

Blackfoot Water Supply Report

May 9, 2020

Montana Water Supply Report as of May 1, 2020 (from NRCS):

<https://www.nrcs.usda.gov/wps/portal/nrcs/mt/snow/waterproducts/basin/>

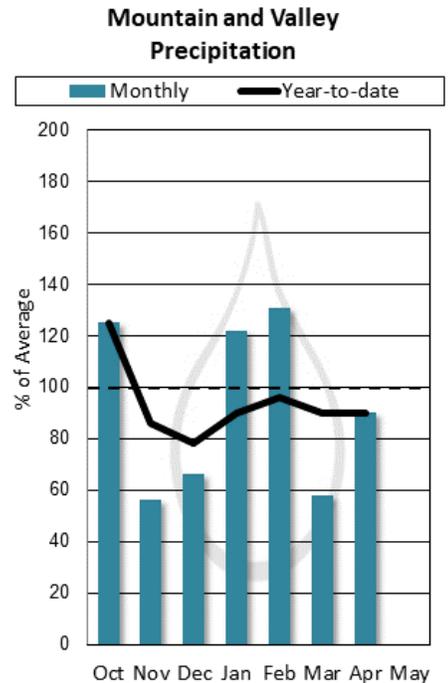
Overview

Although snowfall totals were less than impressive for April, snowpack remains near to above normal in many river basins for May 1. The abundance of moisture earlier this winter built a strong mountain snowpack by April 1, and cold temperatures helped to delay melt and prolong runoff at many low and mid-elevation sites. Currently, the snowpack is near to above normal in almost all river basins across the state. This year's basin-wide snowpack peak for many river basins occurred either during the second week of April in two river basins west of the Divide, or at the end of the third week of April for all other river basins. Peak snowpack this year, timing-wise, was very close to average across the state and was above normal for most river basins. After the warm weather moved in during the fourth week of the month, mountain snowpack has been melting in earnest, causing local rivers and streams to swell with snowmelt.

There have almost been two separate stories happening this year with regards to precipitation, mountain precipitation and valley precipitation. This year it bears mentioning since it is impacting the forecasts and could play a role in irrigation water supply if the weather patterns stay warm and dry. Mountain precipitation, which falls mostly as snow that forms our mountain snowpack reservoir, has vacillated between below average during early winter, to well above to near record-setting during January and February, and back to below normal for April. Overall water year precipitation for mountain SNOTEL sites varies widely from well below normal to well above normal. In some regions, the low totals for the water year have impacted the forecasted volumes, even though snowpack is normal for this date. On the other hand, valley precipitation in some regions has been well below normal since early November, and April followed suit. April precipitation was well below average across valley locations in southern Montana. Many valley weather stations reported 20% to 40% of normal for the month. This is significant as April 1 typically marks the beginning of a metric called "Crop Year" precipitation, which indicates precipitation during the growing season.

