



MSL Learn Webinar Series
Montana's Water Information Resources
April 9, 2024

Today's Hosts

Troy Blandford



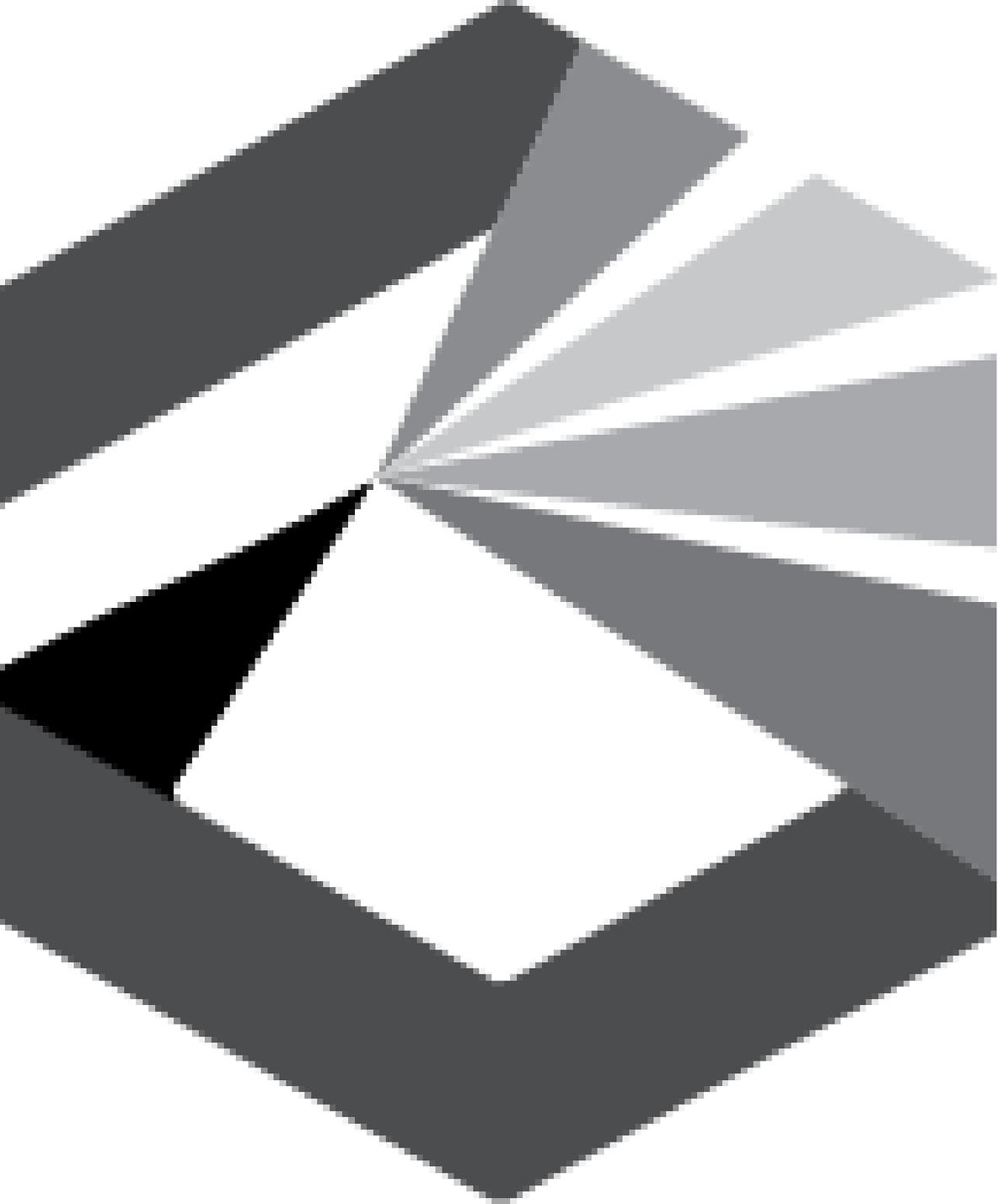
Water Information Lead

Colet Bartow



MSL Continuing
Education Coordinator

(Colet rhymes with Olay)



Today's Agenda

Montana Water information resources

Learn where to direct patrons with water-related questions

Live demo of resources

Montana's Water Information Resources



Water Information System

Home > Geoinfo > Water Information System > Water Information System

Montana Water Information System

The Water Information System (WIS) is the starting point for finding water resources information in Montana, such as data on surface water, groundwater, water quality, riparian areas, wetlands, water rights, climate data and more. The WIS makes high quality water information, including GIS data, interactive applications, maps, and water-related links, discoverable to the public from one common starting place.

- [2022 Floods GIS Data Hub](#)
- [Agriculture](#)
- [Channel Migration Zone](#)
- [Climate and Weather](#)
- [Drought](#)
- [Fisheries](#)
- [Groundwater](#)
- [Interactive Map and Data Tools](#)
- [LiDAR Elevation Data](#)
- [Montana Water News](#)
- [Montana Water Organizations](#)
- [MSDI Hydrography Data \(National Hydrography Dataset for Montana\)](#)
- [MSDI Wetlands Data \(Wetland and Riparian Mapping for Montana\)](#)
- [Precipitation](#)
- [Relative Elevation Models](#)
- [Search GIS Data](#)
- [Snowpack and Water Supply](#)
- [Surface Water Data](#)

MCA 90-15-305 - *The Montana water information system shall **make available and readily accessible**, in a usable format, to state agencies and other interested persons, **information on the state's water resources**, out-of-state water resources that affect the state, existing and potential uses, and the existing and potential demand.*

- **Coordinate with water agencies (DNRC, FWP, DEQ, Agriculture...).**
- **For all Montanans.**
- **A starting point for finding water info.**

