Aquatic Invasive Species Management Report

Moody Pond

2022 Final Report

Prepared for

Friends of Moody Pond

Prepared By:

Upper Saranac Foundation

It still is, and always will be, about Water Quality

Upper Saranac Foundation

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Acknowledgements

The Upper Saranac Foundation thanks the Friends of Moody Pond for their commitment and passion to preserve, protect, and rid Moody Pond of aquatic invasive species (AIS). Your effort exemplifies a small-scale, grassroots collaborative effort that is successfully tackling an environmental challenge.

The Friends of Moody Pond contracted the Upper Saranac Foundation - Aquatic Invasive Divers (AID) in the spring of 2022 to conduct field work that included aquatic invasive species harvesting, mapping, and data collection. This project is funded by the Friends of Moody Pond. Completion of this project would not have been possible without their role in protecting this important watershed.

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Executive Summary

- Moody Pond is a 24-acre pond located in Essex County, in the towns of Harrietstown and St. Armand. There is .9 miles of shoreline. The pond has a mean depth of 8-9 feet with a maximum depth of 17 feet. Most of the pond is privately owned with the exception of a small public access site across from the Baker Mountain trailhead (Stager, C). The pond has a rich historical background and is a community recreational attraction.

- Aquatic invasive species were first discovered in Moody Pond in 2018 by shore owners of the pond. Thereafter Friends of Moody Pond was organized to increase knowledge about invasive species spread prevention and to raise funds to implement a management response to the infestation (Stager, C).

- In 2019, a preliminary survey was completed by the Adirondack Park Invasive Plant Program (APIPP) / Adirondack Research Early Detection Team. The survey estimated that Eurasian Watermilfoil (EWM) was established in approximately 3.91 acres or 15% of the pond (Schwartzberg 2019, Appendix A). By 2020 observations made by Friends of Moody Pond members found additional concentrations of EWM growth and estimated that coverage was more extensive than the preliminary study indicated.

- Eurasian watermilfoil was first managed in 2021 by Invasive Solutions Dive Company. The second year of management was conducted in 2022 by USF - AID. Since harvesting began a total of 490 diver hours was invested to remove 1,040 pounds of Eurasian watermilfoil.

- A second AIS survey was completed by the Adirondack Research in 2021(Appendix B). This survey followed Invasive Solutions Dive Company's first week of harvesting. The survey indicated a significant reduction in EWM. This survey also identified EWM located in the southern portion of the pond.

- A preliminary pre-management survey conducted by the USF- AID in 2022 was more in line with Adirondack Research's 2019 survey, estimating that approximately 4.45 acres or 17% of Moody Pond had moderate (20% -59% coverage) including pockets of limited density levels (> 60% coverage), as well as sporadic plant growth throughout the pond.

- The USF - AID crew, trained in AIS identification found only one type of invasive; Eurasian watermilfoil. In general, mostly small milfoil plants were found with limited larger old growth. The majority of milfoil was located in the north-western part of the pond with small individual plants found sporadically around the southern shore.

- The 2022 harvesting season consisted of 250 diver hours divided into two-week sessions; one week at the end of June (27-30), and one week in mid-September (12-15). A total of 5,376 plants were removed totaling 119 pounds.

- Total poundage of milfoil harvested was lower than the initial year since most growth was small immature plants; less than six inch in size.

Introduction

New York State ranks Eurasian watermilfoil as one of the top AIS in the State, based on their ecological impacts, biological characteristics, and distribution. Knowing the consequence of unmanaged AIS and understanding the scope of this project, the Upper Saranac Foundation is confident that harvesting AIS from Moody Pond is not only practical, but an essential investment.

The Upper Saranac Foundation (USF) history of preventing the spread of AIS has proven to be effective in restoring the Upper Saranac Lake watershed, promoting healthy ecosystems, and allowing for continued recreational enjoyment. We are confident the Friends of Moody Pond's willingness to employ the Foundation's Aquatic Invasive Diver (AID) crew will result in a similar success.