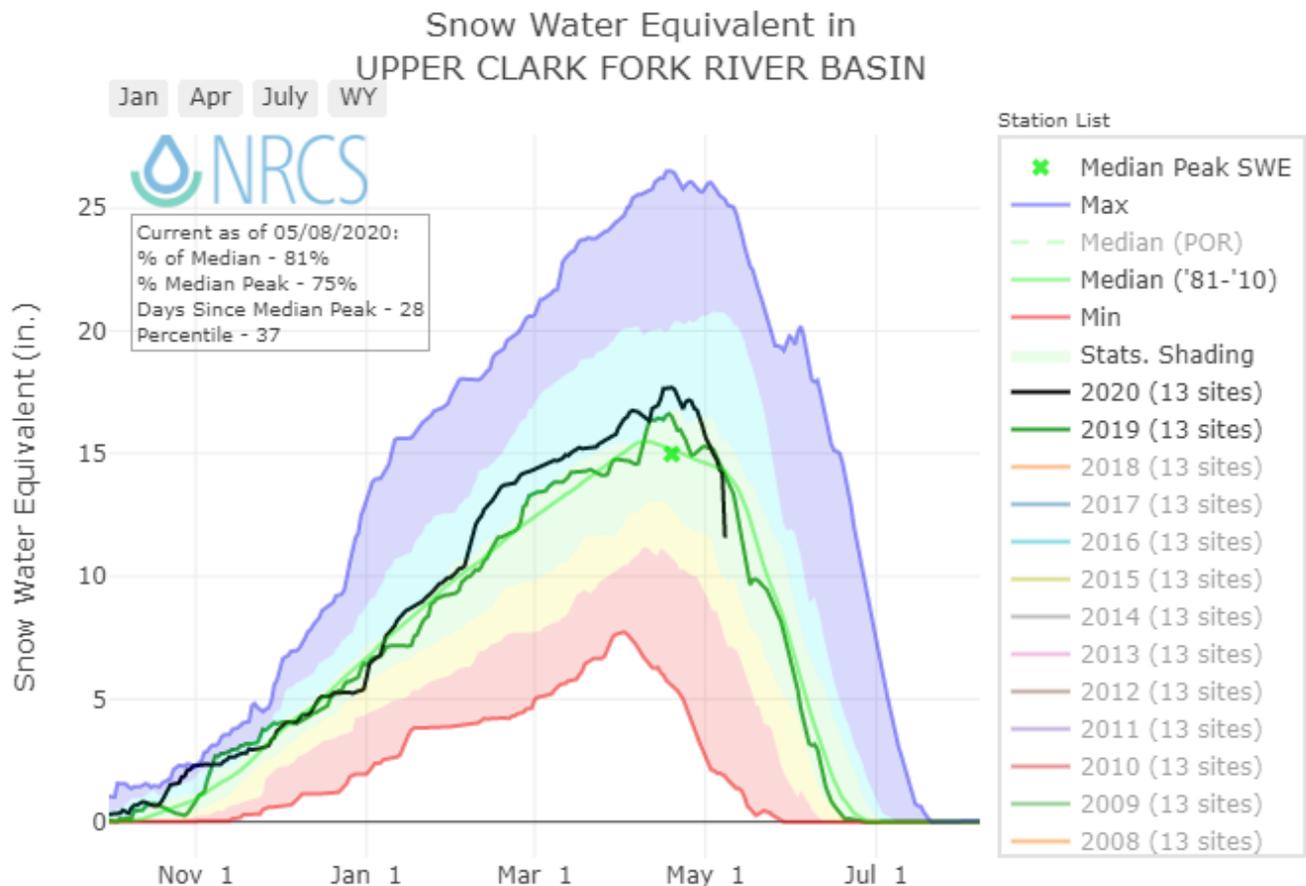
Streamflow forecasts for most rivers in the state continue to indicate near to slightly above average flows for the May 1st to July 31st period. However, there are some areas in southwest Montana that have declined to below average due to accelerated snowmelt at low and mid-elevations. Forecasts for the upper reaches of the Clark Fork River and its tributaries (Flint Creek, Rock Creek) have declined to slightly below average. The good news is that reservoir storage has been above average due to last year's abundant runoff in these regions.

Upper Clark Fork Basin



Upper Clark Fork River Basin Overview

The Upper Clark Fork continues to hold slightly above normal snowpack, which was mostly built during February this year. March storms largely missed the region, and April continued this trend for much of the drainage, sparing the Clearwater that received above-normal precipitation. Most high elevation sites reached peak snowpack in the third week of April, which is typical for this area, and have transitioned into the melt phase of spring. Overnight lows are still reaching the freezing mark at high elevations, but as these temps gradually rise with the expected springtime conditions (NOAA 30-day prediction), the melt will continue to accelerate. Hopefully, with these conditions, snowmelt progresses slowly, stretching out our mountain reserves. In general, forecasts within the basin have declined from April 1st due to low elevation snowmelt, and abnormally dry April. Upper Clark Fork forecasts for the May 1st through July 31st period vary widely from slightly below average for some streams, to near average for the Blackfoot River. Water users are encouraged to view the individual streamflow forecasts, which can be seen in the forecast table below.



Black line: 2020 Dark Green line: 2019 Light Green line: 30-year median

Reservoir Storage

Reservoir storage continues to be near to above average for this time of year in most reservoirs across Montana. The only exceptions can be found in the Rocky Mountain Front, where some reservoirs are below the 1981-2010 average. Upstream reservoirs in the Wind, Bighorn, and Shoshone River basins in Wyoming are storing above average volumes for this date.

