

Blackfoot Water Supply Report

May 15, 2019

Montana Water Supply Report as of May 1st, 2019 (from NRCS):

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

Overview

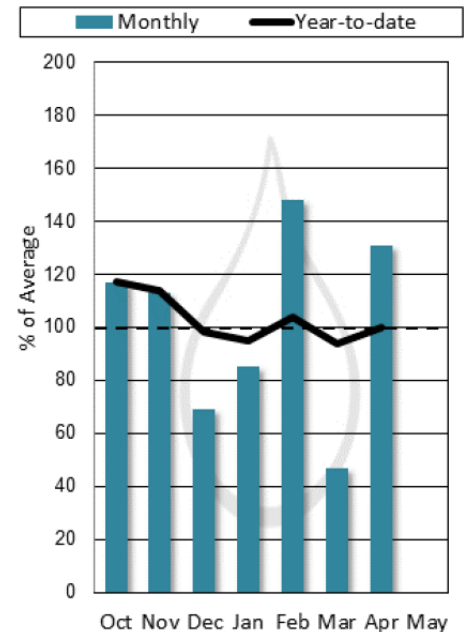
Another month is in the books, and this chapter was full of surprises much like the rest of this winter. The first week of the month started out slowly, but a potent series of storms impacted the state during the second and third weeks of the month adding to the mountain snow water equivalent in many mid and high elevations. Towards the end of this storm cycle at the end of the third week in April temperatures took a turn towards the warm side for an 8- to 10-day period, before another round of storms impacted the state, ending the month with cooler temperatures during the last week helping to moderate snowmelt at low and mid elevations.

So where does that put us for runoff and melt ending April? Most of the low-elevation snowpack across the state began to melt in mid to late March, which when combined with abundant valley snowpack melt, lead to the early increases in river volumes. Mid-elevations accumulated snowpack through the month, until abundant sunshine and warm temperatures during the latter half of the month resulted in a discharging snowpack. High elevations across the state continued to gain snow water equivalent through most of the month, but the persistently sunny and warm weather finally caused the snowpack to go isothermal (one temperature throughout, and capable of melt) at the end of the month.

On May 1 snowpack has peaked for the year at all but the highest elevations in southwest and south-central Montana, so the amount of water available from the snowmelt component of runoff is known. In general, snowpack in many basins of the state peaked at near to slightly above normal levels this year, except in some northwest river basins where peak snowpack was below normal. Please consult the individual basins narratives to find out more information on snowpack peaks and levels for this date in individual basins of interest. The main point is this: the stage is set. The snowpack is primed for melt on May 1st at all but the highest elevations, and only some regions look to experience below normal snowmelt runoff. What's unknown at this time is how the future weather will impact the timing of runoff in the coming months.

