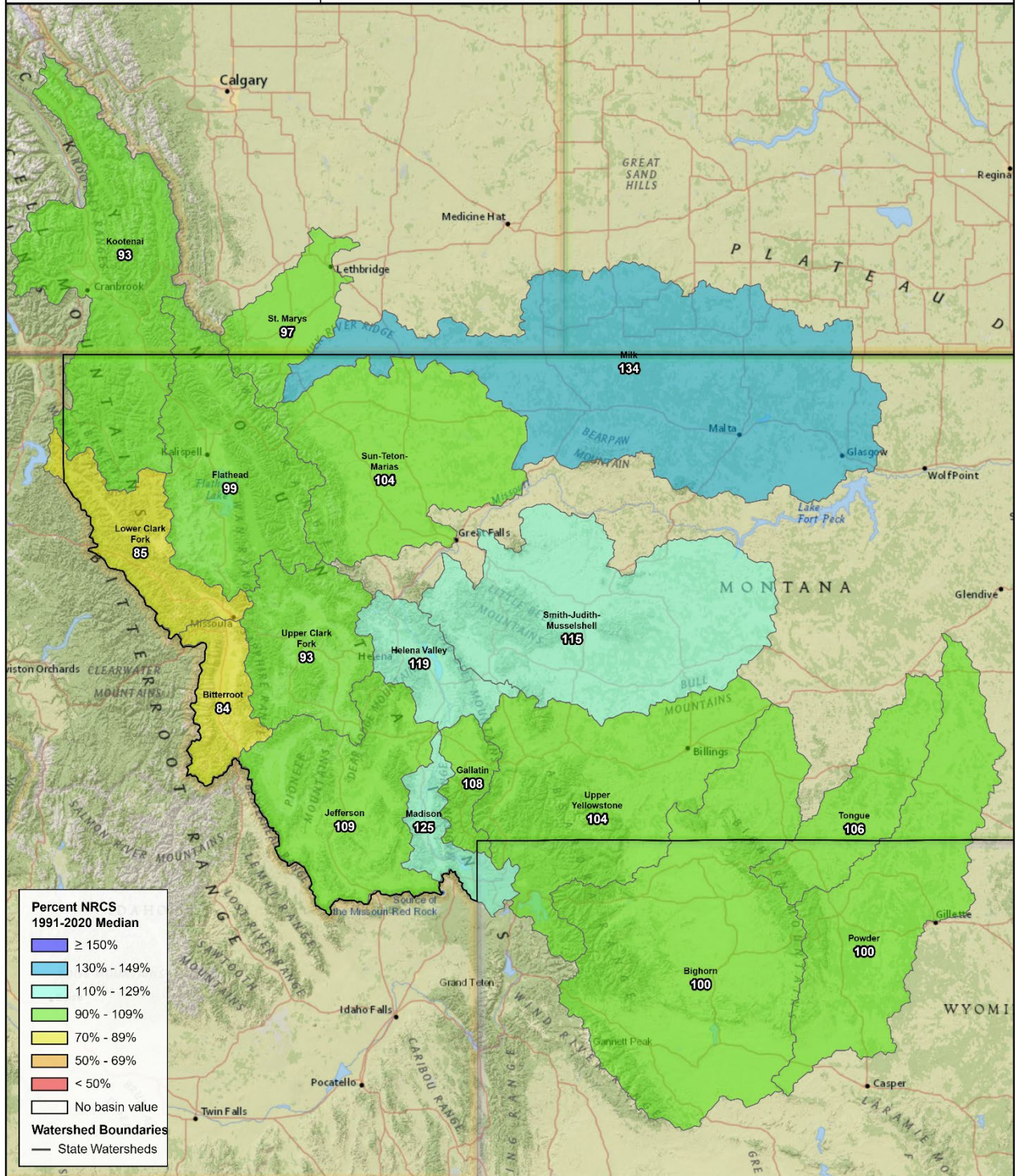


Water Year to Date Precipitation

### Water Year SNOTEL Precipitation

October 1, 2022 - December 31, 2022

Percent NRCS 1991-2020 Median



**Percent NRCS 1991-2020 Median**

- ≥ 150%
- 130% - 149%
- 110% - 129%
- 90% - 109%
- 70% - 89%
- 50% - 69%
- < 50%
- No basin value

