

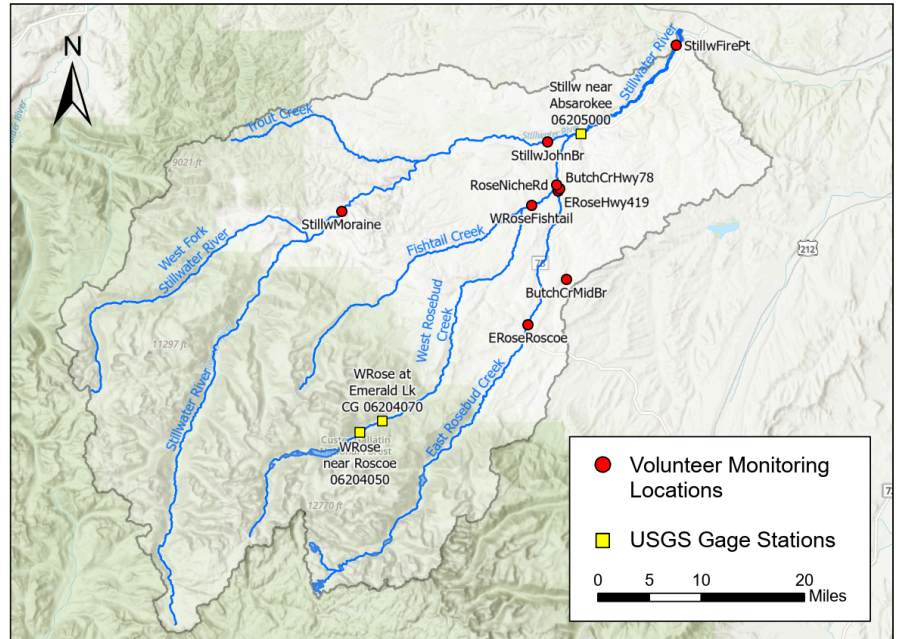
Stillwater-Rosebud Water Quality Initiative

2025

Project Overview

The Stillwater-Rosebud Water Quality Initiative's primary goal is the collection and analysis of water samples at strategic monitoring sites to provide data to guide improvements in the river corridor and promote river stewardship.

During 2020-2023, volunteers with the Stillwater-Rosebud Water Quality Initiative collected nutrient and sediment water quality data. Samples were collected at nine different sites on five streams in the watershed.



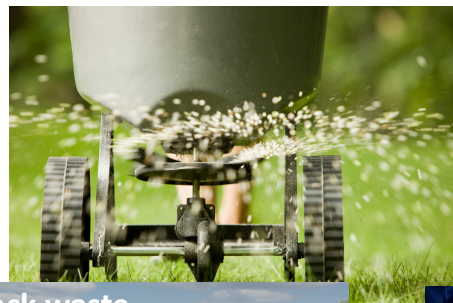
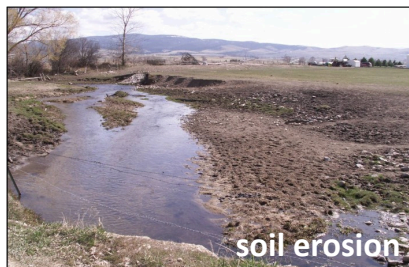
The Stillwater-Rosebud watershed starts in the Beartooth Mountains, draining northeast to the confluence with the Yellowstone River. Land uses within the watershed include crop production, grazing, rural development and mining.

Volunteers collected:

- TN - Total Nitrogen
- TP - Total Phosphorus
- NO₂ + NO₃ - Nitrite + Nitrate
- TSS - Total Suspended Solids

Nutrient Impacts and Sources

Nutrients (nitrogen and phosphorus) are naturally occurring in streams. Excess amounts can create undesirable algae growth that can negatively impact recreation and aquatic life.



This report summarizes water quality monitoring completed by the Stillwater Valley Watershed Council from 2020-2023 and analysis work completed by Paula Diaz, with assistance from MSU Extension Water Quality staff.

Funding was provided by DEQ, DNRC, Trout Unlimited and Monitoring Montana Waters. All water quality data collected is publicly available on the National Water Quality Portal: waterqualitydata.us.



