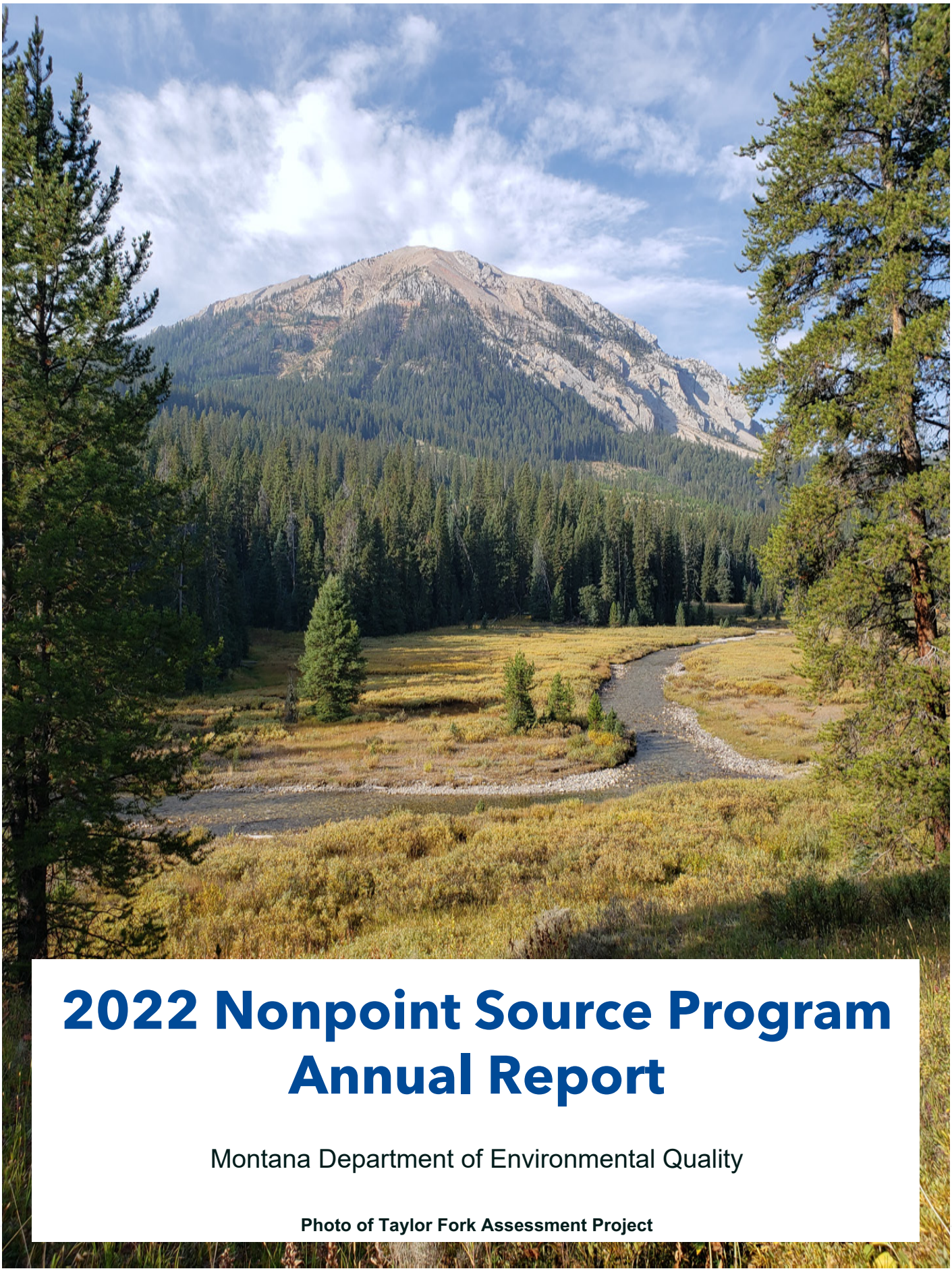


2022 Nonpoint Source Program Annual Report

Montana Department of Environmental Quality

Photo of Taylor Fork Assessment Project

What is Nonpoint Source Pollution?

Nonpoint source pollution occurs when rainwater or melting snow runs off or through the ground. This runoff water can pick up natural and human-caused pollutants, eventually depositing them into lakes, rivers, and wetlands.

Water Q&A - What is Nonpoint Source Pollution?



Examples of nonpoint source pollution include:

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

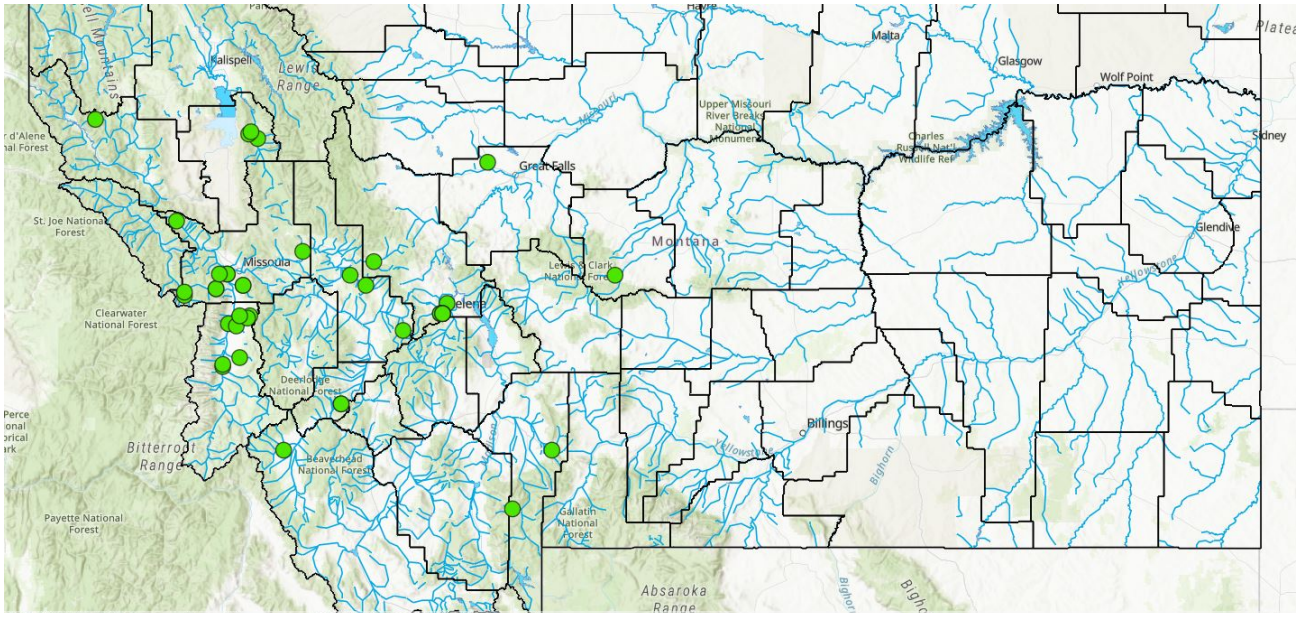
Human activities on land have the potential to contribute pollution into lakes and rivers, but using best management practices can reduce that impact.