Many sources of water information
discoverable from one place





Watershed health



Precipitation

Temperature

Reservoir storage

Water rights

Forecasts



Streamflow

Flood risk



Snow



Technical reports

Drought

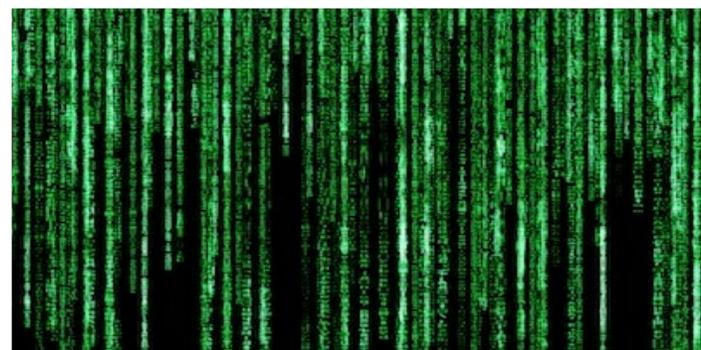


Montana Department of Environmental Quality

Water quality

Water Supply

Remotely sensed data



Source water

Fish/Aquatic life



Montana Fish, Wildlife & Parks



Groundwater

Agricultural water use

Producers Financial Assistance



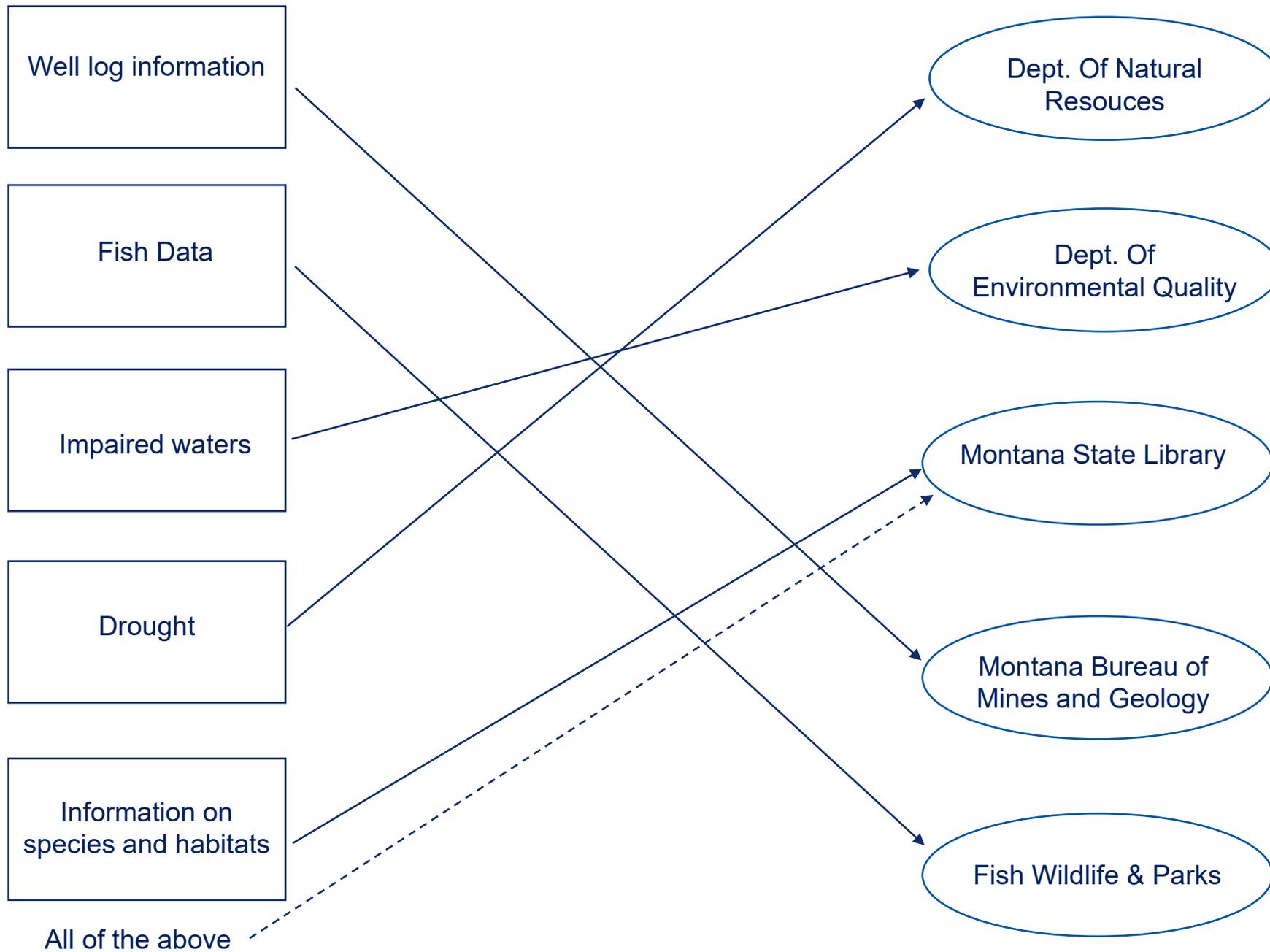
Streamflow measurement



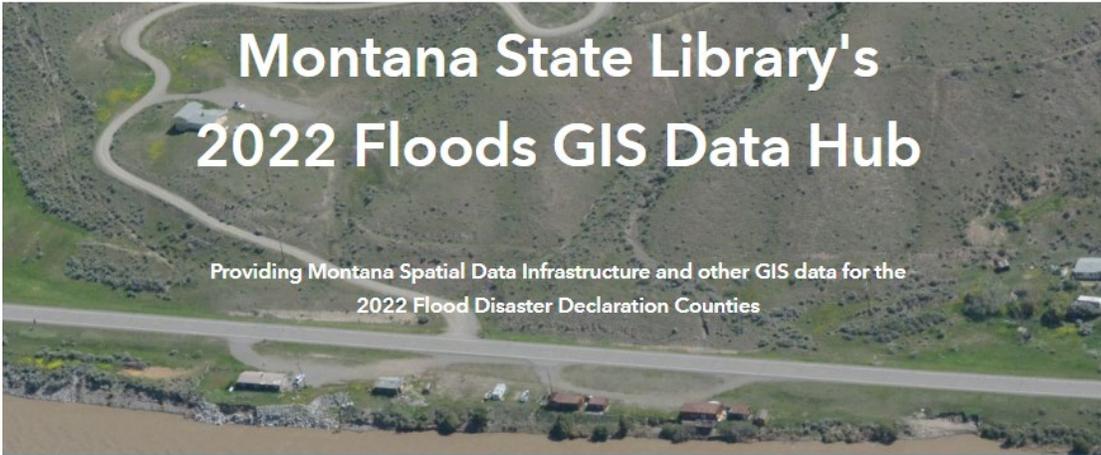
Water quality



Reservoir storage



2022 Floods GIS Data Hub



Montana State Library's 2022 Floods GIS Data Hub

Providing Montana Spatial Data Infrastructure and other GIS data for the 2022 Flood Disaster Declaration Counties