**Watershed Boundaries**

- State Watersheds



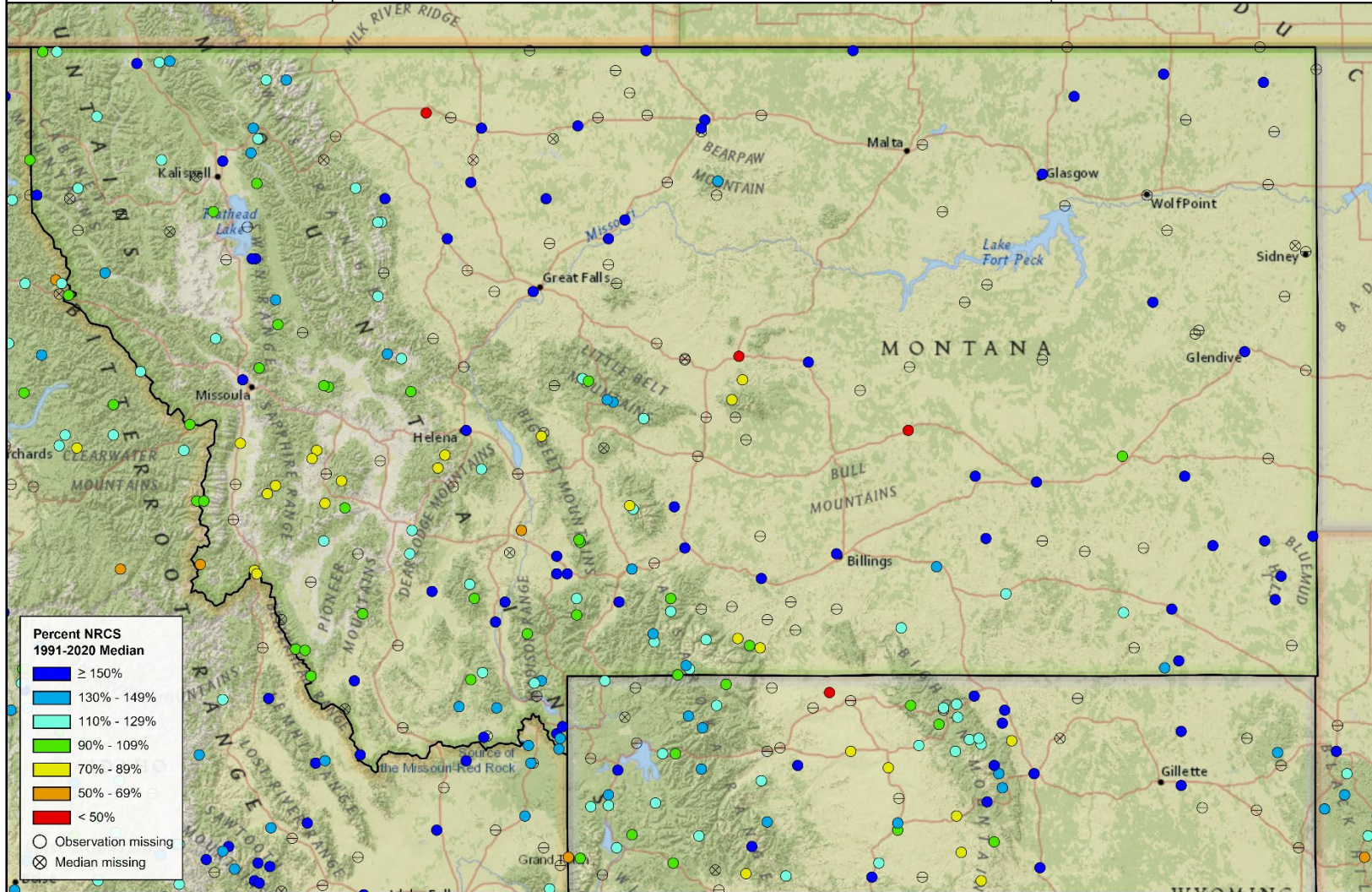


1 month Precipitation

# Monthly Precipitation

Percent NRCS 1991-2020 Median

December 1, 2022 -  
December 31, 2022

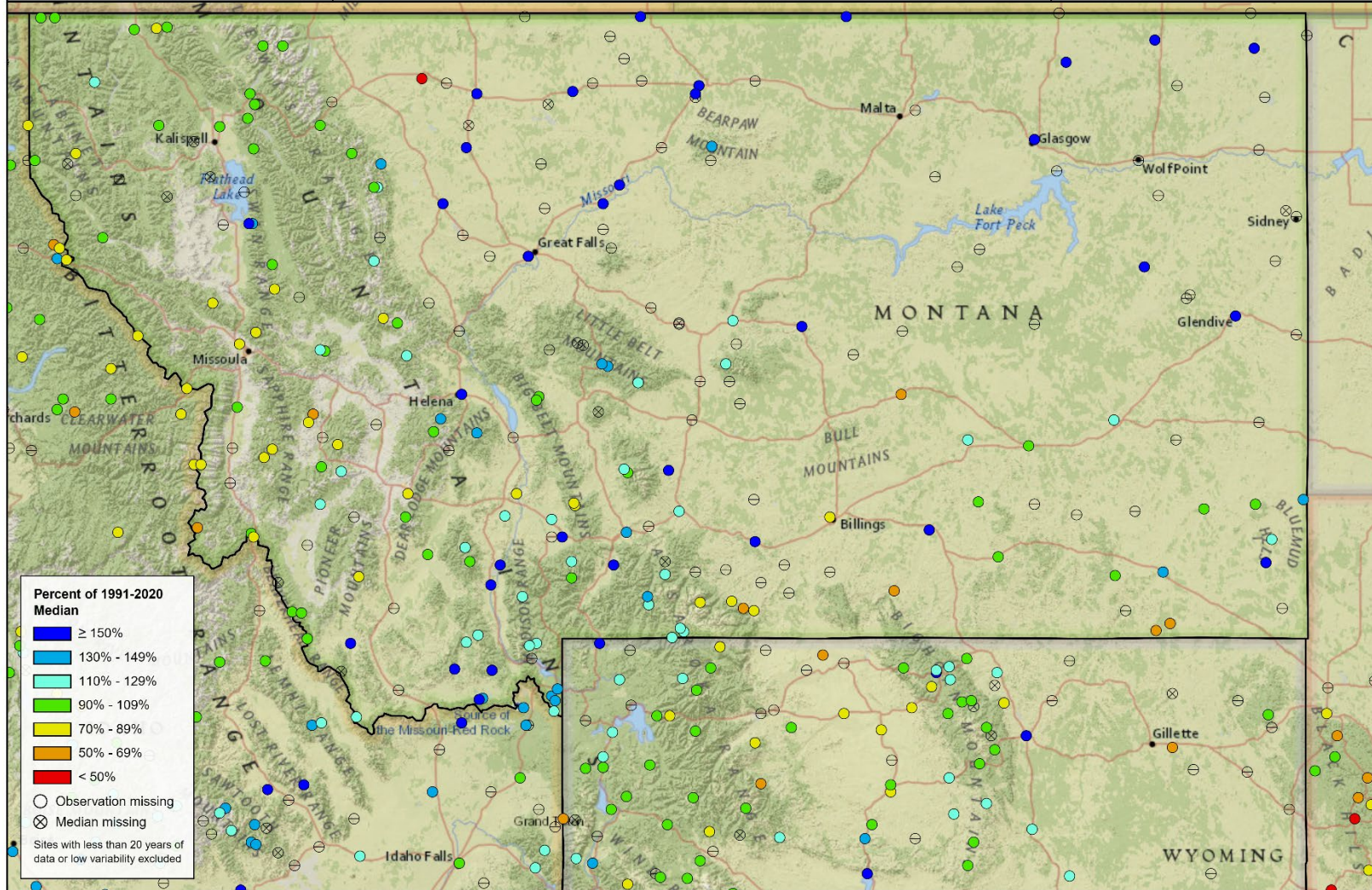


Water Year to Date Precipitation

# Water Year Precipitation

October 1, 2022 - December 31, 2022

Percent of 1991-2020 Median

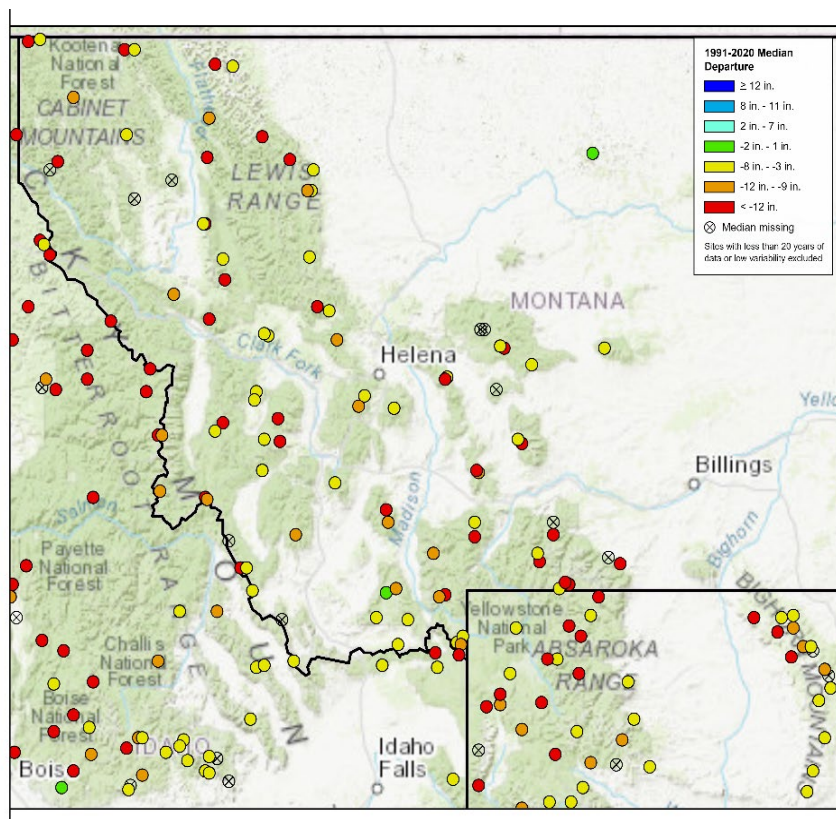


# Snowpack

Montana's mountain snowpack generally starts to stick around for the season in October or early November and this year's onset was no exception. A winter storm that brought widespread precipitation to the region marked [this year's onset](#) on October 21 for many SNOTEL stations in Montana and northwest Wyoming. The same storm reached the Bighorn Mountains a couple days later. Regionally [this year's onset](#) was within 1-2 weeks of the normal start date and much more normal than [last year's snowpack onset](#), which was 2-4 weeks later than normal due to a warm and dry fall.

