

Blackfoot Water Supply Report

May 8, 2017

Montana Water Supply Report as of May 1st, 2017 (from NRCS):

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

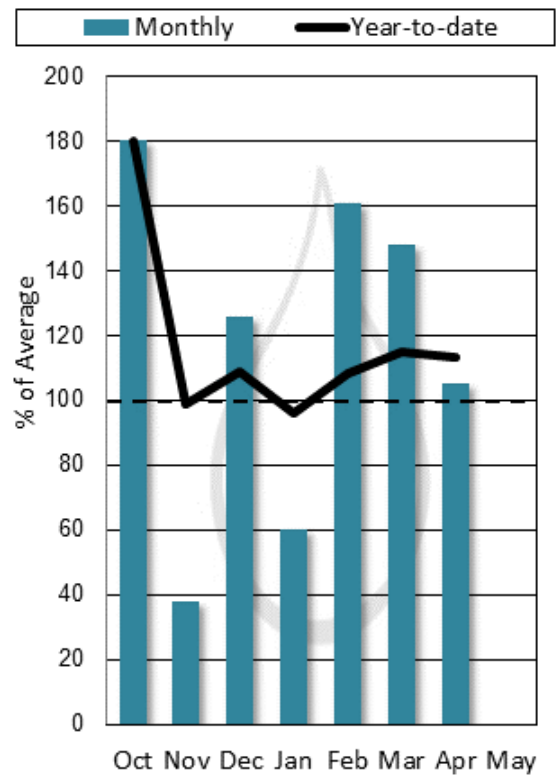
Overview

Winter kept rolling in across a large part of the state and improved snow totals for May 1 in almost all basins. Snowpack west of the Divide has been above normal since February. April continued to drop snow at high elevations, and cooler weather prolonged the snowpack at mid elevations. Snowpack totals for May 1 range from 109% to 125% of normal at this time for basins feeding the Columbia River. The cool wet weather during the latter half of the month helped some basins which were experiencing near or record low snowpack on April 1 improve to near normal on May 1. Most of the higher elevations in the basins continue to receive snow and build snowpack as of May 1. This is common east of the Divide, but west of the Divide the high elevation peaks are happening a bit later than normal. After two to three years of early snowpack runoff it is excellent to see snow holding in the high country, as this provides efficient spring runoff and keeps water available longer during the growing season. For most basins, the bulk of the snow water is still locked up in the snowpack at water yielding elevations, so the weather in May will play a large role in when the bulk of the runoff enters the river system. Sustained cool, wet weather would help to prolong runoff and keep river levels high through summer. Snowpack conditions are the best they've been in 3 years on May 1st and look to provide ample runoff this spring and summer.

Upper Clark Fork River Basin Overview

The storm patterns that dropped well above average precipitation west of the Divide in the northwest basins didn't extend into the Upper Clark Fork this month. Precipitation for the month was near to slightly above average at many mountain locations. Low elevation snowpack in the basin transitioned to active melt during mid-March, and many locations melted out during April. The snowpack at higher elevations above ~6500' was in maintenance mode through the month with little to no melt, but a few locations saw some additions to the season totals from the storms that came through. Snow totals for May 1 are generally near to above normal in the Blackfoot, Rock Creek and Flint Creek drainages. There is one dry area in the basin: the headwaters of the Upper Clark Fork River near Butte has below normal snowpack for this date. The bulk of the snow water from the mountain snowpack remains to enter the river system. Above average precipitation this water year and near to above average snowpack on May 1 has resulted in streamflow forecasts that are above average for the May 1 – July 31 time period.

Upper Clark Fork Mountain and Valley Precipitation



Snowpack Analysis

Low elevation snowpack in the basin transitioned to active melt during mid-March, and many locations melted out during April. The snowpack at higher elevations above ~6500' was in maintenance mode through the month with little to no melt, but a few locations saw some additions to the season totals from the storms that came through. Snow totals for May 1 are generally near to above normal in the Blackfoot, Rock Creek and Flint Creek drainages.

