



Connecting Volunteers with Scientists

Citizen Scientists monitor water quality and keep an eye out for aquatic invasive species

The Whitefish Lake Institute coordinates two programs that connect citizen scientists with resource managers to monitor and protect lakes in western Montana.

Northwest Montana Lakes Network (NMLN)

NMLN is a partnership between WLI, Montana Fish, Wildlife & Parks (FWP), and over 50 volunteers. The program encompasses 41 lakes extending from Lincoln County all the way to Missoula County.

WLI began coordinating this program in 2010 when two historic programs were combined for efficiency. NMLN volunteers monitor water quality through water clarity and temperature, conduct visual surveys for aquatic invasive species (AIS), and promote watershed stewardship in northwest Montana. WLI's program coordinator also visits these lakes once a year in the summer to capture more in-depth data. This includes taking water chemistry samples and physical parameters such as temperature, dissolved oxygen, conductivity, and pH, among others. Plankton samples are also collected for the early detection of invasive mussels and plants. Those samples are analyzed using microscopy and/or eDNA analysis.



Volunteer Tilly Daniels pulls in a plankton net while volunteering on Spencer Lake.

Upper Columbia Lakes Network (UCLN)

Our second and newer volunteer citizen science program is the Upper Columbia Lakes Network (UCLN). This program is a partnership with WMCC and was started in 2019 to engage additional groups in AIS early detection and identification. In 2024, 12 volunteers monitored 17 lakes in the upper Columbia River Basin in Montana. These volunteers made visual inspections for AIS and collected plankton samples

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using a tow net. Samples are sent to Montana FWP in Helena for microscopy analysis of invasive mussels.

WLI supports these citizen science programs by providing group or personal on-site training to collect water quality information, AIS identification, and plankton tow protocols. WLI also provides data collection tools and equipment and reimburses the volunteers for shipping the samples to Montana FWP.

The Power of Partnerships

WLI also partners with the City of Whitefish and the U.S. Forest Service to collect AIS early detection samples. In 2024, the two volunteer programs, along with these agency partnerships, collected 210 samples for microscopy analysis to screen for mussels and 66 samples for eDNA analysis of zebra and quagga mussels, curly leaf pondweed, and Eurasian watermilfoil. To date, all samples have come (*continued on Page 3...*)

2024 WLI Staff Connections

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Founded in 2005

Mission Statement

The Whitefish Lake Institute is committed to science, education, and aquatic resource initiatives to protect and improve Whitefish Lake and Whitefish area water resources today, while providing a collective community vision for tomorrow.

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Mike Koopal: Founder, Executive Director
Cassie Roberts: Limnologist
Carol Treadwell, Ph.D: Finance & Grants Manager

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Whitefish Lake Institute

Beyond WLI's core programming, staff are busy training, networking, and creating partnerships that often leverage dollars and expertise. WLI staff also continue their training to better serve the community. Here's a summary of the varied contributions of staff--

Executive director Mike Koopal currently represents the Flathead Basin as a governor appointed member and chair of the Western Montana Conservation Commission (WMCC). At WMCC, Mike also co-chairs the Onsite Wastewater Treatment Committee.

In January, his term ends from an appointment to the Montana Water Pollution Control Advisory Council which provides advice to the Montana Department of Environmental Quality (DEQ) on water quality standards. He recently accepted a board position at The Salmonfly Project, a non-profit dedicated to research, monitoring, and conservation of aquatic insects.

As a former board member of the Montana Watershed Coordination Council (MWCC), Mike attended the Fall Watershed Tour and MWCC's 10-year anniversary in Great Falls. Mike also led part of a field trip at the American Water Resources Association annual conference in Whitefish.

WLI Program Coordinator Durae Belcer participates on the WMCC AIS committee and attends City of Whitefish Lakeshore Protection Committee meetings to provide any requested background and technical information.

Durae attended the Montana Invasive species Summit in Helena where she presented during the Community Science and Reporting section. She also attended the annual aquatic invasive species (AIS) partner meeting in Helena to identify partnership and collaboration opportunities to improve AIS prevention, early detection, outreach and response preparedness.

Limnologist Cassie Roberts participates on the Haskill Basin Watershed Council and the WMCC monitoring committee.

Cassie attended winter limnology school in Wisconsin- a week long training for limnologists to learn strategies to sample through ice and get training on ice safety. She also connected to a network of like minded scientists to collaborate on potential projects and research.

Cassie also attended the Montana Aquatic Resource Colloquium at Flathead Lake Biological Station (FLBS) where water scientists met for updates on the latest research and a chance to discuss current issues. Also at FLBS, she attended a two-day pesticide stewardship partnership program meeting. This included an overview of planned monitoring efforts and presentations from the subgrantees from a larger EPA grant awarded to FLBS.

Cassie attended the North American Lake Management Society conference. The conference allowed her opportunities to talk to vendors and check out the latest technology, attend presentations on lake management planning and strategy, learn new data visualizations at workshops, among many other networking and learning experiences.