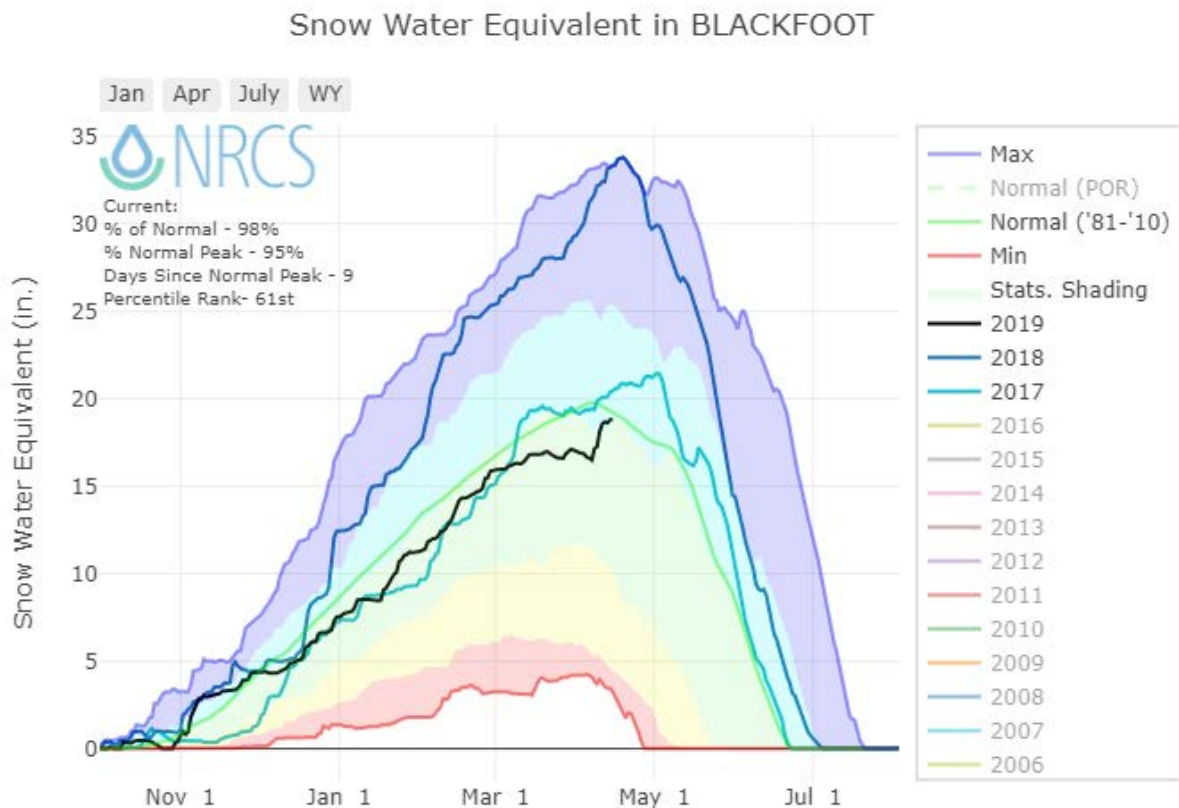
Upper Clark Fork Basin

Mountain and Valley Precipitation



Upper Clark Fork River Basin Overview

After typing the word record over and over last year when describing snowpack, precipitation, and streamflow prospects for the Upper Clark Fork River basin, it feels great to use this word to describe this year's peak snowpack. Normal. While some areas within the lower Flint Creek drainage peaked well above average, most areas experienced seasonal peaks that were near normal or only slightly above normal. April brought a significant change from the dry March weather patterns, and this was a benefit to some areas of the basin where snowpack was lacking on April 1st. SNOTEL sites within the Blackfoot River basin that were below normal at the beginning of the month experienced an improvement due to the abundant precipitation which improved snowpack totals to near normal peak before the latter half of the month. Streamflow forecasts within the basin for the May 1 – July 31 period vary widely but range from near average to slightly above average. Water users are encouraged to look at the forecast graphic for individual points of interest. Low elevations have been actively melting since mid to late March, and mid-elevations made the transition in mid to late April. The warm weather at the end of April primed upper elevations for melt once weather patterns change and temperatures moderate in May. The spring runoff is upon us.



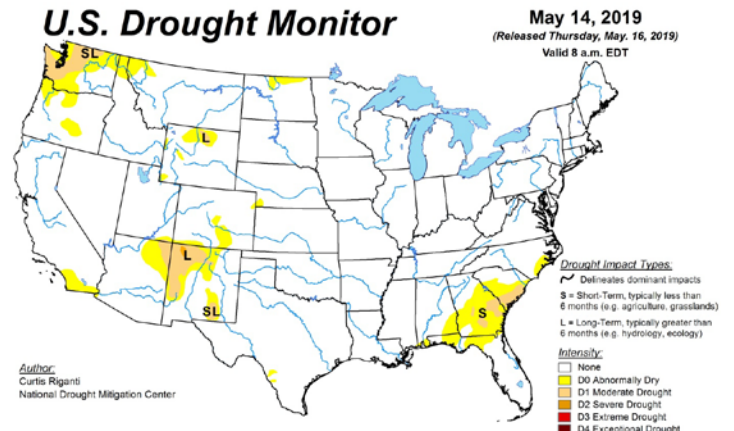
Reservoir Storage

It’s been mentioned throughout this winter that carryover storage in many reservoirs has been above average in many locations due to last year’s abundant runoff from the well above normal to record-setting snowpack. As such, carryover storage will help to insulate basins where snowpack totals are below normal for this date and most reservoirs in the state look to fill this summer from the amount of snowpack that we have at this time. What remains to be seen is the timing of when that water will enter and fill the reservoirs. The magic ingredients of sunshine, overnight temperatures above freezing at mountain locations, increasing daily average temperatures, and future rain events will soon be added to the mix and will drive fill-rates in the reservoirs this summer.