Upper Clark Fork River Basin Data Summary

Snowpack	Percent of 1981-2010 Normal (Median)	Last Year Percentage of Normal (Median)
<i>CLARK FORK ab FLINT CREEK</i>	96%	84%
<i>FLINT CREEK</i>	121%	77%
<i>ROCK CREEK</i>	116%	78%
<i>CLARK FORK ab BLACKFOOT</i>	105%	79%
<i>BLACKFOOT</i>	120%	77%
Basin-Wide	109%	78%

Precipitation	Monthly Percentage of Average	WYTD Percentage of 1981-2010 Average*	WYTD Last Year Percentage of Average
Mountain Precipitation	103%	112%	95%
Valley Precipitation	140%	135%	103%
Basin-Wide Precipitation	105%	113%	95%

*Water Year-to-Date (WYTD) Precipitation is October 1st - Current

Reservoir Storage

Most reservoirs across the state are near or slightly above average for May 1.

Reservoir Storage	Percentage of Average	Percentage of Capacity (Total)	Last Year Percentage of Average
Basin-Wide Storage	105%	84%	109%

*See Reservoir Storage Table for storage in individual reservoirs

End of Month Storage

	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)	% Average	% Capacity
East Fork Rock Creek Res	9.7	11.1	9.2	15.6	105%	105%
Georgetown Lake	28.8	30.8	28.2	31.0	102%	102%
Lower Willow Creek Reservoir		4.6	4.1	4.9		
Nevada Creek Res	11.3	9.8	9.9	12.6	114%	114%

Streamflow Forecast

Upper Clark Fork River Basin

Forecast Point	Forecast Period	Chance Actual Volume Will Exceed Forecasted Volume						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
<i>Little Blackfoot nr Garrison</i>	MAY-JUL	32	47	57	102%	68	83	56
	MAY-SEP	36	53	64	102%	75	92	63
<i>Flint Ck nr Southern Cross</i>	MAY-JUL	7.6	10.8	12.9	123%	15.1	18.3	10.5
	MAY-SEP	9.1	13.1	15.8	124%	18.5	23	12.7
<i>Flint Ck bl Boulder Ck</i>	MAY-JUL	34	46	54	120%	63	75	45
	MAY-SEP	47	61	71	120%	80	95	59
<i>Lower Willow Ck Reservoir Inflow²</i>	MAY	3.9	5.6	6.8	136%	8	9.7	5
	MAY-JUL	7.6	10.1	11.9	140%	13.6	16.1	8.5
<i>MF Rock Ck nr Philipsburg</i>	MAY-JUL	52	62	70	132%	77	88	53
	MAY-SEP	58	70	78	130%	86	98	60
<i>Rock Ck nr Clinton</i>	MAY-JUL	215	265	300	136%	335	385	220
	MAY-SEP	250	305	340	136%	375	430	250
<i>Clark Fork R ab Milltown</i>	MAY-JUL	345	480	575	129%	670	805	445
	MAY-SEP	425	575	675	127%	780	930	530
<i>Nevada Ck nr Helmville</i>	MAY	2.5	4.8	6.3	121%	7.8	10.1	5.2
	MAY-JUL	4.8	9	11.9	108%	14.8	19.1	11
<i>Blackfoot R nr Bonner</i>	MAY-JUL	590	675	730	124%	785	870	590
	MAY-SEP	670	760	820	121%	880	970	675
<i>Clark Fork R ab Missoula</i>	MAY-JUL	965	1180	1320	128%	1460	1670	1030
	MAY-SEP	1130	1350	1510	126%	1660	1890	1200

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Snow Water Equivalent: May 8, 2017

