

Quarterly Newsletter of the Whitefish Lake Institute

Summer 2022

2022 Project Highlights

Whitefish Lake Institute (WLI) staff have been working to increase our understanding of Whitefish Lake through multiple projects:

Predictive Lake Elevation Model: WLI contracted River Design Group for a project that used WLI stream and lake data to develop an interactive, hydraulic budget-based lake elevation model that can be used to test various hypotheses and water year scenarios. Changes to the input and output parameters can be easily applied to test for specific scenarios, including anticipated climate changes and increase municipal consumption. Overall, this model can be used as a scientific tool to help better understand, manage, and adapt to changes in Whitefish Lake.

Real-time Lake Elevation and Temperature Sensor: For years, WLI has been surveying the Whitefish Lake elevation via a survey monument at City Beach. WLI contracted River Design Group to install a water sensor that measures real-time lake elevation and temperature. Go to www.whitefishlake.org and click on the icon at the lower right-hand corner of the homepage to see the data and graphs.

Paleolimnology of Whitefish Lake: Partially supported by a Community Grant through the Whitefish Community Foundation, WLI assisted researcher scientists from the University of Regina to collect a sediment core from Whitefish Lake. The core will then be analyzed in the laboratory looking at fossil (*continued on Page 2...*)

Ready, Set, Go Fish!



The Great Fish Challenge 2022 raises money to support causes that matter to the Flathead Valley. It kicks-off on August 4th and runs for six weeks. The Whitefish Lake Institute will be raising funds to support programs that protect the lake, its scenic beauty, aquatic wildlife, and economic value. When you give to WLI through Great Fish, the Whitefish Community Foundation matches your gift to make your lake love go farther.

Donate through the Great Fish Challenge to support these projects:

Whitefish Lake Buoy Project: **“Love the Lake, Stop the Wake”** buoys are being deployed (*continued on Page 3..*)

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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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Cover Photo:
Whitefish Lake as viewed from the Swift Creek area.
Courtesy: gravityshots.com



(2022 Project Highlights, continued from Page 1)...pigments, carbon and nitrogen isotopes, and other analytes as surrogates to construct historic lake conditions. The project will help the community and resource managers better understand the long-term nutrient and aquatic ecosystem trends in the lake.

Analysis of NW Montana Lakes: WLI staff is working with research scientists from The State University of New York (SUNY– Oneonta) on a report: *Analysis of northwestern Montana lakes based on transparency and temperature*. The data feeding this report comes from the 41 lakes in the Northwest Montana Lakes Network (NMLN) which is coordinated and managed by WLI and funded by Montana Fish, Wildlife & Parks. Incorporated into the report will be citizen scientist data going back to the 1990s when the initial volunteer program was coordinated by the Flathead Basin Commission. A long-term dataset for this many diverse lakes in a regional setting is unique and will inform resource managers and the scientific community.

Data Management & Analysis: At the end of each year, WLI graphically depicts key summary information for Whitefish Lake and local streams. With input from the Science Advisory Committee, we are looking at new and different ways that the data can be communicated to the public.

Data Sharing: WLI, in partnership with scientists from Montana State University, are currently in the process of sharing data from WLI to the EQulS database. The EQulS database is utilized by Montana DEQ, other agencies, **and research entities. WLI's data represents the first large-scale** transfer of lake information to the database in Montana. Included in the data transfer are data from the 41 lakes in NMLN and stream information.

Projects on the horizon;

Remote Sensing: For the past 15 years, WLI has consistently collected water samples from two sites in the middle of Whitefish Lake. Lab analysis of these data has yielded important water quality trend information. However, changes to lakes often first take place in the shoreline area. Nutrient input at the shoreline area is often rapidly assimilated in the food web and water samples from the middle of the lake may not tell an accurate story. WLI is considering the use of remote sensing using drone flights and satellite imagery to describe response variables. Nutrients like nitrogen and phosphorus are needed by algae to live and grow. In general, if excessive nutrients are delivered to the lake more algae grow, and those algal densities defined by the chlorophyll (a) produced, can be captured by the remote sensing.

Shoreline Protection Program: This year Whitefish Lake experienced its second highest elevation on record. As a result, watercraft wakes that hit the shoreline liberated soil and nutrients. WLI is having no wake buoys installed this year for education and outreach. We are also exploring a program for outreach to interested homeowners and realtors to provide guidance on how they can implement best management practices to protect the shoreline on their property.

*(Ready, Set, Go Fish! ,continued from Page 1)...*200' offshore to define the no wake zone around Whitefish Lake. The buoys will help minimize shoreline erosion and protect aquatic and wildlife habitat.

Hot Water Decontamination Station: The City Beach decontamination station is being upgraded! The new system heats water on-demand and will be more reliable, noiseless, and will use solar instead of diesel to generate hot water to perform preventative decontaminations for high risk watercraft.