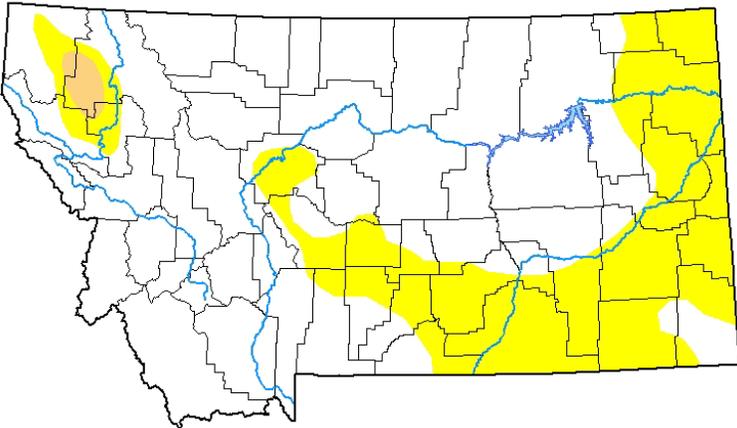
Upper Clark Fork Storage

<i>Reservoir Storage</i>	Percentage of Average	Percentage of Capacity (Total)	Last Year Percentage of Average
Basin-Wide Storage	105%	84%	105%

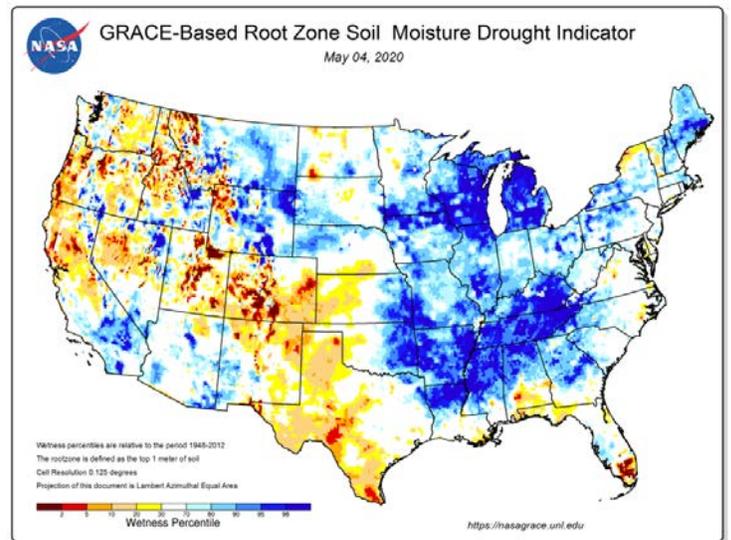
**See Reservoir Storage Table for storage in individual reservoirs*

Nevada Creek Reservoir Storage, May 1 = 11,439 ac/ft

Montana Drought Monitor – May 7, 2020



National Root Zone Soil Moisture – May 4, 2020



Drought Intensities

- None: No Drought
- D0: Abnormally Dry
- D1: Moderate Drought
- D2: Severe Drought
- D3: Extreme Drought
- D4: Exceptional Drought