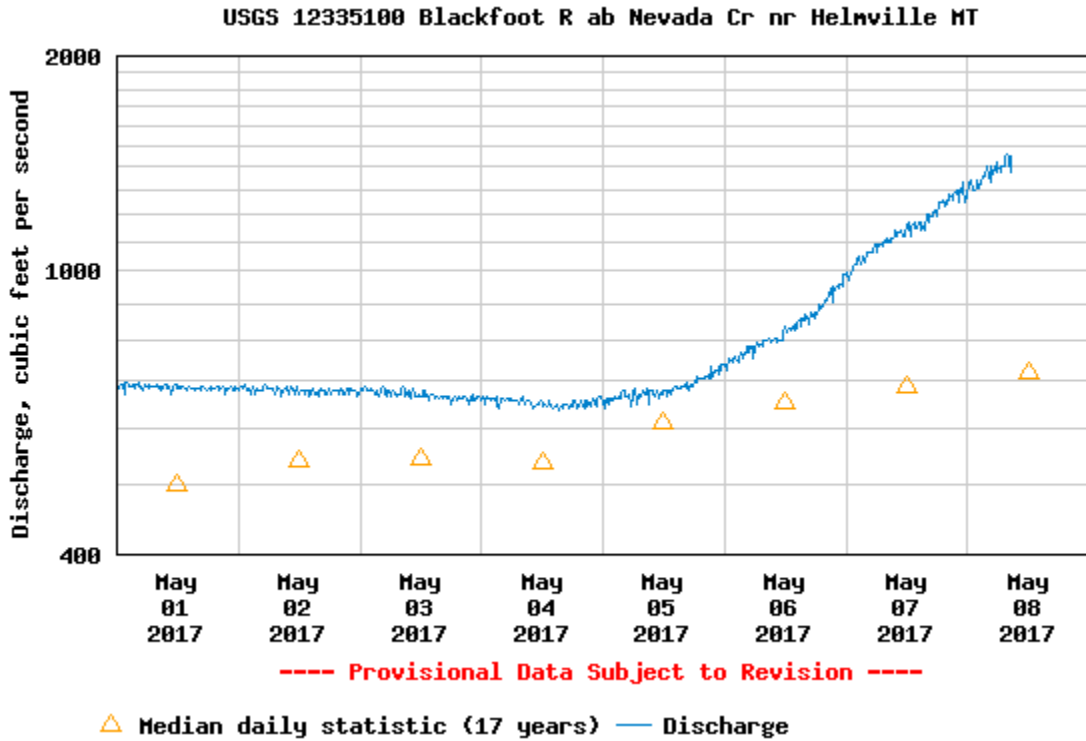
Montana SNOTEL Snow/Precipitation Update Report							
Based on Mountain Data from NRCS SNOTEL Sites							
Provisional data, subject to revision							
Data based on the first reading of the day (typically 00:00) for Monday, May 08, 2017							
Basin Site Name	Elev (ft)	Snow Water Equivalent			Water 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	14.6	15.6	94	17.8	20.6	86
Basin Creek	7180	4.5	8.9	51	10.8	13.0	83
Black Pine	7210	5.9	7.0	84	18.5	16.1	115
Combination	5600	0.0	0.0	*	12.1	11.2	108
Copper Bottom	5200	0.0	N/A	*	23.1	17.4	133
Copper Camp	6950	36.4	N/A	*	32.5	34.9	93
Lubrecht Flume	4680	0.0	0.0	*	14.4	11.8	122
Nevada Ridge	7020	13.7	11.4 _c	120	21.2	18.6 _c	114
N Fk Elk Creek	6250	5.1	5.0	102	18.2	16.4	111
North Fork Jocko	6330	37.3	38.2	98	63.2	52.1	121
Peterson Meadows	7200	11.5	10.3	112	19.1	15.5 _c	123
Rocker Peak	8000	13.5	15.2	89	15.7	17.2	91
Skalkaho Summit	7250	20.6	21.4	96	29.7	25.6	116
Stuart Mountain	7400	37.8	30.9 _c	122	44.2	34.9 _c	127
Warm Springs	7800	25.3	21.8	116	30.5	26.5	115
Basin Index (%)		102			112		

