



# 2023 Nonpoint Source Program Annual Report

Montana Department of Environmental Quality

Photo: Gallatin River

**What is Nonpoint Source Pollution?**

## Water Q&A - What is Nonpoint Source Pollution?



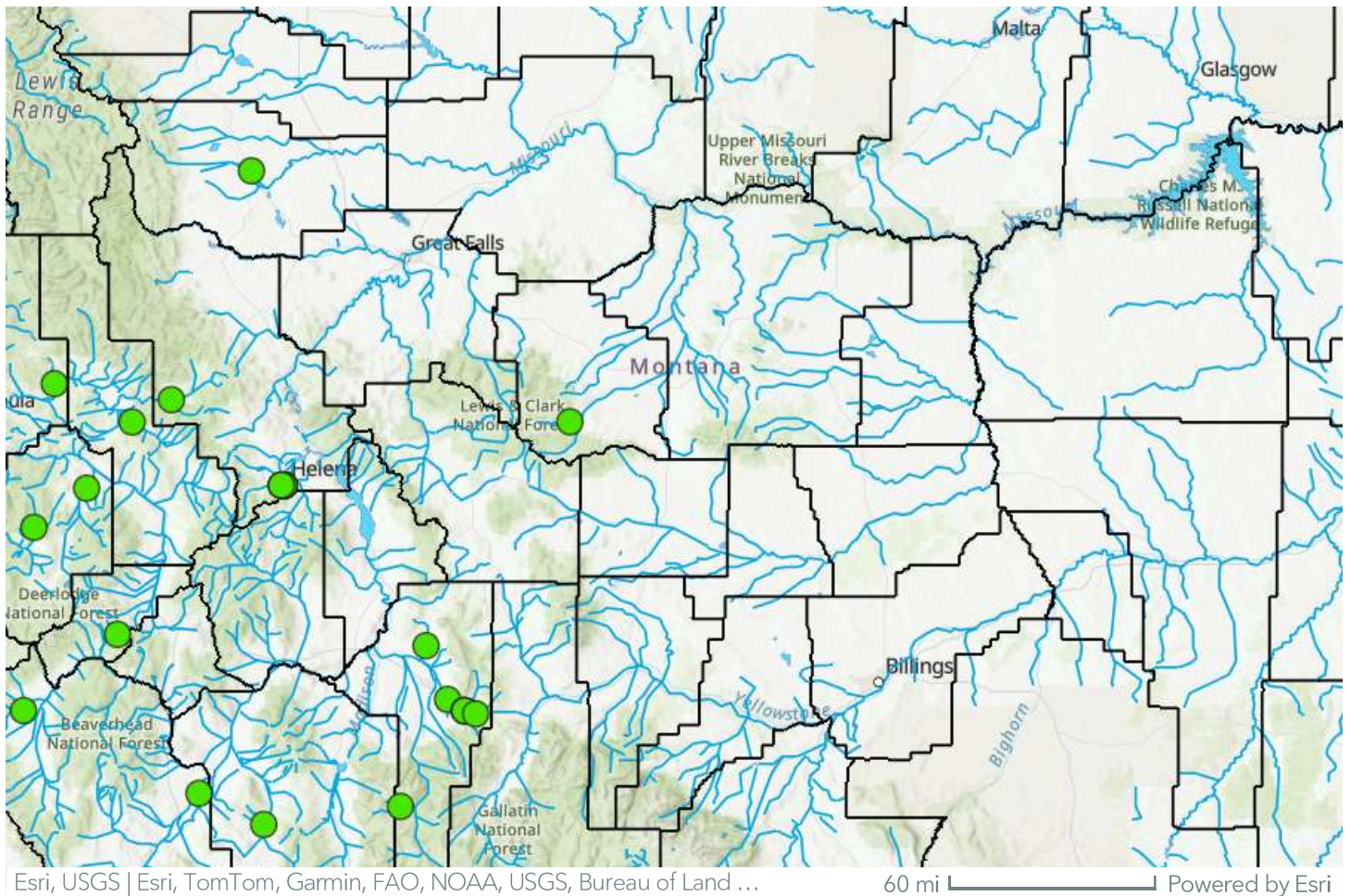
Nonpoint source pollution occurs when rain or melting snow runs over or through the ground, picking up natural and human-caused pollutants, before depositing them in lakes, rivers, and wetlands.