Montana SNOTEL Snow Water Equivalent: May 9, 2020

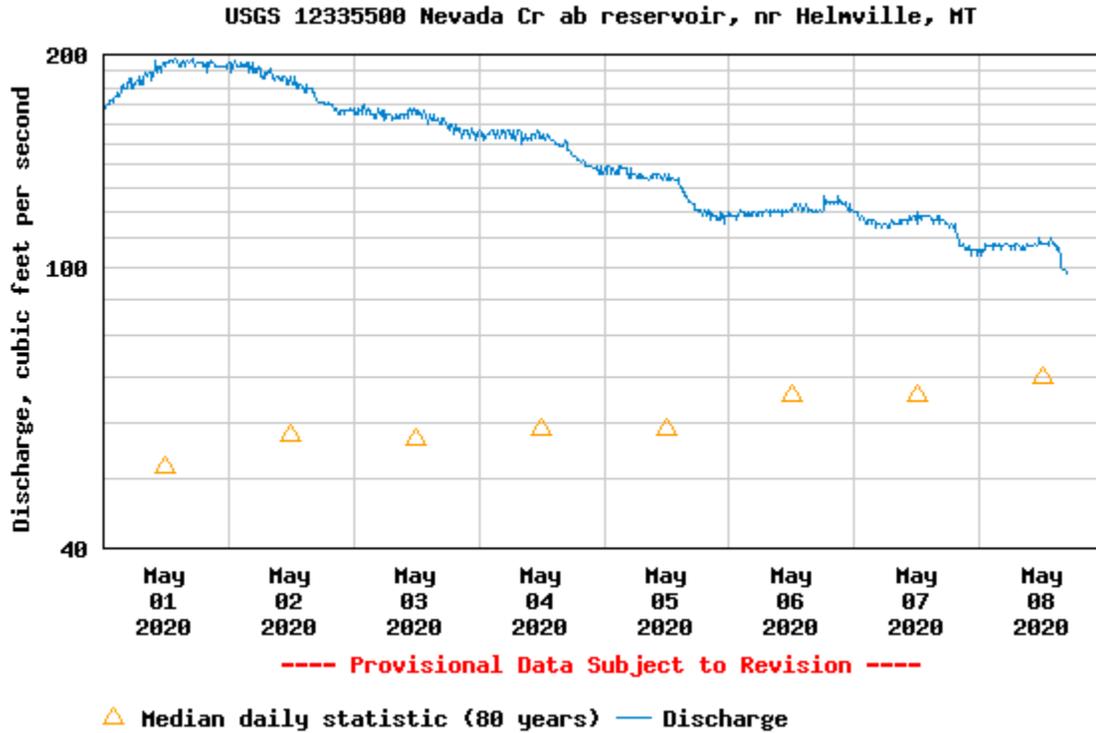
Montana SNOTEL Snow/Precipitation Update Report							
Based on Mountain Data from NRCS SNOTEL Sites							
Provisional data, subject to revision							
Data based on the first reading of the day (typically 00:00) for Saturday, May 09, 2020							
Basin Site Name	Elev (ft)	Snow Water Equivalent			Water Year-to-Date Precipitation		
		Current (in)	Median (in)	Pct of Median	Current (in)	Average (in)	Pct of Average
UPPER CLARK FORK RIVER BASIN							
Barker Lakes	8250	15.1	15.6	97	15.4	20.8	74
Basin Creek	7180	3.4	8.8	39	10.8	13.1	82
Black Pine	7210	5.4	6.8	79	14.7	16.2	91
Combination	5600	0.0	0.0	*	7.5	11.2	67
Copper Bottom	5200	0.0	N/A	*	14.7	17.5	84
Copper Camp	6950	17.3	N/A	*	26.5	35.0	76
Lubrecht Flume	4680	0.0	0.0	*	10.3	11.9	87
Nevada Ridge	7020	12.5	11.1 _c	113	18.1	18.7 _c	97
N Fk Elk Creek	6250	4.7	4.5	104	13.2	16.5	80
North Fork Jocko	6330	-M	37.9	*	57.8	52.1	111
Peterson Meadows	7200	8.6	10.2	84	13.5	15.5 _c	87
Rocker Peak	8000	15.1	15.2	99	14.8	17.4	85
Skalkaho Summit	7250	15.2	21.1	72	20.4	25.7	79
Stuart Mountain	7400	34.2	31.0 _c	110	35.9	35.0 _c	103
Warm Springs	7800	22.5	21.8	103	23.9	26.7	90
Basin Index (%)		94			89		

