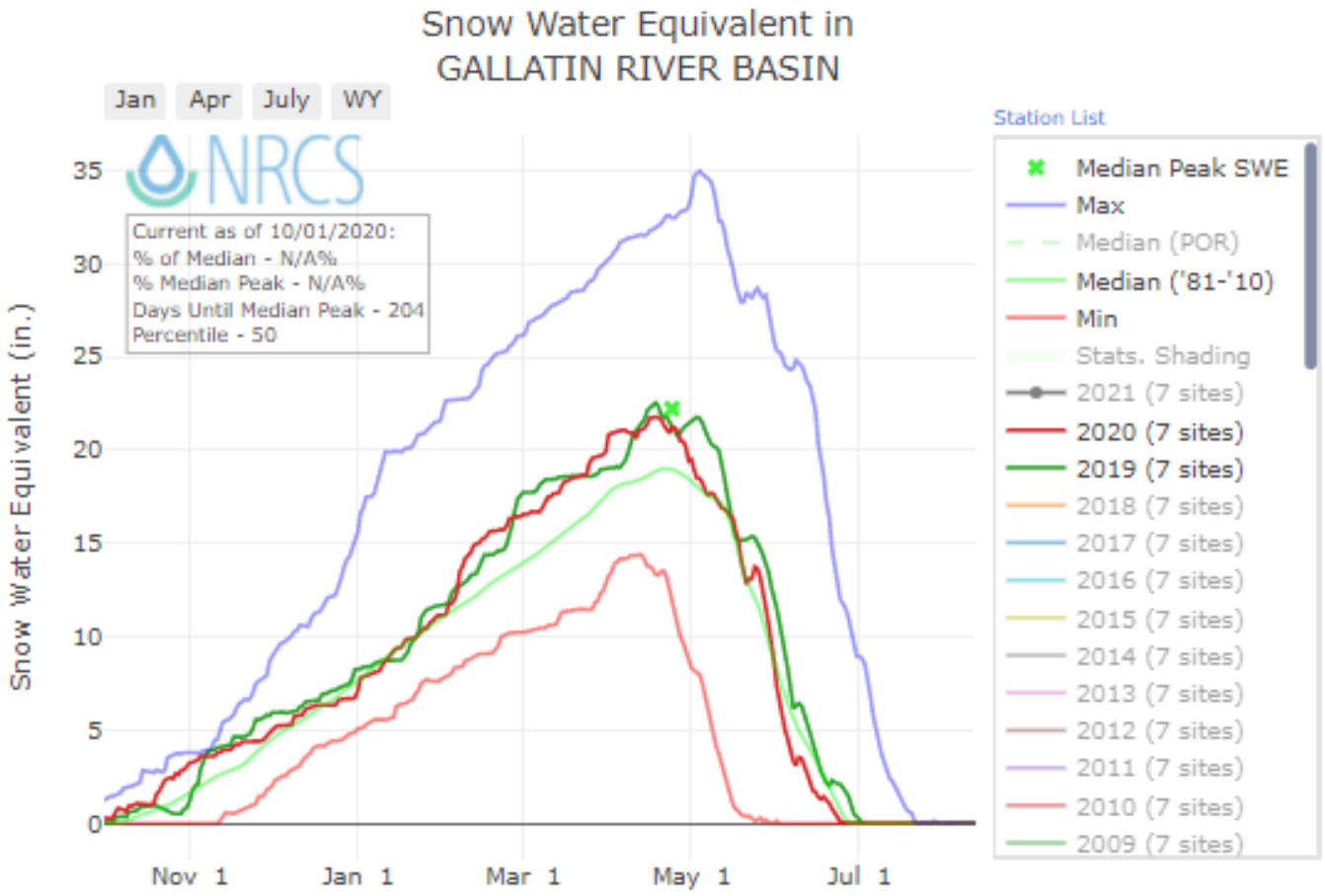
Gallatin County Water Supply Outlook
September 2020

Snowpack Data

Gallatin River Basin



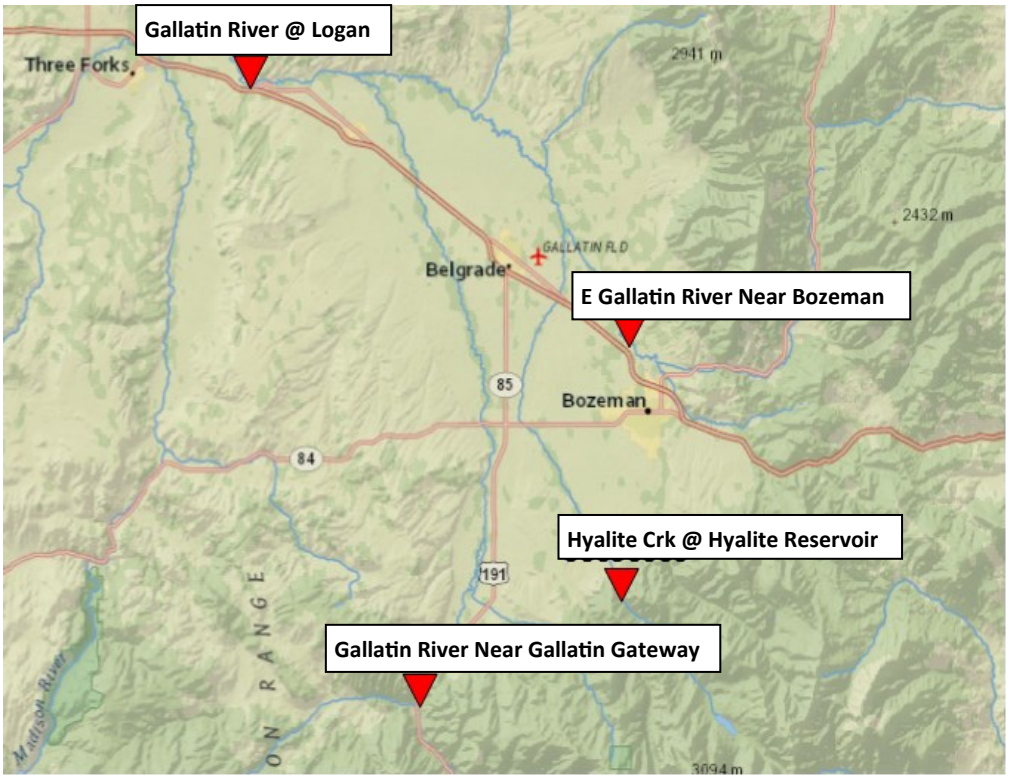
SNOWPACK SUMMARY **(Water Year (WY) = October 1st—September 30)**