Examples of nonpoint source pollution include:

- residential or agricultural fertilizer
- sediment from eroding land and streambanks
- chemicals from urban areas
- bacteria and nutrients from animal and human waste

Human activities on land have the potential to contribute pollution into lakes and rivers, but using best management practices can reduce that impact.

The goal of Montana's Nonpoint Source program is to protect and restore our waters from the harmful effects of nonpoint source pollution.



## 2023 At A Glance

Each year, the Montana Department of Environmental Quality (DEQ) receives a federal Clean Water Act Section 319 grant to improve water quality by addressing nonpoint source pollution.

DEQ uses this award to fund locally-sponsored restoration, education, and planning projects through a competitive process.

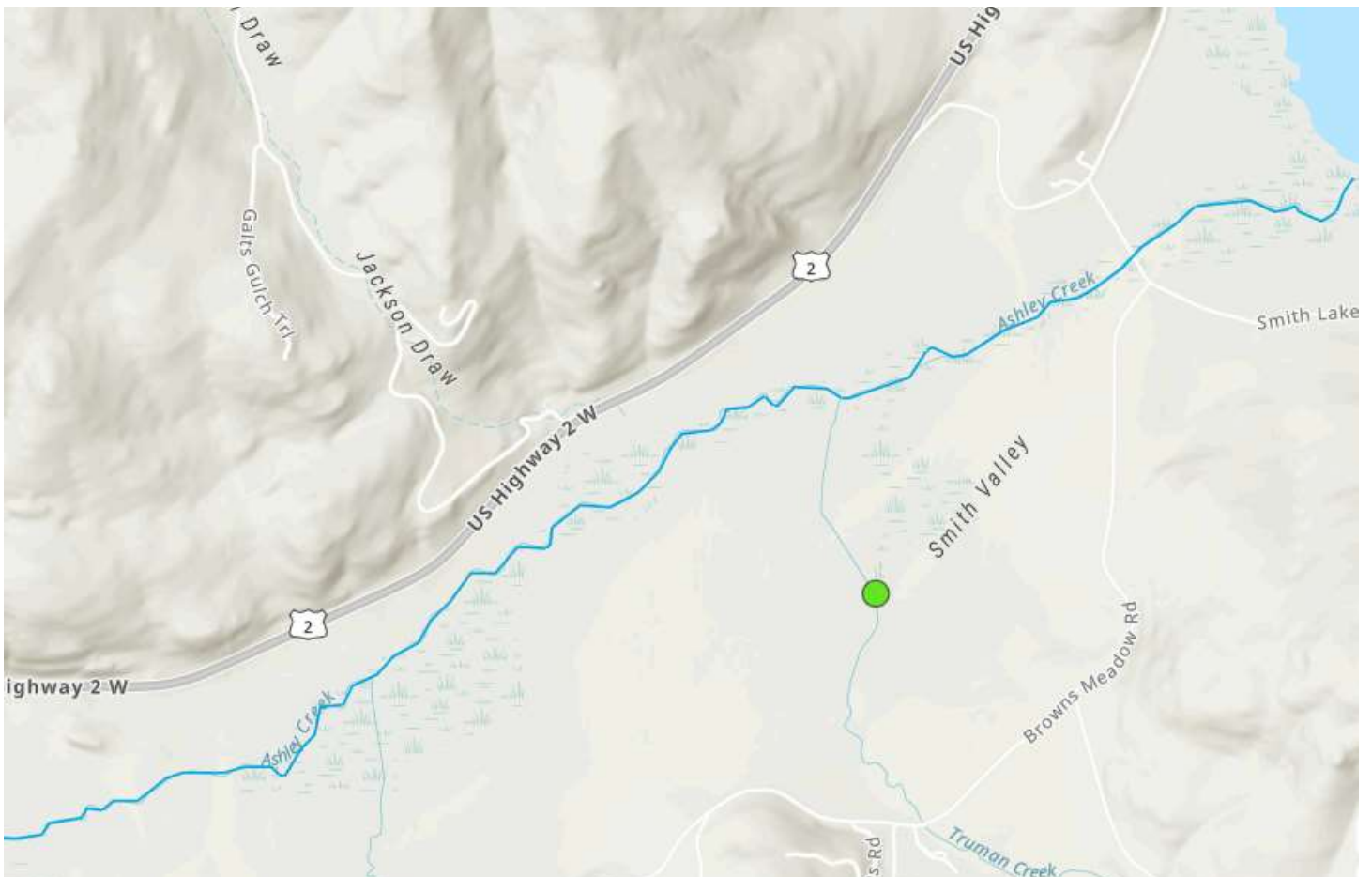
A total of 47 restoration, education, and planning projects were active in 2023 (click each green point to learn more), 10 of those were newly initiated and 9 were completed. Projects completed in 2023 reduced pollution by 334 tons/year of sediment, 195 pounds/year of nitrogen, and 194 pounds/year of phosphorus. Learn more about applying to our grant program [HERE](#).