May 8, 2017, USGS Real Time Flow Conditions

Blackfoot River above Nevada Creek Near Helmville

Discharge, cubic feet per second

Most recent instantaneous value: 1380 05-08-2017 08:45 MDT



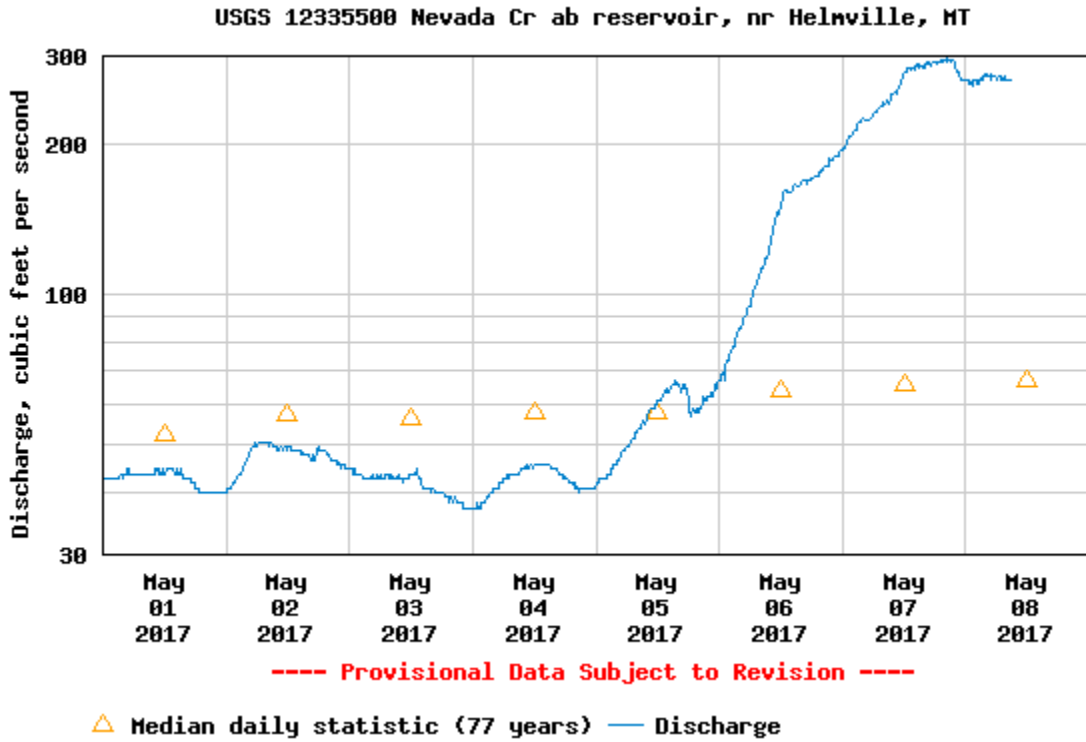
Daily discharge, cubic feet per second -- statistics for May 8 based on 17 years of record [more](#)

Min (2002)	25th percentile	Mean	Median	75th percentile	Max (2014)	Most Recent Instantaneous Value May 8
177	413	672	720	888	1320	1380

Nevada Creek above Reservoir

Discharge, cubic feet per second

Most recent instantaneous value: 268 05-08-2017 08:45 MDT



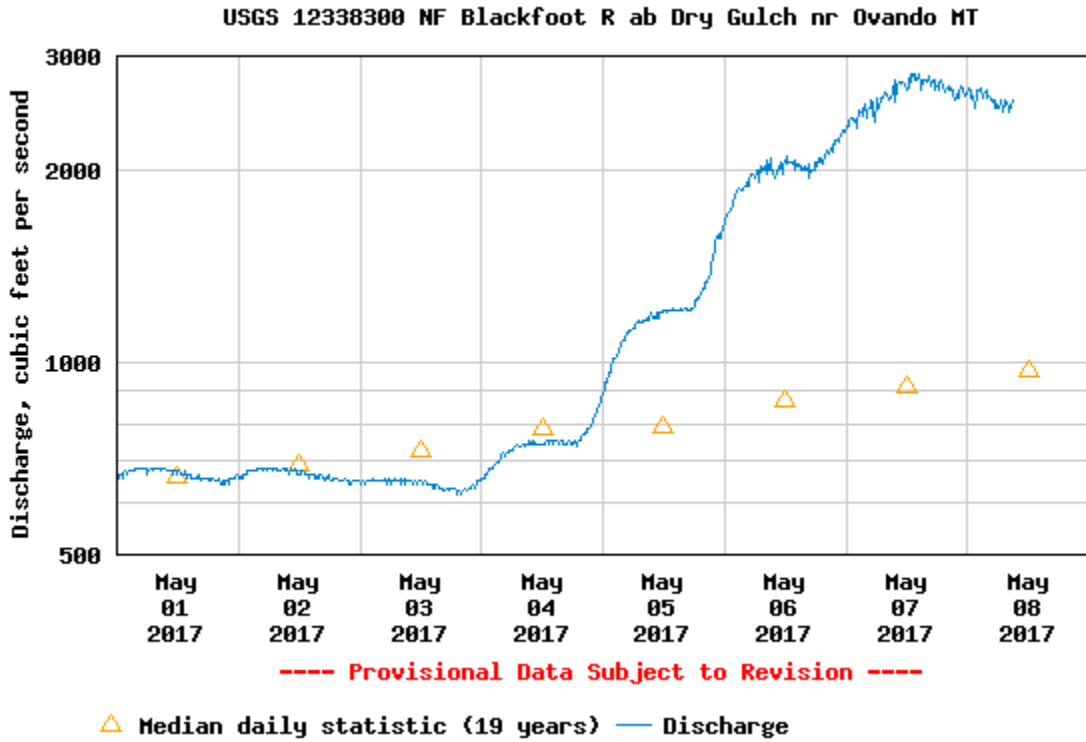
Daily discharge, cubic feet per second -- statistics for May 8 based on 78 years of record [more](#)