While the ultimate outcome is to eradicate Eurasian watermilfoil from Moody Pond, the immediate objective of this project is to restore the 24-acre pond and prevent the spread of AIS while maintaining native species in their natural habitats. Effective management will preserve the recreational resource and enjoyment of the pond, and protect and maintain the economic value of the community derived from tourism and home worth. Success will be defined by immediate control and an ongoing year-to-year decline in total area and amount of plant material removed.

The project data-quality objective is to collect, provide, maintain, analyze, display, and document accurate AIS locational data for the entire pond, as well as provide historical statistical amounts of AIS removed. This report will establish and identify trends that will help guide future management practices for the Friends of Moody Pond. Submission of this Final Report by the Friends of Moody Pond to the Adirondack Park Agency will satisfy permit requirements as outlined in APA General Permit 2020-0249.

Methodology

The successful harvesting of aquatic invasive species is ever-evolving and requires knowledge in many areas to include the waterbody's specific tendencies, especially in relation to bathymetry, substrates, seasonal changes, historical aquatic AIS data and patterns, and knowledge of Eurasian watermilfoils life cycles. Considering the many variables, the USF has developed a foundation for a management plan to lay the groundwork for the harvest season, while still allowing for minor changes in harvesting methods to ensure the best harvesting practices are always being employed.

Data obtained from surveys and harvesting will be used to provide context and a qualitative baseline for developing a historic set of aquatic plant community records. This data assists in guiding management as well as monitoring to quantify progress and assess efficacy of our management techniques.

In addition to recording pounds of AIS harvested the AID crew maintains data on the number of plants harvested. Harvesting amounts measured in the number of plants removed and pounds are collected and recorded daily. Plant locations are mapped using GPS to provide a detailed map of removed Eurasian watermilfoil plant locations.

While harvesting, our AID crew continuously monitored the growth cycle of the AIS to ensure we are using the most effective timeline and harvesting techniques for best management practices. For each of the two harvesting weeks, the Upper Saranac Foundation produced a report to reflect our findings. This not only keeps Friends of Moody Pond informed, but allows for a more responsive management approach.

Our trained, certified divers utilized a variety of techniques to locate and hand harvest AIS, including surface spotting from paddle boards, line or grid search swims, and even a submersible diver assisted scooter. Surface spotting surveys were completed during calm and optimal viewing times to locate and mark invasive plants. During harvesting operations divers utilized a Hookah surface air compressor Dive System for best efficiency in deep water and mask and snorkel in shallow water.

Lobster Buoy marking milfoil plant locations – Photo: Guy Middleton

Two divers hand harvest simultaneously while an additional crew member remained on the surface in a non-motorized watercraft to retrieve plant fragments, and guides the underwater divers. The top water tender utilized a hand-held GPS unit to mark AIS plant harvesting locations. This data was used to develop a map indicating the area the divers searched and mark harvested plants. In addition, the tender collected data on the number of plants removed and density levels.

Invasive plants were removed from the sediment by hand, including the root system and then bagged underwater in a mesh bag (5mm lobster mesh bag). Upon the bag becoming full, the galvanized/ stainless steel wire handles on the bag were sealed and delivered to the surface tender, swapping out for an empty mesh bag.

Invasive plants, including the root system removed by hand – Photo: Meg Modley

Plants weights are determined by filled bags. Each filled bag weighs 25 lbs. This weighing system is consistent in past practices and with most other AIS harvesting companies throughout the region. Disposal of removed invasive species material is composted and used by local gardeners.

All equipment for both surveying and harvesting, was cleaned and decontaminated prior to use in Moody Pond and at the conclusion of each work week, and prior to use in other waterbodies. Decontamination was accomplished by utilizing the Upper Saranac Foundation's hot water (140F), high pressure decontamination unit located at the Upper Saranac Lake, Back Bay Boat Launch.