## 2023 Nonpoint Source Accomplishments Table

[http://mtwaterqualityprojects.pbworks.com/w/file/fetch/156916791/2024.04.26\\_AccomplishmentsTable2023\\_FINAL.pdf](http://mtwaterqualityprojects.pbworks.com/w/file/fetch/156916791/2024.04.26_AccomplishmentsTable2023_FINAL.pdf)

## Projects Funded in 2023



Esri, NASA, NGA, USGS, FEMA | Montana State Library, Esri, TomTom, Ga...

0.4 mi | Powered by Esri

### **Truman Creek Restoration at Montana Better Beef**

Montana Audubon received \$56,739 to reduce nonpoint source pollution along 1,440 feet of Truman Creek. Project activities include native riparian plantings, cattle exclusion fencing, installation of a cattle bridge crossing, and reseeding/forage improvements.



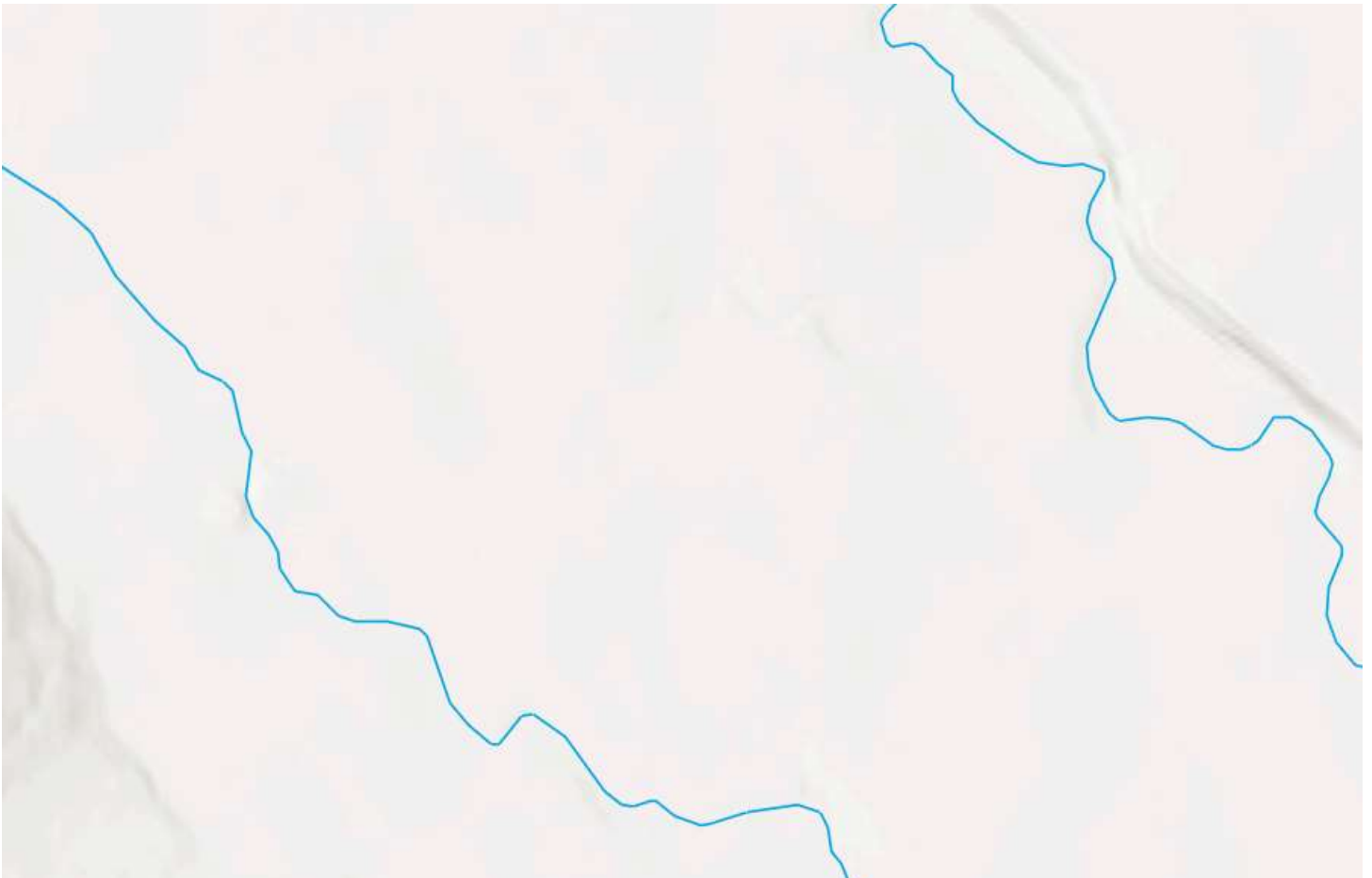
Esri, NASA, NGA, USGS, FEMA | Montana State Library, Esri, TomTom, Ga... 0.4 mi  Powered by Esri