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

2022 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 36 restoration, education, and planning projects were active in 2022 (click each point to learn more), 13 of those were newly initiated and 7 were completed. Projects completed in 2022 reduced pollution by 169 tons/year of sediment, 802 pounds/year of nitrogen, and 718 pounds/year of phosphorus. Learn more about applying to our grant program **HERE**.



2022 Accomplishments

Click here to review progress towards the Measurable Milestones from the Montana Nonpoint Source Program Accomplishments Table:

http://mtwaterqualityprojects.pbworks.com/w/file/fetch/152246310/AccomplishmentsTable2022.pdf

Projects Awarded 2022 Funding

Nine Projects were Newly Funded in 2022

The Big Blackfoot Chapter of Trout Unlimited received $100,000 to reduce nonpoint source pollution along 3,900 feet of **Nevada Creek**, a tributary to the Blackfoot River. This phase of work builds on similar restoration projects in the Nevada Creek watershed over several years.



Nevada Creek 319 Project Video

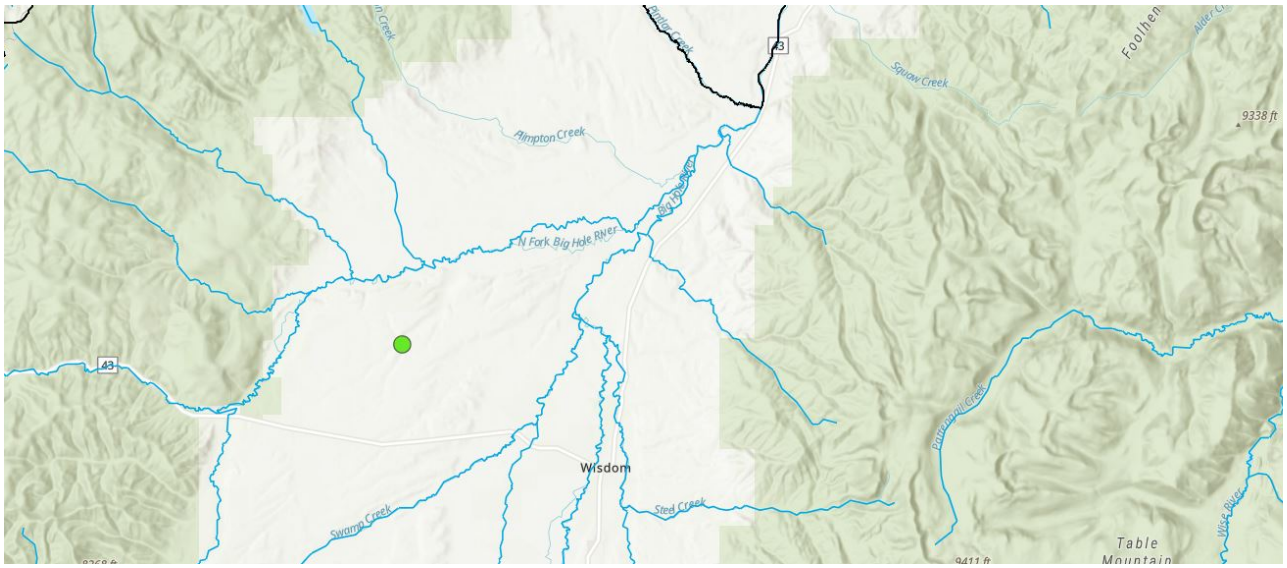
This video highlights a previous restoration project on Nevada Creek, funded through 319 grants

https://www.youtube.com/embed/ONg3Av76GNo



Projects Awarded 2022 Funding

The Big Hole Watershed Committee received $110,100 to prevent further degradation of the **Smith Sage Springs Wetland**. The project will install riparian fencing, implement a grazing management plan, eliminate stream headcuts, and restore 4.5 acres of wetlands.



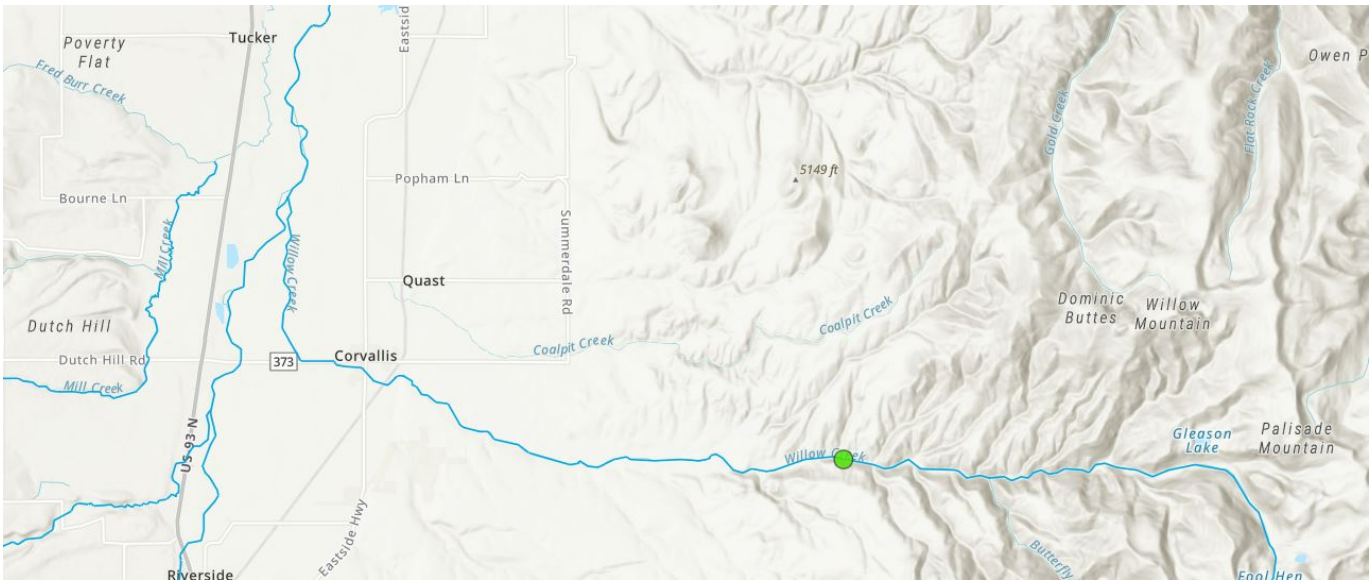
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Pre-project conditions showing current degradation of Smith Sage Springs Wetland. Riparian fencing and restoration activities will restore important wetland functions (photo by Big Hole Watershed Committee).

