

Chapter 8. Aquatic Plant Surveys

Summary

Aquatic plants are very important to lakes. Unfortunately, most people see aquatic plants as problems. They perceive lakes or lakeshores with lots of so-called "weeds" as messy and in need of cleaning. But what a cabin owner sees as a weedy mess is an essential part of a lake's or river's ecosystem. Without aquatic plants, lakes would have fewer aquatic insects, minnows, and other wildlife. If too many aquatic plants are removed from lakeshores, fish and wildlife populations and water clarity may suffer. Aquatic plants are an essential part of the natural community in most lakes.

Aquatic plants serve many important functions:

- Provide fish food
- Offer fish shelter
- Improve water clarity and quality
- Protect shorelines and lake bottoms
- Provide food and shelter for waterfowl
- Improve aesthetics
- Provide economic value

In 2003, Blue Water Science was hired by PGOLID to conduct a plant survey. They completed a transect survey that concluded that the Pelican Lakes have a moderate diversity of aquatic plants. In addition, this survey identified the presence of Curly-leaf pondweed, an invasive aquatic plant. Unfortunately, transect surveys aren't recognized by the Minnesota Department of Natural Resources (DNR).

In 2010-2011, PGOLID conducted another plant survey in Little Pelican, Bass, Fish and Pelican Lake. These surveys used the point intercept method, which is recognized by the DNR. The goals of this survey were to update plant data on the lake and compare it to the 2003 results and identify any new areas of invasive aquatic plants.

In 2015, PGOLID conducted a plant survey of Echo Bay to document the native plants present there. Echo Bay was found to have a very diverse and healthy plant community.

Comparison of 2003 to 2010-2011

Overall Conclusions

The Pelican Group of Lakes Improvement District (PGOLID) hired a contractor to conduct a survey in 2003 to determine the plant diversity in Pelican, Little Pelican, Bass and Fish Lakes. During this survey, the invasive plant, Curly-leaf pondweed was found for the first time. The Curly-leaf pondweed treatment program began in 2005 and has greatly reduced the density of the invasive plant in the lakes.

In 2010-2011, a follow up survey was conducted by a different contractor. The standard methods used for these surveys (point-intercept method) is different than the 2003 survey, which makes it hard to directly compare them.

Overall, the plant density was higher in the 2003 survey than the 2010-2011 survey. This could be due to the fact that two different survey methods were used. Either some plants were missed at

the survey points in 2010-2011, some rare plants were found in 2003, or plant diversity has decreased over time. The latter is the least likely explanation, as the PGOLID native plant populations appear to be healthy and sustaining.

Wild Rice was found in Pelican and Fish Lakes in the 2010-2011 survey. It is an excellent food source for wildlife and waterfowl. This plant is protected by the state, and a license is necessary to harvest wild rice. Wild rice destruction and removal is against the law.

Pelican Lake

The plant diversity was higher in 2003 than 2010-2011; however, the most abundant plant was the same. Chara is common in lakes with good clarity, and is a beneficial plant for the lake.

	Pelican Lake					
Date Data taken	5/20/2003	8/14/2003	*4/28/2011	*8/10/2011	5/10/2010	8/3/2010
Number of Aquatic Plants found	13	21	10	8	10	10
Most Abundant Plant	Chara	Chara	Clasping Leaf Pondweed	Chara	Chara	Chara

*Data from the western bay of Pelican Lake

Little Pelican Lake

The plant diversity was higher in 2003 than 2010; however, the most abundant plant was curly-leaf pondweed in 2003. Due to the curly-leaf pondweed treatment program, it is no longer the most abundant plant in 2010. Coontail is a common native plant that is found in healthy shallow lakes. Little Pelican Lake has a healthy native plant population, which is good for shallow lake habitat and fishing.

	Little Pelican Lake			
Date Data taken	5/20/2003	7/23/2003	4/10/2010	8/10/2010
Number of Aquatic Plants found	15	19	10	10
Most Abundant Plant	Curly Leaf Pondweed	Flatstem Pondweed	Coontail	Coontail

Bass Lake

Overall, the plant diversity was only slightly higher in 2003 than 2010. The most abundant plant changed; however, there doesn't actually appear to be much change between surveys. In the early season surveys, Bulrush was most abundant 2010, and third most abundant in 2003. An increase in Bulrush from 2003 to 2010 would be good for the lake, as Bulrush is an excellent water filterer. In the late season surveys, Chara was the most abundant plant in 2003, and the second most abundant plant in 2010.

	Bass Lake			
Date Data taken	5/20/2003	7/23/2003	4/28/2010	8/10/2010
Number of Aquatic Plants found	4	10	7	9
Most Abundant Plant	Chara	Chara	Bulrush	Coontail

Fish Lake

The plant diversity in Fish Lake was higher in 2010 than 2003. The most abundant plant, Chara, was the same for all surveys except the late season 2010 survey. In the late season 2010 survey, however, Chara was the second most abundant plant. Chara is common in lakes with good clarity, and is a beneficial plant for the lake.