Equipment sanitization utilizing the USF's hot water / high pressure decontamination unit at Upper Saranac Lake– Photo: Guy Middleton

Operations

For the management of Moody Pond, we used historical harvesting data to prioritize site management based upon factors like plant densities, the location of AIS sites, and trends. This data included the 2019 Adirondack Aquatic Invasive Species Survey Early Detection Report preformed by Adirondack Research (Appendix A) and Invasive Solutions Dive Company, LLC. harvesting reports from 2021.

The USF-AID crew worked out of the private beach residence of the Dumas family on Moody Pond. This location provided convenience to known AIS infestation locations. The divers, trained in AIS identification, found only one type of invasive; Eurasian watermilfoil.

Divers conducted 250 diver hours of aquatic invasive plant species harvesting in 2022. Management was initiated first by an early season (June 27-30) intensive period of harvesting to suppress large and denser AIS populations. A late season follow-up (September 12-15) removed remaining plants not harvested in the first week, and newly formed immature growth.

In the first week, divers worked 130 hours to remove 2,309 plants totaling 2.76 bags of Eurasian watermilfoil or 69 pounds. While initial management focused on removing mature and more dense plants that remained from the prior year, most plants found were small and immature.

There was a significant reduction in pounds of milfoil found and removed compared to the prior year (figure 1). This can be attributed to the early season harvest, prior to when plants have an opportunity to develop and mature. By removing AIS plants early in the season, we reduce their opportunity to fragment and prolificate.

In the second week divers worked 120 hours to remove 3,067 plants totaling 2.0 bags of Eurasian watermilfoil or 50 pounds. Combined a total of 5,376 plants were removed totaling 119 pounds.

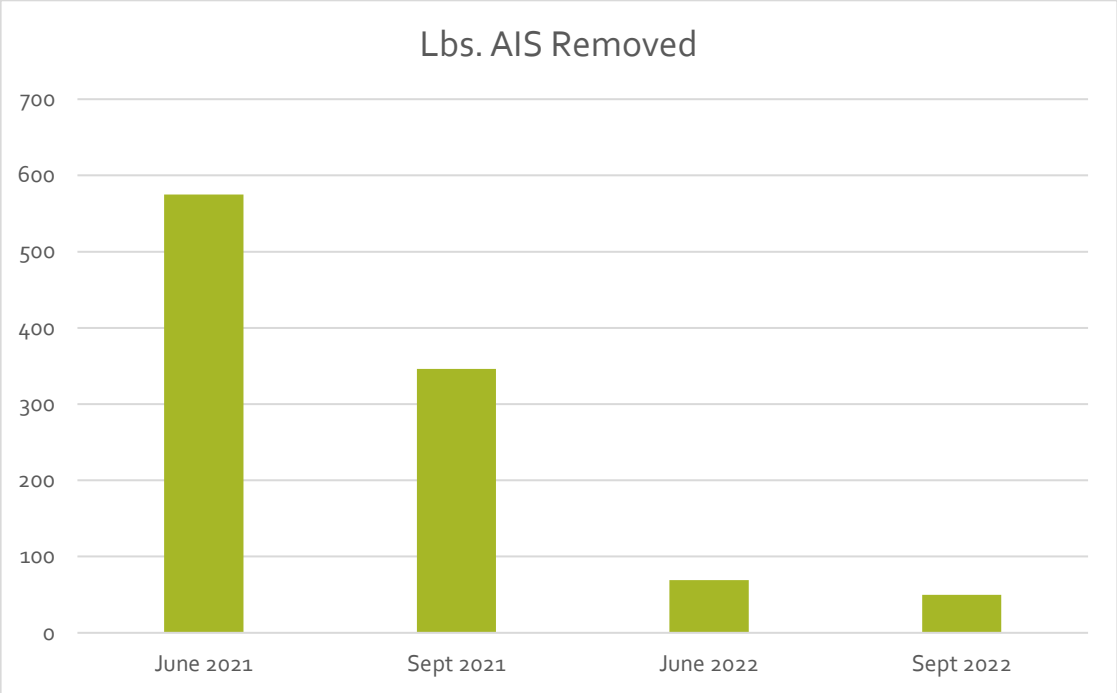


Figure 1. Pounds of Eurasian watermilfoil harvested for each management session (2021 data retrieved from Invasive Solutions Dive Company)

