

Blackfoot Water Supply Report

March 8, 2019

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

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

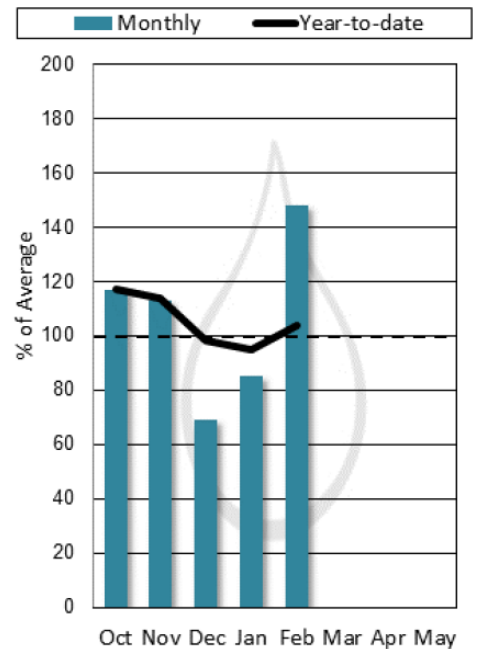
Overview

A weather pattern was in place throughout most of this winter's water year, which continually ushered in above-average temperatures and below normal snowfall for some river basins. Fortunately, a MAJOR pattern change took place during the month of February; cold air from the Arctic persisted through most of the month and set up shop over Montana. Abundant moisture from the Pacific collided with this cold air mass to produce above-average to record snowfall across the state. Some basins favored by southwest flows in southern Montana, which were below normal for snowpack on February 1, experienced the snowiest February on record. SNOTEL sites in the Upper Madison, Upper Gallatin, Ruby and Red Rocks River basins set new records for the month. Snowfall was incredible and persistent at the Black Bear SNOTEL site, located along the Montana/Idaho border, where 19.6" of snow water equivalent (SWE) was added to the snowpack during the month. This set a new record for the month of February. While the storm patterns in place through February didn't deliver record setting snowfall in the northern mountain ranges, snow totals for the month were above average. The abundant snowfall helped some river basins make significant rebounds to near-normal conditions for snowpack on March 1. This year will be recorded as a "weak El Nino" year, and early snow season forecasts for increasing equatorial sea surface temperatures didn't play out. There is a decent correlation between the strong El Nino winters and snowpack in Montana, but the weak years can go either way.

Long range (March – May) forecasts issued by the NWS still indicate a possibility of above average temperatures in western Montana, but we'll have to wait and see how the season plays out. Forecasts for March indicate that the below average temperatures will remain through the month, and precipitation has equal chances of being below or above average.

March 1st marks the first official forecasts for rivers and streams in Montana for 2019, and they vary widely. Forecasts in the northern basins are slightly below average for the April 1 – July 31 period due to below average water year precipitation and snowpack that is slightly below normal for March 1. As you move south in the state, snowpack conditions improve and so do the streamflow prospects. A few rivers have forecasts which are well above average on March 1, but these are mainly east of the Divide where the remaining months of March through May typically contribute a significant portion (>25%) to the annual peak snowpack. Time remains for improvement, or decline, in snowpack and we'll have a better picture of what to expect when we issue the April 1st forecasts.

