

Rock Creek Water Quality Monitoring

2026

Project Overview

The Rock Creek Water Quality Monitoring project's objective is to gather baseline data on nutrients, sediments, and water temperature.

During 2022-2024, volunteers with the Carbon County Resource Council collected nutrient, sediment, and water temperature data. Samples were collected at eleven different sites on four streams in the watershed.

Volunteers collected:

- Total nitrogen & nitrate
- Total phosphorus
- Total suspended solids
- Water temperature

Nutrient Sources and Impacts

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



Why is Water Quality Important?

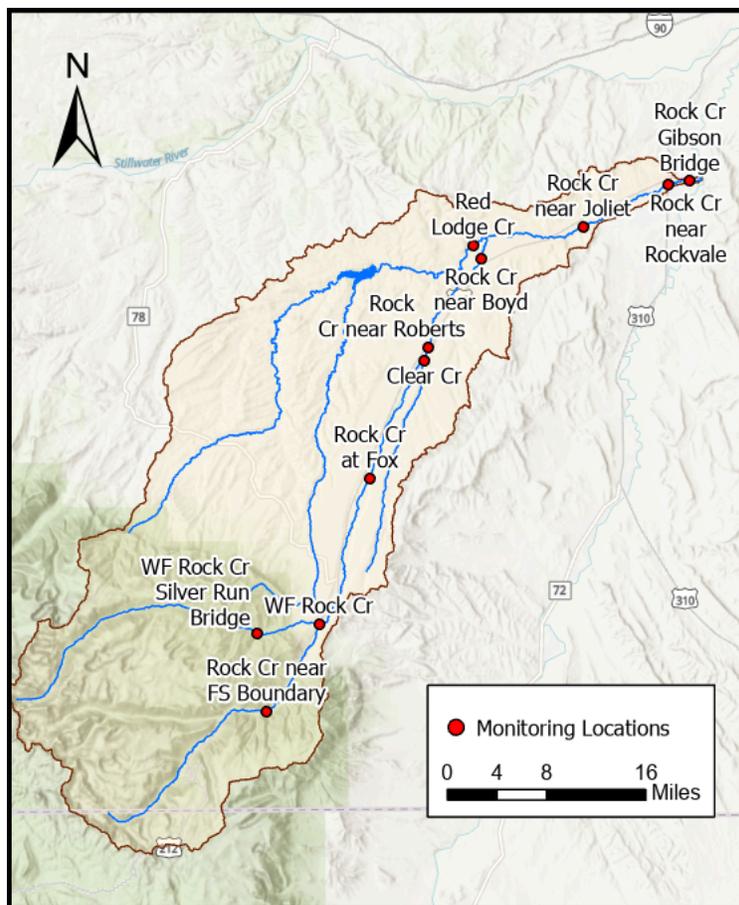
Good water quality is essential for our communities, health, environment, and economy.

Good water quality is important for:

- Drinking water
- Fish and wildlife
- Irrigation
- Recreation

Poor water quality can lead to:

- Clogged or damaged irrigation infrastructure
- Increased drinking water treatment costs
- Negative impacts to fisheries
- Reduced recreational opportunities



The Rock Creek watershed starts in the Beartooth Mountains, draining northeast to the confluence with the Clarks Fork of the Yellowstone River. Land uses within the watershed include timber harvest, recreation, crop production, grazing, and rural development.

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

This handout summarizes analysis work completed by Samuel Gabrielson and Wesley Cousin, with assistance from MSU Extension Water Quality staff.



Results

Nutrient results collected May - October from monitoring years 2022-2024 are shown in the graphs to the right.

The graphs are box and whisker plots. The boxes and extended lines represent all the data collected at each of the eleven 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

