

Hydrologic Forecast Tenmile Creek

CONDITIONS 05/17/2020

Lewis & Clark County Water Quality Protection District

SUMMARY

Since an early seasonal peak of 226 CFS on May 1st, Tenmile Creek has been dropping and has remained above 100 CFS (flood stage @ 397CFS). Snowpack at Frohner Meadows SNOTEL site is nearly gone but higher elevations in the region are maintaining snow at normal seasonal levels. With rain, significant in some places, forecast over much of the next week, residents should be prepared for flash-flooding of Tenmile Creek if the mountains receive significant rain.

From the National Weather Service:

With snow levels expected to be above 9000-10000 feet through at least Wednesday, most of this precipitation will fall as rain on the remaining snowpack, which would lead to a significant increase in runoff. This could lead to flooding of waterways emanating from the mountains by the middle to end of the work week, especially along the Rocky Mountain Front and Central Montana mountains like the Big Belts and Little Belts. A Flood Watch may be needed for some areas. In addition, significant impacts to ranching and farming operations are also possible due to the expected heavy rain. Waterlogged soils could limit access to pastures or fields for planting.

Residents should keep track of weather patterns for increasing temperature and precipitation events which could change streamflows quickly, causing small creeks such as Tenmile Creek and Silver Creek to rise rapidly.

The following data and information is used to evaluate hydrologic conditions in the Tenmile Creek drainage. Hydrologic response of Tenmile Creek is predominantly a result of three factors.

1. **Streamflow** measured at Williams St USGS Stream Gauging Station west of the city of Helena <https://waterdata.usgs.gov/monitoring-location/06063000>
 2. **Snowpack** snow water equivalent (SWE) at the Frohner Meadow SNOTEL Station west of Augusta <https://www.nwrfc.noaa.gov/snow/snowplot.cgi?FRHM8>
 3. Short-term Helena 5-day weather (**precipitation and temperature**) projection from the National Weather Service <https://forecast.weather.gov/MapClick.php?lat=46.5924&lon=-112.0403#.XpoTqkZKjBQ>
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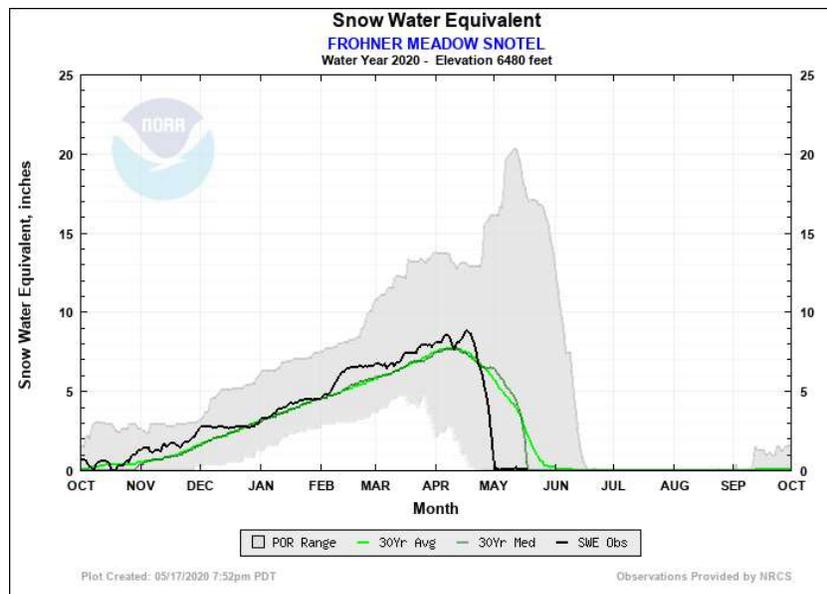
1. STREAMFLOW

Streamflow on Tenmile Creek over the past 30 days is shown below. Note May 1st peak with warm weather. Flows have been dropping since, and have stayed above 100 CFS with the recent precipitation.



2. SNOWPACK (SWE)

SWE at Frohner Meadows (6,000') is nearly gone at 0.10". 30-yr average SWE is 2.3". The chart below show loss of Frohner Meadows snowpack (**black** line) over the past month. The two next-closest regional SNOTEL stations (Rocker Peak 8,000', Nevada Ridge 7,020') show snowpack near average.



SWE May 17

3. WEATHER

Monday through next Thursday...Precipitation, which may be significant in some areas, is forecast to predominate over the next week.