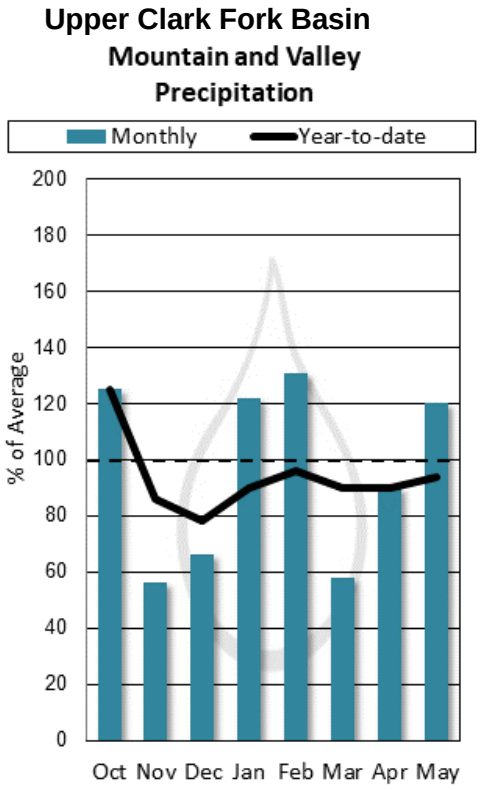
Blackfoot Water Supply Report
June 10, 2020

Montana Water Supply Report as of June 1, 2020 (from NRCS):
https://www.nrcs.usda.gov/wps/portal/nrcs/mt/snow/waterproducts/basin/

Overview

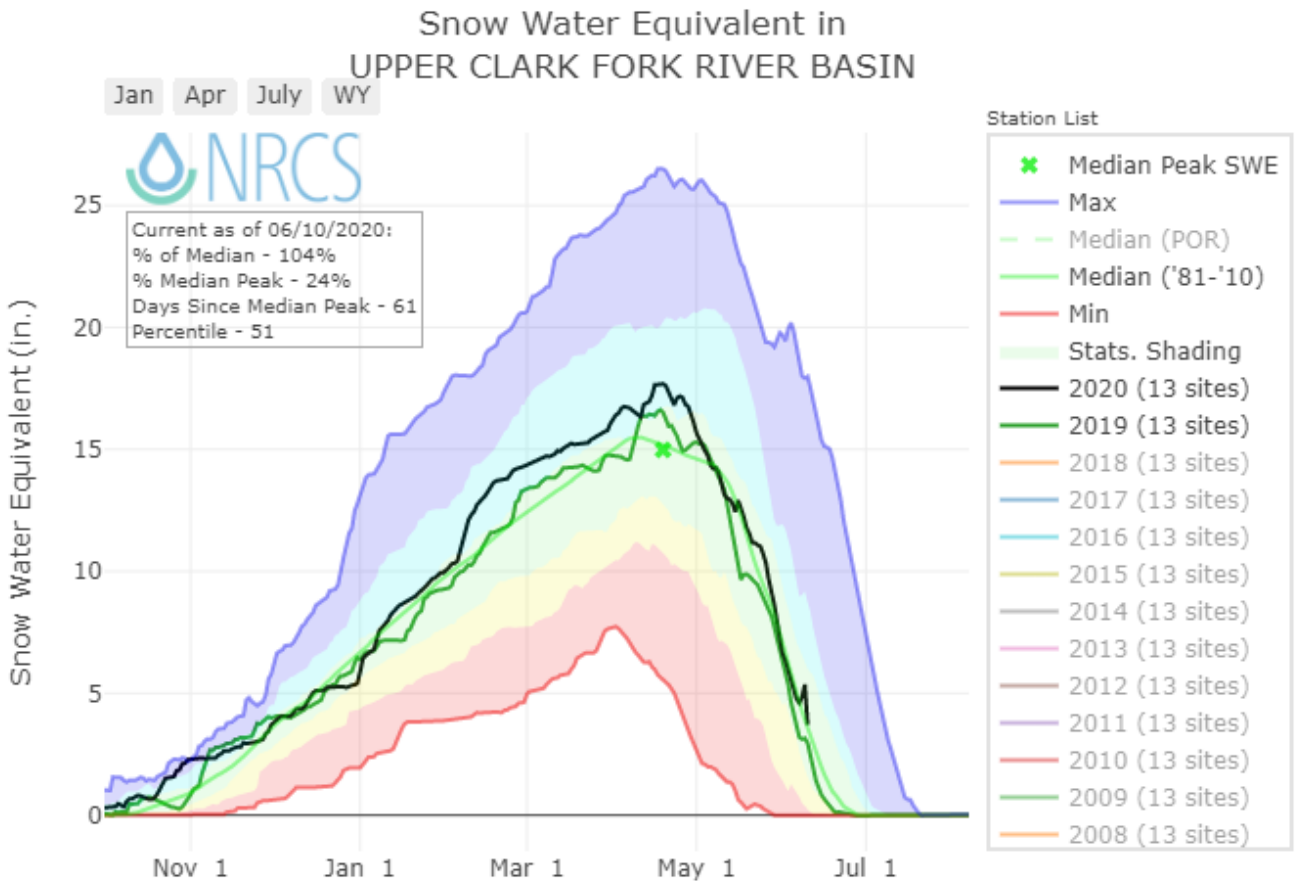
Snow totals across the state on June 1 vary widely due to the weather patterns in May. Most river basins experienced a peak snowpack in late April this year that was near to slightly above normal, and most river basins were in good shape at the beginning of the month. Throughout this month, melt has been occurring at all elevations, and during the first two weeks of the month, it was happening at a controlled (or more typical) rate. However, melt rapidly accelerated across the state during the last week of May, which moved a significant amount of snow water into rivers and streams. Rapid snowmelt at the end of the month and the beginning of June will decrease the long-term availability of snow water to river systems later this summer. The early pass-through of water on non-reservoir-controlled systems means that less water will be available when irrigation demand is highest later in the summer, making irrigators more reliant on summer precipitation, which typically declines through the summer months. Monthly precipitation varied widely across the state during the month of May. River basins west of the Divide received consistent precipitation during the first three weeks of the month, with mountain and valley locations receiving above-average totals for May.