May 8, 2020, USGS Real Time Flow Conditions

Nevada Creek above Reservoir

Discharge, cubic feet per second

Most recent instantaneous value: 97.8 CFS 05-08-2020 16:45 MDT



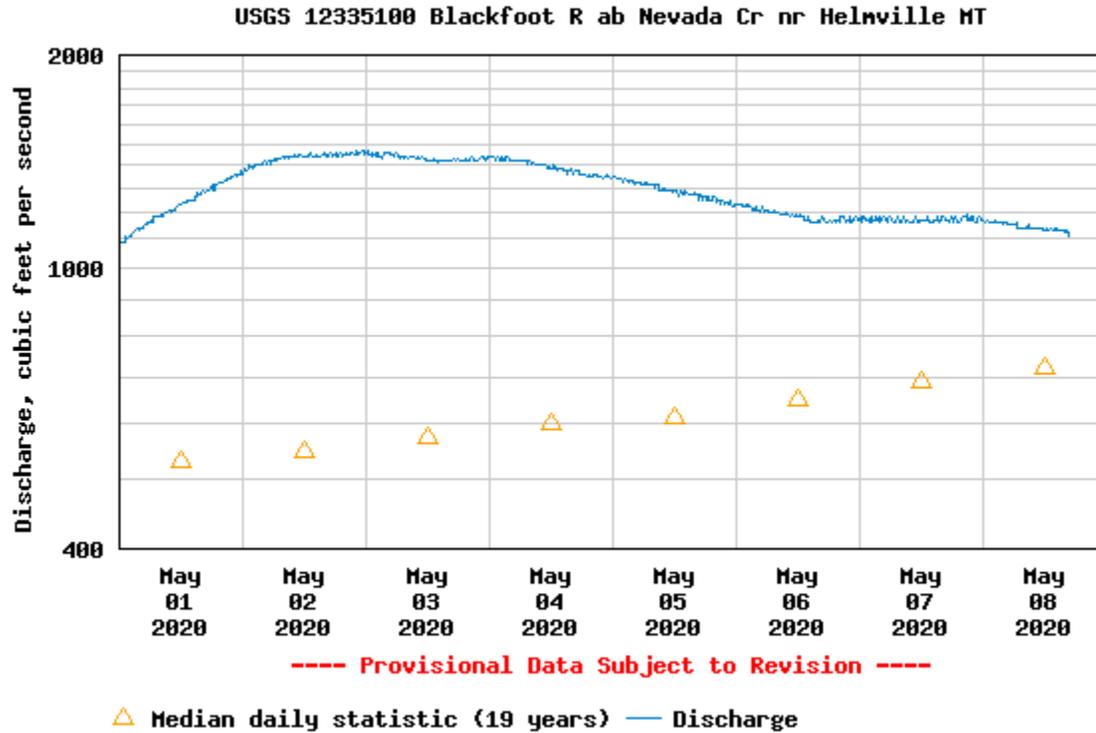
Daily discharge, cubic feet per second -- statistics for May 8 based on 81 water years of record [more](#)

Min (1991)	25th percentile	Median	Mean	Most Recent Instantaneous Value May 8	75th percentile	Max (2018)
12.0	41	70	92	97.8	103	496

Blackfoot above Nevada Creek Near Helmville

Discharge, cubic feet per second

Most recent instantaneous value: 1120 CFS 05-08-2020 16:45 MDT



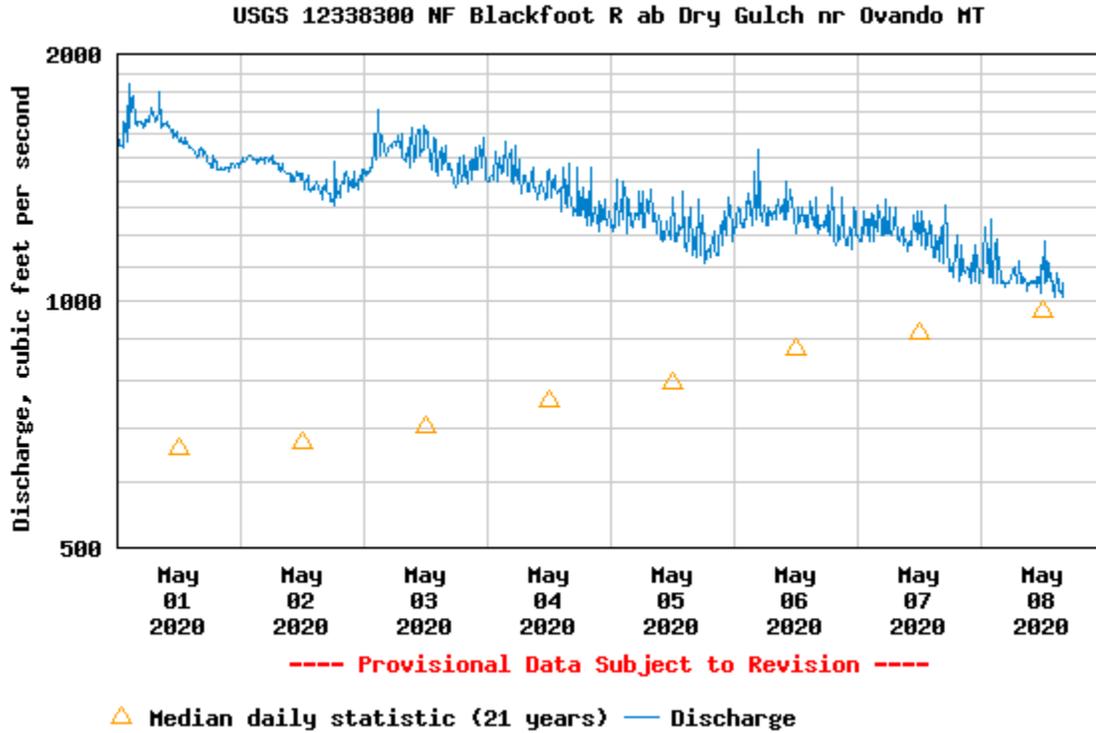
Daily discharge, cubic feet per second -- statistics for May 8 based on 19 water years of record [more](#)