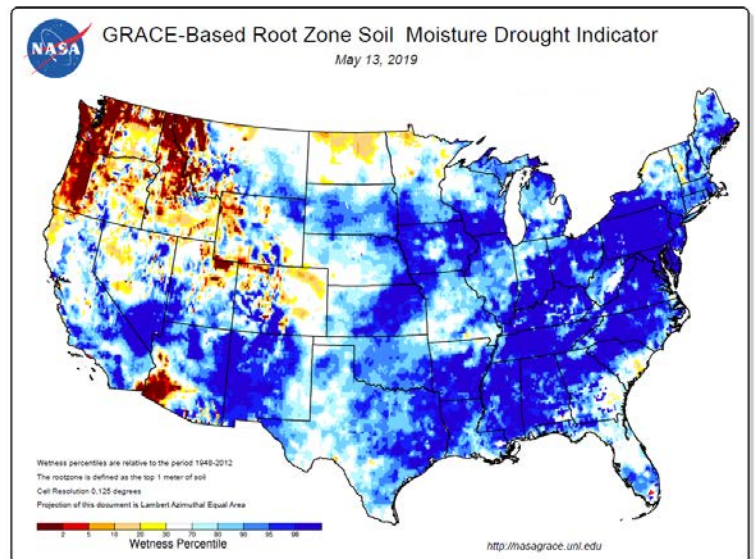
Reservoir Storage

5/1/2019	% Average	% Capacity	% Last Year
Columbia River Basin	130	70	141
Kootnenai in Montana	141	64	158
Flathead in Montana	125	75	133
Upper Clark Fork	105	84	101
Bitterroot	134	82	133
Lower Clark Fork	97	89	90

Montana Drought Monitor – May 14, 2019



National Root Zone Soil Moisture – May 13, 2019



Montana SNOTEL Snow Water Equivalent: May 16, 2019

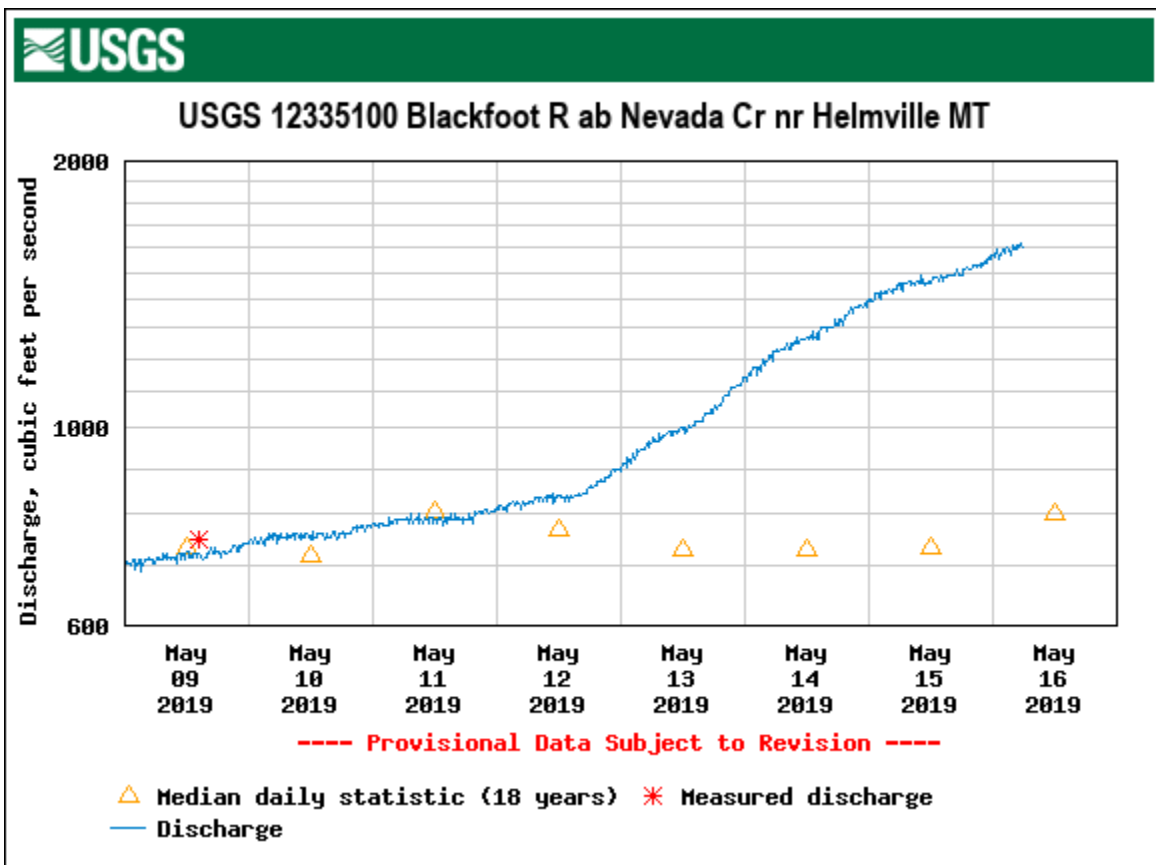
Montana SNOTEL Snow/Precipitation Update Report							
Based on Mountain Data from NRCS SNOTEL Sites							
Provisional data, subject to revision							
Data based on the first reading of the day (typically 00:00) for Thursday, May 16, 2019							
Basin Site Name	Elev (ft)	Snow Water Equivalent			Water 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	13.5	14.9	91	18.0	22.0	82
Basin Creek	7180	1.6	7.4	22	14.0	14.1	99
Black Pine	7210	2.0	4.9	41	20.0	16.8	119
Combination	5600	0.2	0.0	*	14.7	11.7	126
Copper Bottom	5200	0.0	N/A	*	16.0	18.0	89
Copper Camp	6950	10.4	N/A	*	27.1	35.8	76
Lubrecht Flume	4680	0.0	0.0	*	14.4	12.4	116
Nevada Ridge	7020	7.6	9.4 _c	81	19.6	19.2 _c	102
N Fk Elk Creek	6250	0.1	0.7	14*	18.4	17.2	107
North Fork Jocko	6330	29.8	35.1	85	49.2	53.0	93
Peterson Meadows	7200	4.9	8.6	57	14.9	16.2 _c	92
Rocker Peak	8000	14.6	14.6	100	19.0	18.2	104
Skalkaho Summit	7250	12.7	18.9	67	25.2	26.4	95
Stuart Mountain	7400	25.6	28.5 _c	90	34.9	35.8 _c	97
Warm Springs	7800	21.1	21.4	99	27.4	27.6	99
Basin Index (%)		81			97		