## **Upper Willow Creek Habitat Restoration**


Trout Unlimited received \$105,600 to implement water quality improvement projects at two sites on Upper Willow Creek in the Rock Creek watershed to reduce nutrient and sediment loading and improve riparian habitat conditions. The project includes relocating a feedlot to an off-stream site, providing an alternative water source for cattle, and revegetating approximately 200 feet of stream channel.



*Pre-project conditions showing poor riparian condition in an existing feedlot that will be moved upland to allow riparian vegetation to recover, reducing sediment and nutrient pollution in Willow Creek. (photo: TU)*



Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, Cou...

1000 ft  Powered by Esri

## **Teton Spring Creek Restoration**

Montana Freshwater Partners received \$50,017 to install Beaver Dam Analogs (BDAs) within a 0.8 mile reach of Teton Spring

Creek. The BDAs will aggrade the stream channel, trapping excess fine sediments and reconnecting the stream to its floodplain, allowing native riparian vegetation to reestablish, improving water quality and water storage.



*Cattle impacts to Teton Spring Creek have disconnected the stream channel from the floodplain. (photo: MT Freshwater Partners)*



## Thompson #2 Mine Reclamation

### Low-Tech Process Based Restoration

The Gallatin Watershed Council received \$43,450 to install approximately 25 beaver dam analogues (BDAs) and post-assisted log structures (PALs) on three perennial, spring creek tributaries to Rocky Creek. The project area is below an abandoned mine site on which DEQ is completing reclamation. The BDA and PALs structures will help mitigate channel incision, reconnect the streams to their natural floodplain, and raise the groundwater table. Creating wetter conditions will increase wetland and riparian areas at the site, benefiting wildlife habitat - an important goal of the landowner. Small pools will attenuate mining waste, sediment, and excess nutrients before entering Rocky Creek and eventually the East Gallatin River.



*Pre-project conditions on the small spring creek. The channel is incised, with upland grasses growing up to the edges. The wetlands created by this project will improve wildlife habitat, an important goal of the landowner. (photo: Gallatin Watershed Council)*



## **Restoration of Lower Mandeville Creek**

Trout Unlimited received \$183,076 to install 35 BDAs and PALs and revegetate with native woody riparian species along approximately 1.2 miles of Mandeville Creek and ~1,000 feet of Farmers Canal. These structures will encourage floodplain connection and re-establish stream and wetland processes that attenuate sediment and nutrients. BDAs and PALs will also create more varied in-stream and riparian habitat that are critical for trout, amphibians, and other aquatic life.



*Stakeholders tour the project site pre-restoration, located on State Trust Land within Bozeman city limits. With a long history of grazing leases, the parcel has very little woody riparian vegetation.*

*(photo: Trout Unlimited)*

## **Restoring Riparian Function in the Bull River Watershed**

The Lower Clark Fork Watershed Group received \$69,196 to reduce sediment inputs and improve altered streamside vegetation along the Bull River by re-establishing riparian vegetation and maintaining existing riparian plantings. Project activities will address unstable banks due to loss of woody vegetation and spread of reed canary grass by continuing a long-term program of planting and maintaining native woody species along the East Fork and mainstem of Bull River's stream and floodplain areas.

