



LakeFront

Quarterly Newsletter of the Whitefish Lake Institute

Summer 2008

Stop the Spread of Aquatic Nuisance Species

The Whitefish Lake Institute recently completed a presence/absence survey of aquatic nuisance species in Whitefish Lake.

Whitefish Area Watch List

Zebra Mussel



Infestations have caused pronounced ecological changes in the Great Lakes and rivers of the central US. The zebra mussel's rapid reproductive rate and consumption

of food items places sport fisheries at risk. The mussels readily colonize artificial substrate such as water intake pipes and docks.

Eurasian Watermilfoil

Problems caused by the dense growth of these weeds include impairment of water-based recreation, degraded fish and wildlife habitat, accelerated filling of lakes and depressed property values.



Eurasian (L), Native (R)

New Zealand Mudsnails



They may be small, but don't be fooled! Now rapidly spreading throughout the western US, these mudsnails will comprise over 95% of the invertebrate biomass in a river.

The survey concentrated on what are thought to be the three main threats to this area: zebra mussels, Eurasian watermilfoil and New Zealand mudsnails.

The good news is that none of the nuisance species were documented in Whitefish Lake. The bad news is that they continue to be a real threat to the health of the lake and to our local economy.

WLI will be repeating the survey on an annual basis. In the meantime, WLI is working closely with John Wachsmuth at Montana Fish, Wildlife and Parks to further define sampling strategies and to develop plans if an infestation occurs.

In addition, WLI and FWP are partnering to produce educational materials so that lake users can identify these species to hopefully prevent

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Whitefish Lake
INSTITUTE

*Protecting and improving the
Whitefish, Montana area
lake resources*

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Founded in 2005, the Whitefish Lake Institute is committed to acquiring scientific research and engaging the local citizenry to protect and improve the Whitefish area lake resources of today, while providing a collective vision for tomorrow.

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Mike Koopal, Editor

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 Whitefish Lake

(Stop the Spread of ANS continued from page 1)...
 their establishment and/or spread. For more information on aquatic nuisance species, try the following websites:
 www.fwp.state.mt.us
 www.100thmeridian.org
 www.protectyourwaters.net
 www.mudsnails.com

What You Can Do to Stop the Spread

How to identify a zebra mussel:

- Zebra mussels look like small clams with a dark D-shaped shell and light colored strips
- Most are under an inch long, but they can be up to 2 inches long
- The adults usually grow in clusters attached to hard surfaces
- The young mussels on the surface of a boat look like black pepper and feel like sandpaper

How to identify Eurasian watermilfoil:

- Count the pairs of leaflets, Eurasian watermilfoil usually has twelve or more pairs on each leaf
- Eurasian watermilfoil leaves tend to collapse around the stem when removed from water. Other milfoil species have thicker stems and are usually more robust

How to identify New Zealand Mudsnaails:

- New Zealand mudsnails are small (about 1/8 inch) snails that have brown or black cone shaped shells with five whorls

How to help: Before leaving any water body:

- Remove all plant, sediment and tiny organisms that cling to your boat and trailer
- Drain all water from your boat, including from the motor, live well and bilge. Do not transfer any water from one water body to another
- Never release live bait into a water body or transport aquatic animals from one water body into another. Always discard unwanted bait with household trash in the landfill. Likewise, dispose of fish carcasses with trash
- Wash your boat, trailer and all fishing gear and equipment. High-pressure hot water is best
- Air-dry your boat and equipment for as long as possible between fishing trips

If you find an ANS:

- Note the date and location where the ANS was found
- Take the ANS with you and store it in rubbing alcohol
- Contact FWP, Region 1 in Kalispell immediately at 752-5501

Information provided in partnership with Montana, Fish, Wildlife & Parks

STOP AQUATIC HITCHIKERS!
ZAP the ZEBRA!

Summer Interns and Observers

The WLI would like to thank our summer interns for all of their hard work and dedication. Summer interns assisted in data collection and data input. They also learned about concepts and current issues in stream and lake ecology.

Kristi Whisler is a senior at Whitefish High School. She has participated in Whitefish Freeflow and was a member of the Whitefish team that took third place at the Montana Envirothon. Kristy also completed an independent study last year that analyzed the potential effects of fire retardant on Whitefish Lake zooplankton. Kristy assisted WLI in field data collection and currently sits on a WLI ad-hoc committee that is evaluating the feasibility of building a watershed learning center. She is currently researching her college options, with Northwestern



(L-R) Kristi Whisler, Mary Kohnstamm



(L-R) Chris Ruffatto and Blake Bjornson

being her first choice. She plans to study business and would like to work for a non-profit.