After a tame start to runoff during the first two weeks of May, things made a dramatic change. Weather patterns during the last week of May caused rivers and streams across the state to rise significantly, with abundant sunshine and well above average to record-setting temperatures causing rapid snowmelt at even the highest of elevations. As of June 1, several major rivers have hit the minor flood stage, but continued increases will be a function of available snowpack left to melt and the upcoming rain. Think of the mountain snowpack as a vast reservoir; this year, we are letting the water out a lot faster and before we really need it. This early melt could be of concern on non-reservoir-controlled river systems later in the summer when demand on water is highest. If the long-range weather forecasts verify, and June and coming months remain warm and dry, it could further accelerate melt at the remaining snowcovered elevations. Streamflow forecasts for June 1 – September 30 range widely this year. While some areas might still anticipate near to above-normal water yield in northern and central Montana, some areas in southwest Montana look to experience below-average volumes due to the rapid melt during May.

Upper Clark Fork River Basin Overview

The Upper Clark Fork spring runoff has started with a bang this year, flowing at 21 kcfs on May 22nd (~9 days earlier than the median peak), and swelling to a minor flood stage near Missoula. Record-setting high temperatures at the end of the month, coupled with overnight lows remaining near 50 degrees Fahrenheit at 8000 ft, have led to accelerated melt of snowpack in our mountains. Near-average precipitation fell during May, stacking on top of this runoff. Reservoir storage is above normal for this time of year, and most are at capacity or will fill to near capacity. Even with these stores, the Upper Clark Fork will depend on late spring and summer precipitation to sustain flows for water users throughout the irrigation season. Streamflow forecasts have decreased in most areas since the May 1 report with record temps and rapid snowmelt, sparing the Blackfoot River.