The team was pleased to find mostly small plants, with little larger old growth milfoil by the second management session. While the total number of plants harvested slightly increased from the initial week in June, the total poundage of plants collected decreased. The decrease in weight is expected as the majority of plants that were found were smaller and less developed. The increase in the number of plants harvested can be attributed to the speed in which divers can

remove the smaller plants. Overall management operations are encouraging considering that even in the height of the growing season, we continue to see reduced growth.

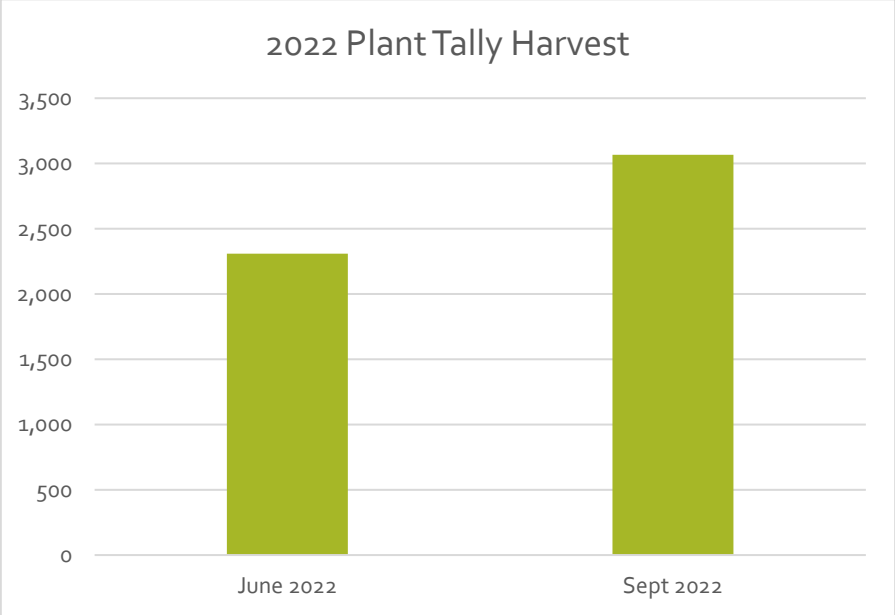
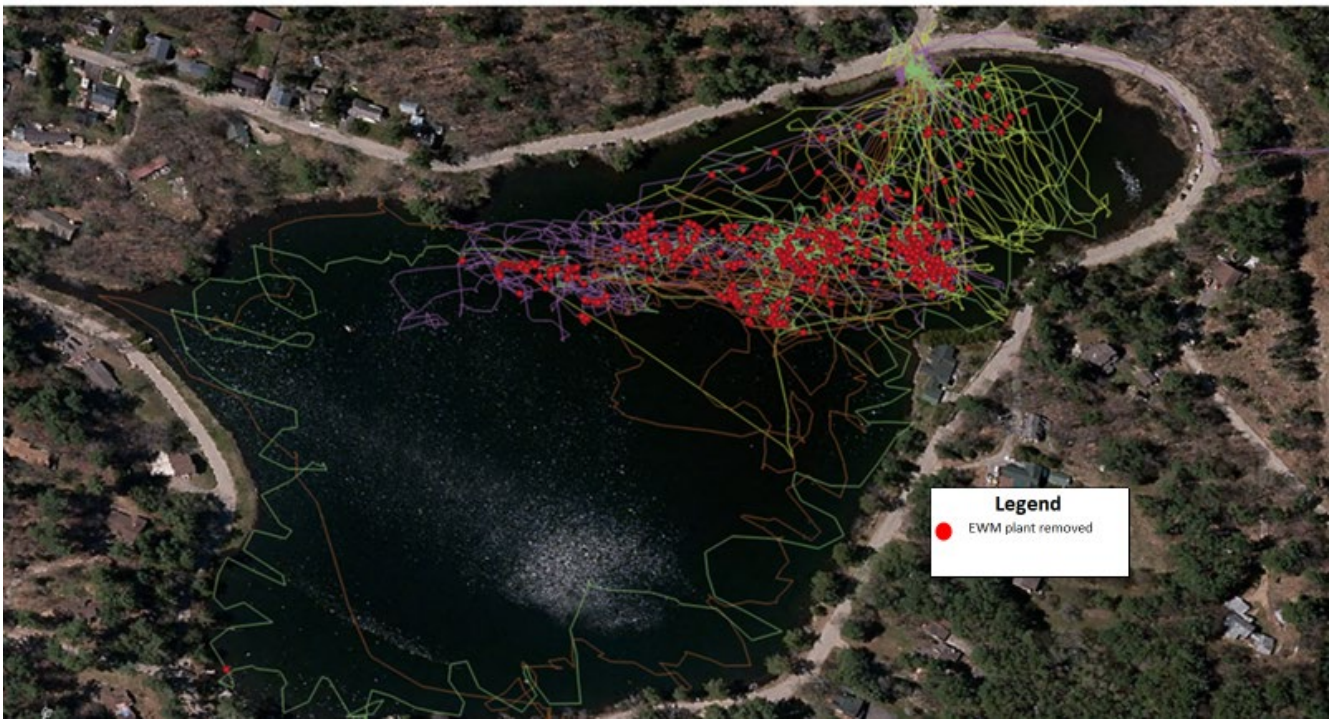