Browse and download data:

Explore and contribute to the 2022 Floods GIS Data Hub

- 1 Find Flood GIS Data**

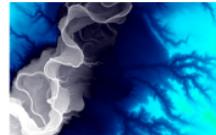
Explore the Hub to find statewide datasets and snapshot datasets that were generated specifically for counties and areas impacted by flooding.
- 2 Explore Maps**

Explore the Flood Hub Map Viewer, various flooding imagery products, USGS Flood Event Viewer and the Montana Lidar Data Viewer.
- 3 Contribute**

Organizations can participate by sharing GIS data and metadata that are relevant to the areas in Montana impacted by the flood events.

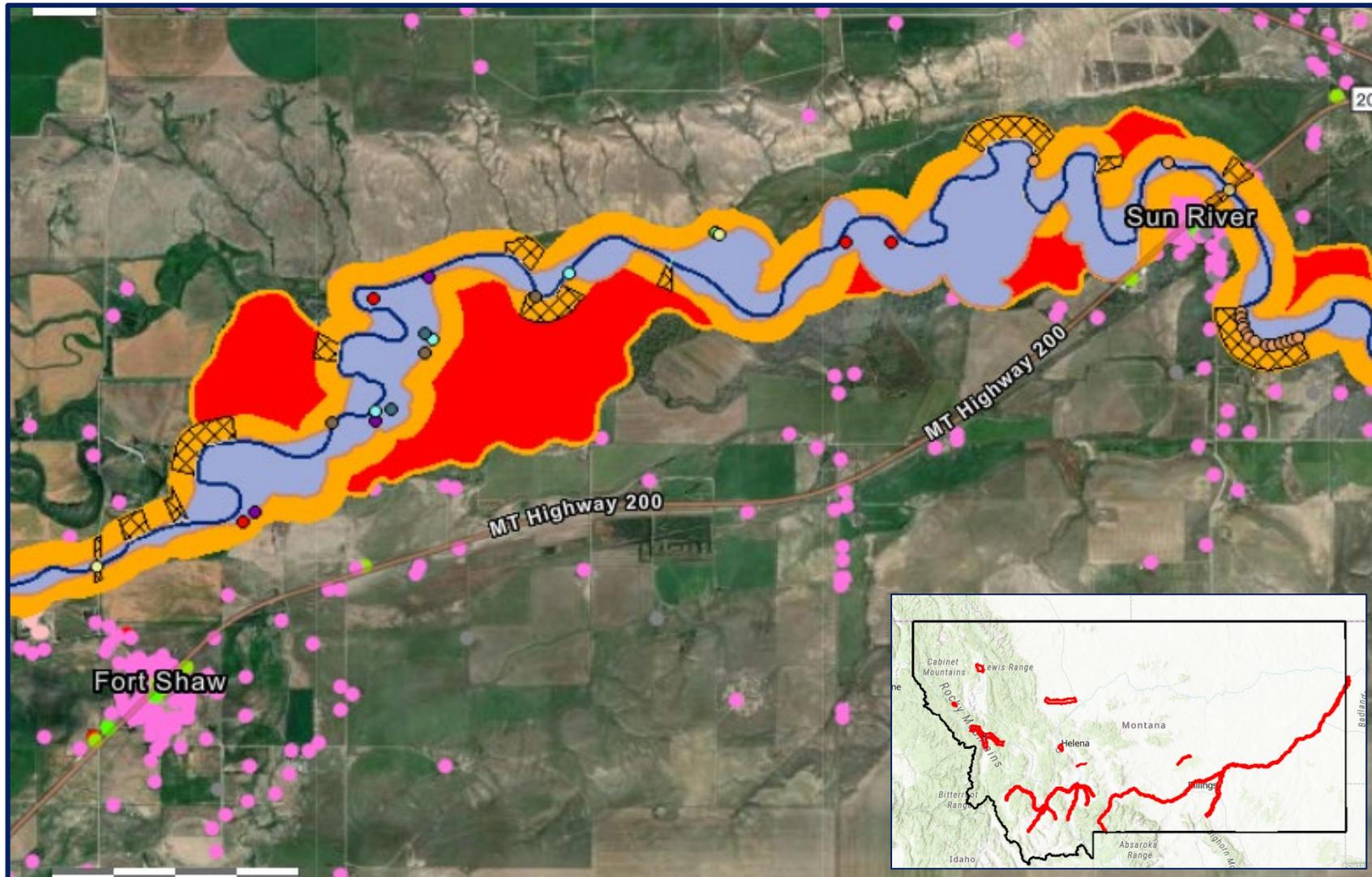
[Click here to contribute](#)

Featured Content

 <h3>EagleView Oblique Imagery</h3> <p>Oblique imagery of flood affected areas in south-central Montana. Licensed for government use only.</p> <p>Request Viewer</p>	 <h3>MT DNRC Drone Video and Imagery</h3> <p>Drone imagery and video taken in southwest Montana during peak flooding and post flooding.</p> <p>Details Viewer</p>	 <h3>MDT Orthoimagery (prelim) by Request</h3> <p>MDT Orthoimagery flown over flooding areas on 6/16/2022. Imagery is preliminary and under review.</p> <p>Details Request</p>	 <h3>USDA NAIP Imagery 2021 & Earlier</h3> <p>National Agricultural Imagery Program (NAIP), 1-meter resolution. Includes 2021 imagery.</p> <p>Details Viewer</p>
 <h3>Flood Aerial Photo Viewer</h3> <p>The Yellowstone River Post Flood Aerial Photo Viewer displays aerial photos along the Yellowstone River in Park County.</p> <p>View</p>	 <h3>Flood Hub Map Viewer</h3> <p>The Flood Hub map viewer shows disaster declaration counties, footprints of imagery and video and other data offerings.</p> <p>View</p>	 <h3>Montana Lidar Data Viewer</h3> <p>Download Lidar Data in Montana. Use the Montana State Library Lidar Viewer to download and request data available.</p> <p>View</p>	 <h3>USGS Flood Event Viewer</h3> <p>During large, short-term events, the USGS collects data including high-water marks to aid in documenting flood events.</p> <p>Details View</p>