*Data current as of September 30

There is currently no new snowpack data for the month of September, but September 30th marks the end of the 2020 water year. The graph above (red line) depicts the snow water equivalent (amount of water contained within the snowpack) data for the Gallatin River Basin for the entire 2020 water year. The median peak of Snow Water Equivalent for the year occurred on April 24th at 22.2 inches. October 1st marks the beginning of the 2021 water year.

Streamflow Data

Gallatin River Basin—September 2020



October 1st Gallatin Watershed Streamflow					
Station Name	2020 Discharge (cfs)	% Normal	Normal Dis-charge (cfs)	2019 Discharge (cfs)	Period Of Record (Yrs)
Gall At Logan	452	65	700	882	105
E Gall near Bozeman	64.9	85	76	93.3	5
Hyalite Cr	34.9	83	42	63.8	72
Near Gallatin Gate-way	428	91	471	532	90

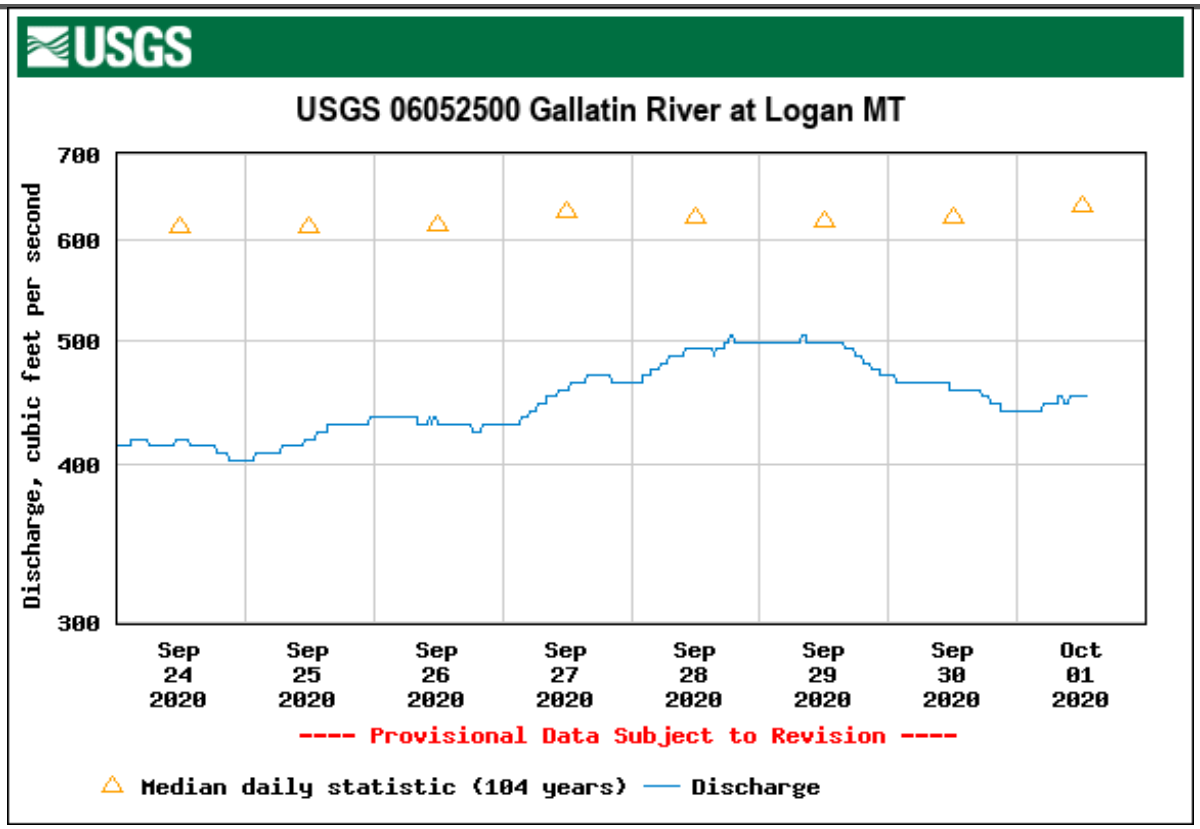
STREAMFLOW SUMMARY

*Data current as of October 1

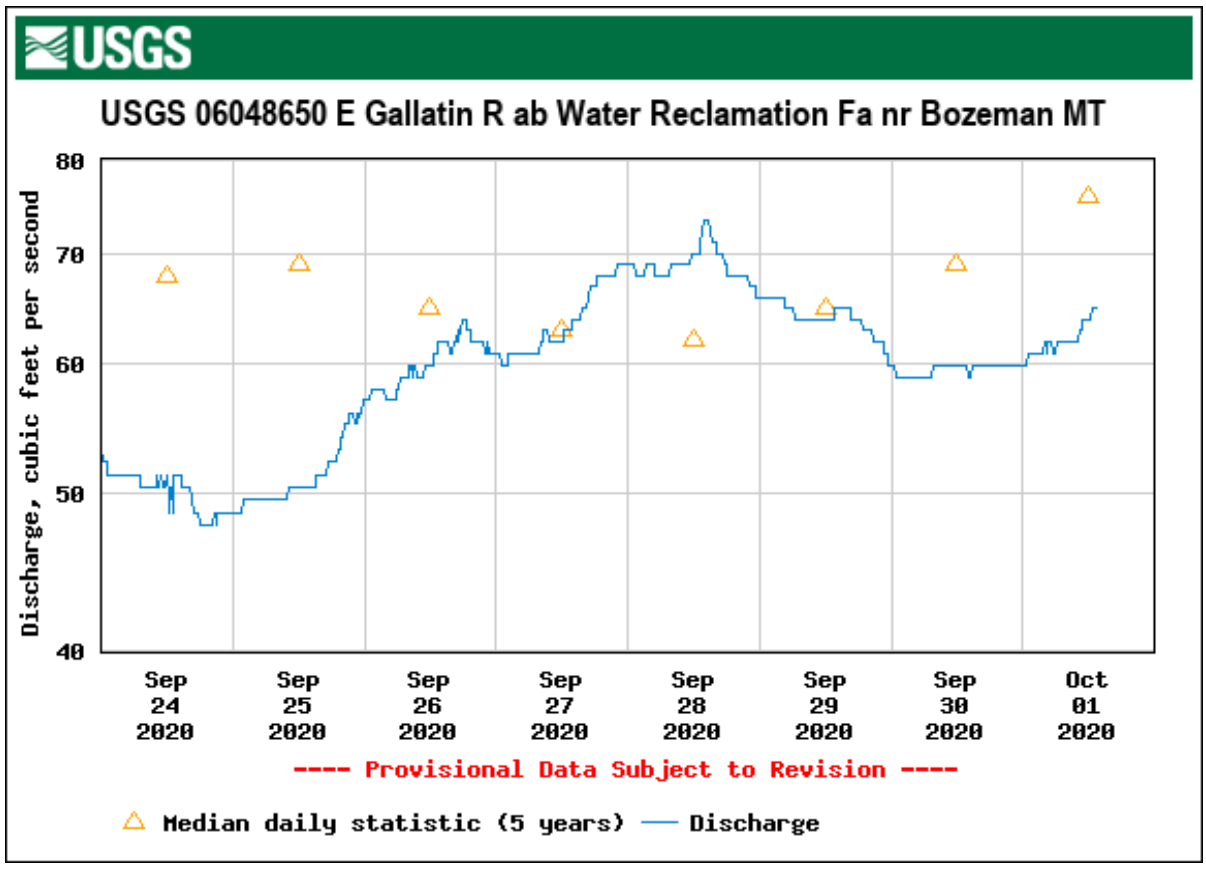
Streamflow is currently below normal for all sites.

Streamflow Data

Gallatin River Basin—September 2020



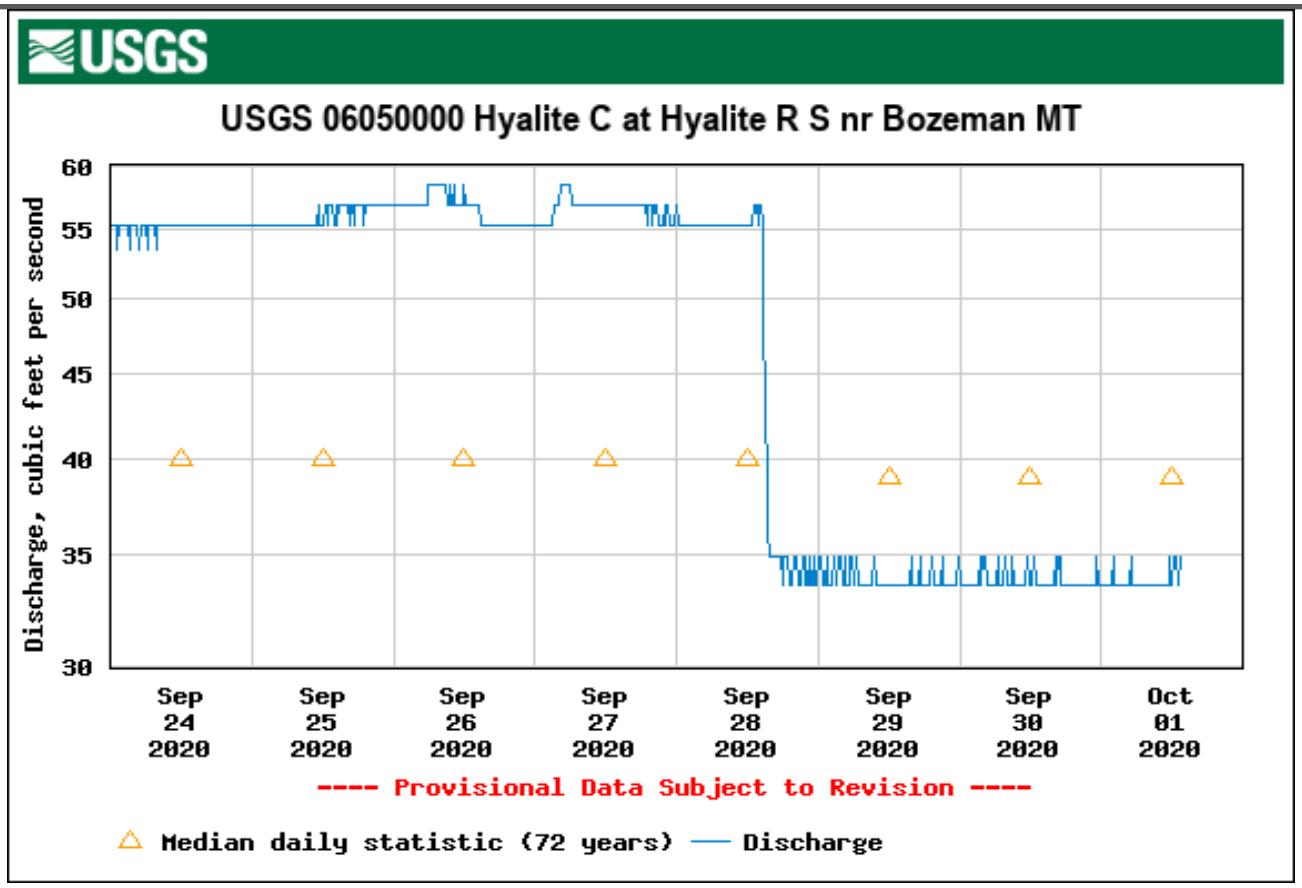
October 1, 13:00:00—Discharge is classified as below normal.