Mary Kohnstamm is a Whitefish High graduate and a sophomore at St. Lawrence University in Canton, New York studying Environmental Studies and English. Mary assisted WLI in field data collection and data input.

Blake Bjornson, a Whitefish High graduate is a freshman at Montana State University majoring in Bio-Resources Engineering with a minor in Water Resources. Blake observed the field data collection process on the tributaries to Whitefish Lake.

If you know of a student that would be interested in an internship, or has a couple of days to observe our efforts next summer, please contact the WLI office at 862-4327.

Teachers Get Their Turn

WLI will be conducting two teacher in-service training sessions aboard the WLI research boat for the Whitefish School District on the evenings of Sept. 9th and Sept. 16th. The title of the training sessions are FREEFLOW for Adults...Measuring the Water Quality of Whitefish Lake. Whitefish High School teacher and WLI scientist Chris Ruffatto will lead the training. Assisting Chris will be WLI executive director, Mike Koopal.

The three hour sessions will cover lake ecology, the geologic and cultural history of Whitefish Lake, current land use issues, Whitefish Lake hydrology,

past and present research efforts, the tools used by researchers to gather data, and future threats to the water quality of the lake. Special emphasis will be placed on the fact that the lake is used by the City of Whitefish for our drinking water.

The discussion will involve the importance of managing the entire watershed and all of its tributaries for the purpose of maintaining the chemical, physical and biological integrity of not just the lake but the entire watershed that contributes to it.

WLI hopes to involve at least ten Whitefish teachers per year in these sessions so that they can convey what they learn to their students in the classroom environment. –CR

What's a TMDL?

According to the US Environmental Protection Agency, over 40% of the assessed waters in the US are impaired— primarily from non-point source pollution. These impaired waters include approximately 300,000 miles of rivers and shorelines and approximately 5 million acres of lakes -- polluted mostly by sediments, excess nutrients, and harmful microorganisms. An overwhelming majority of the US population - 218 million - live within 10 miles of the impaired waters.

The Clean Water Act classifies water bodies that do not meet water quality standards as “impaired,” and requires the development of a total maximum daily load (TMDL) plan to bring these waters into compliance with water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the state has designated. The calculation must also account for seasonal variation in water quality.

Development of a TMDL involves conducting a watershed scale study to identify the sources of the pollutant causing impairment, quantifying the pollutant contribution from each source, and determining the pollutant reduction required from each source to meet applicable water quality standards.

The Montana Department of Environmental Quality is continuing with Total Maximum Daily Load (TMDL) development in the Flathead area. A public meeting will be held at the Hampton Inn in Kalispell on September 4, 2008 from 9:30-12:00. This meeting will update the public on the planning processes that have occurred since last spring's meeting. All interested Stakeholders are encouraged to attend. The meeting will summarize all work completed to date, present proposed project plans, and discuss the Flathead public involvement strategy for the Flathead project. This will be the first of several meetings to occur over the next two years as TMDL development continues. For additional information or questions, please contact George Mathieus at 406 444-7423, or email at gemathieus@mt.gov.

Whitefish Lake TMDL Update

The Whitefish Lake Institute has spent the last year and a half as a project partner with Montana DEQ to collect data in support a computer model that will analyze non-point source pollution. The model will analyze Whitefish Lake independently and Whitefish Lake as a component to a broader Flathead Basin effort.

The computer model is functionally broken down into two components. The first is a watershed model that looks at source contributions- things like sediment and nutrients. Those inputs are analyzed based upon land use practices like forestry, agriculture, development, and their associated land types.

The second component is a response model defining how a waterbody is affected by the source loading. For instance, how does Whitefish Lake cycle nutrients? Is it a nutrient sink, or are the nutrients exported downstream?

WLI regularly collects data at two locations on Whitefish Lake, and on Swift Creek, Lazy Creek, Hell-roaring Creek, Smith Creek and Viking Creek, along with information collected by the weather station.

The Whitefish Lake work involves sending down a probe all the way to the lake bottom. The probe measures temperature, dissolved oxygen, pH, conductivity, photosynthetically active radiation, and oxidation reduction potential.

During the summer months, the lake is vertically stratified into three distinct layers based on temperature. Those layers are charted in the field and then discrete water samples are collected from the middle of each layer for laboratory analysis. The laboratory measures nitrogen, phosphorus, organic carbon, suspended sediment, and other parameters.

The tributary work mirrors that of the lake but also involves measuring the volume of water in cubic feet per second flowing down the stream and into the lake.

WLI's work on this project closely follows the state's quality control and quality assurance plan.

**To view past issues of *LakeFront*, please visit our updated website at:
www.whitefishlake.org**

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