Powered by Esri

## **Upper East Gallatin Floodplain and Wetland Restoration Project**

The Gallatin Watershed Council received \$268,950 to construct an off-channel slough and wetland complex along the East Gallatin River, and re-establish riparian vegetation along a 200-foot section of eroding bank. The wetland design will reactivate several



channel scars in the floodplain to create a series of oxbow features that might be expected to occur naturally. The ground elevation will be re-contoured to encourage a complex emergent wetland ecosystem with diverse plant communities, habitat structure, and hydrology.



*A history of grazing on the property has led to a lack of deep-rooted riparian vegetation that has destabilized streambanks, allowing them to erode during high flows. (photo: Gallatin Watershed Council)*

## **Projects Completed in 2023**

## **Sims Meander Stream & Floodplain Restoration**

Green Mountain Conservation District received \$185,389 to reduce sediment inputs and improve altered stream-side vegetation along the Vermillion River by reestablishing a functional floodplain, stream channel, and riparian vegetation. Project tasks included recontouring the floodplain along approximately 2,000 feet of stream channel, installing floodplain and in-stream structures to trap fine sediments and create dynamic habitat, and planting native trees and shrubs in the floodplain along the stream channel.

This project reduced sediment loads in the Vermillion River by 36 tons/year.



*Large woody debris was placed in the stream channel to help the river disperse onto its floodplain during high flows, and to create varied in-stream habitat. (Pre- [top] and Post-Construction Photos: Lower Clark Fork Watershed Group)*



## Bitterroot River Park Riparian Revegetation Project

The Bitterroot Water Partnership received \$121,350 to reestablish native riparian species along streambanks at a future public park property in Hamilton, increasing shading and reducing in-stream temperatures along the Bitterroot River. Educational materials were installed to inform park visitors and community members about the effects of nonpoint source pollution.



*Interpretive signs inform park visitors about the importance of willows in preventing erosion and sediment pollution in streams. (Photo: BRWF)*

## **Lower Bitterroot Tributary Restoration**

The Clark Fork Coalition received \$308,000 to reduce sediment loading in Upper Lolo, O'Brien, and Miller Creeks. Activities included new channel construction, floodplain grading, addition of large woody debris, willow planting, and riparian fencing.



*The eroding streambanks of Miller Creek were reconstructed and revegetated to reduce erosion.*

*(Pre- [top] and Post-construction Photos: CFC)*



## **Upper Oregon Creek Restoration**

The Big Hole Watershed Committee received \$85,232 to construct gully check dam structures and revegetate bare upland areas in the upper reaches of Oregon Creek, reducing sediment loading and restoring natural conditions that will improve water quality, natural water storage, wetland creation, and floodplain connectivity.



*Check dam structures installed during low flow improve natural storage and floodplain connectivity.*

*(Photos of the project during low flow [top] and high flow periods: BHCW)*

## **Nevada Creek Restoration - Phase 5**

The Big Blackfoot Chapter of Trout Unlimited received \$100,000 to reduce sediment and nutrient loading in Nevada Creek by treating 3,538 feet of eroding stream banks, installing over 17,000 willows and incorporating a grazing management system to better utilize the upland habitat while protecting the riparian areas.



*A grazing management plan has focused pastures in upland areas, allowing riparian vegetation to re-establish. (Pre- [left] and Post-construction Photos: BBFCTU)*

# DEQ's Water Quality Planning Efforts



## Standards & Modeling Section

The Standards & Modeling Section monitors DEQ stream reference sites to collect chemical, biological, and physical data that are useful for describing water quality reference conditions in Montana's ecoregions. Seventeen sites were visited in 2023, and efforts are underway for trend analysis and reporting.

*DEQ staff collect data on the Gallatin River.*





## **Monitoring & Assessment Section**

During 2023, DEQ's Monitoring & Assessment Section conducted monitoring on Cooney Reservoir and the Upper Missouri River, and on sites throughout the Clarks Fork Yellowstone and Gallatin watersheds.

Staff also drafted assessment methods for ammonia, dissolved oxygen, pH, large river eutrophication, and lake & reservoir eutrophication, as well as selenium methods for Lake Koocanusa and the Kootenai River.

Continued nutrient trend monitoring on the Clark Fork and Bitterroot Rivers was supported through local partnerships.