Viking Creek Wetland Preserve invasive weed suppression and hazard tree removal: WLI is working to conduct multiple weed treatments that will suppress invasive weeds and help restore native plants in the Viking Creek Wetland Preserve. Hazardous trees are also being removed. Neighbors and trail users will benefit from the security these actions provide.

Water quality monitoring: Each year WLI collects water samples to track long-term water quality and ecology trends in Whitefish Lake. WLI is working on a project to display the **17-year analysis using "story maps."** **Look for the maps on our website in 2023.**

Septic Leachate: In partnership with the Flathead Basin Commission, and as a team member of a National Science Foundation Grant, WLI is working to develop strategies that address the threat of septic leachate, which can contaminate surface and groundwater.

Investigating septic leachate sources using Synthetic DNA: Whitefish Lake was selected for a case study to test the use of Synthetic DNA for tracing septic sources in lakes. Eight volunteer landowners are participating in a pilot study that places uniquely coded, lab created Synthetic DNA into septic systems. Water samples taken from the lake are being analyzed at Cornell University.

Watershed Education programs: Each year, WLI hosts an education day for the entire Whitefish 5th grade at the Viking Creek Wetland Preserve. In 2022, the students rotated through stations to learn about the fish, plants, rivers, invertebrates, and raptors that are part of the food web in and around Whitefish Lake.

Donate August 4 through September 16 at whitefishcommunityfoundation.org to support these projects.

For real-time Whitefish Lake elevation and temperature information, visit our website www.whitefishlake.org and click on the homepage lower right icon.

Summer Intern Reflections, by Sam Menicke

My time at WLI this summer has been inclusive, engaging, and extremely fun. Even though I grew up hearing about the **WLI's work, it was hard not to be intimidated being the temporary fourth member of a very well established aquatic research organization in my area.** However, from the moment I stepped into the office, Mike, Cynthia and Carol made me feel like a part of their three person family with their kindness and enthusiasm. My summer experiences felt more professional than anything I had done before, doing real data entry at the office and attending **AIS and Septic Conferences at the Flathead Lake Biological Station.** WLI's passion for protecting Montana waters stems from their work ethic and vast knowledge of aquatic systems, but also from their community outreach and communication to individuals, like myself, who want to learn more about how we can preserve our water quality.

I was also impressed with WLI's vast professional network.

Throughout the summer, I was involved with multiple job shadowing opportunities with Montana Fish, Wildlife & Parks, USGS, the National Park Service, River Design Group, and the City of Whitefish. WLI works in tandem with all of these organizations, which cover the federal, state, and private sectors. I was especially grateful to have done these job shadows because it showed me what it would be like to work for all kinds of science organizations in the future. I also learned a TON about limnology, hydrology, geomorphology, wildlife ecology, and much more from all of these professionals. One of my favorite outings was going electrofishing with FWP where we conducted bull trout population estimates in the Upper Whitefish watershed.

WLI's field work was also very fun to help with. I quickly got introduced to common field techniques to measure water quality in lakes and rivers, and jammed out to KOOL105 with Cynthia in the car. I went to some amazing lakes around the valley through the NMLN project, many of which **I hadn't been to before, and met some amazing people who shared our love for the natural world.** I even did some tough trail maintenance in the wetlands, which was something Mike loved to see. Without fail, every day was a new, fun experience. This internship solidified my love for field work and got me excited about doing more science in the future. It also emphasized the importance of finding a great community to support you, like WLI has done in Whitefish. **Rain or shine, I had a blast this summer and truly can't thank everyone at WLI for such a rad summer!** I know you guys will keep up the great work.

Editor's note: Sam will be a junior at Macalester College.

Summer Photos



The WLI Executive Committee meets in-between regularly scheduled board meetings. (L-R) Executive Director Mike Koopal, President Andy Feury, Secretary/Treasurer John Collins, and Vice-President Hank Ricklefs.



Northwest Montana Lakes Network volunteers Asta Bownen and Eric Hurst, along with WLI intern Sam Menicke, monitor Flathead Lake near Conrad Point. WLI's Cynthia Ingelfinger goes out with volunteers from each lake at least once a year.



Research Scientists Jim Craft and Tyler Tappenbeck from the Flathead Lake Biological Station have a long-term monitoring station on Whitefish Lake that is partially funded by WLI.



As the WLI intern, Sam Menicke spent the summer learning more about lake and stream ecosystems, water quality issues, and the operations of a small non-profit organization.



A cow elk and her calf in the Averill's Viking Creek Wetland Preserve. The preserve offers good rearing habitat.



A whitetail deer and her fawn in the Averill's Viking Creek Wetland Preserve.

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Active Members who have donated for 5-9 years since 2005.

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