Projects Awarded 2022 Funding

The Bitter Root Water Forum received $191,500 for three projects. The first project will assist private landowners with streamside restoration work and best management practices to reduce pollutant loading. The second project will revegetate and install protective fencing for plantings at fishing access sites to lower temperature and reduce sediment loading. The third project will stabilize streambanks, install fencing and water gaps to reduce livestock impacts to the creek, and revegetate 1000 feet of **Willow Creek** to reduce sediment loading.

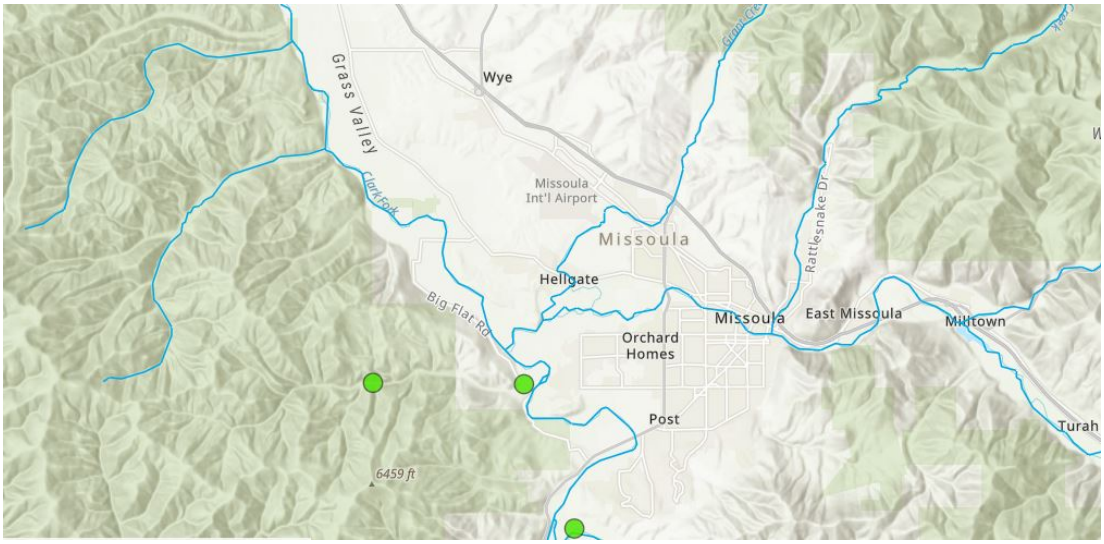




Example of a water gap to limit livestock access and reduce impacts to water quality (photo by Bitter Root Water Forum).

Projects Awarded 2022 Funding

The Clark Fork Coalition received $187,000 for three projects on tributary streams to the Bitterroot River. The first project will provide restoration design plans for 1.5 miles of **upper O'Brien Creek**. The second project will restore a 2,500 foot reach of **lower O'Brien Creek** by realigning the stream channel and addressing road crossings. The third project will restore 1,500 feet of **Miller Creek** by stabilizing eroding streambanks and implementing grazing management practices. All three projects will address sediment loading to streams.



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Before (above) and after (below) photos of a previous Miller Creek restoration project. Note the vertical eroding banks have been replaced with gently sloping vegetated banks (photo by Clark Fork Coalition).

Projects Awarded 2022 Funding

The Gallatin River Task Force received $28,000 to reduce sediment and nutrient loading along 400 feet of the **Middle Fork West Fork Gallatin River**. The project will restore 1.3 acres of wetland/riparian area, revegetate an eroding hillside, and upgrade a culvert. It is one of five water quality improvement projects planned for the Middle Fork.