May 16, 2019, USGS Real Time Flow Conditions

Blackfoot River Above Nevada Creek

Daily discharge, cubic feet per second -- statistics for May 16 based on 18 years of record.

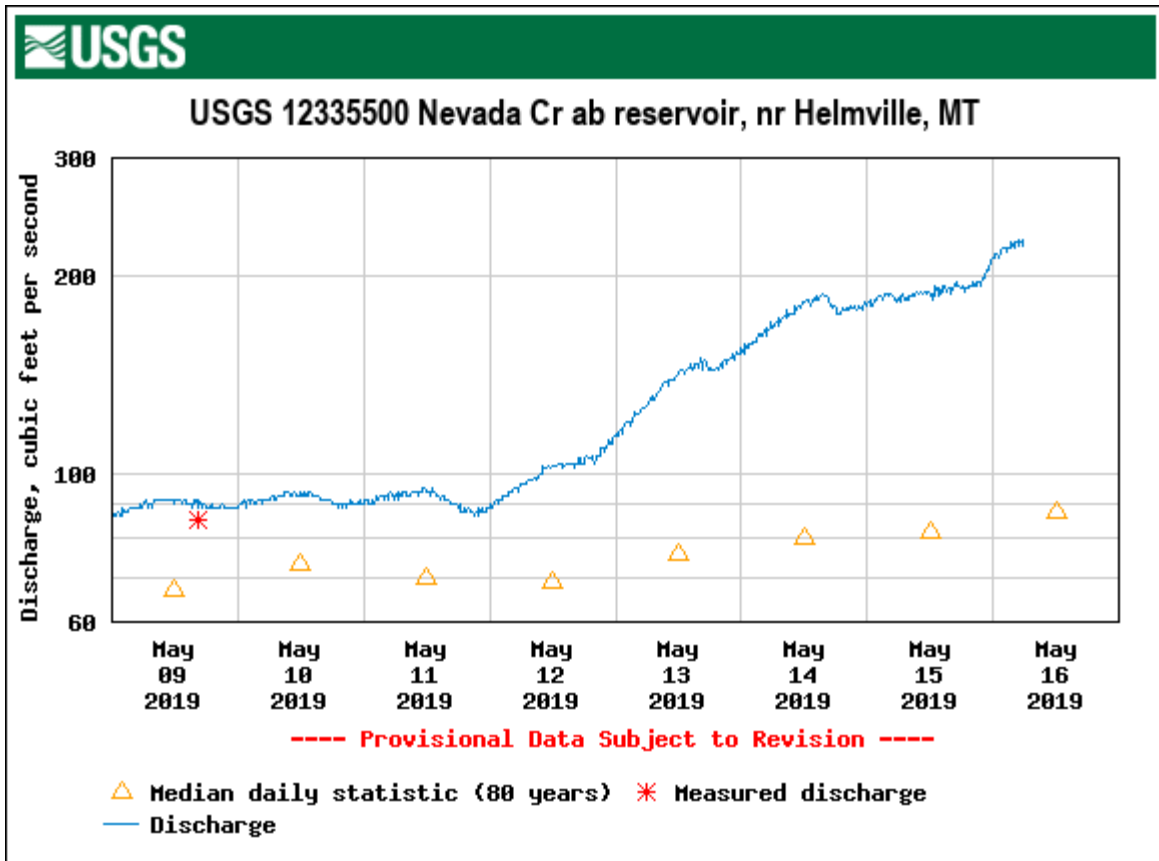
Min (2010)	25th percentile	Median	Mean	75th percentile	Most Recent Instantaneous Value May 16	Max (2011)
276	534	803	921	1210	1600	2410