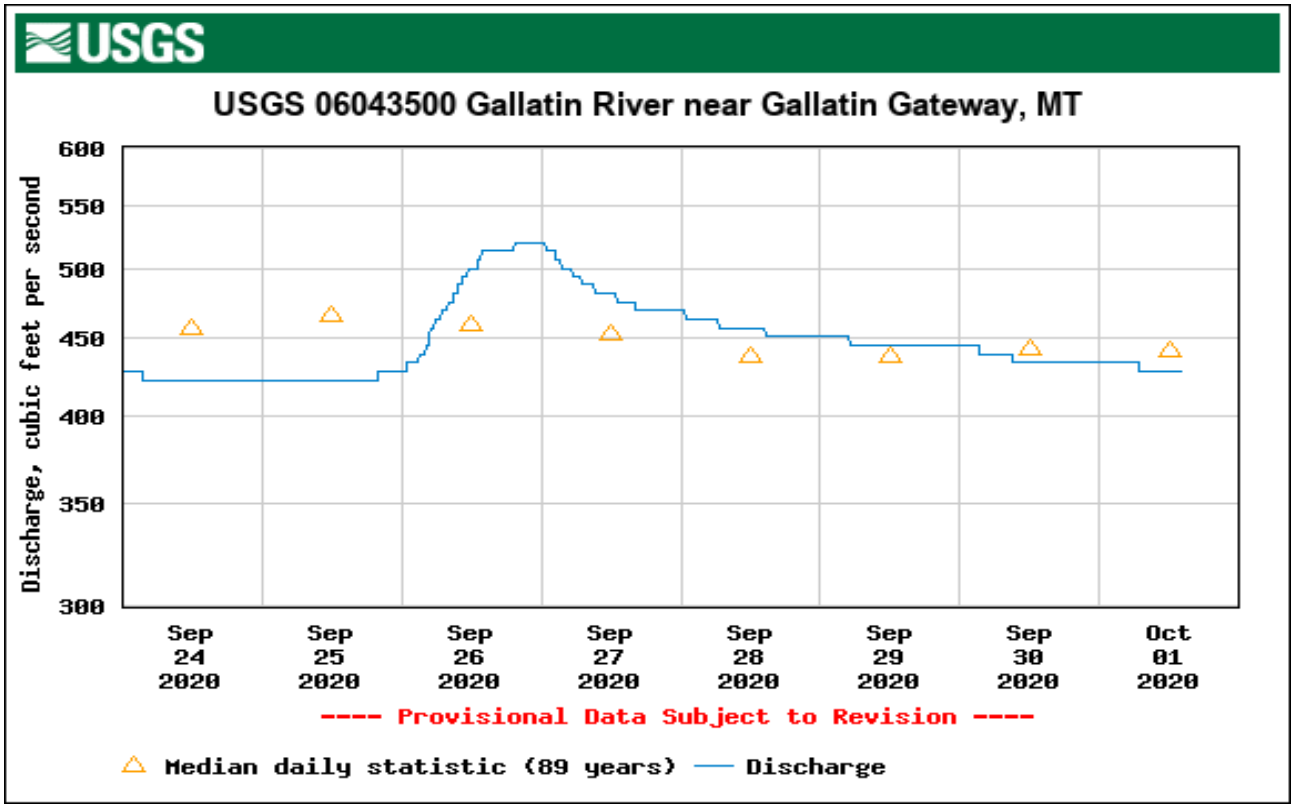
October 1, 13:30:00—Discharge is classified as below normal. Peak above normal occurred on September 28.

Streamflow Data

Gallatin River Basin—September 2020



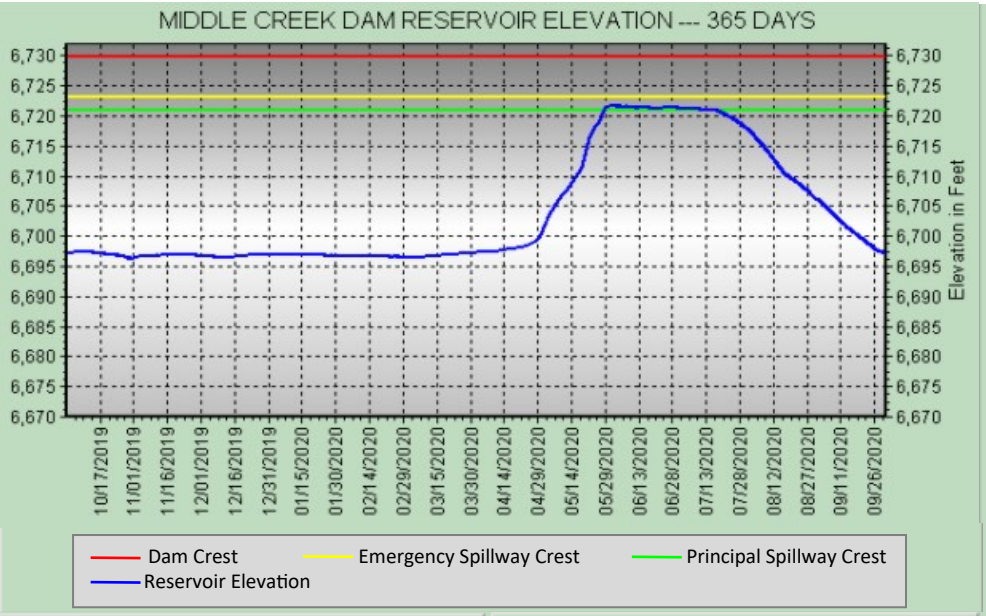
October 1, 13:30:00—Discharge is classified as below normal.