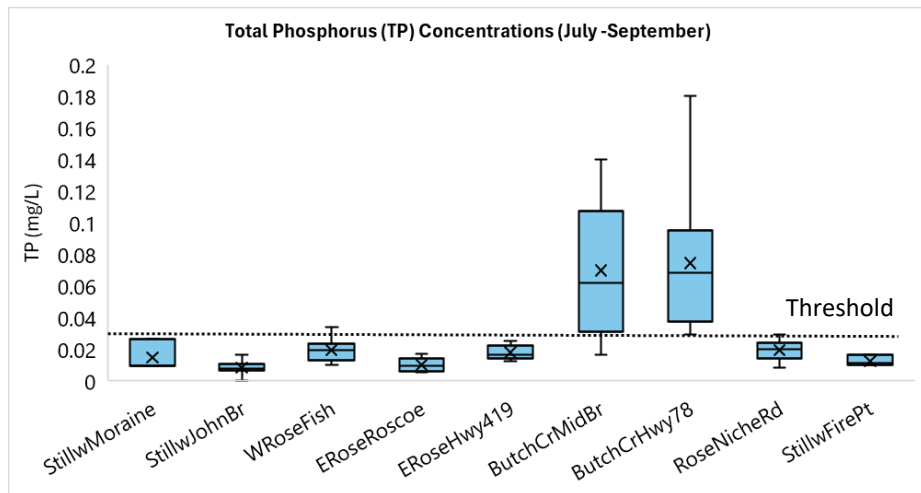
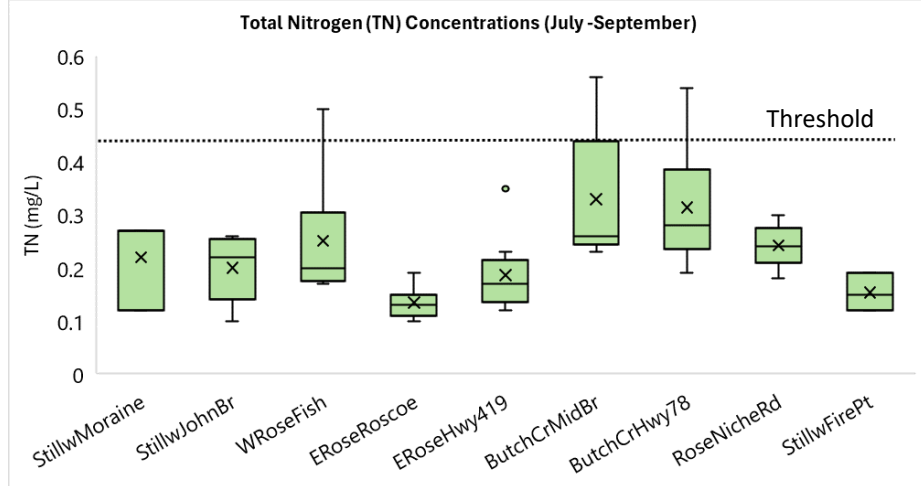
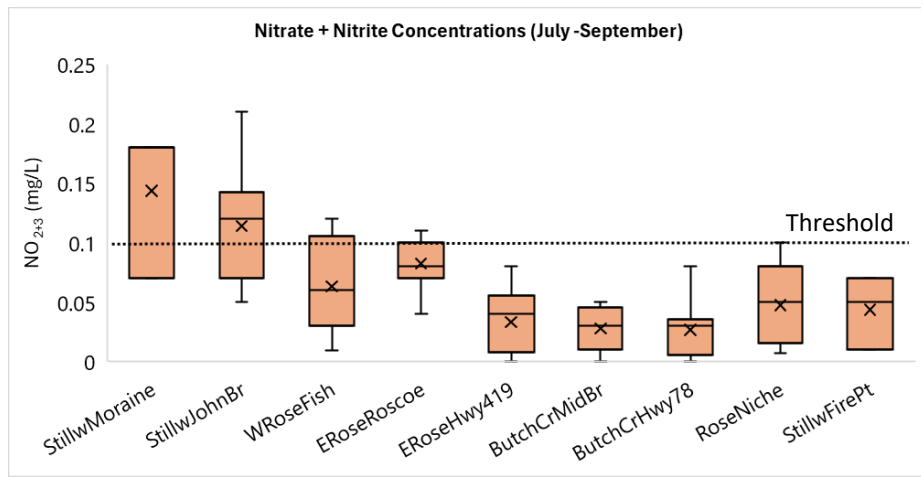
Results and Thresholds

Nutrient results collected from July-September from monitoring years 2020-2023 are shown in the graphs on the right. Results were compared against regional thresholds developed by DEQ. When nutrient concentrations are above thresholds, increased algal growth can occur. Each graph shows a different nutrient.

The graphs are box and whisker plots. The boxes and extended lines represent all the data collected at each of the nine sites. The box represents the data between the 25th and 75th percentiles. Inside the box, the x represents the average, while the small horizontal line represents the median (the middle data point).

Key Findings

- Nitrate + Nitrite concentrations on the Stillwater River are highest at the two upstream sites (Stillwater River at Moraine FAS and Stillwater River at Johnson bridge). Data indicates nitrate + nitrite (the dissolved form of nitrogen) is being transported into the Stillwater River via groundwater, due to higher concentrations in the winter.
- On Butcher Creek, total nitrogen (TN) concentrations are high but nitrate concentrations are low. This indicates a different form of nitrogen is being transported into the Butcher Creek via overland flow and/or bank erosion.
- The highest total phosphorus (TP) concentrations within the watershed occurred at the Butcher Creek sites. Because phosphorus readily attaches to soil, phosphorus is being transported into Butcher Creek via soil erosion and surface runoff.



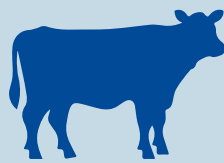
To find the full report visit:
waterquality.montana.edu/vol-mon/reports/stillwaterwvc

What Steps Can I Take To Help Water Quality?

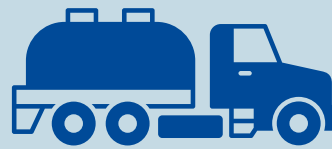
Montanans living in the Stillwater-Rosebud watershed can help maintain and improve water quality. Here are some ways you can help limit excess nutrients:



Maintain & plant native vegetation along streambanks



Keep animal waste and fertilizer out of streams



Schedule regular septic maintenance



Replace failing septic systems

Learn more at: deq.mt.gov/water/programs/nonpoint & stillwatervalleywatershed.com