<https://montana-state-library-2022-floods-gis-data-hub-montana.hub.arcgis.com/>

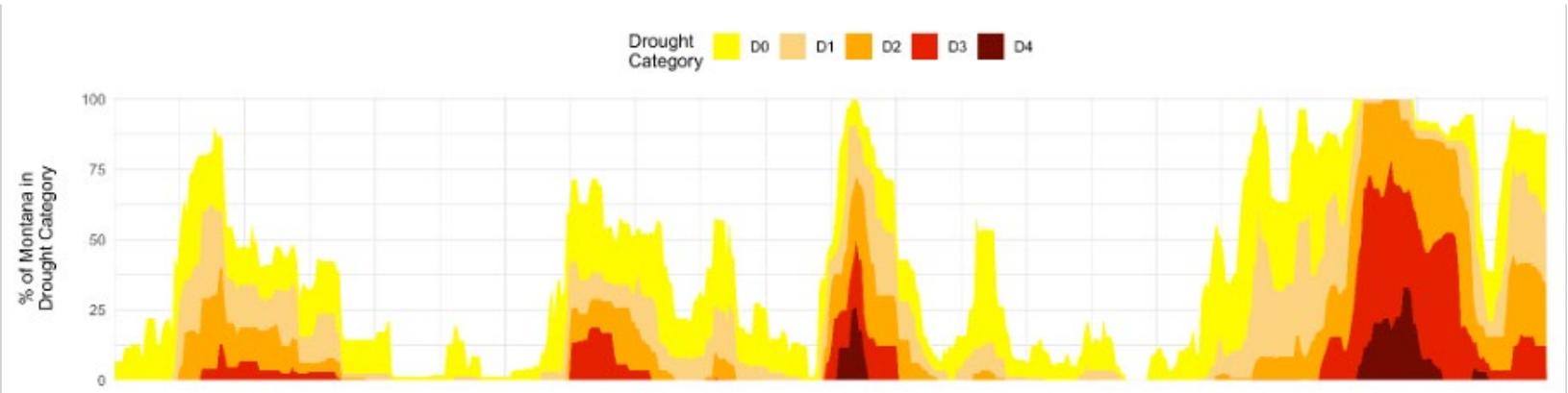
Water-related GIS data, such as Channel Migration Zones, stored, organized, and disseminated from one place.



Coordination/Collaboration amongst water agencies



Drought impacts all of us . . .



MT drought monitoring is a collaborative process

- Weekly coordination with the U.S Drought Monitor
- Approx. 50 people on listserv
- MT Drought Leads: **DNRC**, Michael Downey; **State Library**, Troy Blandford; **Montana Climate Office**, Zach Hoylman; **Montana Climate Office**, Kelsey Jencso; **NOAA NWS**, *vacant*

Sunday & Monday Morning:

Montana author assembles proposed changes to USDM based upon analysis of station data, modelled data and impact reports –

Authorship rotates every two weeks between five volunteers: Michael Downey (DNRC), Arin Peters (NOAA), Troy Blandford (MSL), Zach Hoylman (MCO) and Kelsey Jencso (MCO).

Monday Early Afternoon:

Author sends initial analysis and summary to Montana Drought Listserv for review and consensus.

Tuesday:

MT author makes changes and sends the proposed map with a justification to the National Drought Monitor author. The USDM author releases a series of 3 drafts with “back and forth” between state authors.

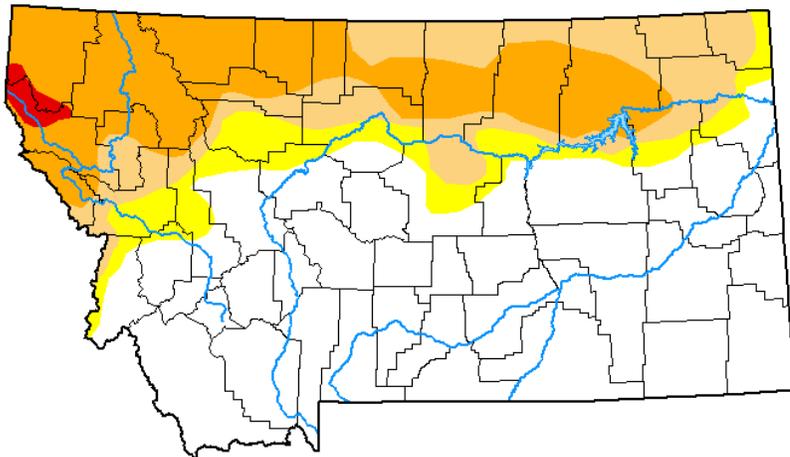
Wednesday:

USDM author makes final decisions and the final national map is released Thursday morning.