After the seasonal snowpack kicked off in late October, cool and wet weather brought more snowfall in November and December. The largest snowfall events occurred during the first weeks of November and December, and late December. Unfortunately, temperatures were warm during the late December storm, and it rained at higher elevations. Overall, the snowpack is off to a great start this season and all major rivers basins currently have an above normal snowpack. The Upper Clark Fork and Bitterroot River basins are at the lower end of that range with about 100% normal snowpack, while the Milk River basin is at the upper end of the range with over 150%.

With that said, it is still early in the snow season and a lot can change. On January 1 the snowpack is typically only about 35-40% accumulated. Ideally the snowpack reaches peak snow water equivalent in April or early May; the existing snowpack after a couple more months into 2023 will provide a better indication of spring runoff. In 2022 precipitation from mid-January to April in southwest Montana was [record low in many locations](#), and resulted in record low April snowpack conditions. In terms of January 1 snow water equivalent, the snowpack across the state is better than 2022 and 2021, but not remarkably better. 2 weeks without snow and we could have a similar snowpack to last year in many basins. Ideally snowfall will continue this winter at a similar rate to the last couple months.



Current (Jan 1) snow water equivalent subtracted from normal peak snow equivalent peak at SNOTEL stations. Most locations still need to receive 8-12 inches of snow water equivalent (precipitation) to reach normal spring peak levels, which is less than normal for January 1, but still significant. [Link](#)

## Sub-Basin Snow Water Equivalent – Current Compared to Last Year

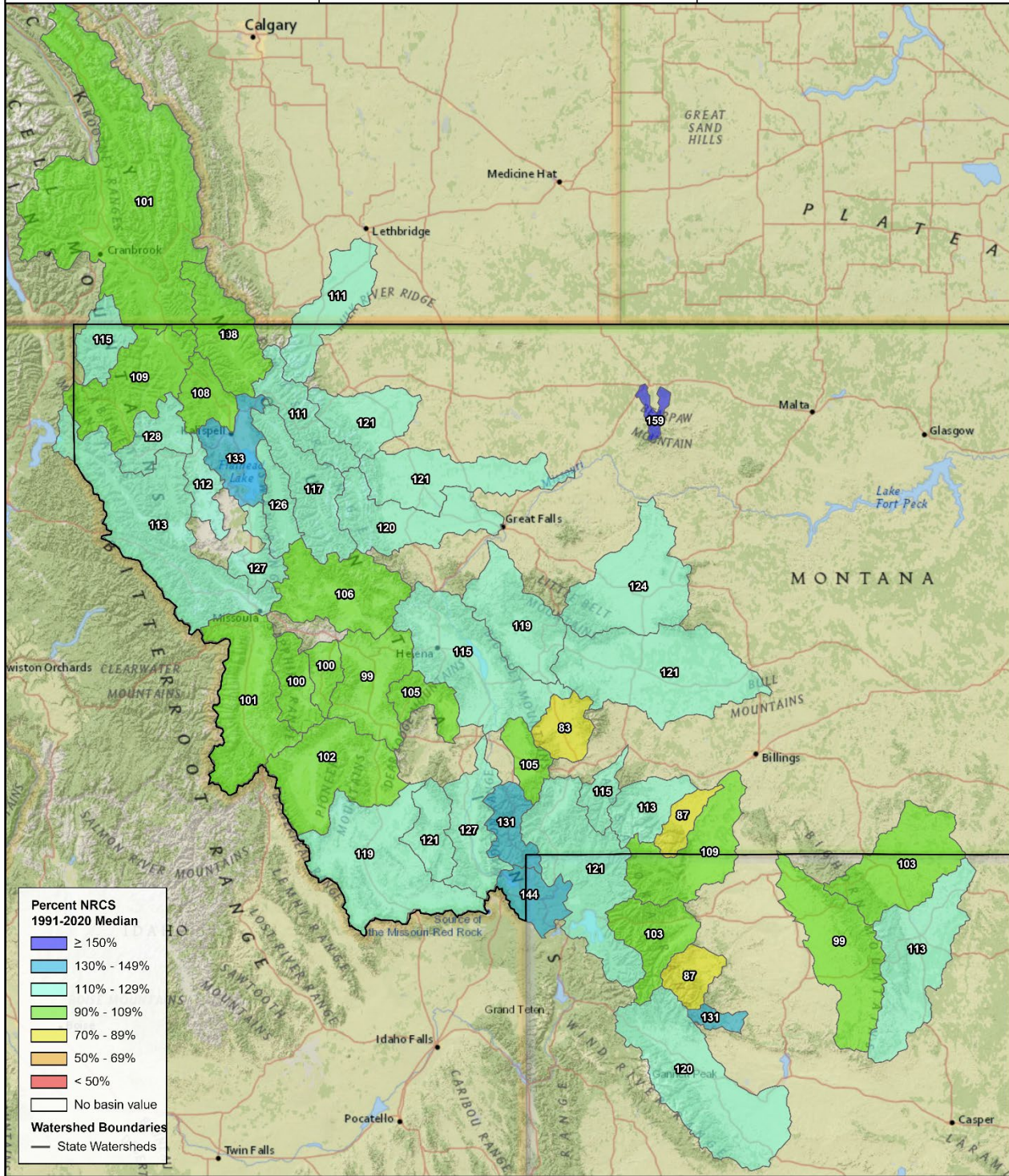
River Basin Name	January 1, 2023 SWE % Normal	January 1, 2022 SWE % Normal	SWE % Difference
Bear Paw	159%	91%	+68%
Beaverhead	119%	94%	+25%
Big Hole	102%	84%	+18%
Big Horn	99%	84%	+15%
Bitterroot	101%	91%	+10%
Blackfoot	106%	87%	+19%
Boulder (Jefferson)	105%	81%	+24%
Boulder (Yellowstone)	115%	88%	+27%
Clarks Fork Yellowstone	109%	95%	+14%
Fisher	128%	116%	+12%
Flathead Lake	133%	111%	+22%
Flint	100%	87%	+13%
Gallatin ab Gateway	131%	102%	+29%
Greybull-Wood	87%	71%	+16%
Helena Valley	115%	82%	+33%
Judith	124%	85%	+39%
Kootenai in Canada	103%	137%	-34%
Kootenai in Montana	109%	114%	-5%
Little Bitterroot	112%	111%	+1%
Lower Clark Fork	113%	110%	+3%
Madison ab Hebgen	144%	115%	+29%
Madison bw Hebgen	127%	101%	+26%
Marias	121%	102%	+19%
Middle Fork Flathead	111%	103%	+8%
Musselshell	121%	86%	+35%
North Fork Flathead	108%	112%	-4%
Northern Gallatin	105%	80%	+25%
Owl	131%	115%	+16%
Powder	113%	80%	+33%
Rock (Clark Fork)	100%	81%	+19%
Rock (Yellowstone)	87%	69%	+18%
Ruby	121%	78%	+43%
Shields	83%	57%	+26%
Shoshone	103%	90%	+13%
Smith	119%	85%	+34%
South Fork Flathead	117%	102%	+15%
Southern Flathead	127%	112%	+15%
St. Marys	111%	117%	-6%
Stillwater (Flathead)	108%	97%	+11%
Stillwater (Yellowstone)	113%	91%	+22%
Sun	120%	106%	+14%
Swan	126%	109%	+17%
Teton	121%	112%	+9%
Tongue	103%	81%	+22%
Upper Clark	99%	75%	+24%
Wind	120%	107%	+13%
Yaak	115%	106%	+9%
Yellowstone ab Livingston	121%	100%	+21%

Snow Water Equivalent

### Sub-Basin Snow Water Equivalent

January 1st, 2023

Percent NRCS 1991-2020 Median



**Percent NRCS 1991-2020 Median**

- ≥ 150%
- 130% - 149%
- 110% - 129%
- 90% - 109%
- 70% - 89%
- 50% - 69%
- < 50%
- No basin value