Figure 2. Number of Eurasian watermilfoil plants harvested for each management session

In one year, the pounds harvested decreased by just over 80 percent. This percent of reduction, based on other managed waterbodies, is common in the first year of harvesting.

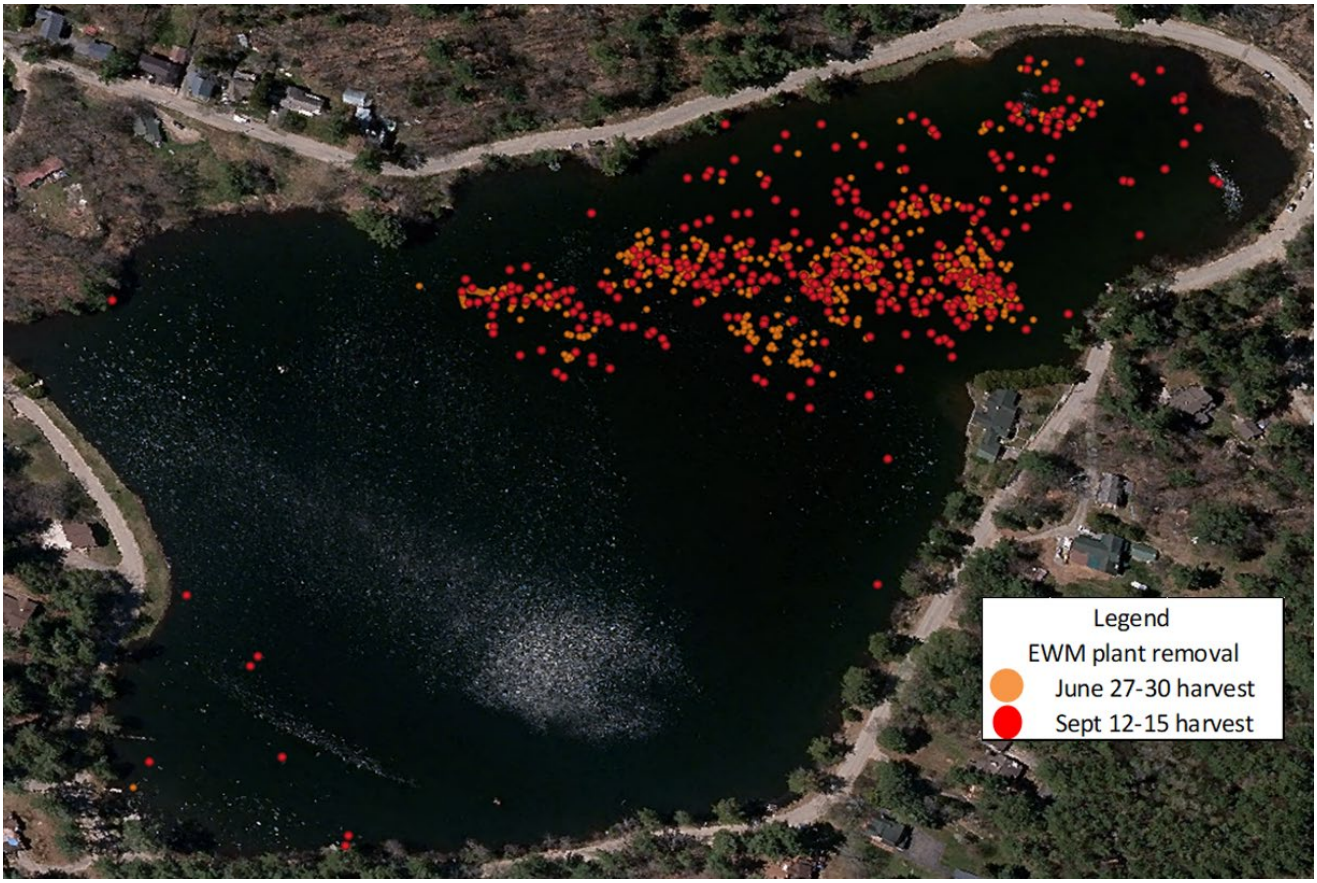
Percentage Change of Pounds Harvested	
June 2021 - Sept 2021	-39.77%
Sept 2021 - June 2022	-80.08%
June 2022 - Sept 2022	-27.54%