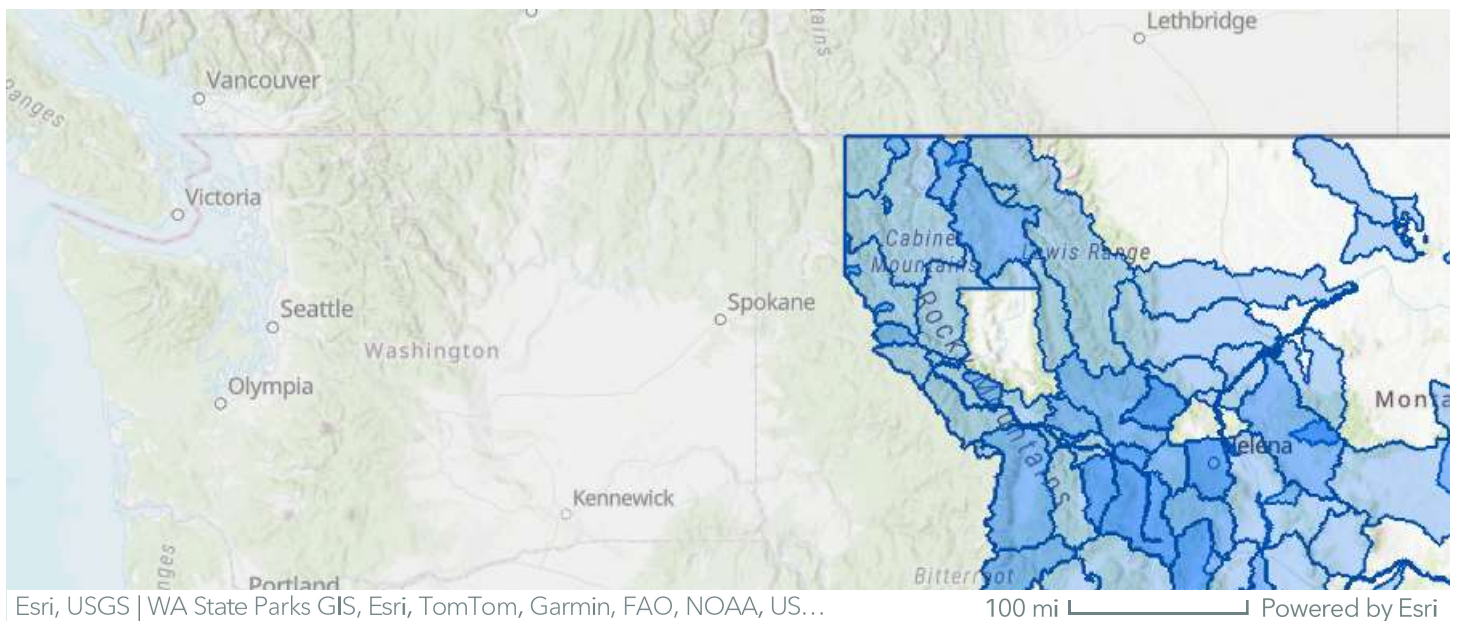
*Monitoring & Assessment staff collect data from Bear Creek, a tributary to the Clarks Fork of the Yellowstone.*





DEQ also continues to provide technical and financial resources for volunteer monitoring programs. In 2023, the DEQ Monitoring and Assessment Section awarded \$35,963 to nine volunteer monitoring programs through the [Lab Analysis Support Program](#). Volunteer programs heighten awareness of water resource issues and solutions. They also help increase the amount of credible data available for decision making. Please check out the [DEQ Volunteer Monitoring Dashboard](#) to learn more about these programs.

*DEQ staff cover algae sample collection at the 2023 Volunteer Monitoring Training at Flathead Biological Station.*



## Water Quality Improvement Plans (TMDLs)

Many watersheds in Montana have Total Maximum Daily Load (TMDL) reports which discuss causes, sources, and solutions to water quality impairments. Click on a [blue](#) watershed on the map to see the TMDL status and view a copy of its report. In 2023, DEQ published the Bitterroot River Nutrient Protection Plan, which provides information that, with local support, can keep the river from becoming impaired.

TMDL development work continues for nutrient impairments in the Beaverhead and Red Rock watersheds, with the Beaverhead TMDLs planned for submittal to EPA in early 2024.





## **Nonpoint Source Program**

The Nonpoint Source Program continued to focus 319 project funding in the Lower Gallatin watershed, and the 2023 Call for Applications again earmarked up to 50% of the funding for projects located in Gallatin Valley.