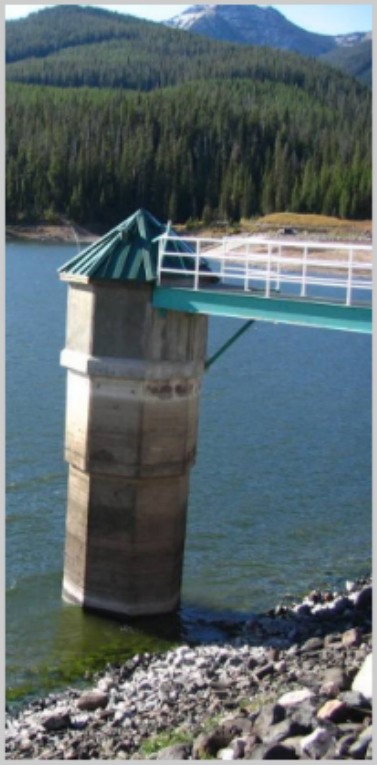


October 1, 14:00:00—Discharge is classified as slightly below normal.

Water Storage Data

Middle Creek Dam, Hyalite Reservoir — September 2020





TIME OF LAST READING	10/1/2020 3:00 AM
RESERVOIR ELEVATION	6,697.2 FT
RESERVOIR VOLUME	5,496 AF

REFERENCE INFORMATION	FT (MSL)	AC-FT
DAM CREST	6730	12,790
EMERGENCY SPILLWAY CREST	6723	10,707
PRINCIPAL SPILLWAY CREST	6721	10,184
LOWEST USEABLE ELEVATION	6637	0

STATION LOCATION	TIME OF LAST READING	STAGE (FT)	DISCHARGE (CFS)
EAST FORK OF HYALITE ABOVE RESERVOIR	10/1/2020 10:15 AM	1.1 FT	5.5 CFS
WEST FORK OF HYALITE ABOVE RESERVOIR	10/1/2020 10:15 AM	1.0 FT	9.7 CFS
MIDDLE CREEK BELOW RESERVOIR	10/1/2020 9:45 AM	0.8 FT	23.1 CFS

PROVISIONAL DATA SUBJECT TO REVISION

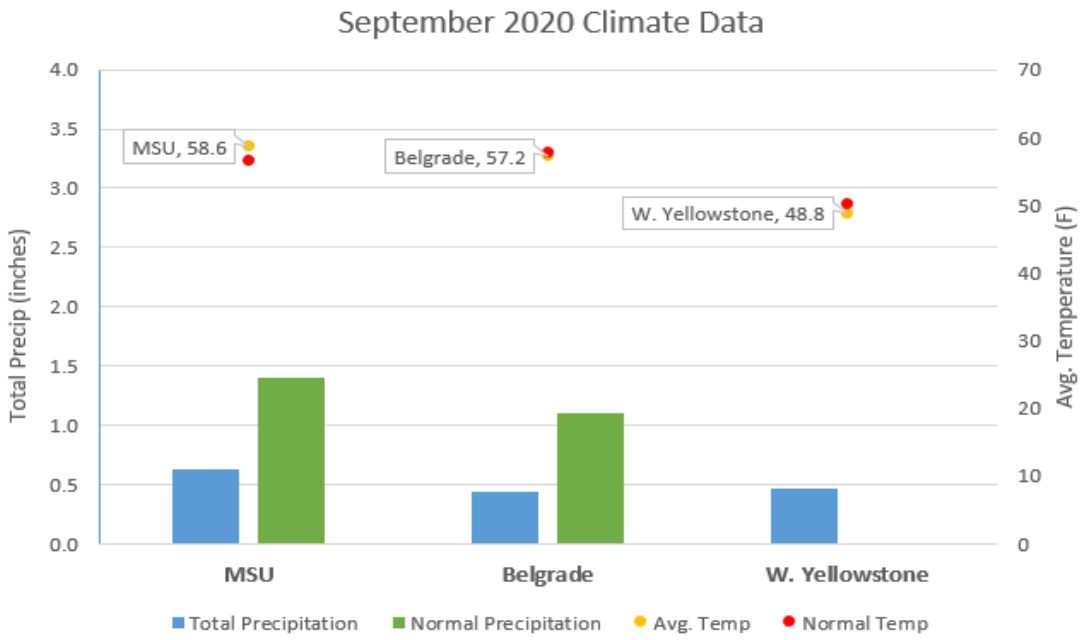
RESERVOIR SUMMARY

*Data current as of October 1

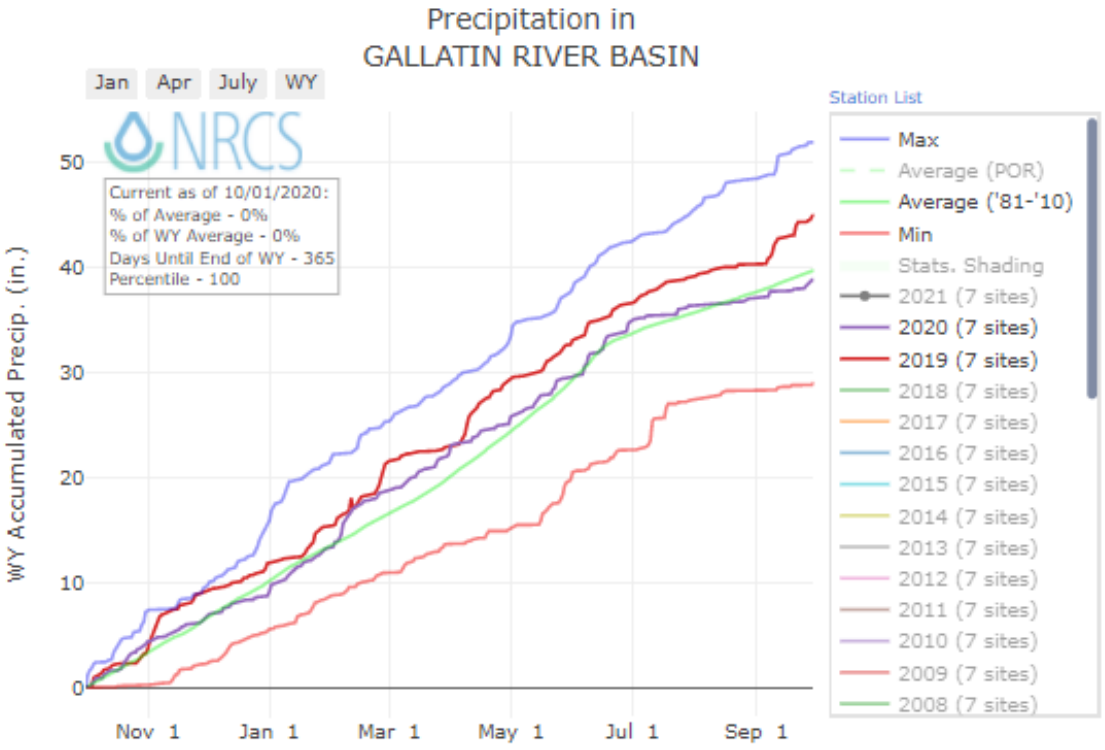
Middle Creek Dam Reservoir elevation is 6,697.2 ft which is under the principal spillway crest (6,721 ft.). The reservoir elevation has decreased by 8.4 ft since September 2nd. Reservoir volume is 5,496 acre-ft.; which is 1,354 acre-ft. less than September 2nd.