Figure 3. Percentage decrease of EWM Lbs. harvested for each management session



June 27-30 EWM harvest locations with diver tracking. Each tracking color represents a different day.

Sept 12-15 EWM harvest locations with diver tracking. Each tracking color represents a different day.



2022 Eurasian water milfoil plant removal locations.

Conclusion

Moody Pond invasive plant removal is following similar methods of successful management as has been done in nearby waters of Upper Saranac Lake, Fish Creek, and Follensby Clear Pond.

The USF- AID divers completed the second-year of harvesting objective by reducing dense infestations of AIS through hand harvesting methods. Data collected from our AID crew, and provided in this report presents historical information used to inform invasive species assessments and to better prioritize and allocate future resources for AIS management.

Each successive year of "intensive" management will yield less AIS plant growth until a reduced maintenance phase of the project can be implemented. Immediate success of this project is defined by direct control and a decline in total area and amount of plant material removed.

Commitment by the Friends of Moody Pond to the long-term sustainability of this project will assure success and prevent any resurgence in AIS growth, improve water quality and maintain native species in their natural habitat.

While the ultimate objective of the USF- AID team is to eradicate the EWM, this is a long-term goal. Currently the project is on track and is consistent with the Friends of Moody Ponds Management Plan goals; slowing, stopping, and reversing the growth of EWM. Further attributes of AIS management are also in line with providing clean waterways and ensuring the sustainability of the pond's natural public resources for future generations.

The Upper Saranac Foundation thanks the Friends of Moody Pond, its members, donors, and all those involved in the management efforts of the pond. It is the efforts from the community which has allowed us to successfully implement the recovery of the pond. The Upper Saranac Foundation looks forward to continuing these efforts on Moody Pond in the coming years for joint, and continued successes.