Cassie was recently awarded a SP²ARK Fellowship for an intensive training program to build a diverse network of skilled science communicators among early-career professionals.

Finance and Grants Manager Carol Treadwell actively helps develop and promote the Living in the Flathead Guide and attends CORE meetings (Flathead Community of Resource Educators). 'Living in Flathead' is now available online, and the group is working to design a print version.

Great Fish Community Challenge



Great Fish Community Challenge – 10 years and growing

Not-for-profits, like WLI, provide services to the community that otherwise might not exist. Some work by a cooperative agreement with the city government to strengthen community services while others meet the needs of a specific population within the community. The Whitefish Community Foundation serves as a catalyst for philanthropy in the Flathead Valley.

Eighty not-for-profits came together to make the Great Fish Community Challenge a huge success in 2024. A ceremony on October 22nd at the Flathead Valley Community College Wachholtz Center celebrated the work of these nonprofits and the 4,029 donors who gave \$6,678,402 during the 5-week fundraising campaign. It is astounding how these organizations are meeting the needs of a wide range of people, places, and resources in the Flathead Valley. Whitefish Lake Institute raised \$80,756 to protect a life-giving resource – water. Thank you to all who donated to protect our lake and our drinking water.

Connecting Volunteers (con't from Page 1...)

back negative!

WLI displays volunteer data in an annual report found on the NMLN website www.nmln.info. The website will undergo updates in 2025. AIS sampling information can also be found on Montana FWPs website www.fwp.mt.gov/ais. WLI sends secchi disk data to the Secchi dip-in at the North American Lake Management Society.

Thank-you Citizen Scientists!

Citizen scientists report major or sudden changes to their lakes that may otherwise go undetected. The AIS early detection monitoring that these volunteers provide is critical to protecting our lake resources. Volunteers also promote watershed stewardship by sharing their passion with friends and neighbors while building a larger network of engaged citizens.

If you are interested in becoming a citizen scientist, please email durae@whitefishlake.org.

November Science Quencher

Wildlife, wild rivers, and wild water facts were the topic of WLI's Science Quencher, held November 1st at The Lodge at Whitefish Lake.

Amber Steed, Fisheries Biologist for Montana FWP described how the agency tracks native fish populations in the Flathead River basin. A highlight of her presentation was a video of fish biologists snorkeling in the river while recording the age of fish populations.

Matt Daniels, an engineer with River Design Group (RDG), discussed the restoration of the Kootenai River. This river system underwent significant changes beginning in the 1930s when farmers, seeking refuge from the Dust Bowl, moved to the valley in search of a fresh start. Wetlands within the broad Kootenai Valley were drained to create agricultural fields. These alterations to the river's geomorphology and ecology jeopardized the native ecosystem. Fewer sturgeon survive to reproductive age due to the loss of spawning habitat. As a result, Native Americans also faced the loss of this traditional food source. To reverse these detrimental effects, engineers from RDG have been restoring the Kootenai to its natural morphology while recreating a riparian buffer to protect farmland.

Lori Roberts, a bear biologist for Montana FWP, captivated the audience with her presentation on the timing of grizzly bear births. Grizzly bear mothers enter their dens in late fall and emerge in the spring with newborn cubs. However, biologists are often left wondering, "What happens in between?" Using information gathered from tracking/movement collars, Lori and her research colleagues collected data on the movement of bears within their dens. The findings revealed that male grizzlies sleep soundly through the winter without moving at all—quite surprising! In contrast, the data from female grizzlies in the Flathead region showed movement occurring in late January and early February, indicating when birthing takes place. While the timing of births is consistent within a given ecosystem, it varies by region, with northern populations typically giving birth later.

For the past 20 years, WLI has actively identified and tracked pollutants in Whitefish Lake. WLI Executive Director Mike Koopal warned that septic leachate from underperforming or failing septic systems pose a significant threat to water quality by adding unwanted nutrients and human pathogens to the shoreline area. Since 2012, WLI and partners have confirmed the presence of this non-point source pollution in Whitefish Lake via multiple lines of evidence, including human DNA biomarkers, GIS modeling, synthetic DNA, and pharmaceutical testing.



An Ashely Lake volunteer for the Northwest Montana Lakes network deploys a sampler to collect water samples from discrete depths.



WLI Limnologist Cassie Roberts prepares a water quality sample for the Northwest Montana Lakes Network.



Montana FWP bear biologist, Lori Roberts, reports on grizzly bear denning behavior at the November Science Quencher.



A yearling cinnamon phase black bear climbs a tree as its sibling looks on in the Averill's Viking Creek Wetland Preserve.



A moose makes it way along the eastern boundary of the Averill's Viking Creek Wetland Preserve.



A trail camera picked up an interesting encounter between a coyote and a black bear in the Averill's Viking Creek Wetland Preserve.

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