Min (2002)	25th percentile	Mean	Median	75th percentile	Most Recent Instantaneous Value May 8	Max (2017)
177	418	718	720	934	1120	1530

North Fork Blackfoot above Dry Gulch

Discharge, cubic feet per second

Most recent instantaneous value: 1050 CFS 05-08-2020 16:00 MDT

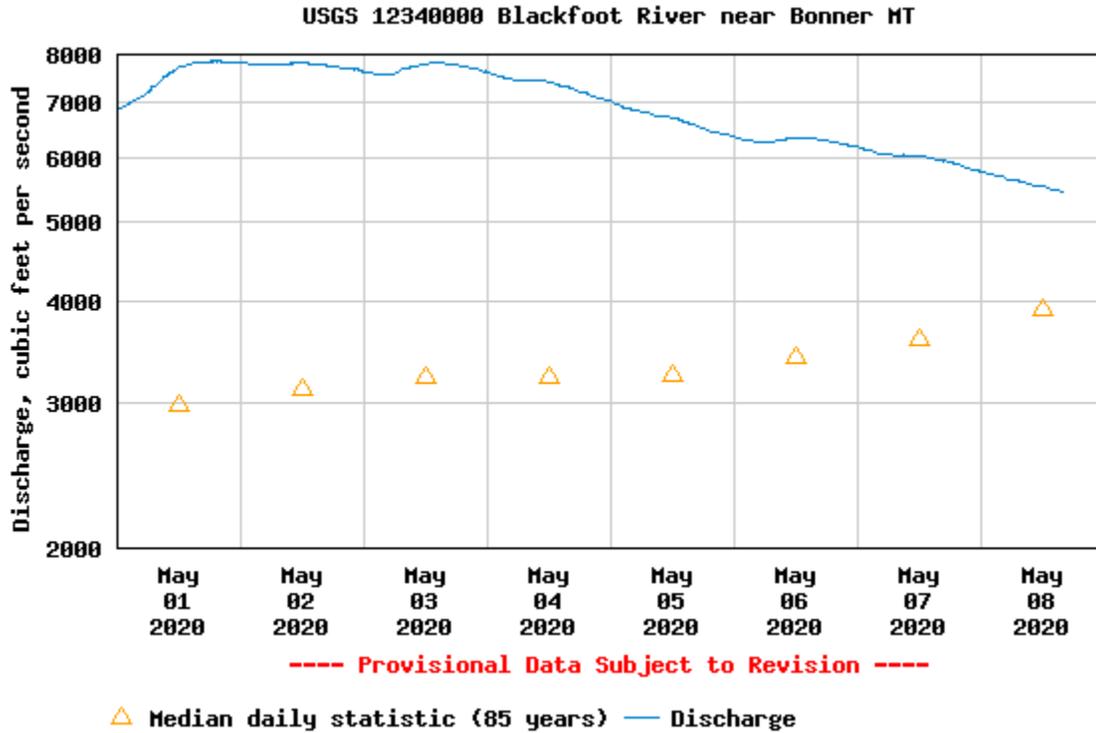


Daily discharge, cubic feet per second -- statistics for May 8 based on 21 water years of record [more](#)

Min (2010)	25th percentile	Median	Mean	Most Recent Instantaneous Value May 8	75th percentile	Max (2017)
280	661	972	1020	1050	1200	2470

Blackfoot River at Bonner
Discharge, cubic feet per second

Most recent instantaneous value: 5450 CFS 05-08-2020 15:45 MDT



Daily discharge, cubic feet per second -- statistics for May 8 based on 86 water years of record [more](#)

Min (1905)	25th percentile	Median	Mean	75th percentile	Most Recent Instantaneous Value May 8	Max (2018)
770	2770	3920	4220	4560	5450	16200

Three-Month Outlook May 8, 2020

From
National Weather Service Climate Prediction Center
<http://www.cpc.ncep.noaa.gov/>

Equal chances for normal, above or below average precipitation May through July.

Significantly increased chance for above normal temperatures from May through July.