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

Reservoir Storage

At this time, most reservoirs are above average for storage on June 1st, and the remaining snowmelt should help to fill most reservoirs. Currently, reservoir managers across the state have their hands full, due to the accelerated snowmelt at the end of the month and are balancing managing the increased volumes of runoff with being able to provide water resources later in the summer. This is not an easy task, so hats off to our water managers across the state.

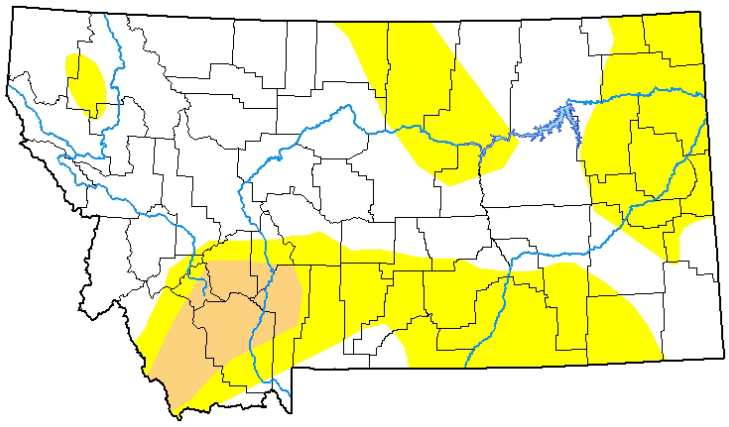
Upper Clark Fork Storage

Reservoir Storage	Percentage of Average	Percentage of Capacity (Total)	Last Year Percentage of Average
Basin-Wide Storage	**110%**	**94%**	**108%**

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

Nevada Creek Reservoir Storage, June 1 = 11,399 ac/ft

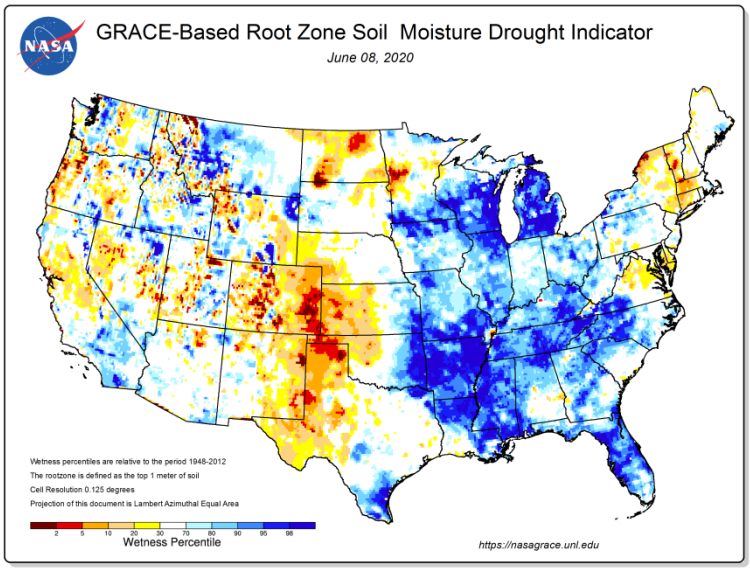
Montana Drought Monitor – June 2, 2020



Drought Intensities

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

National Root Zone Soil Moisture – June 8, 2020



Montana SNOTEL Snow Water Equivalent: June 10, 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 Wednesday, June 10, 2020