Repeat this process 52 times each year

U.S. Drought Monitor
Montana

October 17, 2023
(Released Thursday, Oct. 19, 2023)
Valid 8 a.m. EDT



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

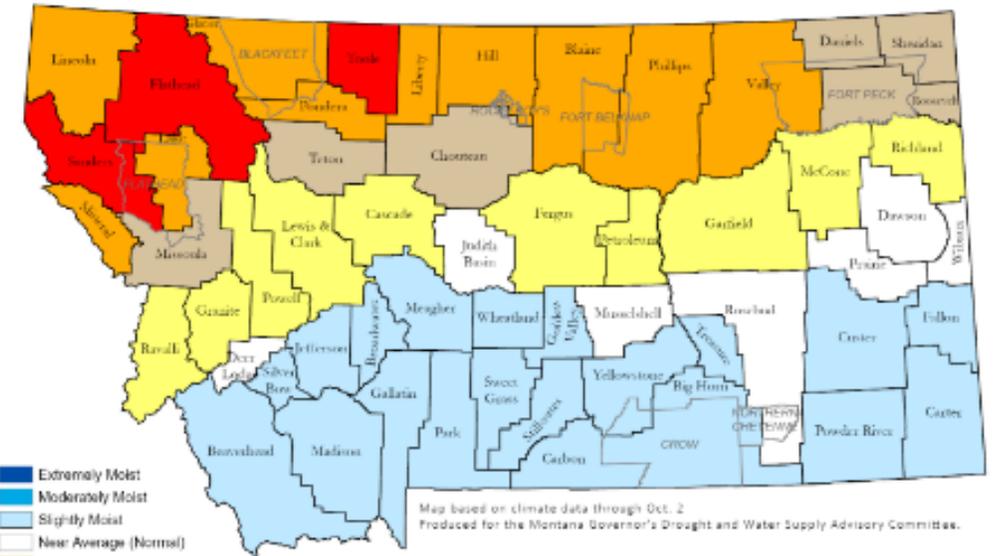
Rocky Bilotta
NCEI/NOAA



droughtmonitor.unl.edu

- Produced weekly for entire U.S, Puerto Rico, Pacific and Virgin Islands
- Indicates dry conditions only

Montana Drought Status by County - October 5, 2023



- Extremely Moist
- Moderately Moist
- Slightly Moist
- Near Average (Normal)
- Slightly Dry
- Moderately Dry
- Severely Dry
- Extremely Dry
- Exceptionally Dry

Map based on climate data through Oct. 2
Produced for the Montana Governor's Drought and Water Supply Advisory Committee.

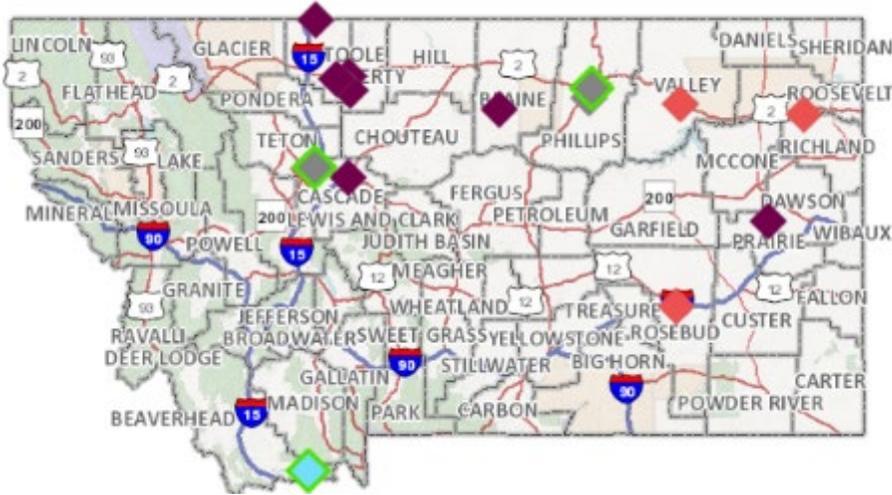


<https://nris.mt.gov/drought>

- Produced monthly for Montana
- Indicates dry and wet conditions

Local Observations

Montana Drought Impact Reporter



10/10/23 Cascade County – “Grass growth and vegetation conditions are much better than the past two year. There was some greenup in September that has continued into October. There are ‘duck ponds’ where they haven't been in the recent past.”

9/15/2023 Prairie County (pic 2) – “This part of Montana is absolutely droughted out. Besides 2021 this is the worst I have seen it in 25 years.”

8/18/23 Toole County (pic 3) – “Its been very hot dry and windy. Our area has missed most of the storms. We are right at 3 inches of rain for the growing season.”

8/28/2023 Valley County (pic 4) – “Conditions are a bit drier than normal. Grasshopper count is also higher than normal.”

9/10/2023 Beaverhead County – “Most of Beaverhead county is greener than I've seen it in the past in September.”



Coordinating Statewide Elevation Data (Lidar)

