

The Gallatin River: Yellowstone National Park to Spanish Creek

The middle segment of the Gallatin River is located in the Middle Rockies ecoregion and originates at the Yellowstone National Park boundary flowing 39.28 miles to its confluence with Spanish Creek.

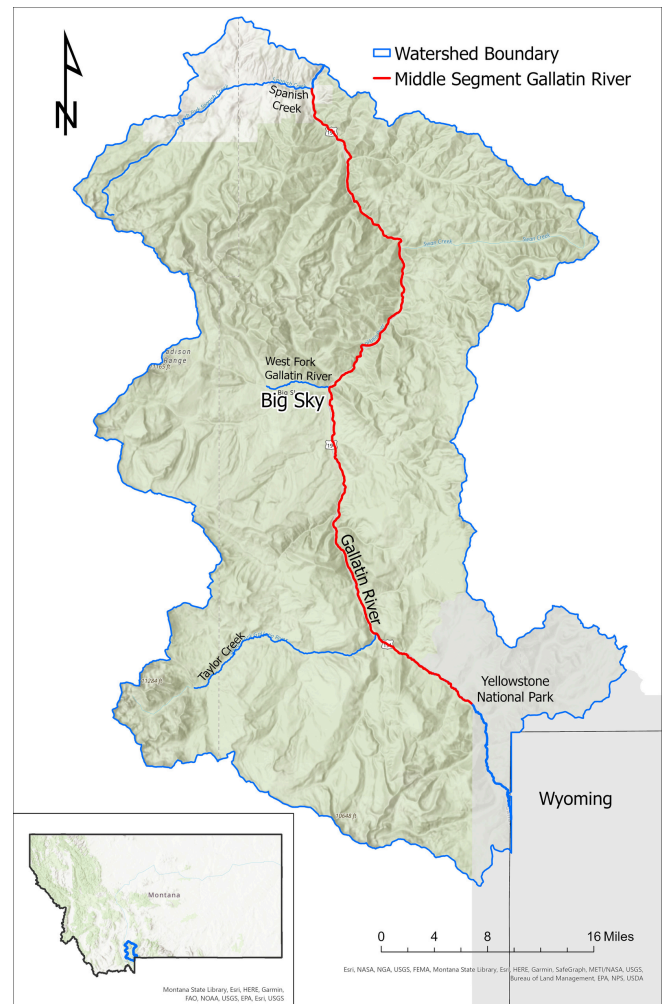
Project Background

The Gallatin River Task Force (Task Force) has been monitoring water quality in the West Fork Gallatin River watershed for many years, including limited sites on this segment of the Gallatin River.

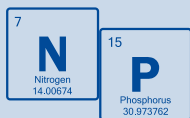
In 2018, the Department of Environmental Quality (DEQ) received reports of increased algae growth on the middle segment of the Gallatin River. In response, DEQ partnered with GRTF to increase the parameters, number of sites, and frequency of sampling within this segment.

On March 31st, 2022, DEQ received a petition to assess the middle segment of the Gallatin River and determined the recurrent excessive algal blooms required listing as an impaired water on Montana's 303(d) list.

On May 9th, 2023, the Environmental Protection Agency (EPA) approved the algae listing and it was included as an addendum to the 2020 Water Quality Integrated Report.



Factors Affecting Algae Growth



Nutrients



Sunlight



Shade



Temperature



Groundwater



Biological
Interactions

Determining Drivers of Algae Growth

Results of the impairment listing efforts showed that nitrogen and phosphorus were within acceptable ranges to protect water quality; however, excess algal growth was still observed for consecutive summers. This finding spurred DEQ's intensive monitoring project aimed at studying the Gallatin River watershed and local drivers of algal growth. This study, initiated in 2023, will allow DEQ to model algal growth and help determine when and why excess algae is proliferating within the middle segment of the Gallatin River.

DEQ staff are collecting data related to nutrient concentrations, temperature, stream flow, algae biomass, algae diversity, shade, and many other factors that can influence algae growth.



Photo from DEQ in 2022

A resulting Qual2k model will use mass balance principles and a series of equations to quantify sources of nutrients and better understand drivers of algae growth.

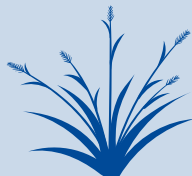
The study will help refine 303(d) listings, determine pollutant sources contributing to the algae growth, and determine appropriate Total Maximum Daily Loads (TMDLs) to address the causes of impairment. A TMDL creates a pollution budget for the waterbody and determines the amount of pollutant reduction needed from each identified significant source of the pollutant. Once that has been determined, a Watershed Restoration Plan is created in collaboration with community watershed groups to identify ways to improve the water quality.

What Steps Can the Public Take to Help Water Quality?

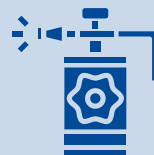
Montanans living near and around the Gallatin River can help maintain and improve water quality. Here are some ways you can help:



Schedule regular septic maintenance and replace failing septic systems



Plant native vegetation along stream banks and shoreline



Limit the use of fertilizers



Incorporate sufficient setbacks to surface water and natural buffer areas into development.