



Pawtuckaway Lake Milfoil Search and Removal Practices

NH Lakes Congress
June 2, 2023

Milfoil History

- Variable milfoil first discovered in 2015
- Milfoil Team started in 2015-2016
- Milfoil now found in 16 areas, ranging from a few plants to thick patches
 - 60 acres out of potential 400 acres where milfoil could grow
- Huge transient boat numbers for lake size
 - Busiest boat launch in NH
 - 170 camping sites in State Park



Milfoil 2017



Milfoil 2022

Circled Areas are new this year
YTD amounts shown for significant areas

Milfoil Team

- Milfoil Team 2022
 - 8 Search Divers (SSA and SCUBA)
 - 5 WCDs, only 3 Active
 - 18 Support Kayakers
 - Try for 1 to 1 divers and support
 - Usually 2-4 divers per search
 - 28 search dives and 43 extractions in 2022
 - All Volunteers until 2022
 - 2020 – 688 Hours
 - 2021 – 921 Hours
 - 2022– 851 Hours (~400 Hours of Diving)
 - Does not include Lake Hosts or Weed Watcher volunteer time

Search Techniques

Diver Searches

- Primarily dependent on underwater searches for known milfoil areas
 - Milfoil Areas divided into ~3 acre sections
 - Search 1-2 areas per dive
 - Parallel sweeps from edge to edge
 - Every plant marked – Increases efficiency of extractions
- Divers can search 1 acre per hour per diver
- Currently searching about 70 acres 1-3 times per summer
- Limited visibility (3'-5') and tracking errors allow only 50-75% coverage of a given area
- Use Weed Watchers (surface observation) to monitor areas without known milfoil

Search Areas Example



Markers



- Orange mark milfoil
 - GPS all markers
- Green used to outline search area when needed
- Purple given to Weed Watchers

Hookah Rig



- Have 2 rafts, up to 4 divers
- Most searchers use hookah
- SCUBA divers primarily extract

Search Techniques

Aerial Drones

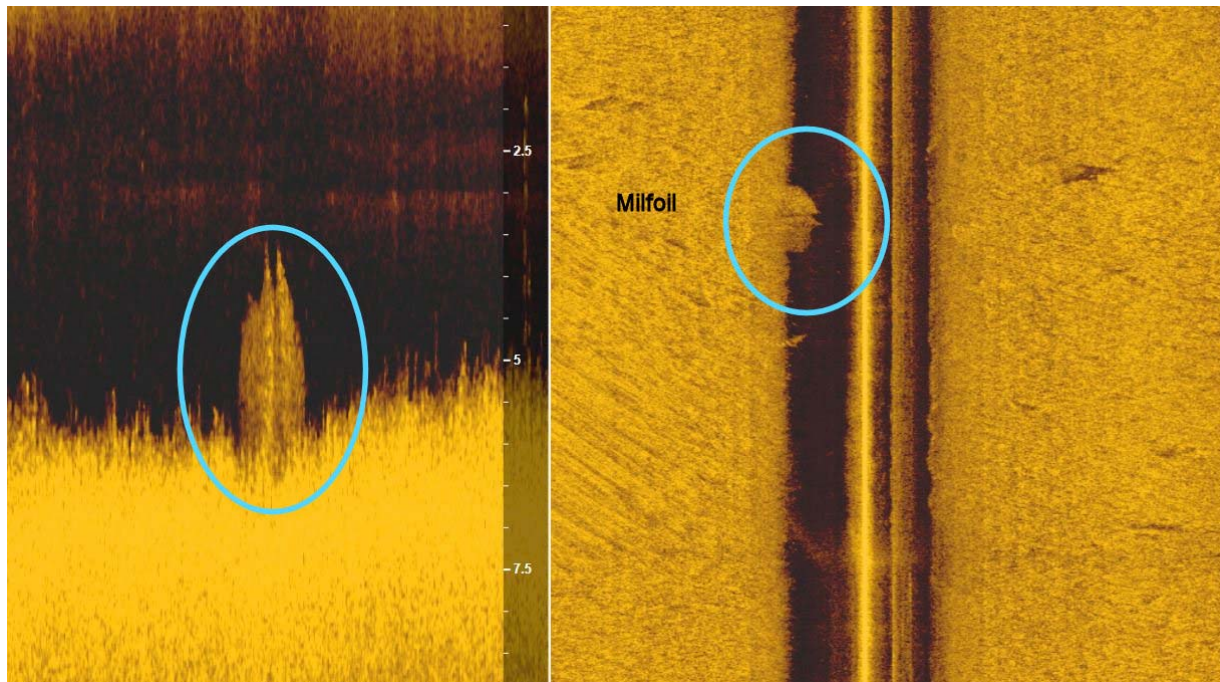
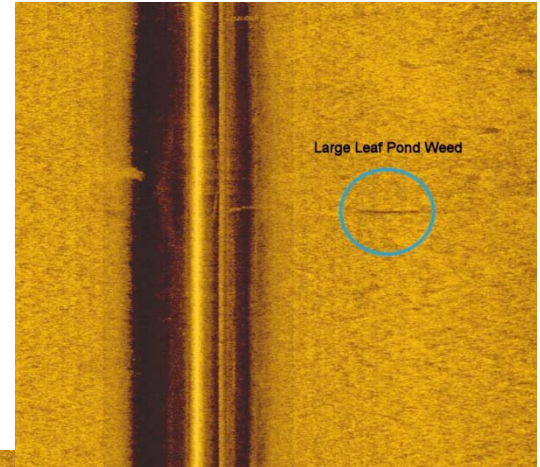
Useful for locating large plants for a few weeks after ice-out while lake is still drawn down