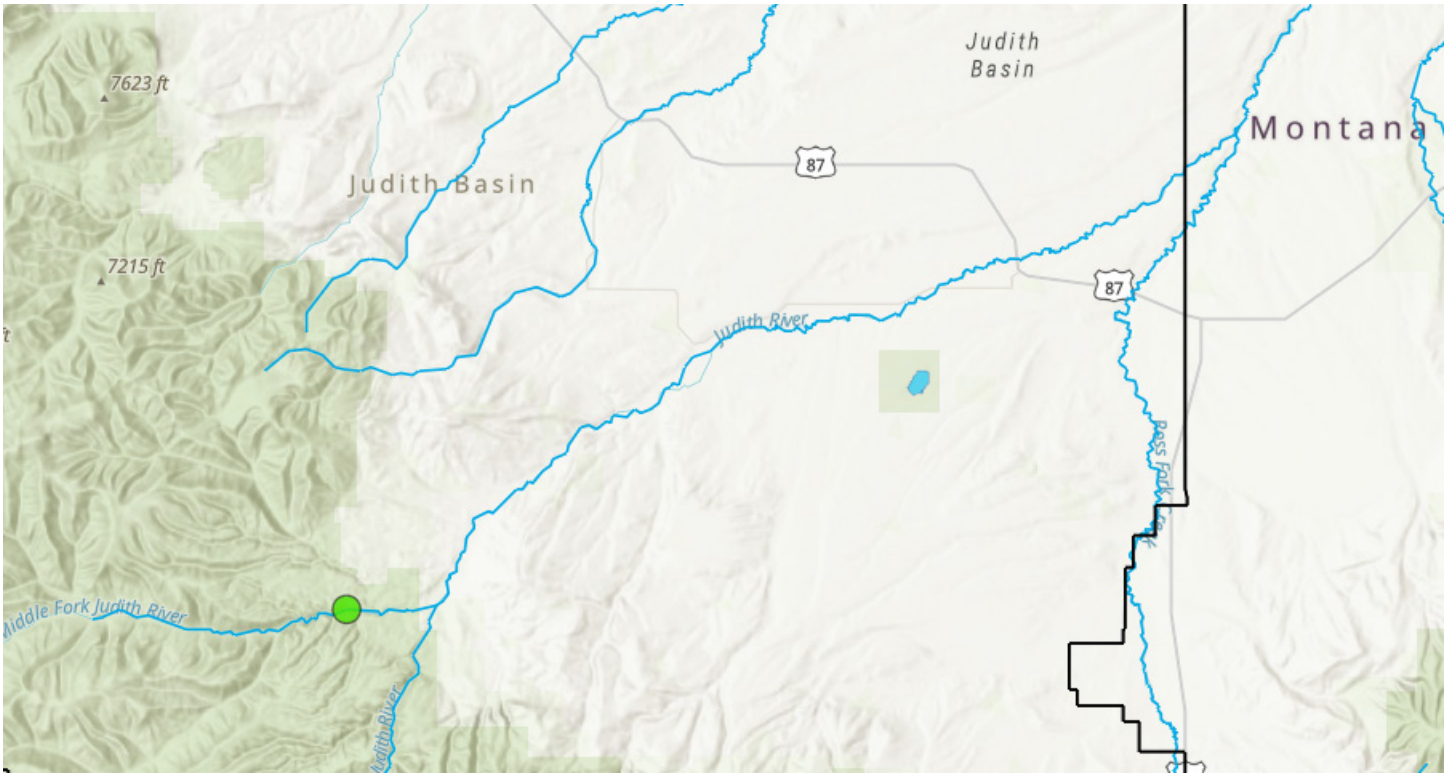




Eroding hillside to be revegetated. (photo by Gallatin River Task Force)

Projects Awarded 2022 Funding

Montana Trout Unlimited received $63,000 to reduce sediment pollution to the **Middle Fork Judith River** by addressing river fords used by off-highway vehicles. The project will decommission 2.5 miles of road and restore over 900 feet of streambank.





Example of existing river ford causing sediment pollution to the Middle Fork Judith River (photo by Montana Trout Unlimited).

Projects Awarded 2022 Funding

The Ruby Valley Conservation District received $199,900 to reduce nonpoint source pollution along 4,000 feet of the **Ruby River**, upstream of Ruby Reservoir. By stabilizing and revegetating eroding streambanks, restoring natural stream conditions, and improving wetlands, the Ruby River will receive less sediment pollution.



Examples of treatments used for stabilizing and revegetating streambanks. These and other treatments will be used along the Ruby River to reduce sediment loading (photo by Geum Environmental Consulting).



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Projects Awarded 2022 Funding

Trout Unlimited received $115,000 to continue remedying sediment pollution to **Dry Creek** due to historic channel realignments and agricultural impacts. Dry Creek is a tributary stream to the East Gallatin River in Gallatin County. This Phase 3 project will reduce erosion along 2,000 feet of streambank and will build on the successes of prior restoration projects that reduced sediment contributions from eroding streambanks.



Pre-restoration photo from 2018 (left), compared to a post-restoration photo from 2019 (right), showing restored and revegetated streambanks from the 2019 phase 2 project on a nearby section of Dry Creek (photo by Trout Unlimited)



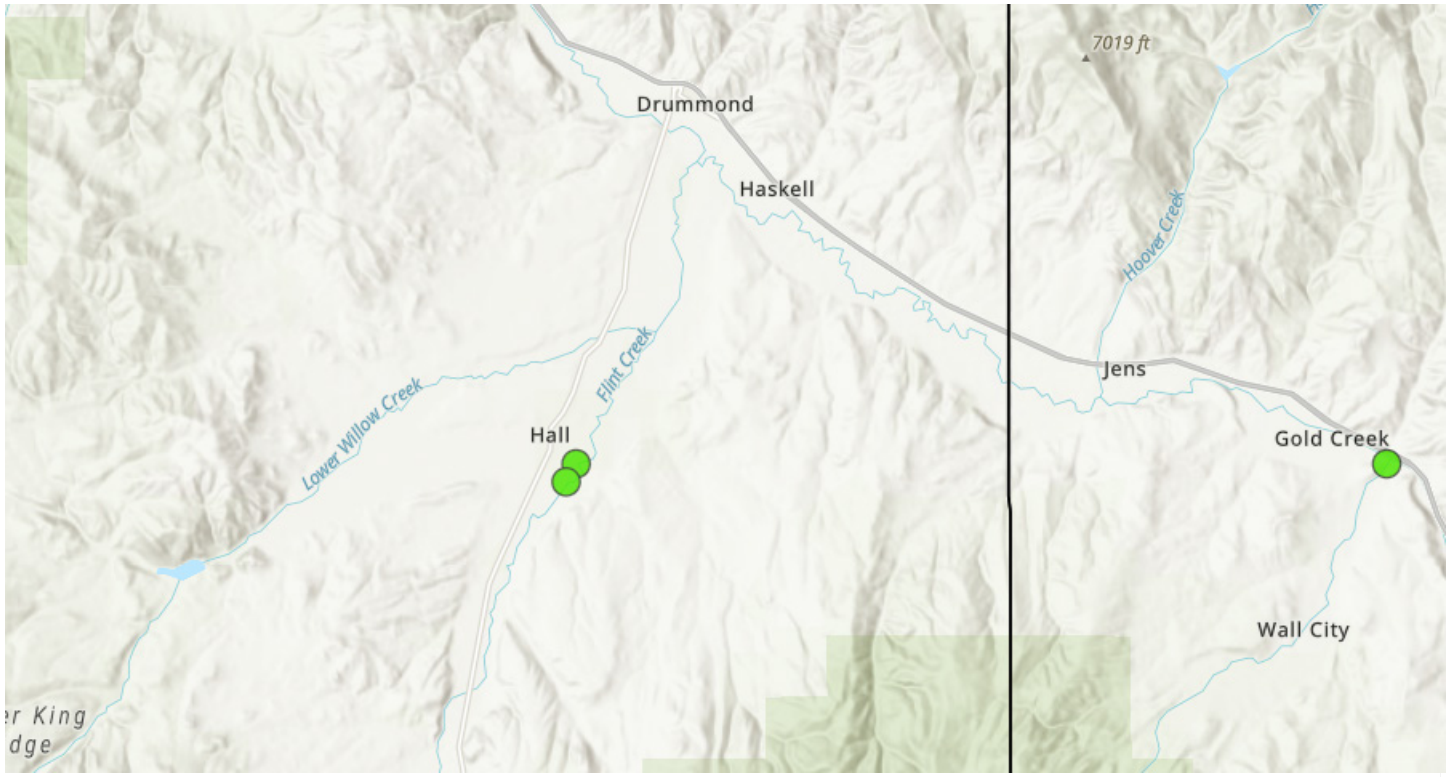
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Projects Awarded 2022 Funding

Trout Unlimited received $147,000 to restore a half-mile of **Flint Creek** to reduce sediment loading. This project builds on previous restoration work conducted on Flint Creek. It includes fencing to keep livestock out of riparian areas, stabilization of eroding banks, and improvements to natural stream function.