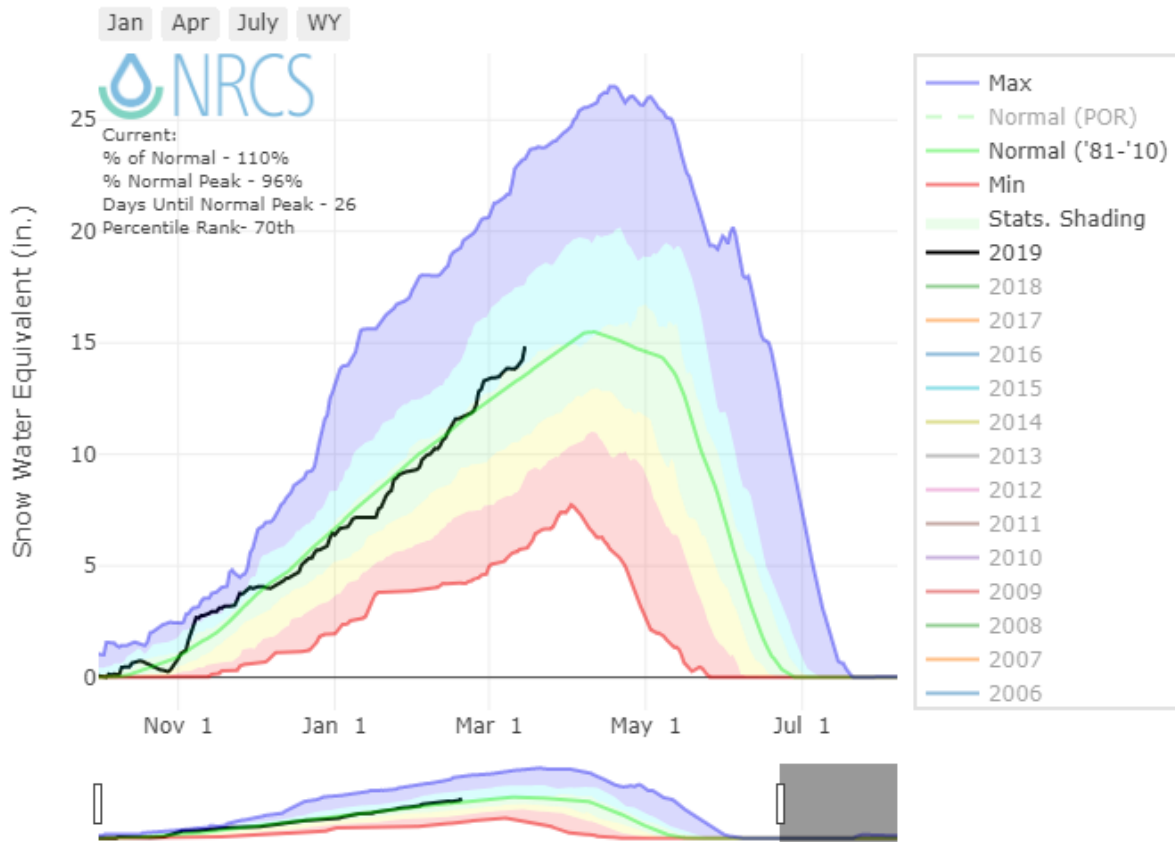
Upper Clark Fork Basin
Mountain and Valley
Precipitation



Upper Clark Fork River Basin Overview

The Upper Clark Fork River basin received well above average precipitation in February and the snowpack is currently above normal. This is a major rebound from below average conditions last month. Several snow stations set records for total February snowfall. This includes Basin Creek SNOTEL which received the most February snowfall in 39 years of record. All 4 Snow Courses located within the Lubrecht Forest received their second highest February snowfall, falling only behind February 2014. Temperatures were cold and significant snow fell at all elevations during the month. Residents of the Upper Clark Fork River basin are reporting they have the most valley snow in recent memory. There is just over a month left of the basin's typical snow accumulation season and normal March precipitation would likely mean ample water supply heading into snowmelt season.

Snow Water Equivalent in UPPER CLARK FORK RIVER BASIN



Reservoir Storage







Storage hasn't changed much since last month, with most reservoirs carrying over above average storage from the abundant runoff last year. Forecasts for many reservoirs indicate enough water to fill many of them given current snowpack conditions, but things can and do change. Another month will help in determining the extent of our water resources this year. The recent pattern change has been welcomed in helping to improve our runoff prospects this spring.