**Watershed Boundaries**

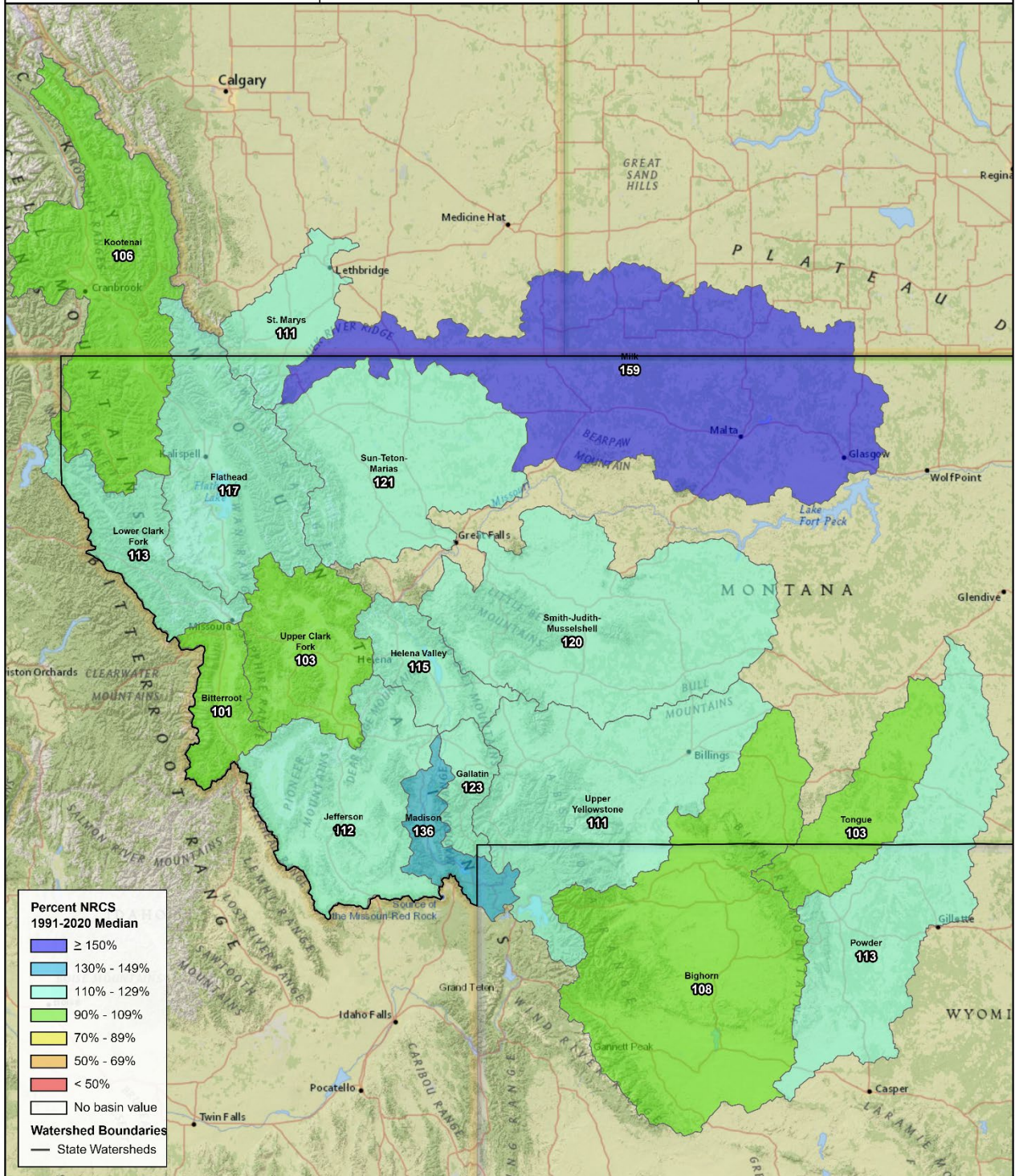
- State Watersheds

Snow Water Equivalent

### Major Basin Snow Water Equivalent

January 1st, 2023

Percent NRCS 1991-2020 Median



**Percent NRCS 1991-2020 Median**

- ≥ 150%
- 130% - 149%
- 110% - 129%
- 90% - 109%
- 70% - 89%
- 50% - 69%
- < 50%
- No basin value

**Watershed Boundaries**

- State Watersheds

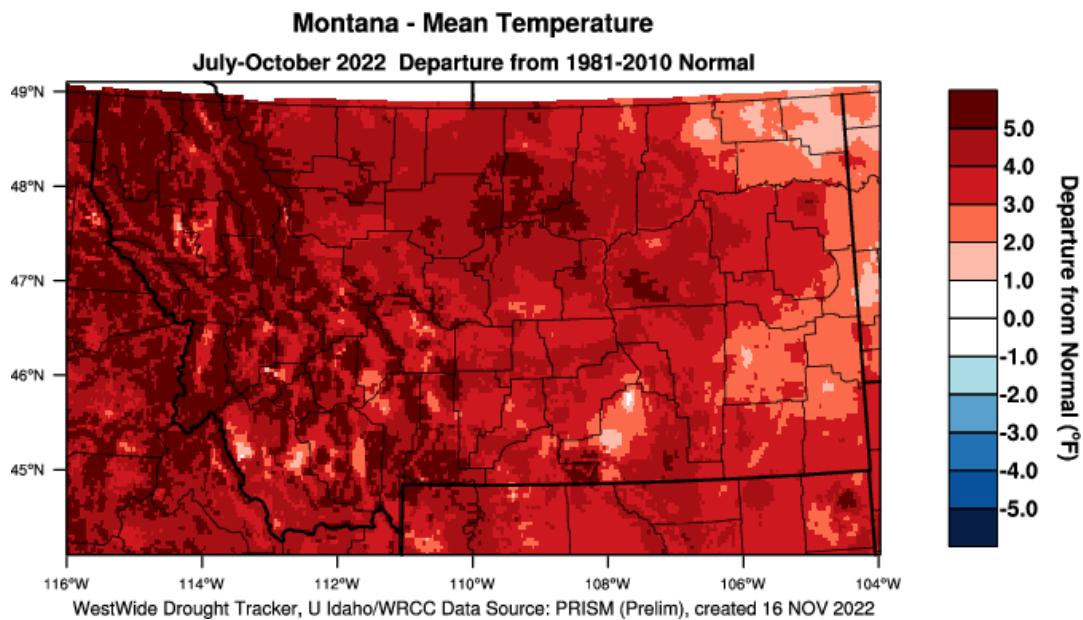


# Temperature

July through October 2022 temperatures were warmer than normal across all of Montana. During that time mean temperatures in western Montana were nearly 5 °F warmer than normal, while eastern Montana was 1-3 °F warmer than normal. The third week in October brought a major change in the trend with the arrival of this season’s first regionwide winter storm. Since then, temperatures have been overall cooler than normal. In mid-December, the arrival of an arctic airmass brought extremely cold temperatures and drastic temperature changes. The morning of December 22, low temperatures reached below -40 °F at SNOTEL stations across the state. -49 °F at Whiskey Creek SNOTEL near West Yellowstone was the lowest recorded SNOTEL temperature on that day. The cold temperatures were pushed out quickly by a warm front and the temperature swing across Montana was drastic. On December 23, high temperatures reached 20-35 °F, a 60-70° increase. Within 4 to 5 days temperatures were 35-50 °F, 80-90° degrees warmer the December 22.