Climate Data

Gallatin County—September 2020



Above graph depicting ACIS climate data representing the entire month of September.



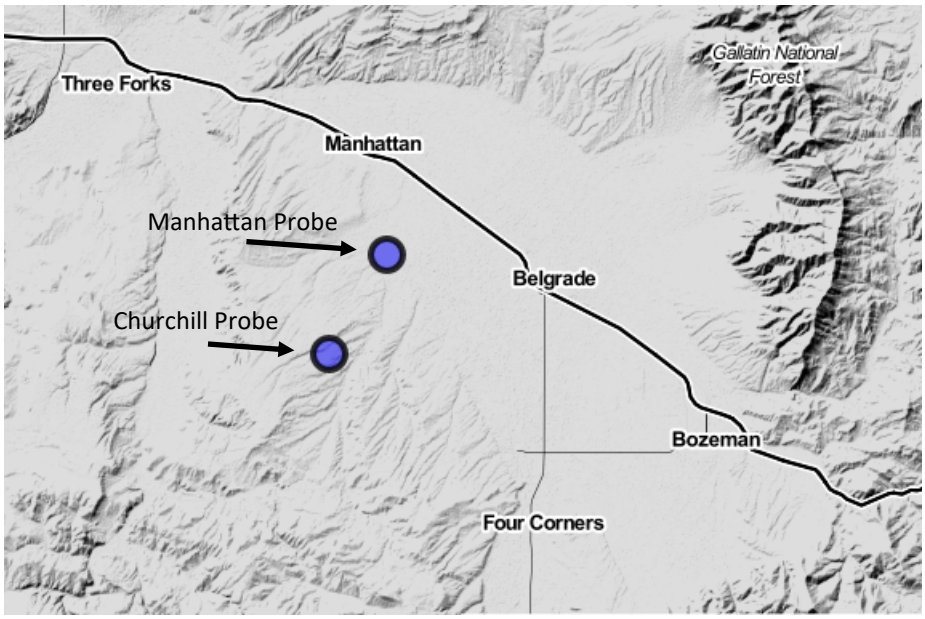
PRECIP & TEMP SUMMARY (Water Year (WY) = October 1st—September 30)

*Data is current as of September 30

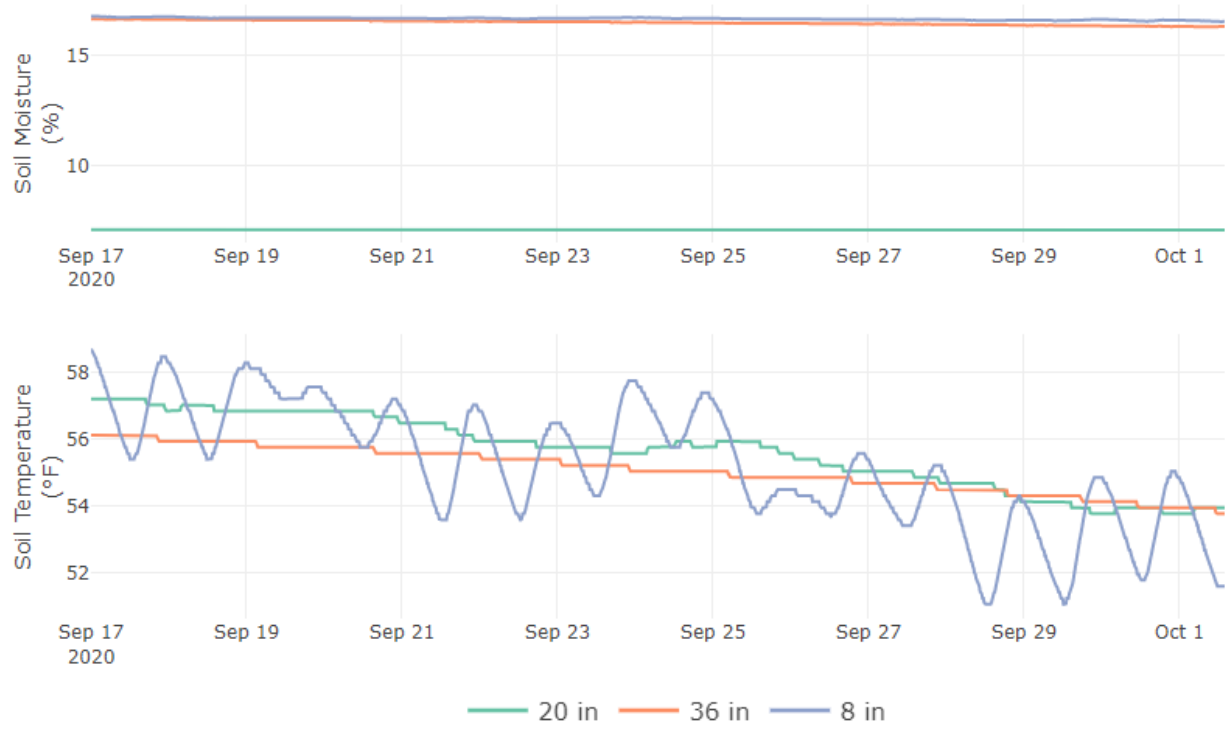
The end of September marks the end of the 2020 Water Year. The accrued precipitation for the Gallatin River Basin is just under average (median) at 38.7 inches for WY 2020 (NRCS graph). The accrued precipitation for WY 2019 was 44.5 inches (NRCS graph). This means the Gallatin River Basin received 5.8 inches less of precipitation in WY 2020 than in WY 2019. Average temperatures have decreased at all sites since August (ACIS graph). West Yellowstone has collected a total of 0.47 inches of precipitation this month.