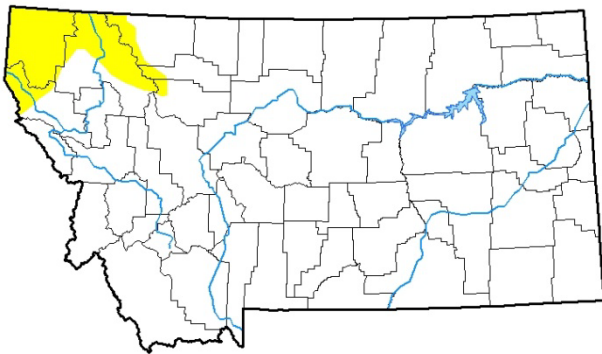
Reservoir Storage	Percentage of Average	Percentage of Capacity (Total)	Last Year Percentage of Average
Basin-Wide Storage	107%	75%	106%

UPPER CLARK FORK RIVER BASIN	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)	Current % Capacity	Last Year % Capacity	Average % Capacity	Current % Average	Last Year % Average
East Fork Rock Creek Res	8.3	8.5	8.3	15.6	53	55	53	100	103
Georgetown Lake	28.6	27.5	27.6	31.0	92	89	89	104	100
Lower Willow Creek Reservoir			2.2	4.9			45		
Nevada Creek Res	7.5	8.0	5.6	12.6	59	63	44	134	142
Basin-wide Total	44.3	44.0	41.5	59.2	75	74	70	107	106
# of reservoirs	3	3	3	3	3	3	3	3	3

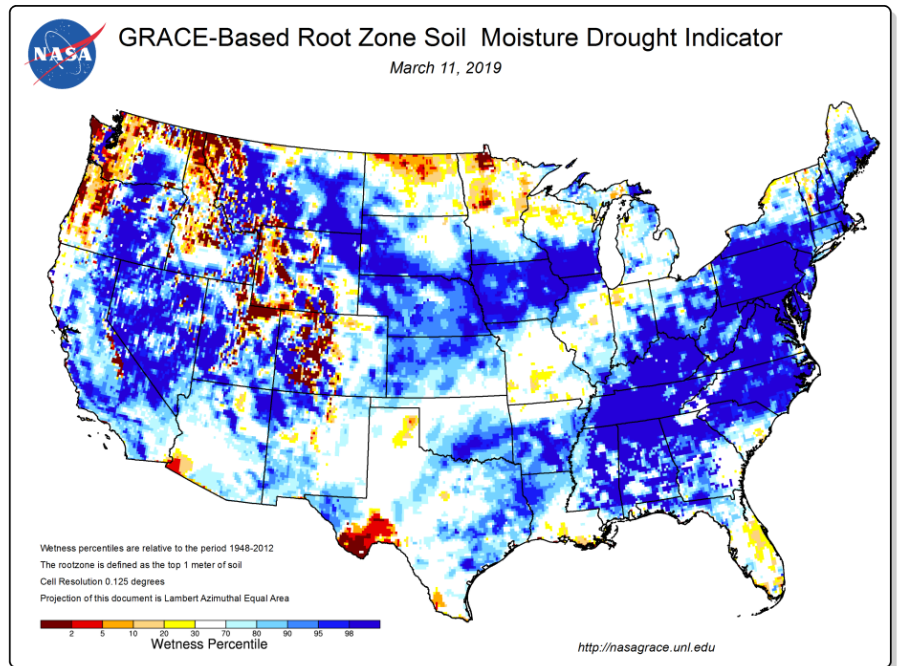
Montana Drought Monitor – March 11, 2019

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 – March 11, 2019



Montana SNOTEL Snow Water Equivalent: March 15, 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 Friday, March 15, 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	12.6	11.6	109	12.9	13.4	96
Basin Creek	7180	7.6	6.1	125	9.9	7.8	127
Black Pine	7210	11.7	8.8	133	14.0	11.4	123
Combination	5600	7.0	4.4	159	10.4	8.0	130
Copper Bottom	5200	9.1	N/A	*	12.4	14.1	88
Copper Camp	6950	20.3	N/A	*	22.7	28.2	80
Lubrecht Flume	4680	7.0	4.6	152	11.7	8.8	133
Nevada Ridge	7020	12.4	12.5 _c	99	14.6	14.0 _c	104
N Fk Elk Creek	6250	10.6	9.7	109	14.4	11.8	122
North Fork Jocko	6330	29.3	36.2	81	40.4	42.3	96
Peterson Meadows	7200	10.0	8.2	122	10.5	9.6 _c	109
Rocker Peak	8000	14.4	10.8	133	14.2	11.5	123
Skalkaho Summit	7250	18.4	18.9	97	19.0	19.7	96
Stuart Mountain	7400	24.7	27.4 _c	90	27.0	27.6 _c	98
Warm Springs	7800	19.4	16.6	117	20.5	19.2	107
Basin Index (%)		105			103		