*Volunteers explore the East Gallatin River. (Photo: Gallatin Watershed Council)*





## Harmful Algal Blooms

DEQ continues to support outreach and monitoring for harmful algal blooms (HABs). In 2023, a record 55 of 80 citizen reports were confirmed to be HABs. Visit [HAB.mt.gov](https://hab.mt.gov) for more information, to submit a suspected HAB report, and view a map of recent reports.

*Algae washed ashore on Nevada Creek Reservoir, photo submitted to the HAB Program in 2023.*





## **Wetlands Program**

In 2023, DEQ's Wetlands Program continued wetland effectiveness monitoring to quantify site-specific nutrient and sediment load reductions associated with wetland restoration. Project data from sites around Montana can be found in the [Wetland Restoration Effectiveness Dashboard](#).

The Wetlands Program continues to develop maps and disturbance indices that will identify areas where the greatest potential negative impact on wetland function could occur. Tools like this, along with incorporating wetland assessments into TMDL documents and quantifying load reductions from wetland restoration projects, should increase implementation of wetland restoration projects around the state.

*DEQ and Trout Unlimited staff install shallow groundwater monitoring wells at the Mandeville Creek restoration project site, assisted by a curious onlooker.*

## **Our Partners**

The Nonpoint Source Program works with local, state, and federal partners to provide necessary resources that address nonpoint source pollution. These last sections summarize only a few of our partnerships, which are too numerous to fully capture here.



## **Montana Association of Conservation Districts (MACD)**

Created in 1942, MACD is a nonprofit association that supports Montana's conservation districts as the lead voice for locally-led natural resource conservation.



In 2023, MACD received \$96,000 in 319 project funding for the [Ranching for Rivers](#) program. Through the program, MACD offers 50% cost-share to landowners for fencing material, off-site water infrastructure, and for development of grazing management plans.

*(MACD website)*



MACD also coordinated the [Education and Outreach Water Quality Mini-Grant Program](#) with funding provided through Nonpoint Source Program 319 Grants. Since 2010, MACD has successfully awarded funding to dozens of Montana organizations for education and outreach projects. Past projects have included youth educational field trips, workshops for landowners, educational videos, news articles, community events, and more.

In 2023, MACD awarded 4 mini-grants for education and outreach projects, totaling \$8,236 to the Cascade, Fergus, Missoula, and Ruby Valley Conservation Districts. MACD accepts mini-grant applications every spring.



*Participants decorate their final products at the Fergus Conservation District's rain barrel event. (Photo: Fergus County CD)*

## **Montana Watershed Coordination Council (MWCC)**

MWCC's mission is to unite and support Montana's community-based conservation networks to promote healthy and productive watersheds.

In 2023, MWCC's Watershed Fund distributed \$160,000 in grants to 34 local organizations for capacity-building, professional development, and on-the-ground projects. The [Watershed Fund](#) has distributed more than \$1.14 million since 2018, supporting local watershed conservation efforts that have implemented 336 conservation practices; improved 1,477 miles of river and lakeshore; engaged 13,168 local stakeholders; and made 23,590 acres more resilient to changing conditions.

(MWCC Website)



2023 also marked the 12th year of the [Big Sky Watershed Corps Program](#) (BSWC). This AmeriCorps program is a partnership between MWCC, Montana Association of Conservation Districts, and Montana Conservation Corps. In 2023, 42 BSWC members served with organizations across Montana. Corps members conducted education and outreach events and organized volunteer activities to revegetate streambanks, protect riparian buffers, and monitor water quality.

*Volunteers monitor stream discharge in the Lower Ruby Watershed, a project coordinated by a 2023 BSWC member. (Photo: RVCD)*

## **Acknowledgements**

This report was prepared by Torie Haraldson and reviewed by Hannah Riedl, Nonpoint Source & Wetlands Section staff at the Montana Department of Environmental Quality.

Contributors include Deb Call, Tiffany Lyden, Steve Carpenedo, Meagan Gilmore, Mark Ockey, Abbie Ebert, Troy Clift, Christy Meredith, Gabby Metzner, Christina Staten, Katie Makarowski, and Darrin Kron (DEQ), Brenna Rietmann (MACD), and Terri Nichols (MWCC).

Photos are from DEQ unless otherwise noted.

*Suggested citation: Department of Environmental Quality. 2024. Montana Nonpoint Source Program 2023 Annual Report. Helena, MT: Montana Department of Environmental Quality.*

**Montana Dept. of  
Environmental Quality** 1520 E. Sixth Avenue,  
Helena, MT, 59601