Private: Energy, Tech
Companies

Local
Government
Partners:
Yellowstone
County

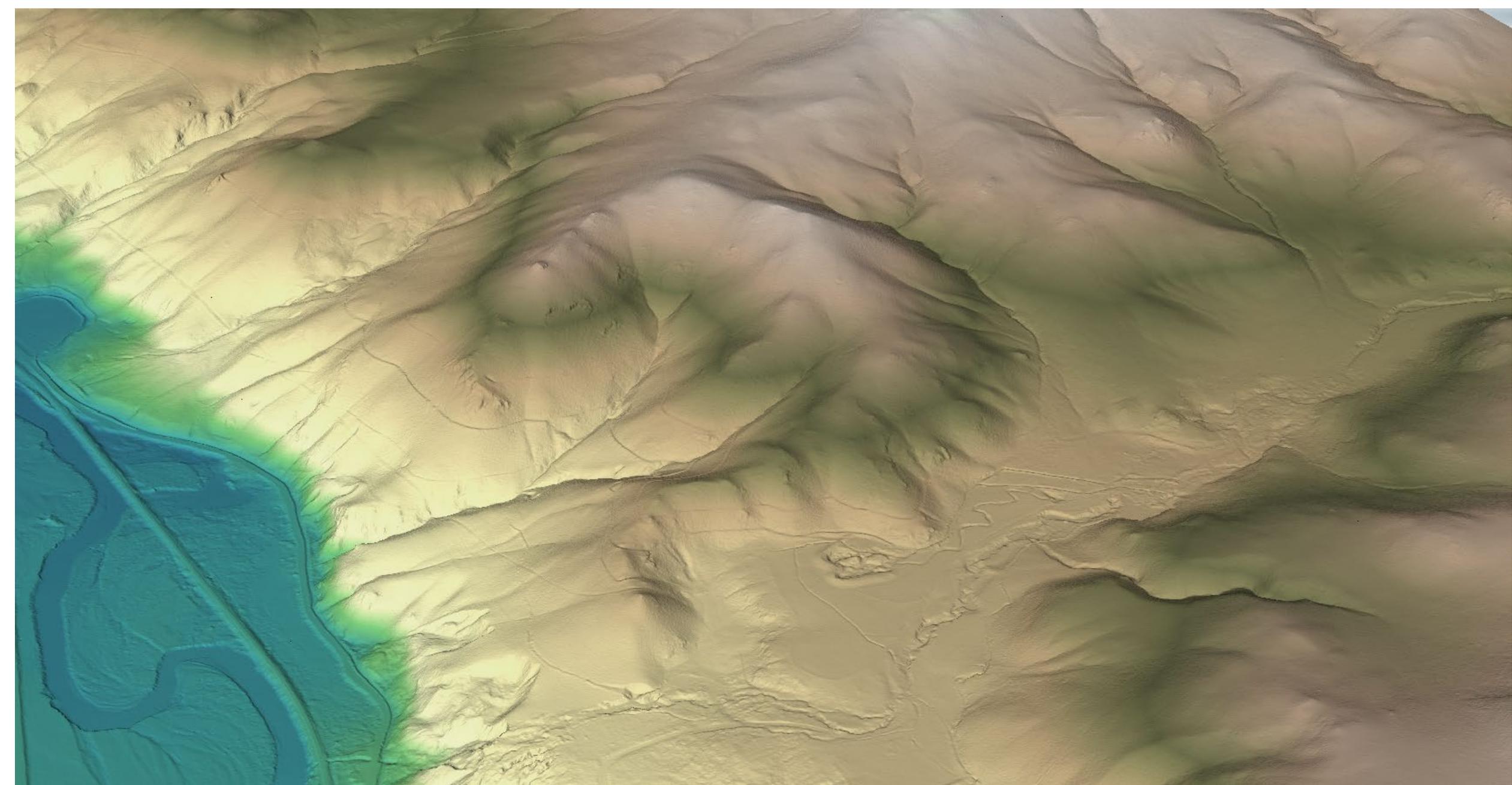
Tribal Partners:
Fort Belknap

Federal
Partners:
USGS, NRCS,
FEMA, USFS,
NPS

State Agency
Partners:
DNRC, MBMG,
MDT

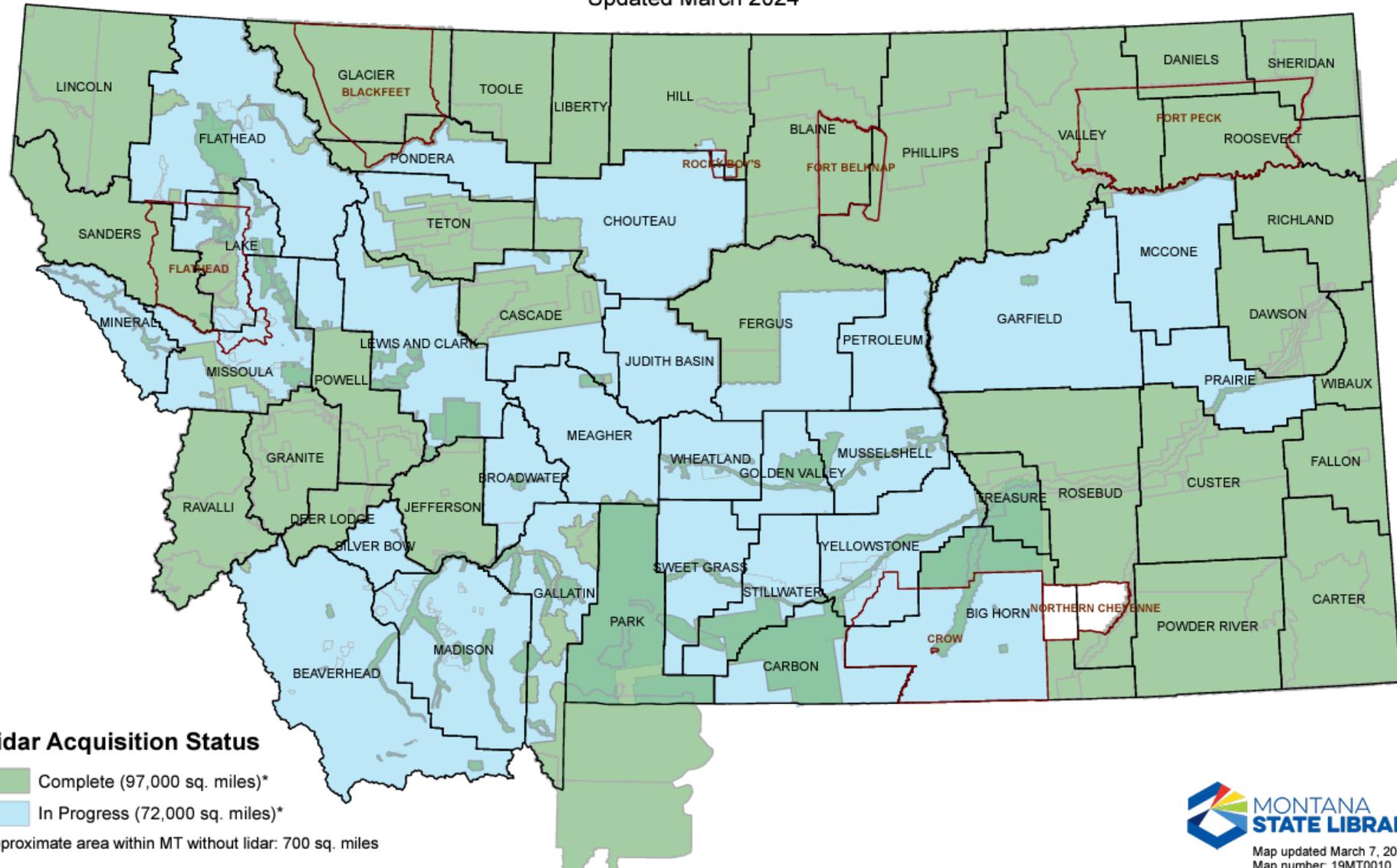
Nonprofit: Ski/Tourism, TNC





Montana Lidar Inventory

Updated March 2024



Lidar Acquisition Status

Complete (97,000 sq. miles)*

In Progress (72,000 sq. miles)*

Approximate area within MT without lidar: 700 sq. miles