Post-project photo showing successfully revegetated streambanks from a previous restoration project on Flint Creek (photo by Trout Unlimited)



Projects Completed in 2022

Seven Projects were Completed in 2022

Abandoned mine sites from the historic Elliston Mining District have resulted in heavy metal impacts to the **Little Blackfoot River**. Trout Unlimited received $240,000 to remove and safely dispose of 30,000 cubic yards of mine waste rock scattered throughout the **Tramway Creek** and Upper Little Blackfoot River watersheds. Removal of the mine waste rock, reconstruction of a portion of the Little Blackfoot River, and revegetation of disturbed areas have reduced the amount of aluminum, arsenic, cadmium, copper and lead leaching into the Little Blackfoot River.



Before (above) and after (below) photos of Little Blackfoot River where mine waste adjacent to the river was removed and the ground was revegetated (photo by Trout Unlimited)



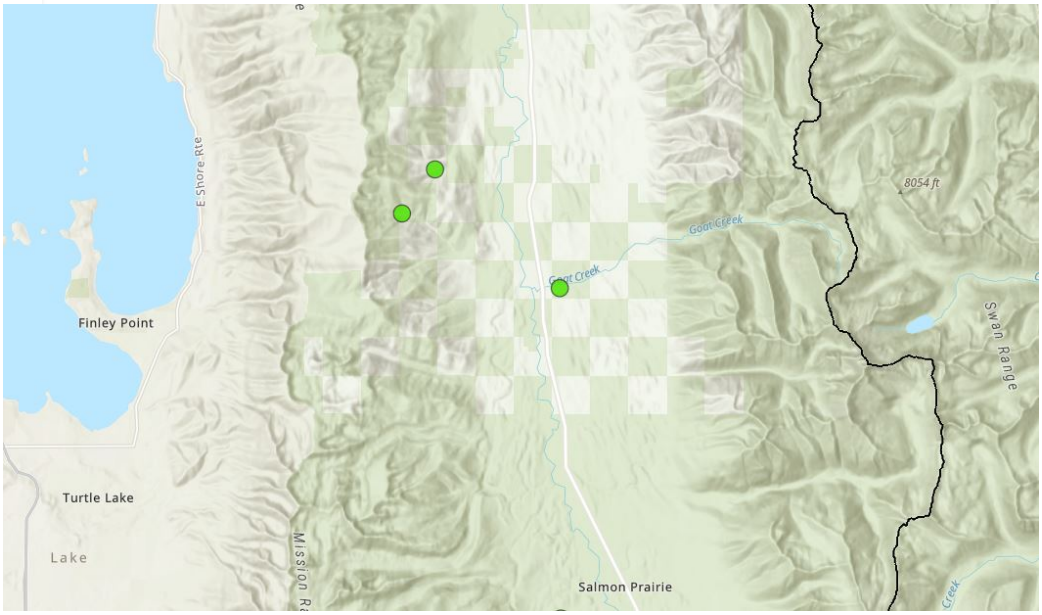
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Projects Completed in 2022

Swan Valley Connections received $67,958 to reduce sediment delivery to streams and to Swan Lake from roads in the **Lower Swan Valley** watershed. The project involved removing buried and non-working culverts, installing new culverts, removing aging log abutments from an abandoned bridge, reshaping roadbeds and recontouring and revegetating slopes to prevent 0.5 tons/year of sediment pollution from entering **Goat Creek and Squeezer Creek**, tributaries to the Swan River.



Post-project photo of Goat Creek.



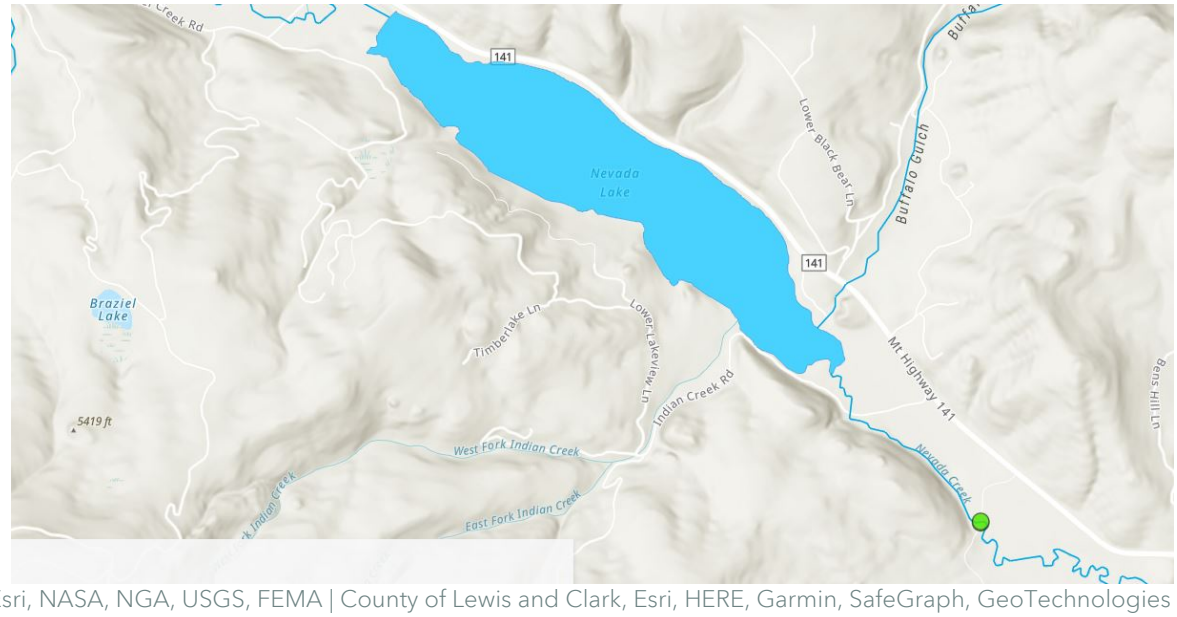
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Projects Completed in 2022

The Big Blackfoot Chapter of Trout Unlimited (BBCTU) received$289,000 to reduce sediment erosion and improve riparian in-stream habitat along 7,100 feet of **Nevada Creek,** upstream of Nevada Lake. Project components included restoration of natural stream channels, installation of fencing and water gaps for livestock, and riparian vegetation plantings. Previous project phases have been successfully implemented on other sections of Nevada Creek. This project resulted in reducing sediment pollution to Nevada Creek by 168 tons/year.



Post-project photo showing successful restoration work to reduce streambank erosion on Nevada Creek (photo by BBCTU).