Soil Moisture Data

Mesonet Stations—September 2020



Manhattan Soil Probe Depth (in)	Soil Temp (°F)	Soil Water Content (%)
4" - Surface	N/A	N/A
8" - Shallow rooting	51.62	16.5
20" - Deep Rooting	53.96	7.11

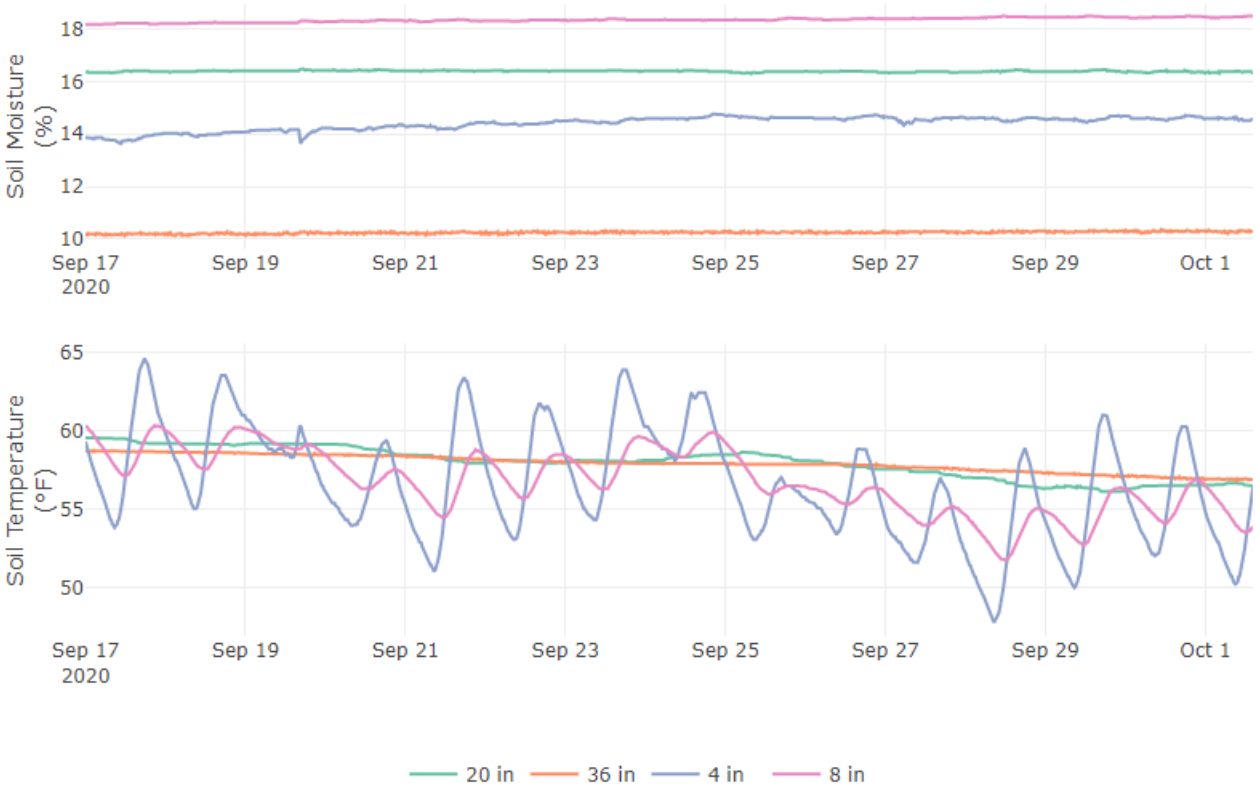


Soil moisture and temperature data for the Manhattan probe is shown in the above table and graphs. See next page for the Churchill probe information and soil moisture summary data.

Soil Moisture Data

Mesonet Stations—September 2020

Churchill Soil Probe Depth (in)	Soil Temp (°F)	Soil Water Content (%)
4" - Surface	56.37	14.57
8" - Shallow rooting	53.89	18.5
20" - Deep Rooting	56.48	16.4



