

Invasive Species of Crystal Lake

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INTRODUCTION

Aquatic Invasive Species have been an ongoing problem in Crystal Lake in Ellington, CT and have taken over large areas. The Crystal Lake Association (CLA) continues to spend time and money to try to eliminate this problem. They have used a variety of techniques, from installing lake bottom beds to harvest suctioning. The problem started when people brought in these non-native plant species (such as on boat propellers); I wondered how much the residents knew about this issue and how could we teach them more.

Keeping the lake a safe and clean place for all lake-goers is a community's job. In order to keep the community informed on the species present in the lake, as well as what the CLA is doing to help, I made a brochure (Fig. C.) with relevant information. With the help of my community partner, I plan to place these brochures at boat docks and public beaches around the lake during the summer time. This will keep the community more informed on how they themselves can help to make the lake a better place. By increasing awareness of the ongoing problems of invasives we hope to make it a group effort to keep the lake an enjoyable place for everyone.

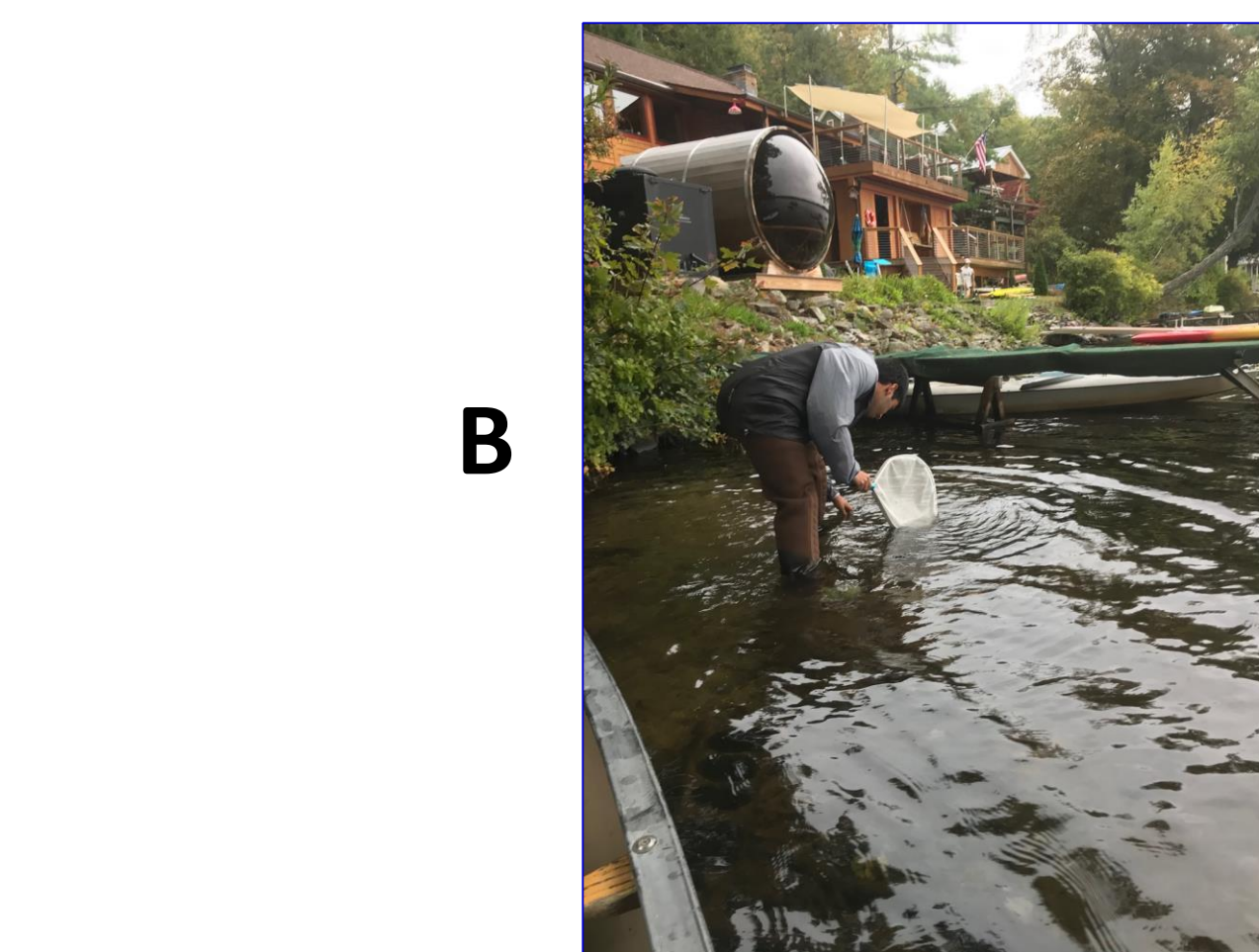


Fig. A. This type of milfoil is known as variable leaf milfoil and is prominent in many areas of the lake.