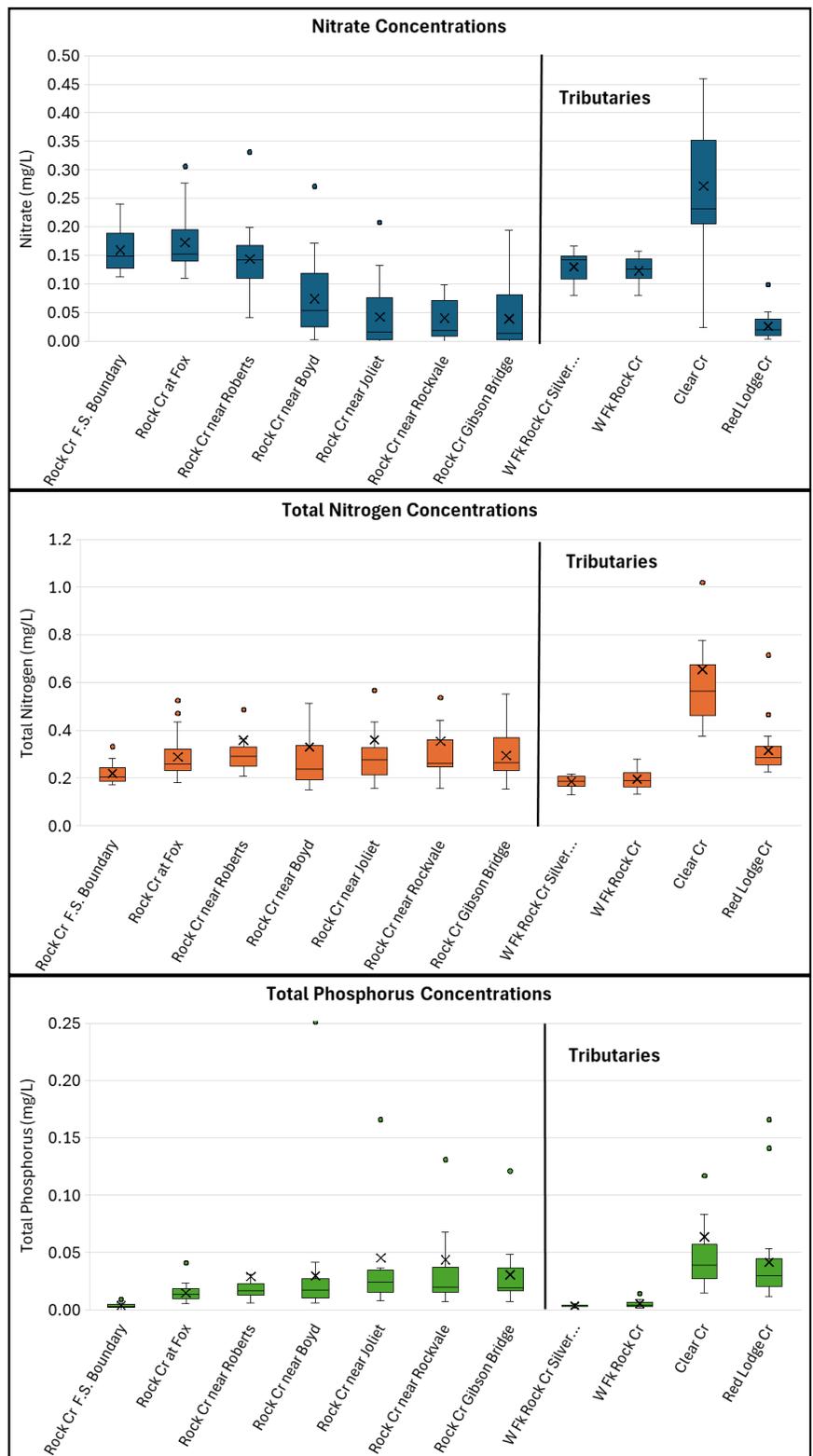
On Rock Creek nitrate concentrations (the dissolved form of nitrogen available for aquatic plant growth) decrease from upstream to downstream. Clear Creek (a tributary to Rock Creek) consistently had the highest nitrate concentrations.

On Rock Creek total nitrogen concentrations generally increase from upstream to downstream. Sources of nitrogen in the Rock Creek watershed may include groundwater, septic systems, fertilizer, animal waste, and decomposing aquatic plants and algae.

Within the watershed, total phosphorus and total suspended sediment concentrations are lower in the headwaters and begin to increase downstream of Red Lodge. Phosphorus concentrations are associated with sediment, which means phosphorus is being transported into the waterbodies via soil erosion and surface runoff.

Within the watershed, water temperature increases from upstream to downstream.

For the full report visit:
waterquality.montana.edu/vol-mon/reports

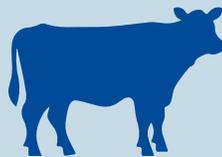


What Steps Can I Take To Help Water Quality?

Montanans living in the Rock Creek 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