	Fish Lake			
Date Data taken	5/20/2003	7/23/2003	4/28/2010	8/10/2010
Number of Aquatic Plants found	3	7	13	12
Most Abundant Plant	Chara	Chara	Chara	Coontail

Echo Bay, 2015

The overall results of this plant show that Echo Bay has a very healthy native plant community. No aquatic invasive plants were found in Echo Bay. Aquatic plant communities are important to a body of water because of their ability to maintain water clarity and good fish habitat.

In addition, some plants are found more often in lakes with good water clarity, such as Muskgrass (*Chara*). It is a great bottom stabilizer and slows the suspension of sediments. This plant is also wonderful habitat for fish and is a favorite food for waterfowl.

Coontail is also a great native plant and is common in Echo Bay. It has a unique ability to draw a great abundance of nutrients from the water, which increases water clarity

Bulrush is very important to a lake for many reasons. It provides spawning habitat for crappies, filters the water, and helps to prevent shoreline erosion by acting as a wave break.

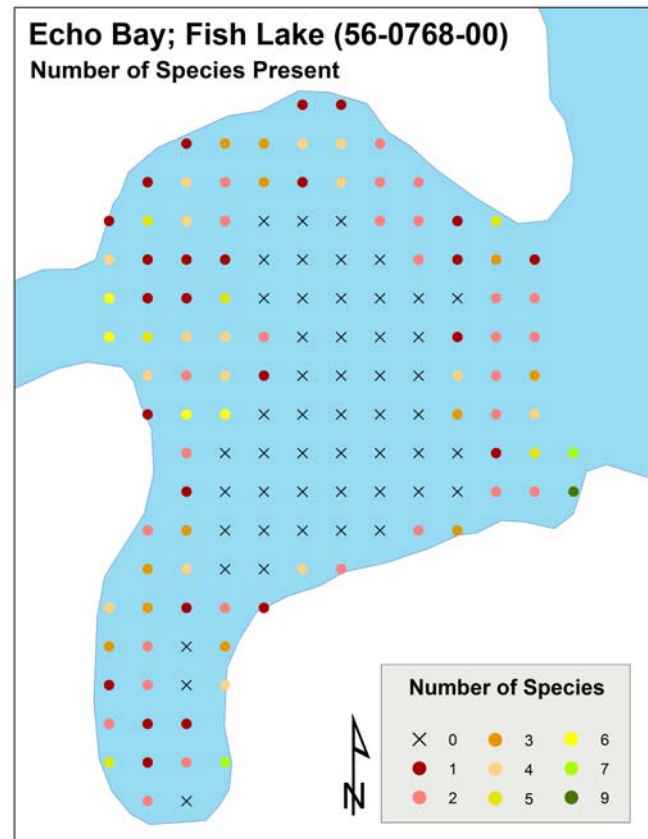


Figure 8.1. Map of number of aquatic plant species found in Echo Bay of Fish Lake, 2015.

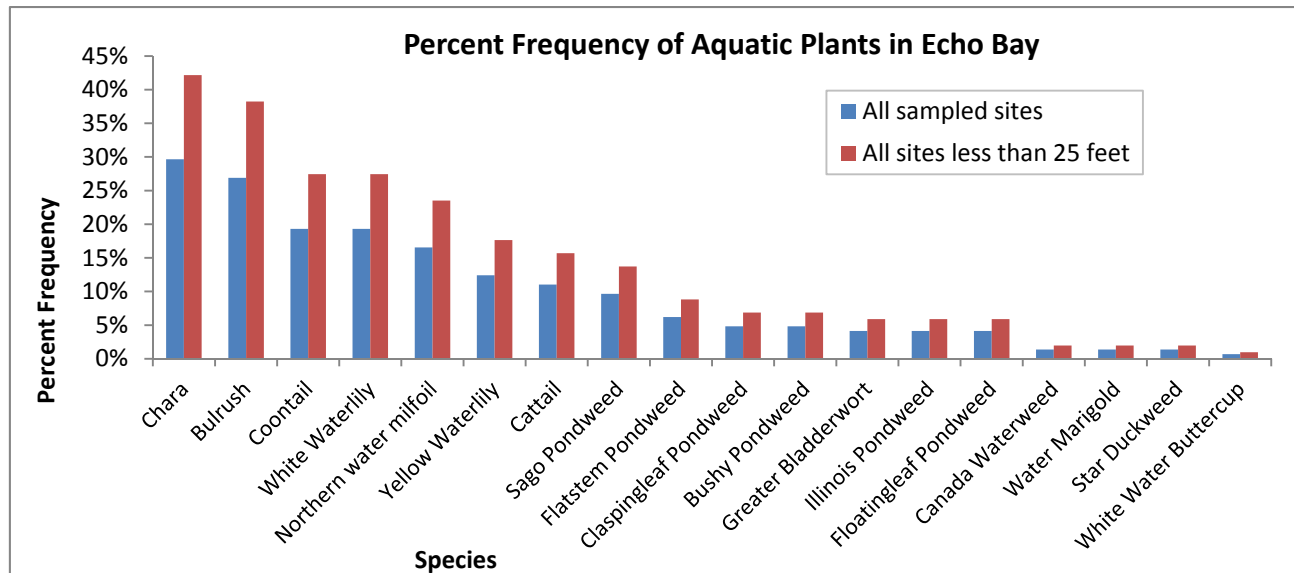


Figure 8.2. Aquatic plant species found in Echo Bay of Fish Lake, 2015.