Esri, NASA, NGA, USGS, FEMA | County of Lewis and Clark, Esri, HERE, Garmin, SafeGraph, GeoTechnologies



Projects Completed in 2022

Montana Watershed Coordination Council received $81,230 to administer the **Big Sky Watershed Corps** program. Under this contract, six local watershed organizations received funding to host AmeriCorps members to help implement watershed restoration plans and reduce nonpoint source pollution. Members coordinated education and outreach events and organized volunteer activities to implement conservation practices. In total, the program reduced nonpoint source pollution by 0.5 tons/year of sediment, 4.4 lbs/year of nitrogen, and 5.8 lbs/year of phosphorus. *Volunteers conducting restoration work on California Creek (photo by Ruby Valley Conservation District).*

Big Sky Watershed Corps Video

Video of Restoration Project Tour by BSWC member

https://www.youtube.com/embed/lOZnn8a8raU



Projects Completed in 2022

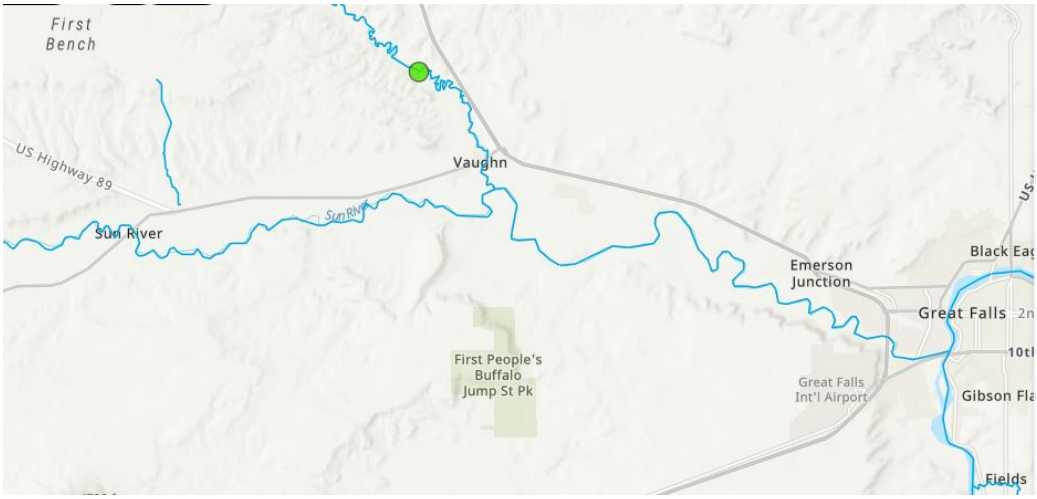
The Sun River Watershed Group received $49,500 for the **Muddy Creek Crossing and Habitat Project.** This project restored natural stream function to Muddy Creek, a tributary to the Sun River, by replacing a failing stream crossing with a permanent crossing to lessen erosion, installing fencing to reduce grazing pressure on the riparian areas and planting additional native vegetation. The project reduced nutrient loading by 37 pounds/year of nitrogen pollution and 49 pounds/year of phosphorus pollution.



Pre-project conditions showing the old crossing with undersized culverts and unrestricted cattle access.



Bridge installation. Riparian fencing was added later to exclude cattle from riparian area and willows were planted to augment existing vegetation (photos by Sun River Watershed Group).



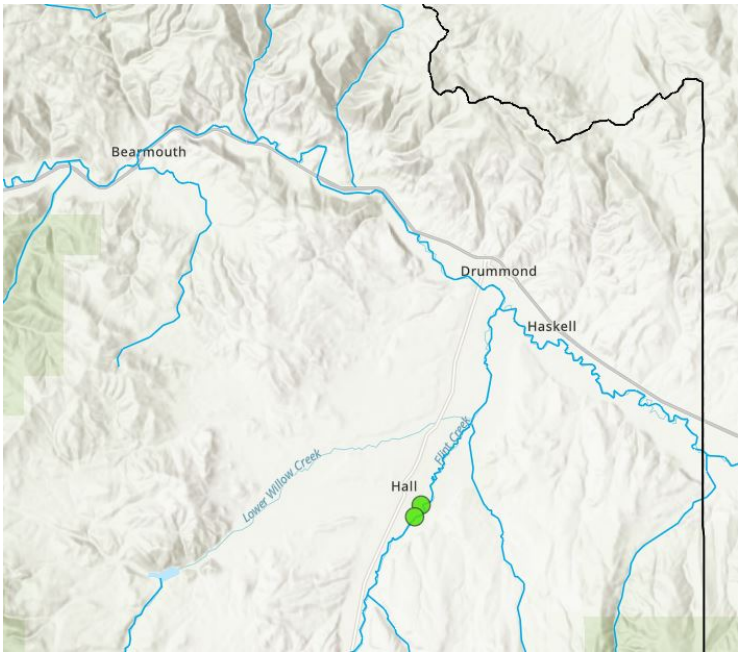
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Projects Completed in 2022

Trout Unlimited received $136,344 to restore a 1-mile reach of channel and 160 acres of riparian and upland habitat on **Flint Creek** affected by historic agricultural land use practices. Streambank restoration work, plantings, and wildlife-friendly fencing to exclude cattle from riparian areas prevented 760.5 lbs/year of nitrogen and 663 lbs/year of phosphorus from entering Flint Creek.



Tour of completed project area with Granite Headwaters Watershed Group (photo by Trout Unlimited).



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Box Elder Creek photo

Standards & Modeling Section

The Standards & Modeling Section successfully completed 20 consecutive years of monitoring for DEQ stream reference sites. In 2022, 15 sites were visited to collect chemical, biological, and physical data that are useful for describing water quality reference conditions in Montana's ecoregions. Efforts are underway for trend analysis and reporting.