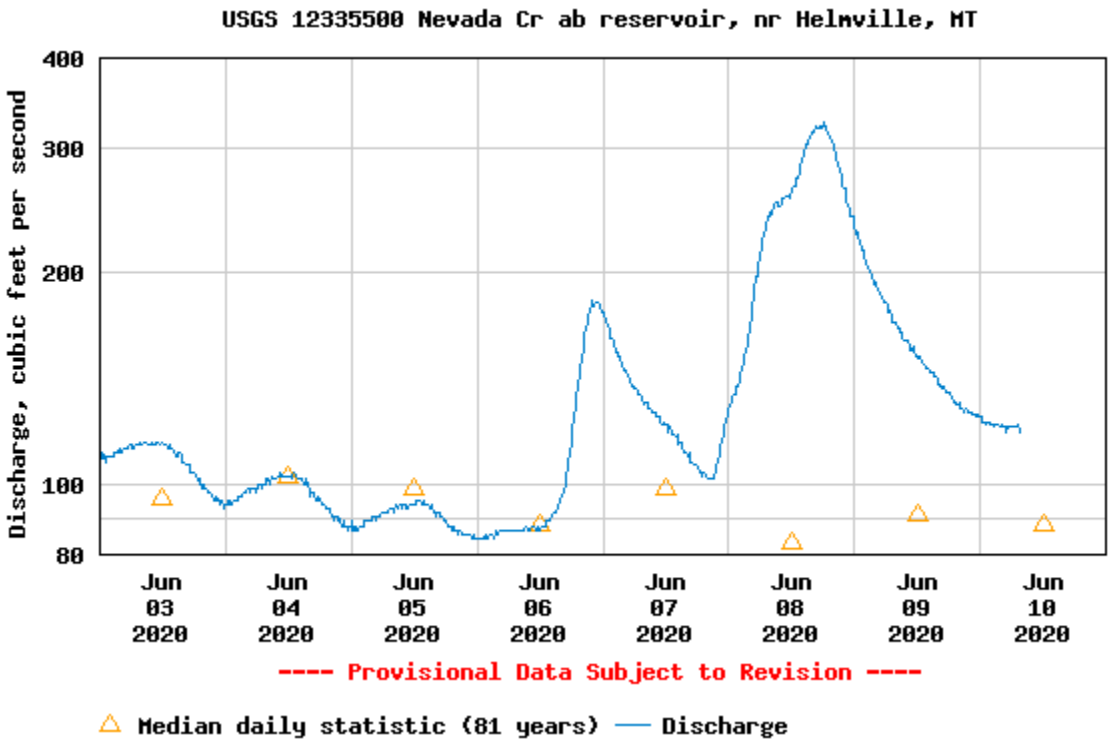
Basin Site Name	Elev (ft)	Snow Water Equivalent			Water Year-to-Date Precipitation		
		Current (in)	Median (in)	Pct of Median	Current (in)	Average (in)	Pct of Average
UPPER CLARK FORK RIVER BASIN							
Barker Lakes	8250	5.7	5.3	108	22.6	26.0	87
Basin Creek	7180	0.0	0.0	*	13.8	17.7	78
Black Pine	7210	0.0	0.0	*	19.7	19.6	101
Combination	5600	0.1	0.0	*	12.3	14.3	86
Copper Bottom	5200	0.0	N/A	*	18.9	19.9	95
Copper Camp	6950	0.0	N/A	*	32.3	39.0	83
Lubrecht Flume	4680	0.0	0.0	*	17.0	14.7	116
Nevada Ridge	7020	0.0	0.0$_C$	*	21.6	22.4$_C$	96
N Fk Elk Creek	6250	1.2	0.0	*	21.0	20.1	104
North Fork Jocko	6330	23.8	8.4	283	64.8	57.1	113
Peterson Meadows	7200	0.6	0.0	*	19.7	20.0$_C$	98
Rocker Peak	8000	0.5	5.5	9	19.8	21.7	91
Skalkaho Summit	7250	0.5	2.0	25*	28.7	29.8	96
Stuart Mountain	7400	21.2	12.7$_C$	167	42.0	39.8$_C$	106
Warm Springs	7800	14.4	12.4	116	31.8	31.7	100
Basin Index (%)				**147***			**98**