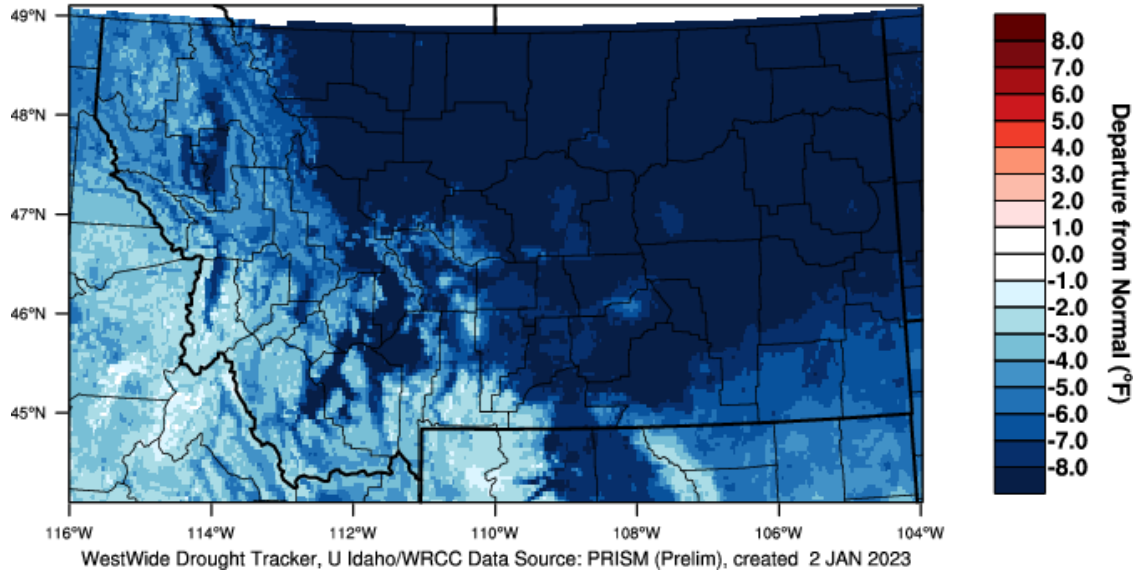
SNOTEL	Elevation	Nearby Town	December 22 Low		Day 1 High			Day 4 or 5 High		
			Date/Time	Low Temp.	Date/Time	High Temp.	Increase	Date	High Temp.	Increase
Whiskey Creek	6800	West Yellowstone	12/22/2022	-49.2	12/23/2022	21.9	71.1	12/27/2022	34.3	83.5
Placer Basin	8830	Big Timber	12/22/2022	-44.5	12/23/2022	26.1	70.6	12/26/2022	37.4	81.9
Deadman Creek	6450	White Sulphur Springs	12/22/2022	-43.4	12/23/2022	30.4	73.8	12/27/2022	41.9	85.3
Many Glacier	4900	Many Glacier - GNP	12/22/2022	-42.9	12/23/2022	25.5	68.4	12/26/2022	44.8	87.7
Canyon	7870	Canyon Village - YNP	12/22/2022	-42.9	12/23/2022	21.7	64.6	12/26/2022	36.3	79.2
Copper Bottom	5200	Lincoln	12/22/2022	-41.6	12/23/2022	24.8	66.4	12/26/2022	52.3	94.0
Peterson Meadows	7200	Anaconda	12/22/2022	-41.4	12/23/2022	35.1	76.5	12/26/2022	45.7	87.1
Tizer Basin	6880	Helena	12/22/2022	-41.1	12/23/2022	32.5	73.6	12/26/2022	48.9	90.0
Sacajawea	6550	Bozeman	12/22/2022	-40.2	12/23/2022	33.8	74.0	12/26/2022	49.1	89.3

Temperature in Fahrenheit



# Montana - Mean Temperature

November-December 2022 Departure from 1981-2010 Normal





# Reservoirs

January 1 reservoir storage levels are mostly near normal. Bair, Gibson, Como, Sherburne, Lima, Nelson, Smith, and Willow Creek Reservoirs are significantly lower than normal for this time of year. Helena Valley, Mystic Lake, Painted Rocks, and Ruby River Reservoirs are significantly higher than normal for this time of year. All other reservoirs are close to normal for this time of year.

## Reservoir Storage – Current Compared to Last Year and Last Year

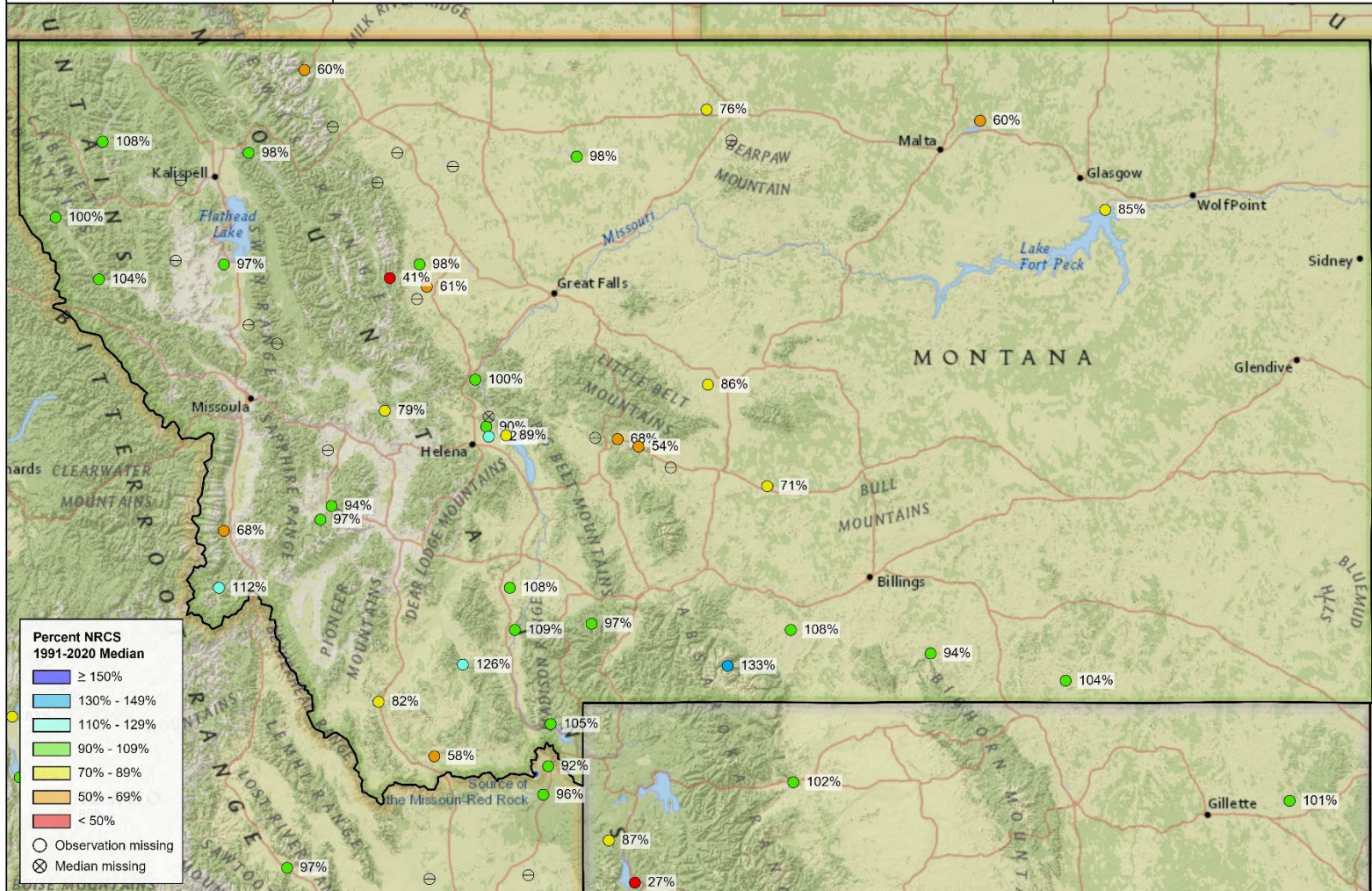
Reservoir	% of Median (1991-2020)		
	January 1, 2023	December 1, 2022	January 1, 2022
Ackley Lake	86%	110%	75%
Bair Res	54%	50%	82%
Bighorn Lake	94%	93%	96%
Canyon Ferry Lake	89%	91%	83%
Clark Canyon Res	82%	82%	74%
Cooney Res	108%	103%	111%
Deadman's Basin Res	71%	67%	NA
East Fork Rock Creek Res	97%	98%	97%
Ennis Lake	109%	96%	98%
Flathead Lake	97%	99%	107%
Fort Peck Lake	85%	86%	94%
Fresno Res	76%	79%	68%
Georgetown Lake	94%	93%	91%
Gibson Res	41%	34%	60%
Hebgen Lake	105%	104%	89%
Helena Valley Reservoir	125%	123%	117%
Holter Lake	100%	100%	100%
Hungry Horse Lake	98%	101%	110%
Lake Como	68%	69%	122%
Lake Elwell (Tiber)	98%	98%	101%
Lake Frances	NA	69%	110%
Lake Helena	90%	90%	91%
Lake Kooncanusa	108%	101%	105%
Lake Sherburne	60%	55%	179%
Lima Reservoir	58%	56%	72%
Middle Creek Res	97%	99%	NA
Mystic Lake	133%	131%	118%
Nelson Res	60%	60%	63%
Nevada Creek Res	79%	80%	84%
Nilan Reservoir	NA	33%	75%
Noxon Rapids Reservoir	100%	98%	97%
Painted Rocks Lake	112%	103%	124%
Pishkun Res	98%	97%	96%
Ruby River Reservoir	126%	127%	92%
Smith River Res	68%	72%	NA
Swift Res	NA	91%	61%
Thompson Falls Res	104%	102%	103%
Tongue River Res	104%	104%	95%
Willow Creek Res (Harrison)	108%	103%	85%
Willow Creek Res - Augusta	61%	61%	79%