Min (1991)	25th percentile	Median	Mean	75th percentile	Most Recent Instantaneous Value May 8	Max (1975)
12.0	40	67	86	100	268	373

North Fork Blackfoot

Discharge, cubic feet per second

Most recent instantaneous value: 2560 05-08-2017 09:00 MDT



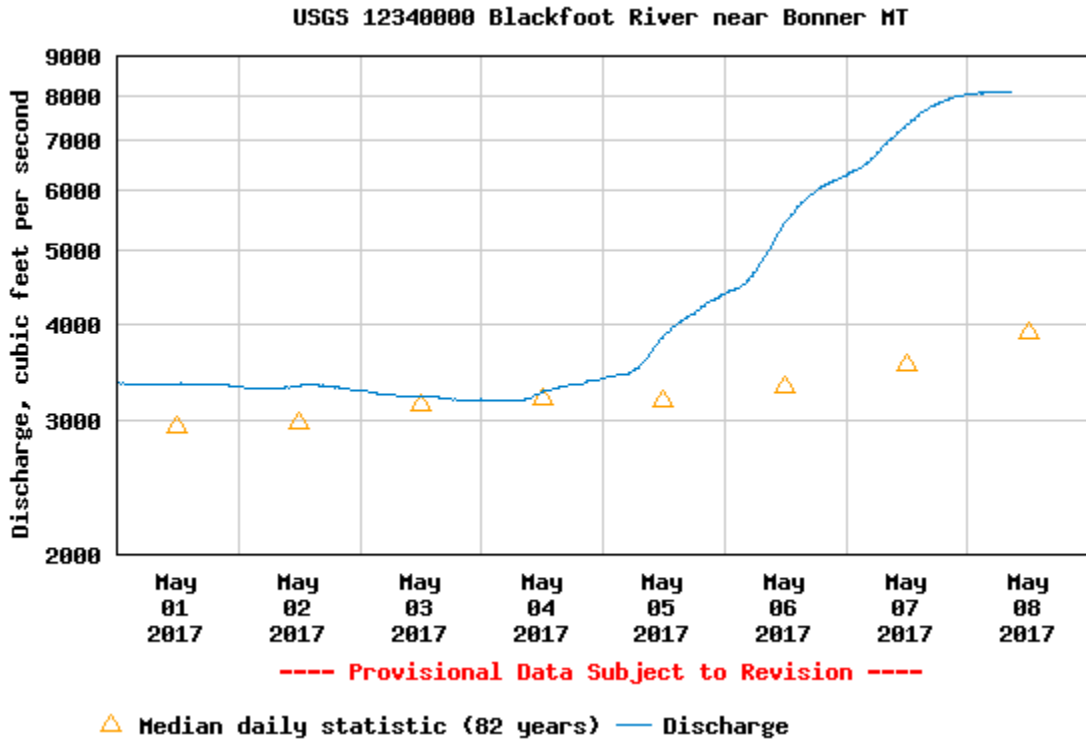
Daily discharge, cubic feet per second -- statistics for May 8 based on 19 years of record [more](#)

Min (2010)	25th percentile	Mean	Median	75th percentile	Max (2004)	Most Recent Instantaneous Value May 8
280	632	961	972	1120	1780	2560

Blackfoot River at Bonner

Discharge, cubic feet per second

Most recent instantaneous value: 8080 05-08-2017 08:45 MDT



Daily discharge, cubic feet per second -- statistics for May 8 based on 83 years of record [more](#)

Min (1905)	25th percen- tile	Median	Mean	75th percen- tile	Most Recent Instantaneous Value May 8	Max (1947)
770	2700	3900	4030	4480	8080	11200

Three-Month Outlook May 8, 2017

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

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

Equal chances for above, below or normal temperatures from May through July.