June 10, 2020: USGS Real Time Flow Conditions

Nevada Creek above Reservoir

Discharge, cubic feet per second

Most recent instantaneous value: 119 06-10-2020 07:45 MDT



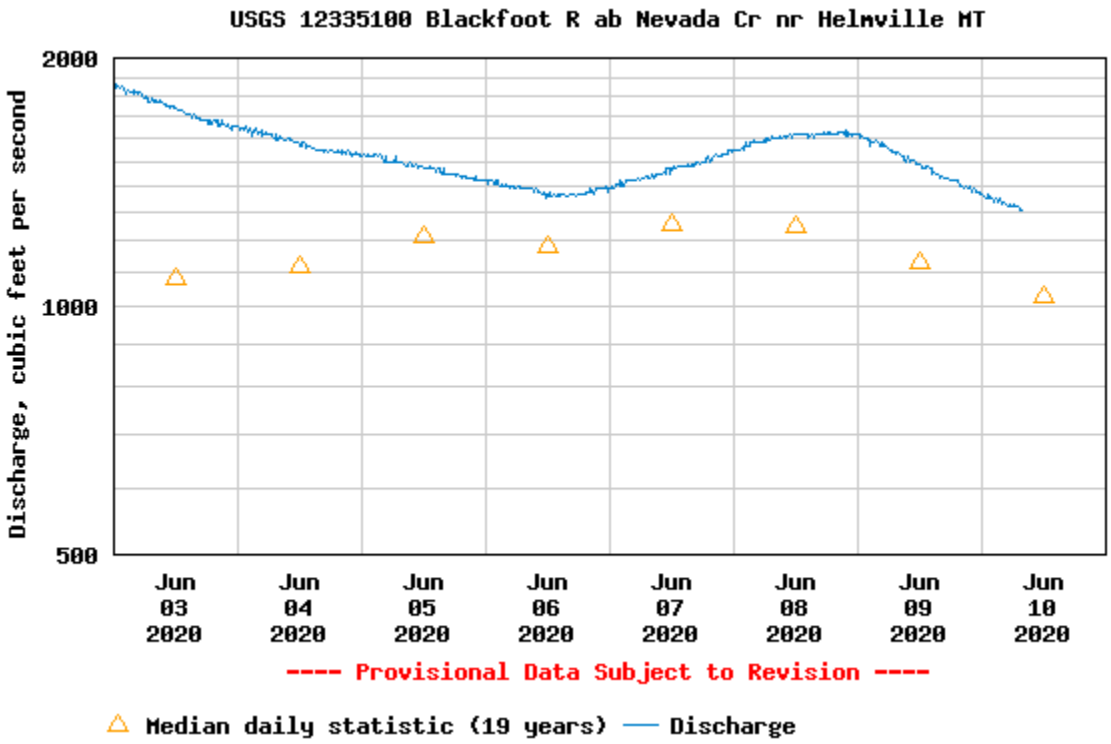
Daily discharge, cubic feet per second -- statistics for Jun 10 based on 81 water years of record more

Min (1977)	25th percen-tile	Median	Mean	Most Recent Instantaneous Value Jun 10	75th percen-tile	Max (2011)
11.0	41	88	110	119	132	628