Reservoir Storage

# Reservoir Storage

Percent NRCS 1991-2020 Median

January 1st, 2023



# Drought Status

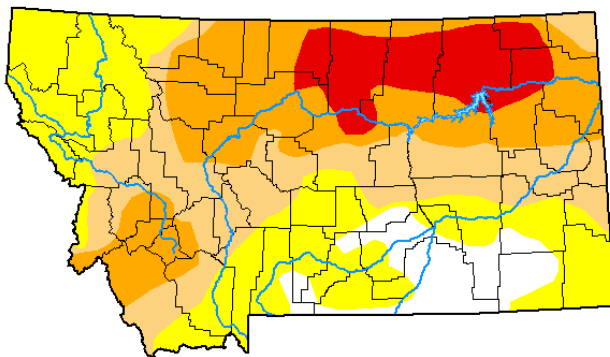
The most recent National Drought Monitor map, released on January 3, 2023, shows 91% of Montana is under drought designation. This is a slight improvement from last year on January 4 when 92% of the state was under drought designation. While much of the state is still under drought status, the class designation (D0-D4) improvement has been significant. Currently only 11% of the state is designated D3 (0% D4), while last year on January 4, 86% of Montana was classified under D3-D4 (Extreme-Exceptional Drought).

If you want more information about drought conditions or need assistance due to drought, the links below can help you gather information and provide information for contacting 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](#)

## U.S. Drought Monitor Montana



**January 3, 2023**  
(Released Thursday, Jan. 5, 2023)  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	8.71	91.29	59.92	36.33	10.80	0.00
<b>Last Week</b> 12-27-2022	12.08	87.92	59.92	35.11	12.16	0.00
<b>3 Months Ago</b> 10-04-2022	10.40	89.60	72.87	41.22	12.23	0.00
<b>Start of Calendar Year</b> 01-03-2023	8.71	91.29	59.92	36.33	10.80	0.00
<b>Start of Water Year</b> 09-27-2022	5.40	94.60	77.46	45.05	12.35	0.00
<b>One Year Ago</b> 01-04-2022	7.36	92.64	89.33	86.35	53.93	13.87

### Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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:

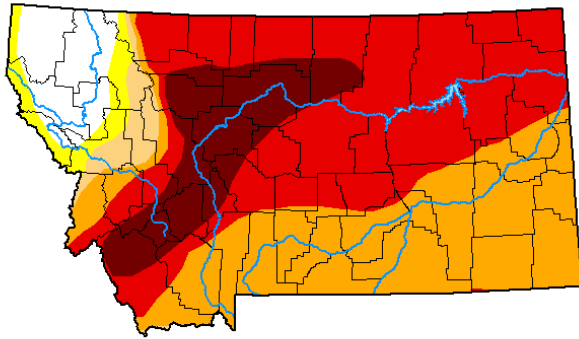
Brad Pugh  
CPC/NOAA



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

# U.S. Drought Monitor Montana

**January 4, 2022**  
(Released Thursday, Jan. 6, 2022)  
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	7.36	92.64	89.33	86.35	53.93	13.87
<b>Last Week</b> 12-28-2021	7.38	92.62	89.37	86.35	59.77	20.15
<b>3 Months Ago</b> 10-05-2021	0.00	100.00	100.00	100.00	69.27	21.91
<b>Start of Calendar Year</b> 01-04-2022	7.36	92.64	89.33	86.35	53.93	13.87
<b>Start of Water Year</b> 09-28-2021	0.00	100.00	100.00	100.00	65.68	21.91
<b>One Year Ago</b> 01-05-2021	36.35	63.65	34.49	8.27	0.36	0.00

**Intensity:**  
 None (White)      D2 Severe Drought (Orange)  
 D0 Abnormally Dry (Yellow)      D3 Extreme Drought (Red)  
 D1 Moderate Drought (Light Orange)      D4 Exceptional Drought (Dark Red)

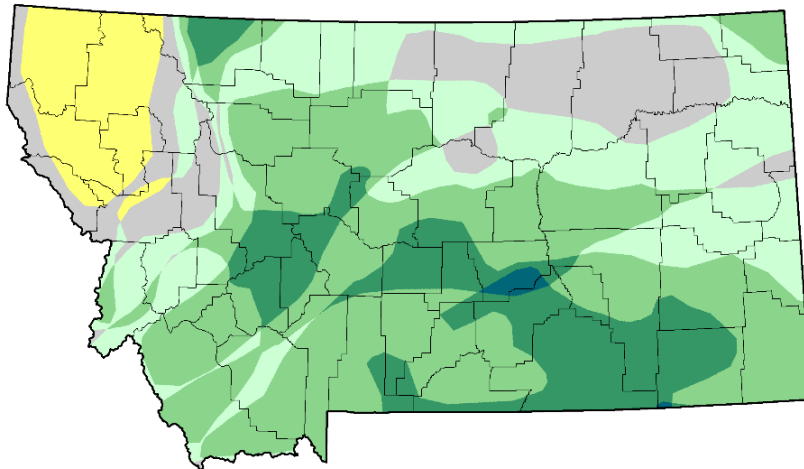
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

