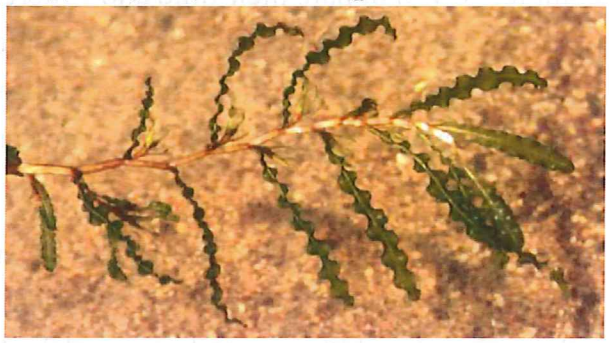
Watershed's 'BioBase' to track water quality

By Sarah Mielke Guest Commentary | Posted: Tuesday, May 31, 2016 5:00 pm

As well-known as Prior and Spring lakes are by recreational enthusiasts, there is little knowledge about what lies beneath the surfaces of those lakes.

Where are certain plant species growing, and why there? Have invasive species treatments been effective? How does plant growth affect lake clarity? In 2013, to address these questions, the Prior Lake-Spring Lake Watershed District started using a program called BioBase, an automated vegetation mapping program, to determine how lake vegetation is changing over time. BioBase uses sonar to detect a lake's depth, bottom hardness and vegetation density. With this information, the watershed district can make many comparisons to influence management decisions within the district.



Curly-leaf pondweed

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To begin, baseline conditions must be documented. Data is collected for the BioBase program with the sonar equipment. With enough data, the district can determine if there has been a significant permanent change in vegetation, or if a seasonal fluke in the weather is altering water quality. Because the watershed district can detect these patterns, it can identify trouble spots caused by invasive forces or human interference, such as the location of the invasive plant, curly-leaf pondweed. By comparing plant location from surveys and recording the density data before and after treatment to kill it, watershed district staff can determine how effective the treatments are. For example, treatments in Crystal Bay in 2015 proved to be very effective in reducing curly-leaf pondweed, while treatments in the south central and southwest part of Upper Prior Lake appear to have been ineffective as the invasive species flourished.

Water clarity is another area being looked into on the lakes. A study in 1992 has shown that 40 percent of plant area cover promotes optimal water clarity (Canfield and Hoyer). The watershed district has calculated vegetation on the lake bottom with BioBase and found that Lower Prior has achieved the optimal level (43.2 percent) but that Spring Lake (12 percent) and Upper Prior (7.9 percent) do not have enough vegetation to meet optimal plant area cover. This tells our staff that

water clarity issues on Upper Prior Lake and Spring Lake could be related to a lack of healthy plant cover.

However, none of the district's research would be possible without its generous sponsors and volunteers who donate their time and watercraft to the BioBase program: Your Boat Club, the city of Prior Lake and the Shakopee Mdewakanton Sioux Community for providing boats; the Prior Lake Association for financial support and volunteers; and Mike Spanier, John Sporney, Jeff Will, Ken and Marcia Rodning and others who cared enough to donate both their time and boats for mapping.

To keep this program going strong, the watershed district is looking for more volunteers for the 2016 season. Please contact Sarah Mielke at 612-361-3295 or smielke@plslwd.org for more information. In addition, watch www.plslwd.org for the full BioBase report coming out mid-June.

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