*Includes overlapping projects and Yellowstone National Park, WY



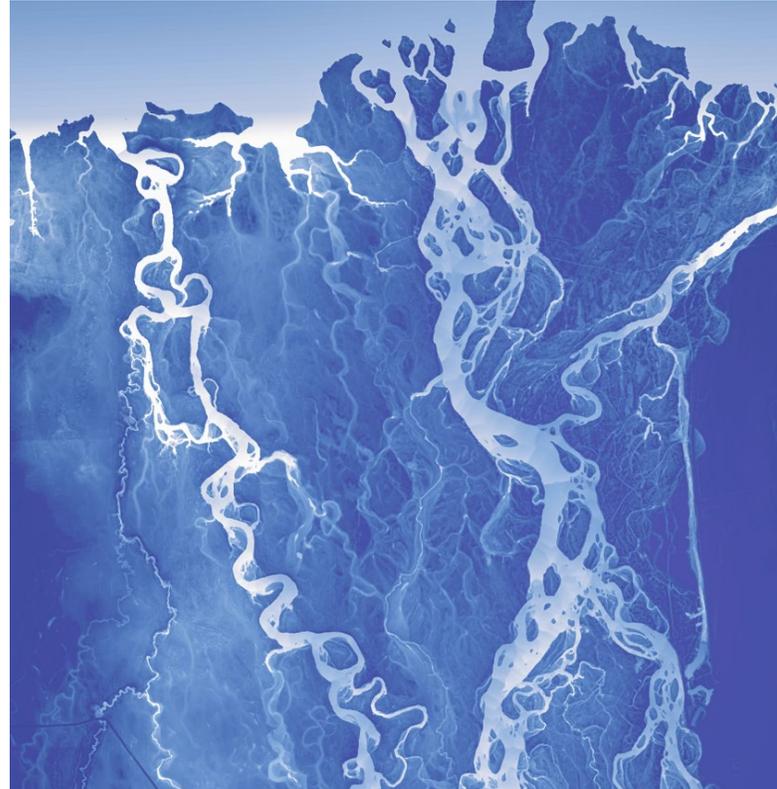
Map updated March 7, 2024

Map number: 19MT0010

<https://msl.mt.gov/gis/lidarinventory>

Lidar informs stream mapping and restoration

Topography and water shape each other.



Montana Spatial Data Infrastructure
Elevation - Seen with Lidar
Powder River, Broadus

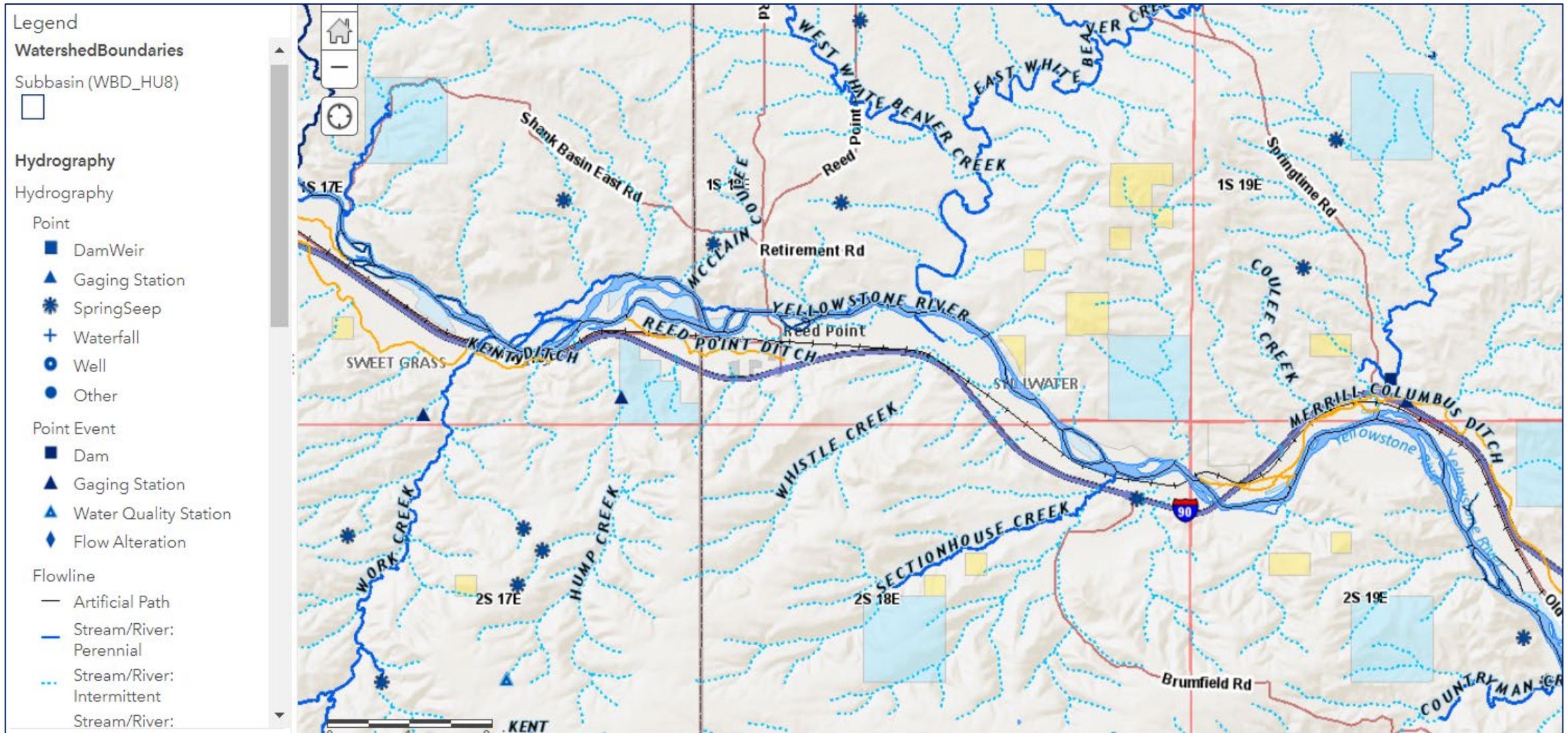


Hydrography

Montana's streams, rivers, lakes, springs, ditches...