**Author:**  
Richard Tinker  
CPC/NOAA/NWS/NCEP



[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

## U.S. Drought Monitor Class Change - Montana 52 Week



5 Class Degradation (Dark Brown)  
 4 Class Degradation (Brown)  
 3 Class Degradation (Orange)  
 2 Class Degradation (Yellow-Orange)  
 1 Class Degradation (Yellow)  
 No Change (Grey)  
 1 Class Improvement (Light Green)  
 2 Class Improvement (Green)  
 3 Class Improvement (Dark Green)  
 4 Class Improvement (Dark Teal)  
 5 Class Improvement (Dark Blue)

January 3, 2023  
compared to  
January 4, 2022

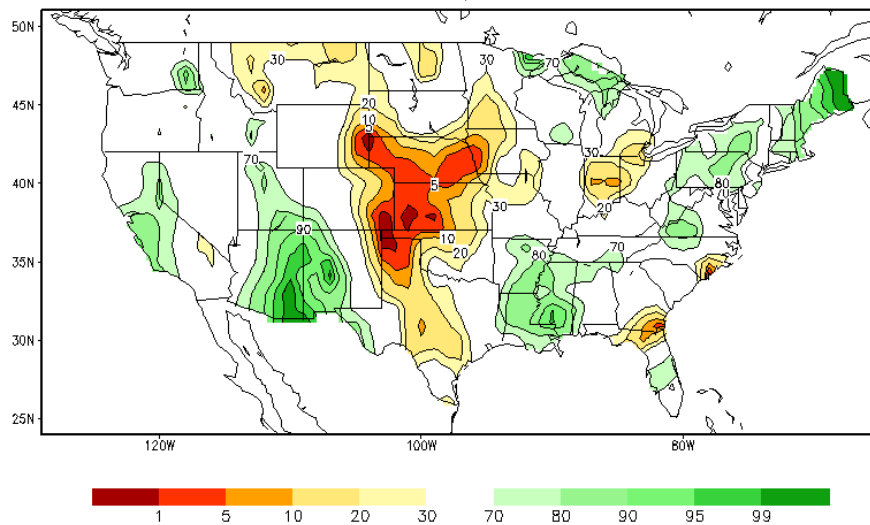
[droughtmonitor.unl.edu](http://droughtmonitor.unl.edu)

## Soil Moisture

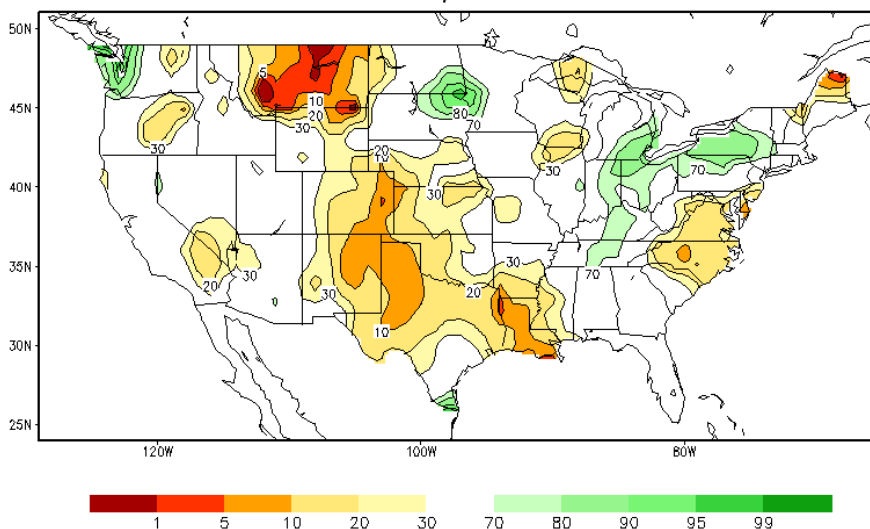
Modeled soil moisture for January 3, 2023, in Montana ranges from the 50<sup>th</sup> percentile (normal) to about the 20<sup>th</sup> percentile (less than normal). Soil moisture percentiles are lowest in southwest Montana and northeast Montana, while central Montana and the state's western border have near normal soil moisture (50<sup>th</sup> percentile).

Currently soil moisture is greater than January of last year, when most of Montana had well below normal soil moisture and the lowest percentile in the CONUS. An exception was northwest Montana, which had near normal soil moisture. Parts of southwest Montana and north central Montana had lowest January soil moisture on record (0-1<sup>st</sup> percentile).

Calculated Soil Moisture Ranking Percentile  
JAN 03, 2023



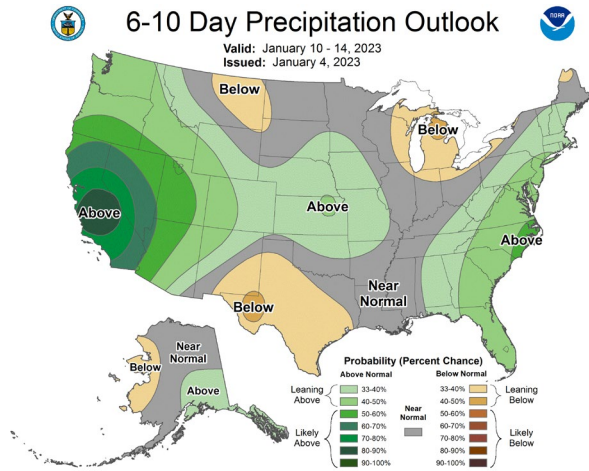
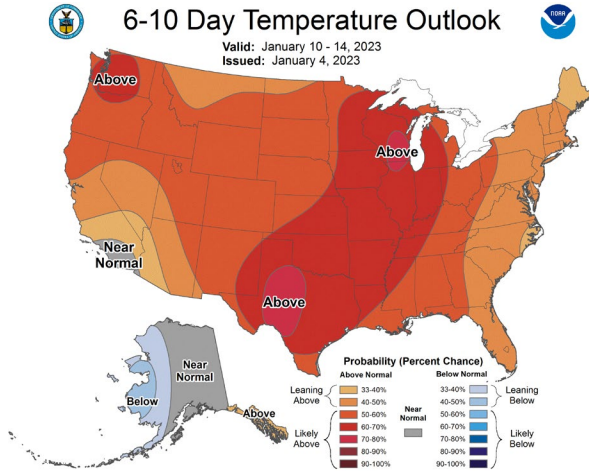
Calculated Soil Moisture Ranking Percentile  
JAN, 2022



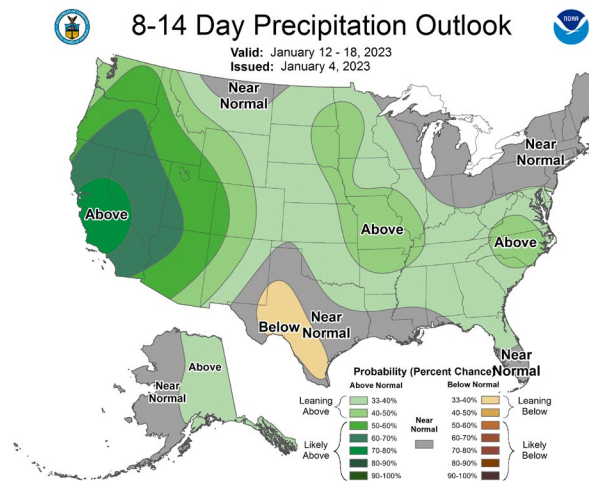
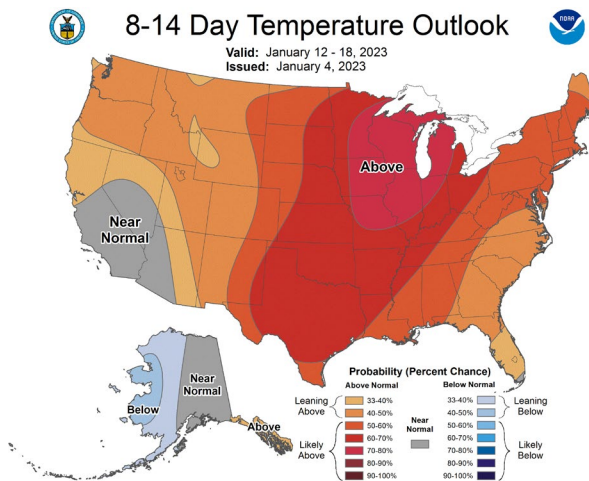
# Weather and Climate Outlook

Outlooks from [NOAA's Climate Prediction Center](https://www.noaa.gov/climate-prediction-center) indicate above normal temperature and near-to-above normal precipitation is likely over the next couple weeks across of Montana. Looking further out the 1-month outlook indicates equal chances of both above or below normal temperatures and precipitation across most of Montana. The 3-month outlook indicates below normal temperatures and above normal precipitation.