Nevada Creek Above Reservoir

Daily discharge, cubic feet per second -- statistics for May 16 based on 80 years of record

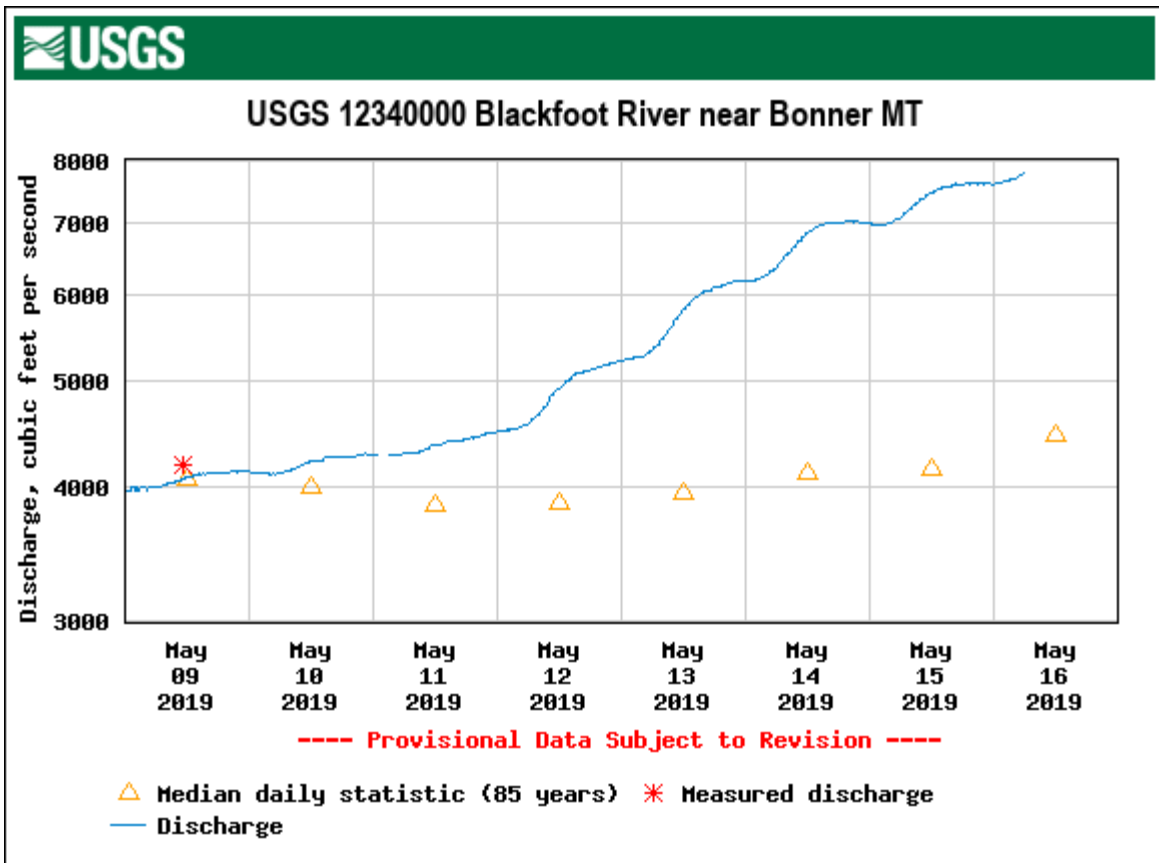
Min (1973)	25th percentile	Median	Mean	75th percentile	Most Recent Instantaneous Value May 16	Max (1976)
12.0	45	88	118	149	226	478



