

# Report: Whitefish Lake at 'tipping point'

By HEIDI DESCH Whitefish Pilot | Posted: Tuesday, December 8, 2015 1:00 am



## Whitefish Lake

A view of Whitefish Lake toward City Beach.

Whitefish Lake is a community gathering place, an economic driver, part of the heritage, a source of drinking water, a scenic view, a place of recreation and so much more for Whitefish and its citizens.

But Whitefish Lake is at a tipping point, according to a report by the Whitefish Lake Institute, and work needs to be done to improve water quality, protect native species and preserve the legacy of the lake.

“The report points to key time periods in Whitefish Lake’s history and how water quality and the lake’s food web have been affected,” said WLI executive director Mike Koopal. “Ultimately, a number of research parameters indicate that Whitefish Lake is at a tipping point in water quality.”

WLI recently released the Whitefish Area Water Resource Report: A Status of the Whitefish Lake Watershed and Surrounding Area. The 336-page document brings together all the data collected by WLI and other agencies to paint a picture of the health of the watershed, which includes Whitefish Lake and generally the water from creeks, rivers and other lakes that bring water in and out of Whitefish Lake. The project area includes just over 100,000 acres encompassing the Whitefish Lake watershed and the Upper Whitefish River watershed.

“It’s like an encyclopedia of the technical information pertaining to the lake,” Koopal explained. “If you have a question about the resource, you can go there and access it. It’s a repository of the information that we have at this time and we plan on building on that.”

WLI has conducted monitoring and field data collection on Whitefish Lake and its tributaries since 2007, accruing data to report the baseline scientific understanding of the lake and water quality. Moving forward, WLI will be able to compare the natural season and annual lake and tributary dynamics against the baseline to identify long term trends.

WLI expects to release a community version of the report and hold a community forum in the first part of 2016 to discuss the results. The full report reviews the watershed in three areas: it summarizes the natural and cultural history of the watershed, it analyzes the data to provide a scientific water quality assessment and third, it provides a recommendation to address water quality issues through four specific areas.

A number of research parameters from WLI, the Flathead Lake Biological Station and other research entities indicate that Whitefish Lake is at a tipping point in trophic transition, meaning the lake could be heading in the direction of poorer water quality.

There are a number of key indicators that show the lake is transitioning from a low level of nutrients, which is good for a lake like Whitefish Lake, toward a medium amount of nutrients, according to Koopal.

“If that happens we will have more algal production in the lake and that will cause decreased clarity in the lake and reduction in dissolved oxygen in the lake, which impacts aquatic life,” Koopal said. “Water quality is degraded based on cumulative impacts.”

Data shows that changes in the lake could result in increase in algal production, decrease water clarity, decrease dissolved oxygen levels impacting aquatic species, potentially altering the food web of the lake and creating conditions that may be more favorable for aquatic invasive species, the report notes.

Nutrients in lakes are similar to nutrients in a garden. They are essential for growth, but additional algae and other plant growth allowed by nutrients are only beneficial up to a point and may become a nuisance or harmful to the lake.

Human activity has increased the levels of nutrients reaching water bodies. The main sources of this is municipal and industrial waste, and agricultural, domestic and industrial run-off, stormwater and septic system leaching.

Of particular concern is the phosphorus loading in Whitefish Lake because it can promote excessive plant growth that favors algae, eventually affecting water quality. The main sources of phosphates and nitrates tend to come from improperly managed agricultural, domestic and industrial run-off, and septic and sewer systems, according to the report.

“This is a substantial warning,” Lori Curtis, science and education director for WLI, said of the report. “This is like a warning shot over the bow.”

Curtis points to Lake Tahoe on the California-Nevada border as an example of what can happen if a lake’s water quality declines having a range of impacts on the environment and local economy. Lake Tahoe, according to the U.S. Environmental Protection Agency, has suffered a decline in its water quality including reduced clarity from sediment and algae growth as a result of nitrogen, phosphorus and sediment. Curtis noted the estimated cost since the 1960s to repair Lake Tahoe has been \$1.4 billion with \$415 million being spent since 2010.

Curtis said the research on Whitefish Lake is pointing in a direction that says some changes need to happen and monitoring needs to continue.

“If you walked over to the lake right now, it looks beautiful,” Curtis said. “The problem is what’s happening in the lake right now isn’t visible to the casual observer. If there is some way that this report can get people to be conscious that everything they do and every decision they make with water quality can impact the lake.”

Koopal said the good news is that Whitefish Lake has the ability to rebound more quickly than a lake like Lake Tahoe.

“We have that in our favor,” he said. “If we have implemented measures to protect water quality, the results will happen.”

The report notes that the 1990s was an unfavorable decade for water quality in the watershed largely because this period was marked by a high amount of timber harvest and increased shoreline development, which impact the lake. However, in the 2000s it rebounded largely because of increases in research, management and regulatory measures.

Koopal said the bottom line is that the lake could be heading in a direction of poorer water quality and that means continued vigilance and a renewed stewardship effort from the community.

“The average person should have a consciousness of this and have in the back of their mind — if they are a lake user or lakeshore owner — what they can do and how they impact the lake,” Koopal said. “And engage on a community level.”

The report outlines several areas of concern for the lake under a of categories: biological, physical and chemical.

The No. 1 concern for Whitefish Lake, Koopal said, is the threat of aquatic invasive species, along with the introduction of non-native species into the lake. Previous changes to the lake, such as the introduction of Mysis shrimp in 1968, altered the lake, but have largely evened out today.

“The lake is at some point of having settled down,” Koopal said. “It’s much altered, but it is about as stable as it can be. If we have an introduction of something like zebra mussels, if there are favorable conditions, then we would expect a fairly profound nutrient changes and economic impacts with decrease in recreation opportunities.”

Koopal said the key is to put efforts toward prevention programs that can keep out or at least delay AIS from establishing itself in the lake.

“The money spent in preventing AIS spreading to the lake makes you come out way ahead in the end,” Koopal said.

In addition to AIS under the biological category, of concern is introduced species and harmful algal blooms.

Under physical concerns, issues include shoreline development, boating, temperature change and railway transportation.

Chemical concerns, include nutrient loading, mercury, pharmaceuticals and personal care products, polychlorinated biphenyls or PCBs, chemical in petroleum products and perchlorates, which are found in fireworks.

The final section of the document, is the watershed restoration task table. It provides suggestions for four specific areas to improve the watershed: restoration and habitat protection; research, education and outreach; and government regulations and policy; and miscellaneous.

“That provides an ongoing list of the water quality issues for the whole watershed for everyone that deals with them,” Curtis said. “There are 64 items on the list that need to be addressed to keep this place clean over time. When someone sees a project on the list, they can know that we already vetted it.”

Organized by sections suggested by which agency might work on a series of issues and each individual item is described and been given a peer ranking of importance.

“We haven’t let the dust settle after writing the report enough to strategize [what is the top of the list],” Koopal said. “Some are small projects or very long projects. Ultimately it will take a myriad of projects that are diverse in nature to protect and improve the water.”

Koopal said some of the task items might be accomplished sooner because a private donor is willing to sponsor a project, while others may require multiple agencies working together on an issue.