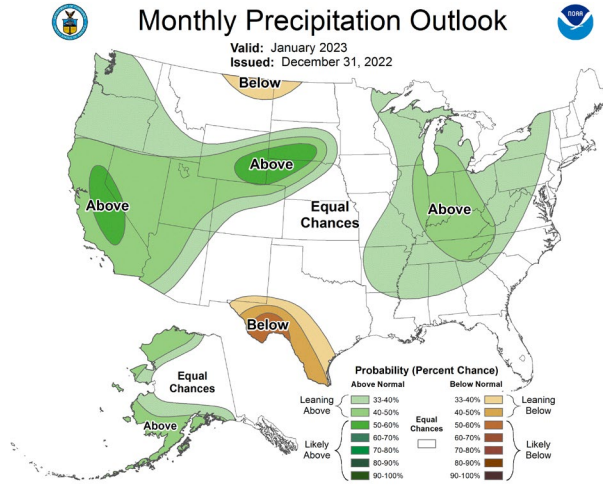
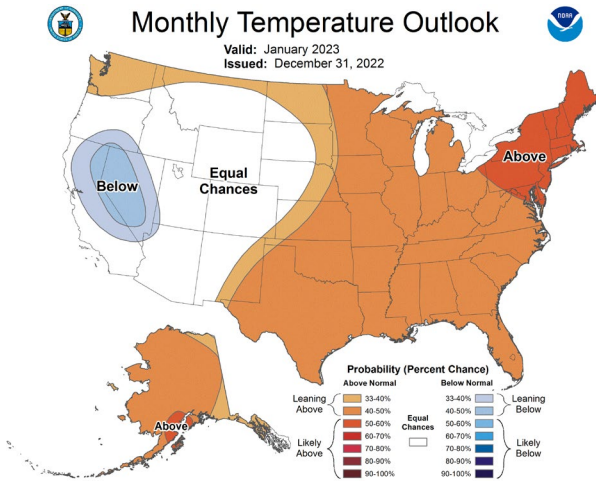
## 6-10 Day Outlook



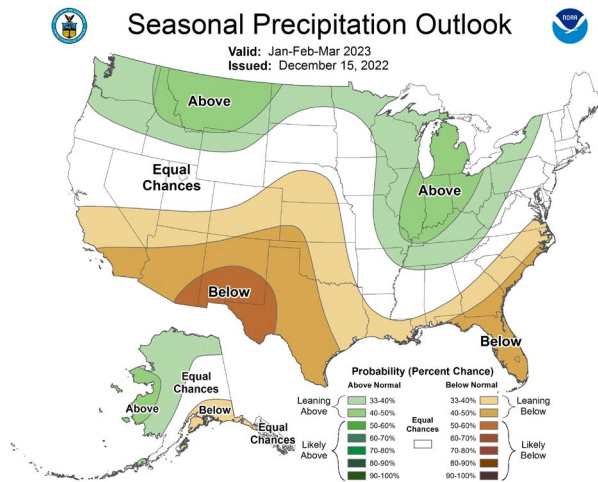
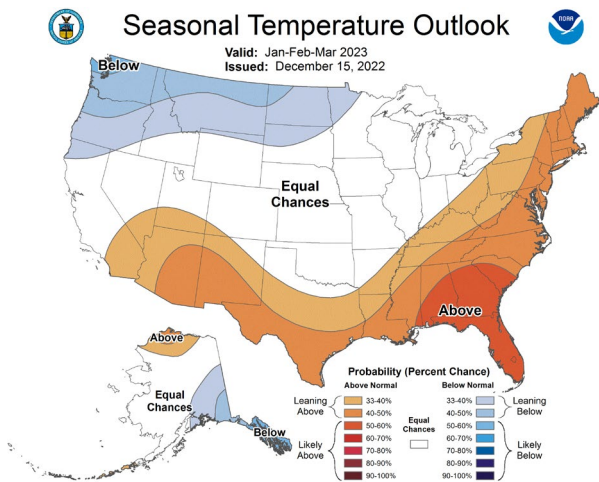
## 8-14 Day Outlook



## 1 Month Outlook



## 3 Month Outlook



## Water Supply Outlook Report - Webpage Access

The following links will take you to Snow Survey webpages dedicated to Montana's major river basins and a statewide overview. Various water supply related maps are available using the drop-down menus. Hover over and click on points or basins of interest to view data and charts.

<b>Monthly Data - Interactive Web Pages</b>		
<i>Monthly Data - Statewide Overview</i>		
<a href="#"><u>Monthly Statewide Overview</u></a>		
<i>Monthly Data - River Basin Summaries</i>		
<b>Columbia River Basin</b>	<b>Missouri River Basin</b>	<b>Yellowstone River Basin</b>
<a href="#"><u>Kootenai</u></a>	<a href="#"><u>Jefferson</u></a>	<a href="#"><u>Upper Yellowstone</u></a>
<a href="#"><u>Flathead</u></a>	<a href="#"><u>Madison</u></a>	<a href="#"><u>Bighorn-Powder-Tongue</u></a>
<a href="#"><u>Upper Clark</u></a>	<a href="#"><u>Gallatin</u></a>	
<a href="#"><u>Bitterroot</u></a>	<a href="#"><u>Helena Valley</u></a>	
<a href="#"><u>Lower Clark</u></a>	<a href="#"><u>Smith-Judith-Musselshell</u></a>	
	<a href="#"><u>Sun-Teton</u></a>	
	<a href="#"><u>St. Mary</u></a>	
	<a href="#"><u>Milk</u></a>	



## Links and Resources

The following links will take you to the external (non-NRCS) resources used in this report:

### Precipitation

- [PRISM Climate Group – Oregon State University](#)
- [West Wide Drought Tracker](#)
- [Montana Climate Office – University of Montana](#)
  - [Drought Indicator Dashboard](#)

### Temperature

- [West Wide Drought Tracker](#)
- [NOAA NWS – Climate Offices](#)

### Drought Information

- [Montana | U.S. Drought Monitor \(unl.edu\)](#)
- [Outlooks | U.S. Drought Monitor \(unl.edu\)](#)
- [Montana | Drought.gov](#)

### Soil Moisture

- [USDA – National Agricultural Statistics Service – National Crop Progress](#)
- [NOAA NWS Climate Prediction Center - Calculated Soil Moisture Ranking Percentiles](#)

### Current Streamflow

- [USGS WaterWatch -- Streamflow conditions](#)

### Weather and Climate Predictions

- [Climate Prediction Center \(noaa.gov\)](#)

*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

[mt-nrcs-snow@usda.gov](mailto:mt-nrcs-snow@usda.gov)



**Montana  
Water Supply Outlook  
Report**  
Natural Resources Conservation Service