Search Techniques

Side and Down Scan Sonar

Good in early summer to survey lake areas not known to contain milfoil to check for possible new infestations



Search Techniques

Light Bar

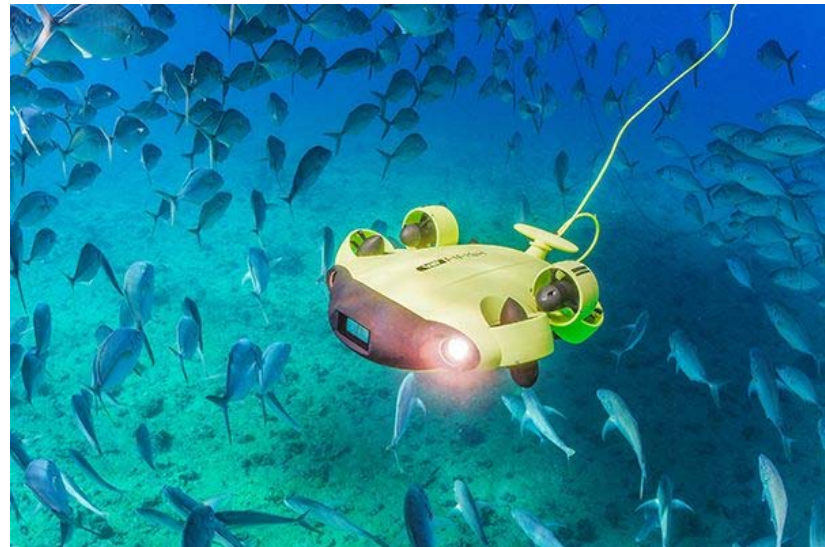
- Light lowered into water at dusk to locate milfoil
- Search known and potential new milfoil areas more quickly than diving



Search Techniques

Underwater Drones

- Viewed demonstrations in two lakes
- Possibly of help where divers or other techniques not available



Removal

- Extraction performed by Certified Weed Control Divers
 - 5 volunteer WCDS, only 2 doing 90% of removals
 - Due to shortage of volunteer WCDs, had to pay divers for first time in 2022
- Due to increase in milfoil areas and amount, considering use of ProcellaCOR for some areas this year

Milfoil Removed

- 2015 – 35 gallons
- 2016 – 25 gallons
- 2017 – 15 gallons
- 2018 – 11 gallons
- 2019 – 132 gallons
- 2020 – 65 gallons
- 2021 – 316 gallons
- 2022 – 417 gallons

Summary

- Milfoil Spreading to more locations
- Removal Amounts Increasing
 - Up 32%, 2022 vs 2021
- Few dense areas of Milfoil
 - Two areas in 2021 and three in 2022
 - Possible candidates for DASH or herbicides
- Demands slowly outstripping our volunteer capabilities
- Weed Watchers critical in monitoring overall lake for new areas of invasives
- Lake Hosts critical to keeping additional invasives out of the lake

Documents

- Pawtuckaway Lake Milfoil Team Procedure Manual
 - <https://pawtuckawaylake.com/wp-content/uploads/2022/04/Milfoil-Procedures-03>
- Report on the Use of Side Scan Sonar for Locating Milfoil
 - Lamprey River Advisory Committee (LRAC) Document Library