Fig. B. Photo of me collecting mud-mat that is covering the lake bottom

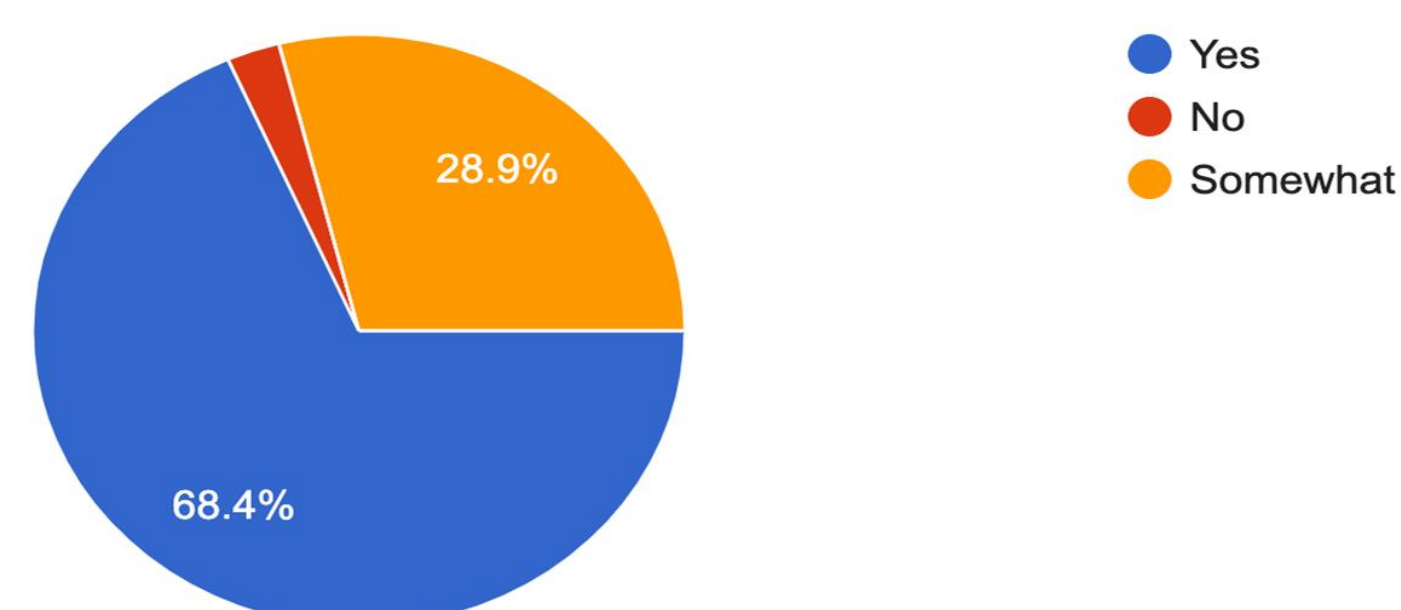
SURVEY METHODS

I surveyed residents living around Crystal Lake to gauge how informed they were about aquatic invasive species in the lake and its impacts. I also sought to determine people's actions to protect against transporting invasive plants with their boats.

Steps:

1. I wrote out a Google Survey with 10 questions.
2. I assembled email addresses of residents that lived in the Crystal Lake area and sent out the survey.
3. Responses were tallied. The following chart illustrates how they responded to an awareness question.

Are you familiar with aquatic invasive plants?



CONCLUSION

Aquatic invasive species have been a problem for years in Crystal Lake. Hopefully, this project increases awareness of the problem in the lakeside community. The brochure informs readers how to identify an invasive plant and what steps they can take to keep the lake clear of unwanted aquatic plants.