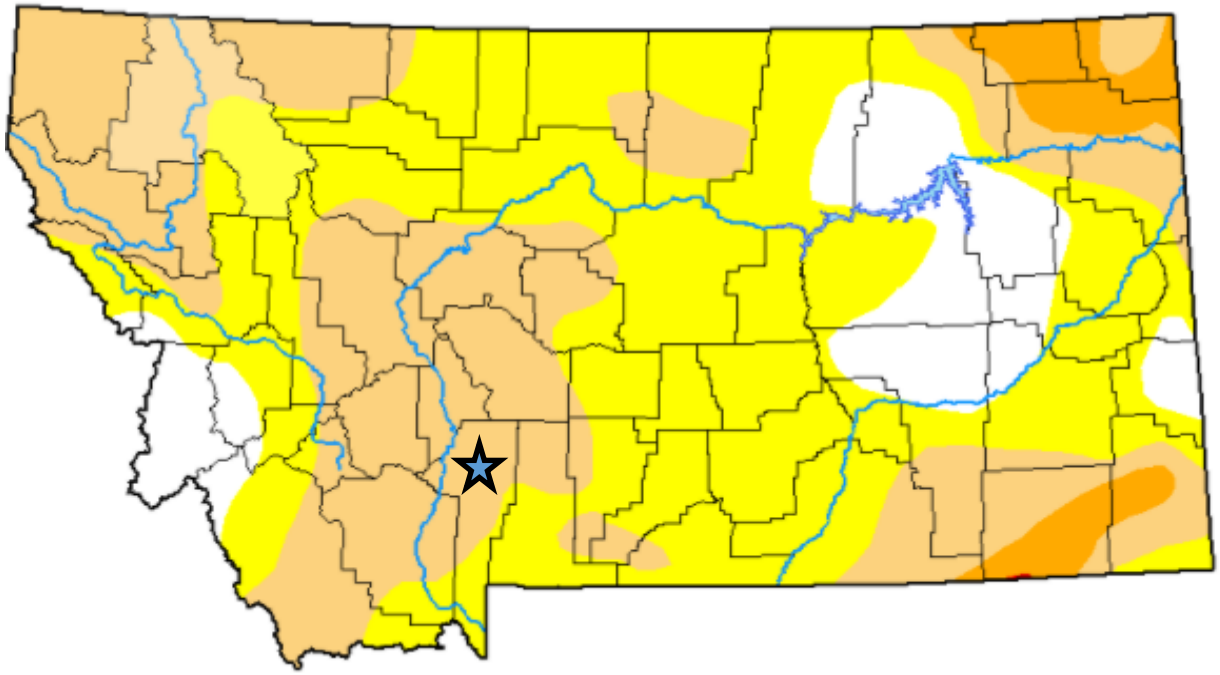
SOIL MOISTURE SUMMARY

*Data current as of October 1

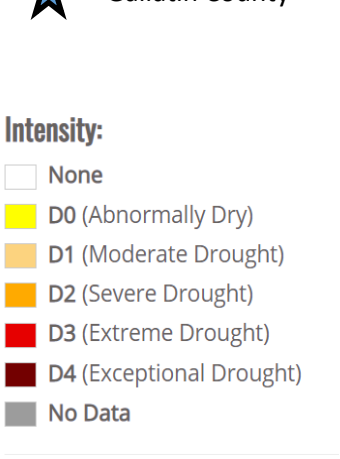
Soil temperatures have decreased at both sites and all soil depths since the end of August. Soil moisture has increased at all depths at the Churchill site, while soil moisture has stayed the same at the Manhattan site.

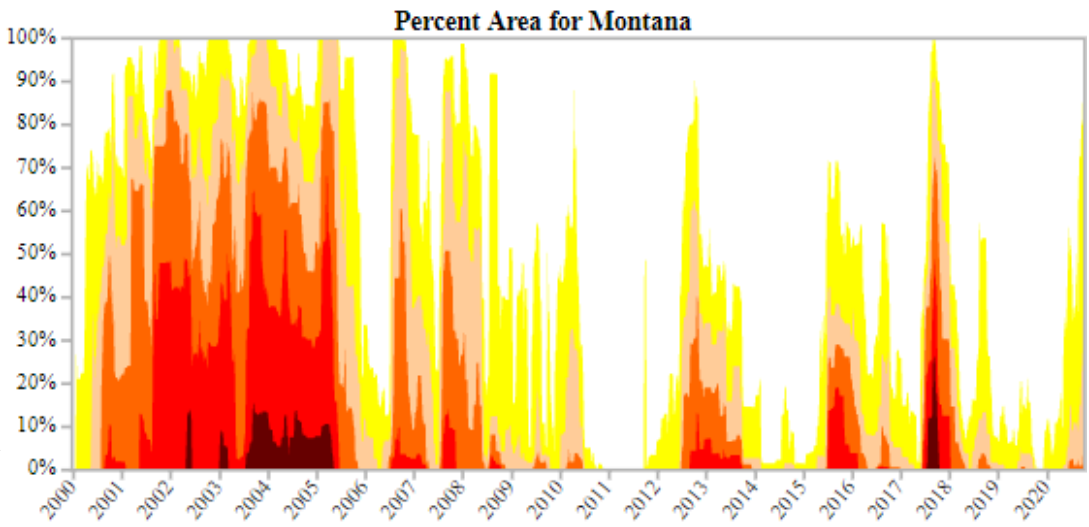
Drought Index Data

Gallatin River Watershed—September 2020



= Gallatin County





DROUGHT INDEX SUMMARY:

*Data is current as of September 29

47.55% of Montana is experiencing abnormally dry conditions at this time. Impacts include low soil moisture, poor dryland crop germination, dry pastures, and increase in fire danger, and low streamflows which can affect recreational fishing.

36.37% of Montana is experiencing moderate drought conditions. Impacts include some damage to crops and pastures, some water shortages developing, and voluntary water-use restrictions requested.

4.20% of Montana is experiencing severe drought conditions. Impacts include some damage to crops and pastures, water shortages becoming common, and water restrictions imposed.

Gallatin County is experiencing a mix of abnormally dry and moderate drought conditions.

Gallatin County Water Supply Outlook

Source Information & Helpful Links

Gallatin Conservation District:

- Archive of Reports
- Understanding the Gallatin Water Supply Outlook Report Guide

Snowpack:

- USDA / NRCS Interactive Map
- NRCS Montana Basin Wide Products
- NRCS / NWCC National Water & Climate Center

Streamflow:

- USGS Real Time Streamflow
- State of Montana Gaging Stations
- DNRC Water Right Query System

Water Storage:

- DNRC Water Projects—Middle Creek Real Time Data
- Middle Creek Early Warning System
- BOR—Montana Lakes and Reservoirs
- DNRC State Water Projects—Reservoir Storage Data

Climate:

- ACIS Database
- NRCS Montana Basin-Wide Products
- US Climate Data

Soil Moisture:

- Montana Mesonet
- DNRC Drought Status by County

Drought:

- US Drought Portal
- US Drought Monitor

Helpful Partner Websites:

- Association of Gallatin Agricultural Irrigators
- Department of Natural Resources & Conservation
- Gallatin County MSU Extension Office
- Gallatin Local Water Quality District
- Gallatin River Task Force
- Gallatin Watershed Council
- Montana Fish, Wildlife, & Parks
- Natural Resource Conservation Services
- One Montana