Blackfoot River at Bonner

Daily discharge, cubic feet per second -- statistics - May 16 based on 85 years of record

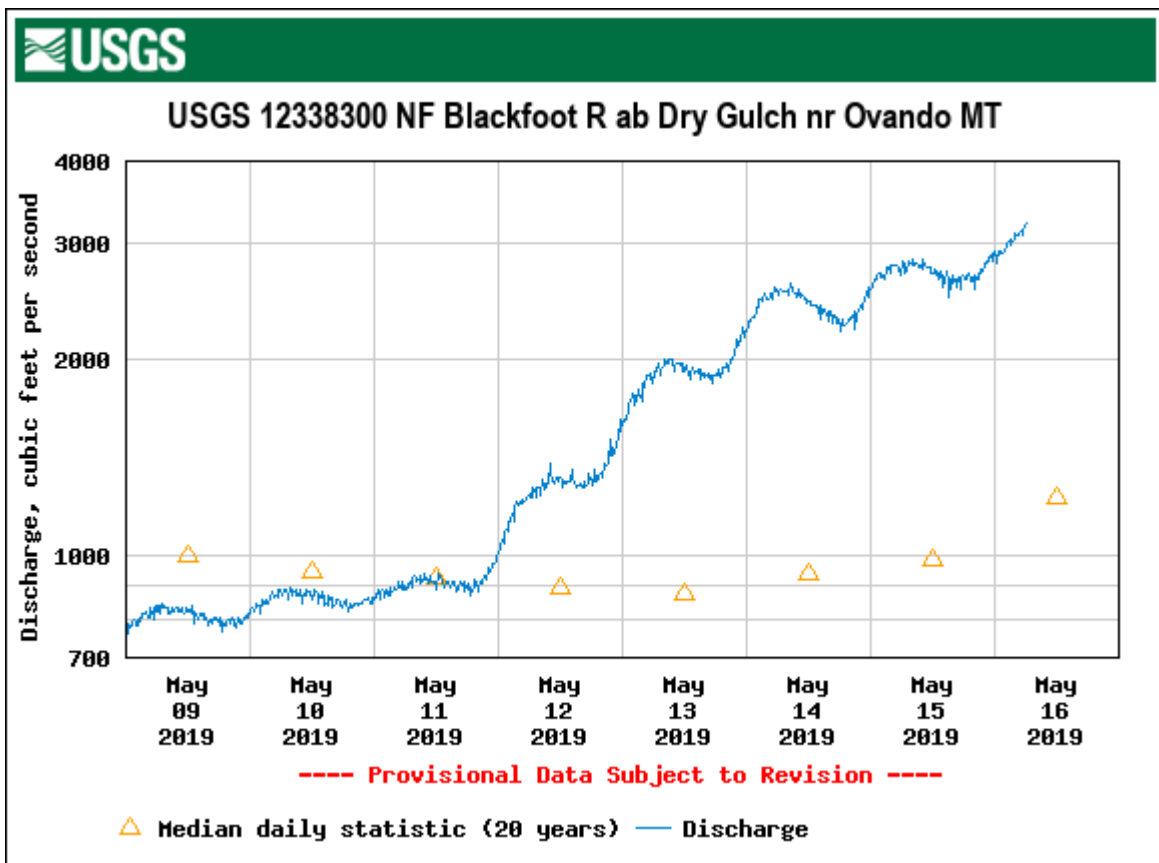
Min (1905)	25th percentile	Median	Mean	75th percentile	Most Recent Instantaneous Value May 16	Max (2018)
1120	3030	4470	5140	6580	7790	14900



North Fork Blackfoot above Dry Gulch near Ovando

Daily discharge, cubic feet per second -- statistics for May 16 based on 20 years of record.

Min (2010)	25th percentile	Median	Mean	75th percentile	Max (2011)	Most Recent Instantaneous Value May 16
458	794	1230	1270	1540	2660	3230



Three-Month Outlook May 15, 2019

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

Higher chance for above average precipitation
for May through July.

Higher chance to experience above normal
temperatures from May through July.