By placing informative brochures in public spaces in the summer, such as boat docks, people will hopefully will take time to read some of them and learn how they can protect the lake. This is a community project that requires persistent effort. I hope this project conveys issue importance and instills community responsibility to keep the lake safe and clear of invasive aquatic plants.

ACKNOWLEDGEMENTS

I wanted to thank everyone who helped me complete this project. A ton of thanks to Rex Joffray for taking time out of his busy schedule to help me whenever I needed it. Also for teaching me about the aquatic invasive plants and being there for me. Thank you to the Crystal Lake Foundation and David Arzt as well, for providing me with tools when needed. Thanks to Amy Cabaniss for keeping me on track and being there to help when needed.

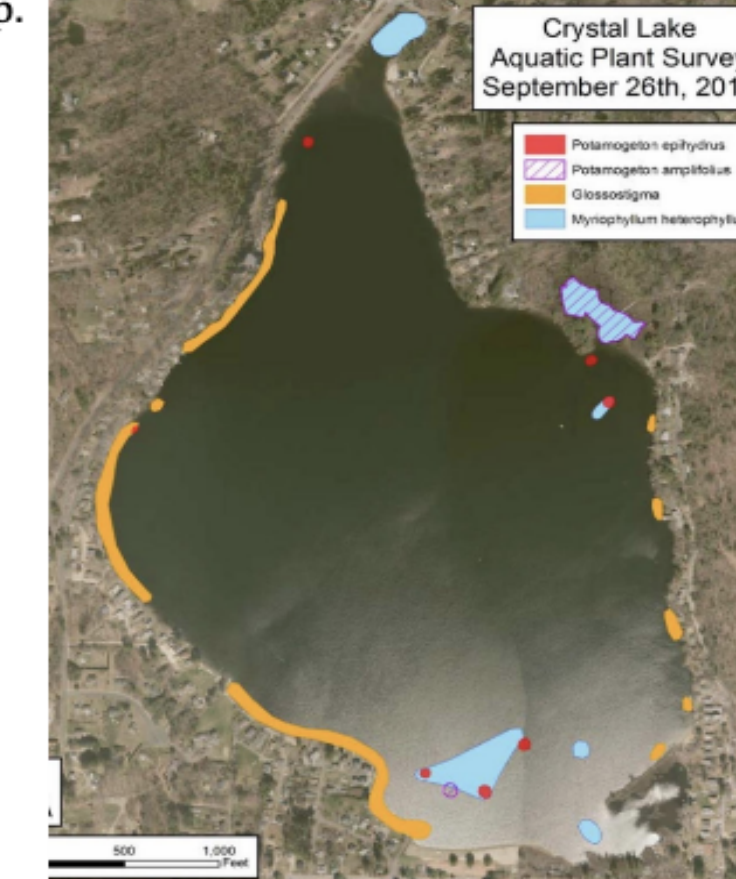
REFERENCES

- Crystal Lake Association. Home. www.crystallakeellingtonct.com/.
- Rhode Island Department of Environmental Management. *Fact Sheet - Freshwater Aquatic Invasive Species in Rhode Island*, Nov. 2017. www.dem.ri.gov/programs/benviron/water/quality/surfwg/pdfs/glocle.pdf.
- New Hampshire Department of Environmental Services. *Environmental Fact Sheet*, 2019. www.des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-23.pdf.
- SOLitude Lake Management®. "Invasive Species Highlight: Mudmat." *SOLitude Lake Management: Full-Service Lake And Pond Management*, Oct. 23, 2018. www.solitudelakemanagement.com/blog/invasive-species-highlight-mudmat.

What is the Problem?

In 2009 the Crystal Lake Association recognized there was a serious problem with the invasive aquatic plant Variable Leaf Milfoil. A survey of the lake found about 20 acres of the 20-acre lake had been overtaken by milfoil. Milfoil can grow as long as 25 feet. If not taken care of you will no longer be able to boat, fish, or swim in the lake. The Crystal Lake Association approached

The Town of Ellington provides an annual budget-milfoil campaign. Since 2009 the Town of Ellington administered by the Ad Hoc Milfoil Committee has budgeted \$25,000 annually to combat milfoil and other invading aquatic plants using a Diver Assisted Suction Harvesting removal technique. Other invasive plants have since been entering the lake. This brochure will help you understand the problem and what you can do to help.