Blackfoot above Nevada Creek Near Helmville

Discharge, cubic feet per second

Most recent instantaneous value: 1310 06-10-2020 07:45 MDT



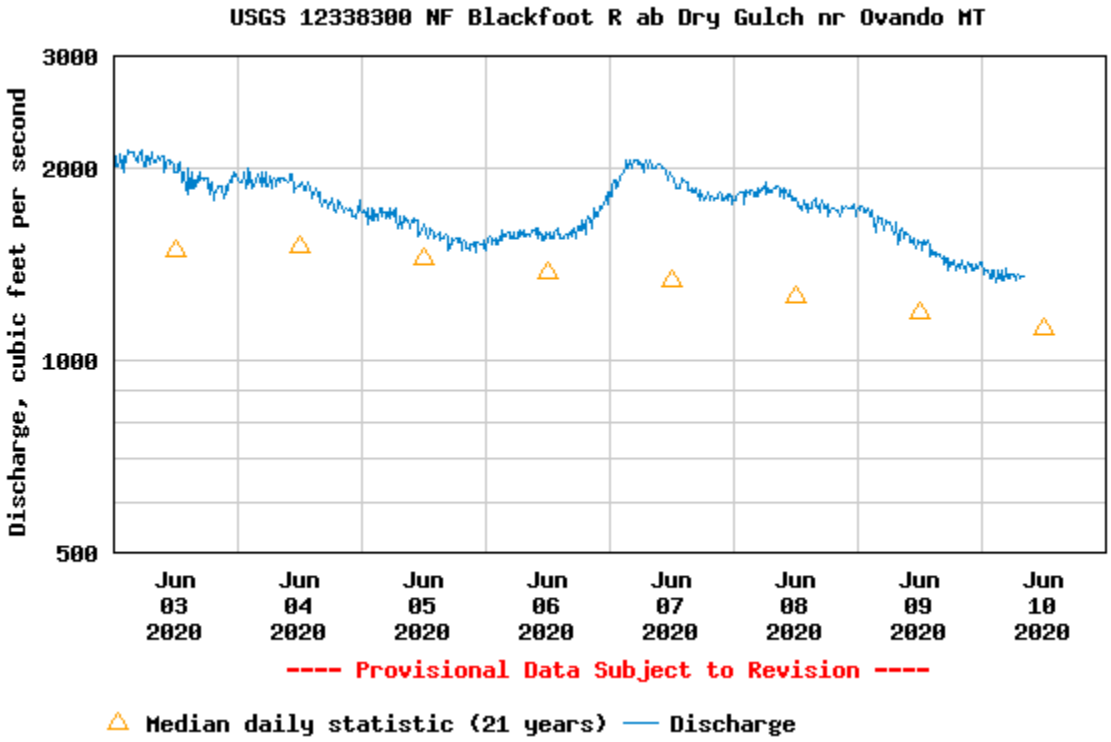
Daily discharge, cubic feet per second -- statistics for Jun 10 based on 19 water years of record more

Min (2001)	25th percen-tile	Median	Mean	Most Recent Instantaneous Value Jun 10	75th percen-tile	Max (2011)
541	817	1030	1220	1310	1350	4330

North Fork Blackfoot above Dry Gulch

Discharge, cubic feet per second

Most recent instantaneous value: 1360 06-10-2020 08:00 MDT



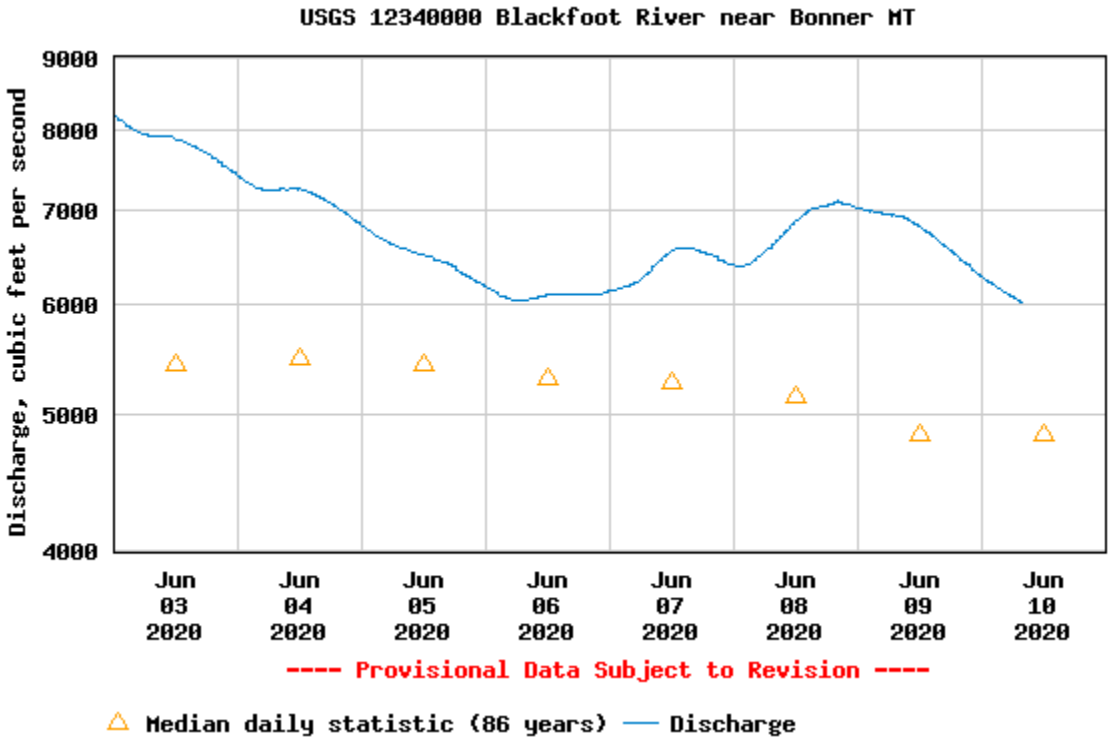
Daily discharge, cubic feet per second -- statistics for Jun 10 based on 21 water years of record more