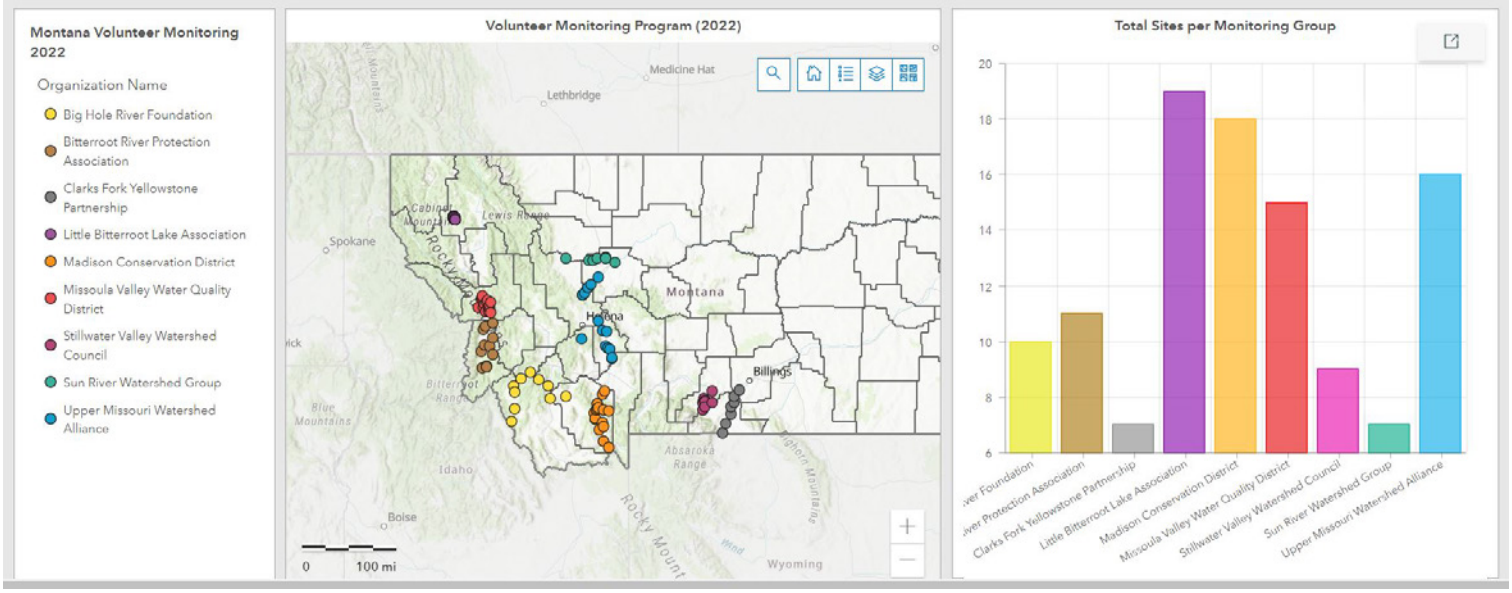
Missouri River photo

Monitoring and Assessment Section

During 2022, the Monitoring and Assessment Section continued monitoring for nutrients and metals on the Upper Missouri River and started nutrient and metals monitoring on Canyon Ferry tributaries and in the Clarks Fork Yellowstone watershed. Sediment monitoring and pre-construction Bank Erosion Hazard Index (BEHI) monitoring was conducted on O'Brien Creek, a tributary to the Bitterroot River. DEQ staff and local partners also completed field work to assess a potential success story on Goat Creek.

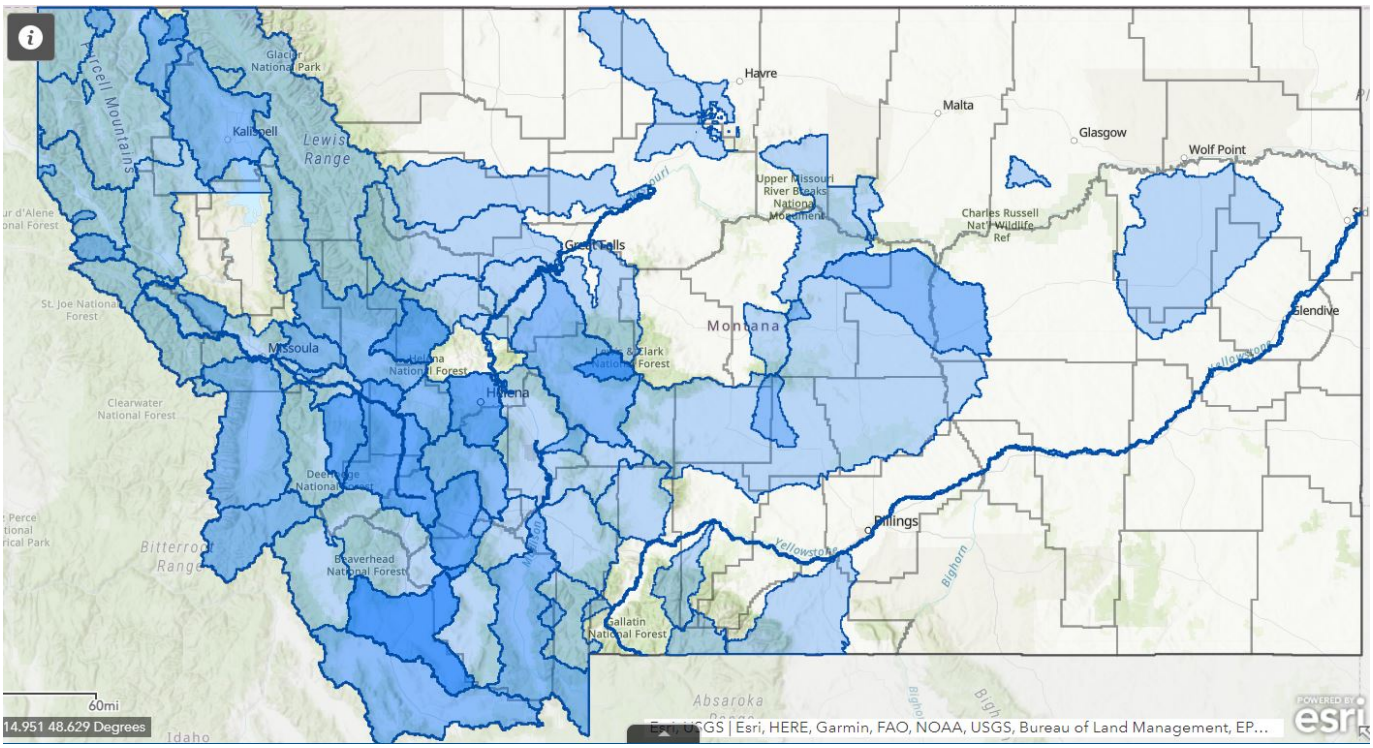
Monitoring and Assessment Section

DEQ continues to provide training and technical and financial resources for volunteer monitoring programs. These programs heighten awareness of water resource issues and solutions, and help increase the amount of credible data available for decision making. In 2022, the DEQ Monitoring and Assessment Section awarded $36,866 to nine volunteer monitoring programs through the Lab Analysis Support Program. *Click the points on the map or [check out the Montana Volunteer Monitoring Lab Analysis storymap](#) to learn more.*



Water Quality Improvement Plans (TMDLs)

Many watersheds in Montana have Water Quality Improvement Plans, also known as 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 2022, DEQ drafted a Nutrient Protection Plan for the Bitterroot River, which provides information that, with local support, can keep the river from becoming impaired.



Nonpoint Source Program

In 2022 the Nonpoint Source Program initiated a new focus watershed for 319 project funding - the Lower Gallatin watershed. The 2022 Call for 319 Applications earmarked up to 50% of the funding for projects that were located in the Lower Gallatin watershed.