Above is the annual 2017 Survey that records the removal and the arrival of invasive aquatic plants. From these reports a decision is made on remediation of the most important areas. The Town of Ellington Ad Hoc Milfoil Committee hires a contractor that removes miloi in the area selected using a diver-assisted suction harvesting technique. Light blue is milfoil, orange is mud-mat, and red is pondweed.

What Can You Do?

Identify Invasive and Harmful Plants

Learn which plants are native to Crystal Lake and which ones don't belong. If any new invasive plants were to enter the water, early detection would help control it quickly before spreading. About 68% of Crystal Lake residents surveyed were aware of aquatic invasive species, with almost everyone knowing about milfoil. It's great that most residents know about the problem, an amazing start! Take a photo of the plant, area found, the date, and email to the Association at:

Lakemaster@crystallakeellingtonct.com

Clean Your Boat and Trailer

Before putting your boat and trailer in the lake, make sure to check for any plant fragments and dispose of them. After taking your boat out of the water do the same. Do not return the plants back to the lake. Going from lake to lake without cleaning your boat can cause unwanted species to spread into multiple lakes. Please visit the Boat Launch kiosk for detailed instructions on how to clean your boat and trailer.



Do not Dump Waste In the Lake!

It is very important to not dump any unwanted waste into the lake, plants or trash. Milfoil was introduced to lakes by someone who dumped it from their aquarium and now is a huge problem nationwide.

Join the Crystal Lake Association!

You can continue to help throughout the whole year by spreading awareness of native vs non-native species and making sure the problem is taken seriously. A great way to do this is to join the Crystal Lake Association and help find solutions to get rid of unwanted plants and make the lake a better place for the whole community!

Invasive Species of Crystal Lake



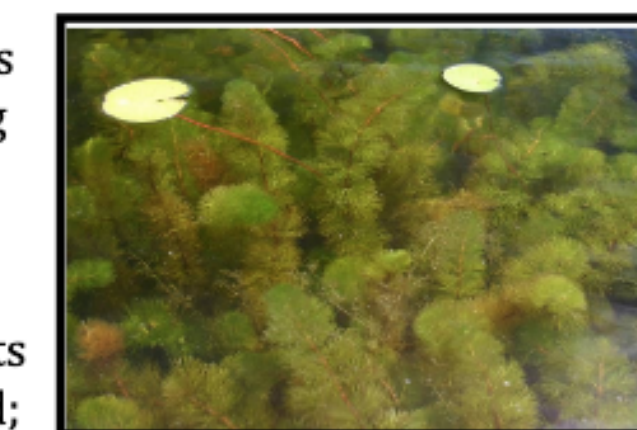
Crystal Lake Association
316A Sandy Beach Road
Ellington, CT 06029

Web: www.crystallakeellingtonct.com
Email: Lakemaster@crystallakeellingtonct.com
Facebook: Crystal Lake Association

Fig. C. Brochure

Variable Leaf Milfoil - (*Myriophyllum heterophyllum*)

What's the Problem: For several years at Crystal Lake, variable milfoil has been the primary weed, it's considered extremely invasive and covers many parts of the lake. Under prime conditions, it can grow up to one inch daily. It reproduces by fragmentation, where the fragments break off of the plant and scatter around the lake through wind, growing roots and spreading in new areas. Boat propellers speed up this process by cutting up the plant into fragments, thus spreading it quicker. Milfoil is able to spread rapidly and forms large areas of growth, ousting native beneficial plants and making swimming difficult. The plant comes from waters where insects and fish feed on it, not letting its growth get out of hand; which isn't the case here. Milfoil can live out of water in moist areas such as boat trailers and wells. It's also used as an ornamental aquatirum plant, so there's a theory that it was introduced into the Lake by the dumping of a home aquarium. In a 2017 lake report, milfoil was the third most abundant aquatic plant.



Solutions: The Crystal Lake Association (CLA) and Town of Ellington hire a crew that remove milfoil from certain areas through a technique called "harvest suction." In which divers dive down, loosen the plants by its roots and guide them into the



suction tube, leading them into "onion bags" to be collected. The crew on the boat maintain the pumps and change bags. Over the course of nine days in August, 2018 alone, The New England Aquatic Services removed 265 bags of milfoil from the Lake, clearing about 2.36 acres.