Min (1998)	25th percen-tile	Median	Mean	Most Recent Instantaneous Value Jun 10	75th percen-tile	Max (2011)
649	961	1120	1290	1360	1430	3240

Blackfoot River at Bonner

Discharge, cubic feet per second

Most recent instantaneous value: 6010 06-10-2020 07:45 MDT



Daily discharge, cubic feet per second -- statistics for Jun 10 based on 86 water years of record more

Min (1987)	25th percen-tile	Median	Mean	Most Recent Instantaneous Value Jun 10	75th percen-tile	Max (1964)
1360	3590	4850	5490	6010	6110	18000

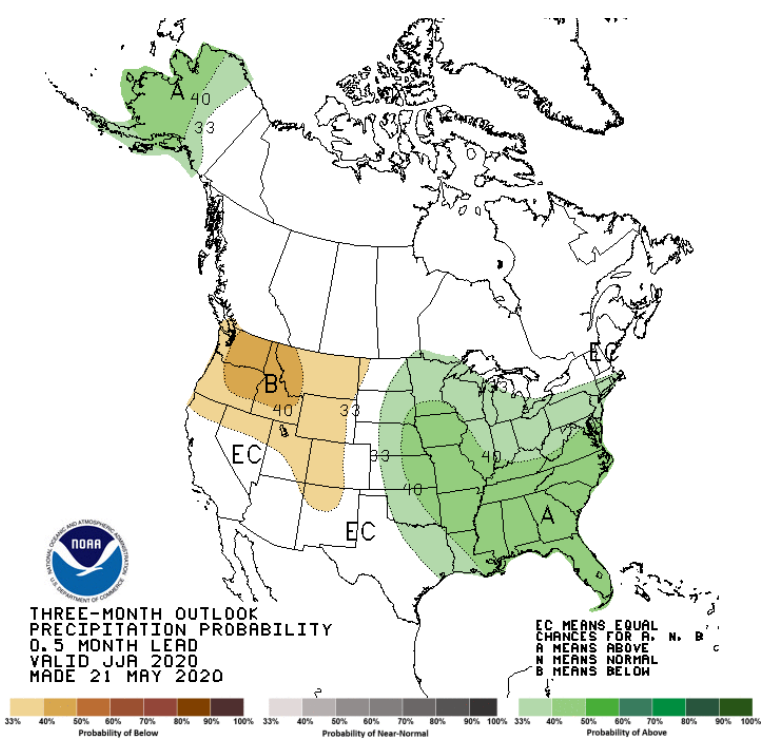
Three-Month Outlook
June 9, 2020

From

National Weather Service Climate Prediction Center

http://www.cpc.ncep.noaa.gov/

Higher chance for below average precipitation Jun through July.



Significantly increased chance for above normal temperatures from June through August.