East Gallatin River, photo credit: Gallatin Watershed Council

The Bitterroot had been the focus watershed for 2019, 2020 and 2021 calls. During the three years of the Bitterroot Focus Watershed effort, $1,513,300 was distributed to local organizations to improve water quality. Although the Lower Gallatin is now being prioritized, the Bitterroot and other watersheds will continue to be eligible for 319 funding.

Nonpoint Source Program

Harmful Algal Blooms

DEQ continues to support outreach and monitoring for harmful algal blooms (HABs). In 2022, 39 out of 52 citizen reports were confirmed to be HABs. Visit HAB.mt.gov for more information, to submit a suspected HAB report, and view a map of recent reports.



Photo of Lake Helena submitted to the HAB Program in summer of 2022.



Wetland Program

In 2022, the Wetland Program initiated wetland effectiveness monitoring to quantify site-specific nutrient and sediment load reductions associated with wetland restoration. A Wetland Effectiveness Restoration Dashboard was created and pre-restoration monitoring was conducted at two project sites in the East Gallatin and Bitterroot River watersheds.

The wetland 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.

Photo of pre-restoration wetland monitoring being conducted near the East Gallatin River in 2022.

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.



MACD website

Montana Association of Conservation Districts

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

In 2022, MACD received $50,500 in 319 project funding to implement the Ranching for Rivers program. Through the program, MACD offers 50% cost-share to landowners for fencing material, off-site water infrastructure, and for developing grazing management plans.



A past project funded by an education and outreach mini-grant, teaching students about native plants and nonpoint source pollution (photo by Lolo Watershed Group).

Montana Association of Conservation Districts

MACD 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 2022, MACD awarded 7 mini-grants for education and outreach projects, totaling $17,350. Organizations that were awarded 2022 mini-grants include: Bitter Root Water Forum, Cascade Conservation District, National Wildlife Federation, Lolo Watershed Group, Billings Public Schools, Gallatin Watershed Council, and Winnett ACES. MACD accepts mini-grant applications for education and outreach projects every spring.



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.

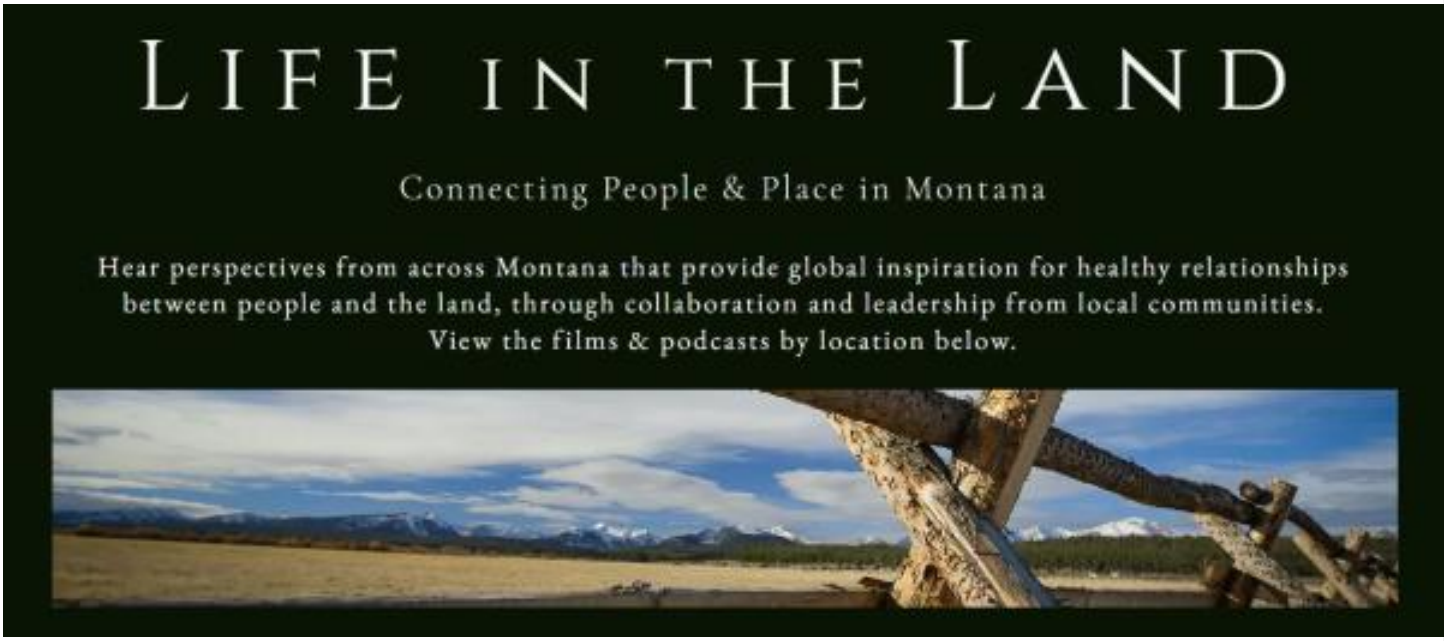
In 2022, MWCC's Watershed Fund distributed $160,000 in grants to 34 local organizations for capacity-building, professional development, and on-the-ground projects. The Watershed Fund has distributed more than $1 million since 2018, supporting local watershed conservation efforts that have implemented 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. (*Move slider to see 2022 information. Impact Report images courtesy of MWCC)*



Montana Watershed Coordination Council

2022 marked the 11th 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 2022, 42 BSWC members served with organizations across Montana. The Watershed Fund provided $34,100 in support funding for 6 local organizations to host BSWC members and funding to complete on-the-ground projects. The members conducted education and outreach events and organized volunteer activities to revegetate streambanks, install livestock fencing to protect riparian buffers, and install beaver mimicry structures and other in-channel habitat improvements.

Volunteers placing weed matting and installing fencing to protect native vegetation for the North Burnt Fork Creek Revegetation Project, coordinated by a Big Sky Watershed Corps (BSWC) member. Photo by MWCC.



Montana Watershed Coordination Council

MWCC supported development of a collaborative storytelling film series, Life in the Land. The film series highlights Montana landscapes, relationships between people and the land, and stories of collaborative conservation successes in Montana. *Check out the films here: lifeintheland.org*

Acknowledgements

This report was prepared by Tiffany Lyden and reviewed by Hannah Riedl, Water Quality Specialists with the Montana Department of Environmental Quality.

Contributors include Deb Call, Eric Trum, Steve Carpenedo, Meagan Gilmore, Torie Haraldson, Mark Ockey, Abbie Ebert (DEQ), Brenna Rietmann (MACD), and Terri Nichols (MWCC).

Photos are from DEQ unless otherwise noted.

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Montana Dept. of Environmental Quality

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