Mud-mat - (*Glossostigma*)

What's the Problem: Despite being native to Australia and New Zealand, mud-mat was able to expand to the United States and was first discovered in 1992 in Hamburg Cove, Connecticut; and like milfoil, mud-mat is theorized to be introduced to the lake as an aquarium plant. It's a small fast-growing plant that survives in all cold and warm conditions. It has small leaves rising on stems and grows horizontally below the soil. Most plants live attached to the soil, while some float on the water surface. However, due to its small size it doesn't pose a threat to recreational water activities, but in large masses hurts aquatic communities. In a 2017 report of the lake, mud-mat was the most frequently occurring aquatic plant species identified. **Solutions:** One solution by the CLA is to cover beds of Mud-Mat on the bottom by using barriers, making it harder for it to reproduce and spread.

Curly-leaf Pondweed - (*Potamogeton crispus*)

What's the Problem: This invasive species is from Eurasia, Africa, and Australia. It was introduced to the United States by mistake in the 1880s as an aquarium plant. The leaves are stiff and wrinkled, growing up to three inches long. It has small teeth along the edge and begins growing early in the spring, sticking up through the surface by early June and then falling to the bottom by July. It looks reddish brown in the water, but is actually green; and due to its teeth it can feel scratchy when swimming through. It reproduces through seeds and grows under the ice in the winter, allowing it to quickly emerge in the spring. It's tolerance for low light and water temperatures allows it to outcompete native plants in the spring. When they die off in the mid-summer, they create an unpleasant odor on beaches and can interfere with recreational activities. **Solutions:** Specific herbicides can be used for treatment. Mechanical removal is an option, by cutting or removing the pondweed. This can be done by hand, with blades, or trimmers. Most floating machines usually cover large areas, cutting and removing the plants from the water.

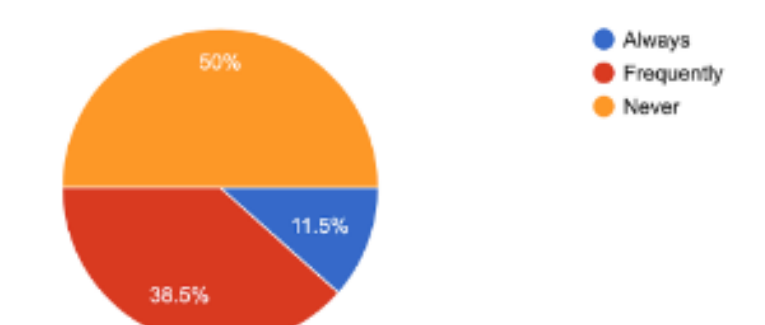
Invasive Species Survey

We recently took a survey regarding Crystal Lake Invasive Species, questioning numerous residents of the Crystal Lake area.

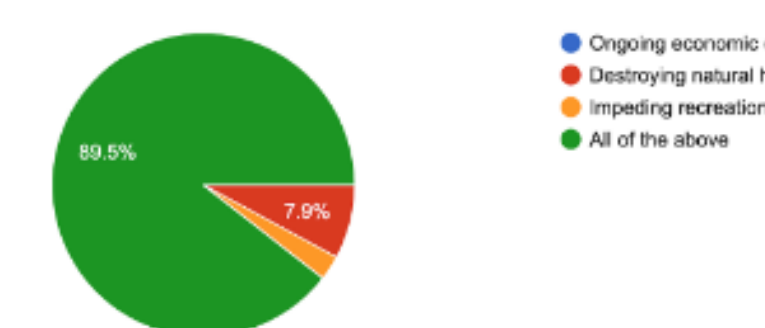
Are you familiar with aquatic invasive plants?



How often do you clean your boat(s) during the season when it's in use?



What negative impact does invasive species have on lakes?



The good news is that 68% of Crystal Lake residents are familiar with invasive species and impact it has on Crystal Lake. Unfortunately on 50% of residents clean their boats during the season. A bigger issue is the boats that come from other lakes need to be monitored for the introduction of other invasive species.

Websites Used

www.crystallakeellingtonct.com
www.dem.ri.gov/programs/benviron/water/quality/surfwg/pdfs/glocle.pdf
www.des.nh.gov/organization/commissioner/pip/factsheets/bb/documents/bb-23.pdf
www.solitudelakemanagement.com/blog/invasive-species-highlight-mudmat