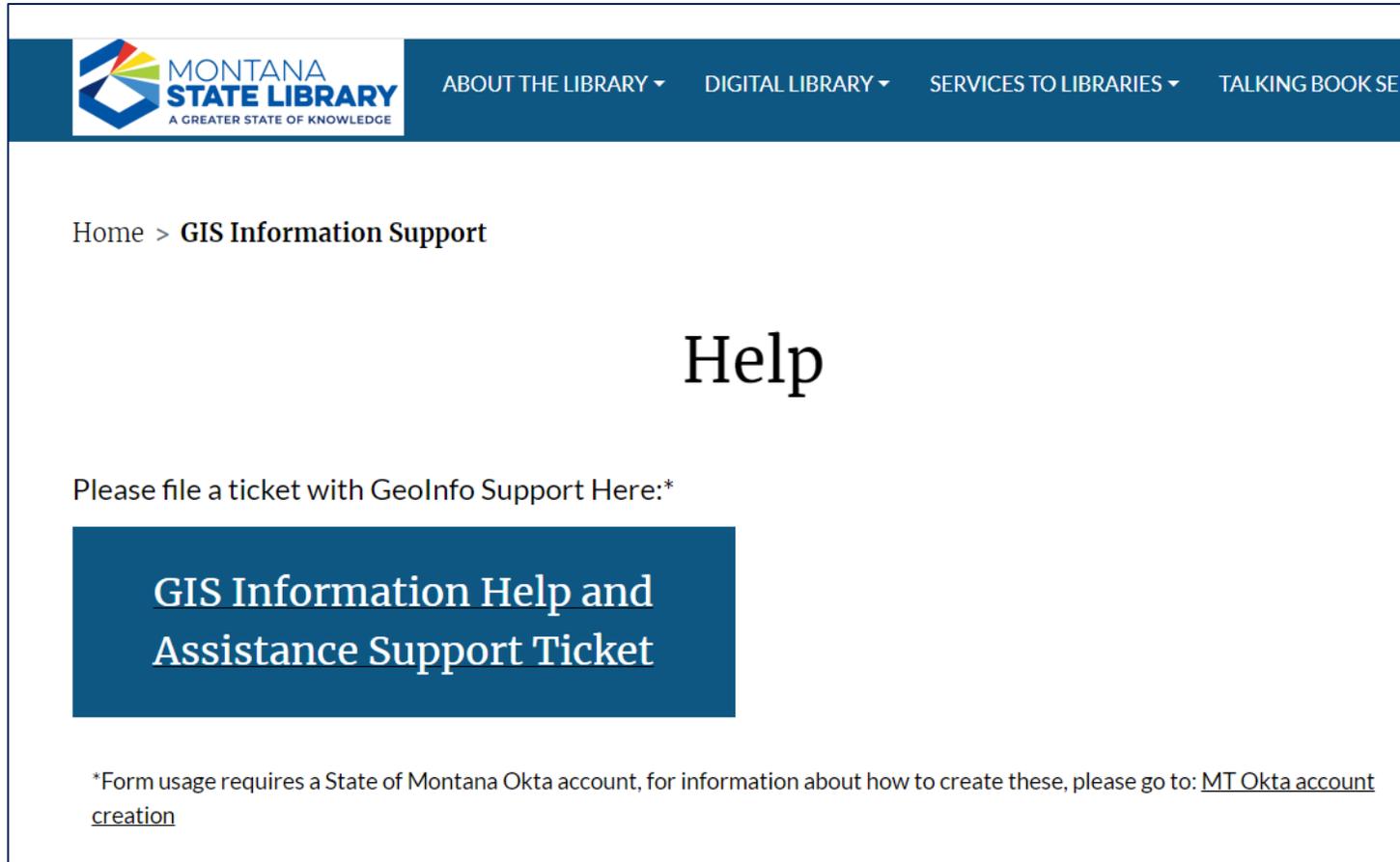
Hydrography and Watershed Boundary Mapping



GeoInfo Help & Technical Support



New System for Logging & Tracking Support Requests (ServiceNow)



The screenshot shows the Montana State Library website header with the logo and navigation menu. The main content area displays a breadcrumb trail 'Home > GIS Information Support', a large 'Help' heading, and a call to action to file a ticket with GeolInfo Support. A dark blue button with white text reads 'GIS Information Help and Assistance Support Ticket'. A footnote at the bottom states that form usage requires a State of Montana Okta account and provides a link for account creation.

 MONTANA STATE LIBRARY
A GREATER STATE OF KNOWLEDGE

ABOUT THE LIBRARY ▾ DIGITAL LIBRARY ▾ SERVICES TO LIBRARIES ▾ TALKING BOOK SER

Home > GIS Information Support

Help

Please file a ticket with GeolInfo Support Here:*

[GIS Information Help and Assistance Support Ticket](#)

*Form usage requires a State of Montana Okta account, for information about how to create these, please go to: [MT Okta account creation](#)

<https://msl.mt.gov/geosupport>

Common requests

- I'm considering buying a new property and need information about nearby **water rights**
- I'm trying to find the **well log** for my property
- Where can I find information about **flooding** and rivers in my area
- Where can I find aerial **imagery**
- I'm interested in **lidar** and detailed **elevation** information for site planning. . . .
- I'm a recreationist (fishing, tourism) looking for **maps** or **GIS data**

The Montana State Library is neutral and non-regulatory with a focus on information for all Montanans. Patron confidentiality.

Demo



Links from Live Presentation

- Water Information System
 - https://msl.mt.gov/geoinfo/water_information_system/
- Montana Natural Heritage Program
 - <https://mtnhp.org/>
- 2022 Floods
 - <https://montana-state-library-2022-floods-gis-data-hub-montana.hub.arcgis.com/>
- Channel Migration Zones
 - https://msl.mt.gov/geoinfo/data/montana_channel_migration_zones/
- Drought
 - <https://storymaps.arcgis.com/stories/76204aa1271a4a7f8a775fc2bba9ef83/>
- Report Drought Impacts
 - <https://storymaps.arcgis.com/stories/76204aa1271a4a7f8a775fc2bba9ef83/>
- Lidar
 - <https://montana.maps.arcgis.com/apps/MapSeries/index.html?appid=55cc886ec7d2416d85beca68d05686f4>
- MSDI Hydrography
 - <https://msl.mt.gov/geoinfo/msdi/hydrography/>
- GeoInfo Help
 - <https://msl.mt.gov/geoinfo/Help/>
- Cadastral Application
 - <https://svc.mt.gov/msl/cadastral/>

Questions?



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