March 15, 2019, USGS Real Time Flow Conditions

Blackfoot River Above Nevada Creek

NO READINGS DUE TO ICE

Nevada Creek Above Reservoir

NO READINGS DUE TO ICE

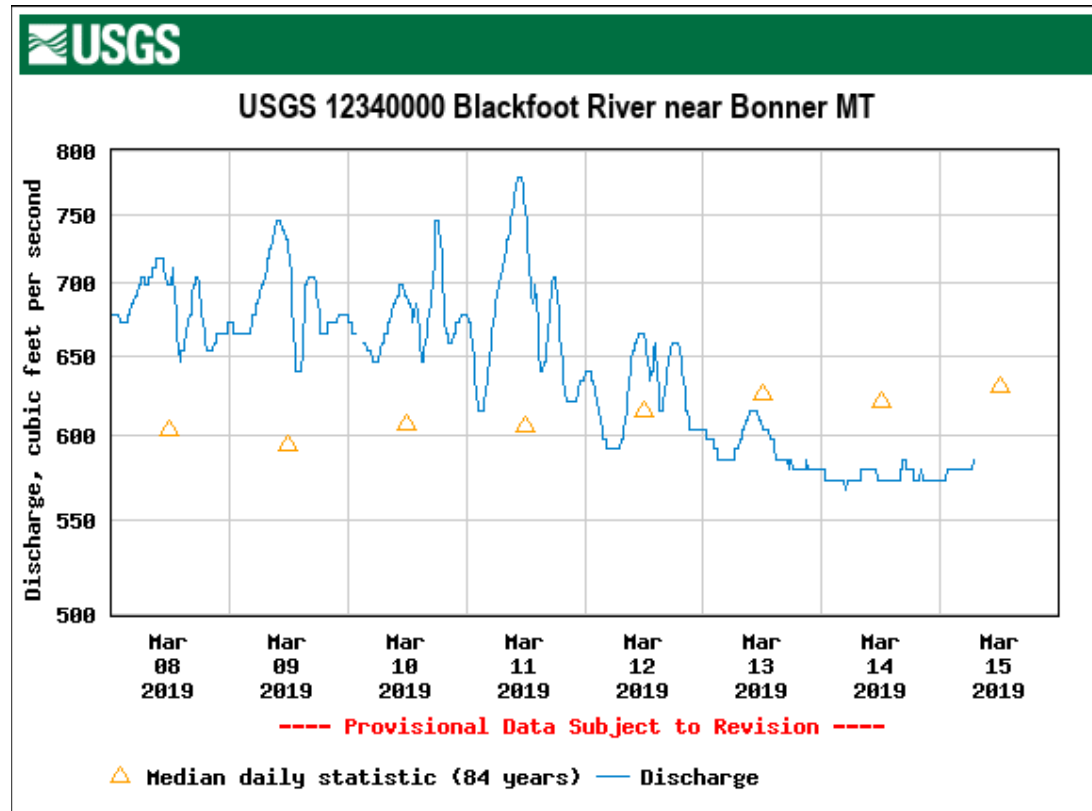
Blackfoot River at Bonner

Discharge, cubic feet per second

Most recent instantaneous value: 579 cfs 03-15-2019

Daily discharge, cubic feet per second -- statistics for Mar 15 based on 84 years of record [more](#)

Min (1988)	25th percentile	Most Recent Instantaneous Value Mar 15	Median	Mean	75th percentile	Max (1986)
364	513	585	630	755	810	2330



Three-Month Outlook March 15, 2019

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

Equal chances for average, above and below average precipitation for March through May.

Higher chance (30-40%) to experience above normal temperatures from March through May.