APPENDIX A

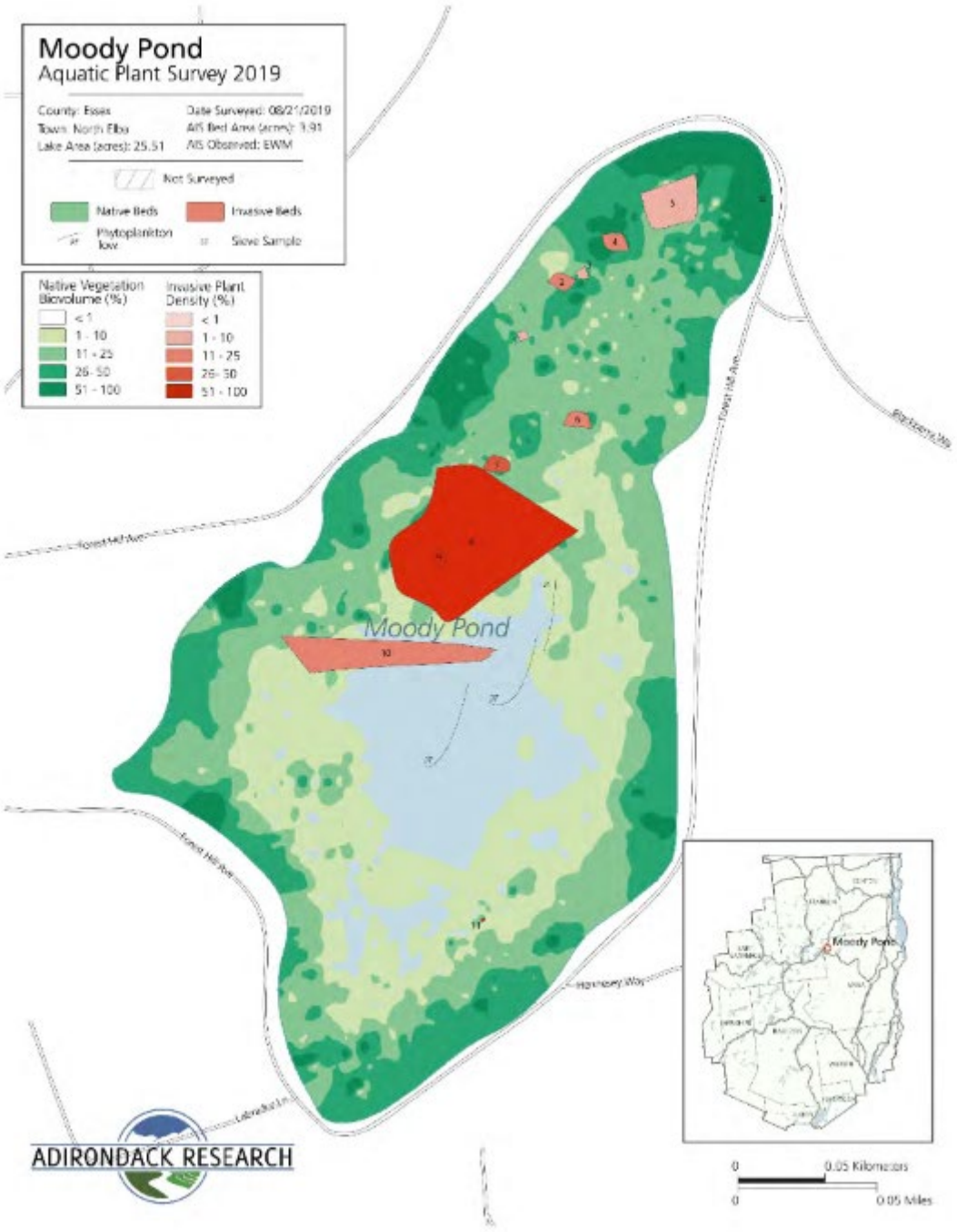
Curtesy of Adirondack Aquatic Invasive Species Surveys Early Detection Team Report- written by Adirondack Research for the Adirondack Park Invasive Plant Program

Invasive Species Percent Cover (See map on adjacent page)

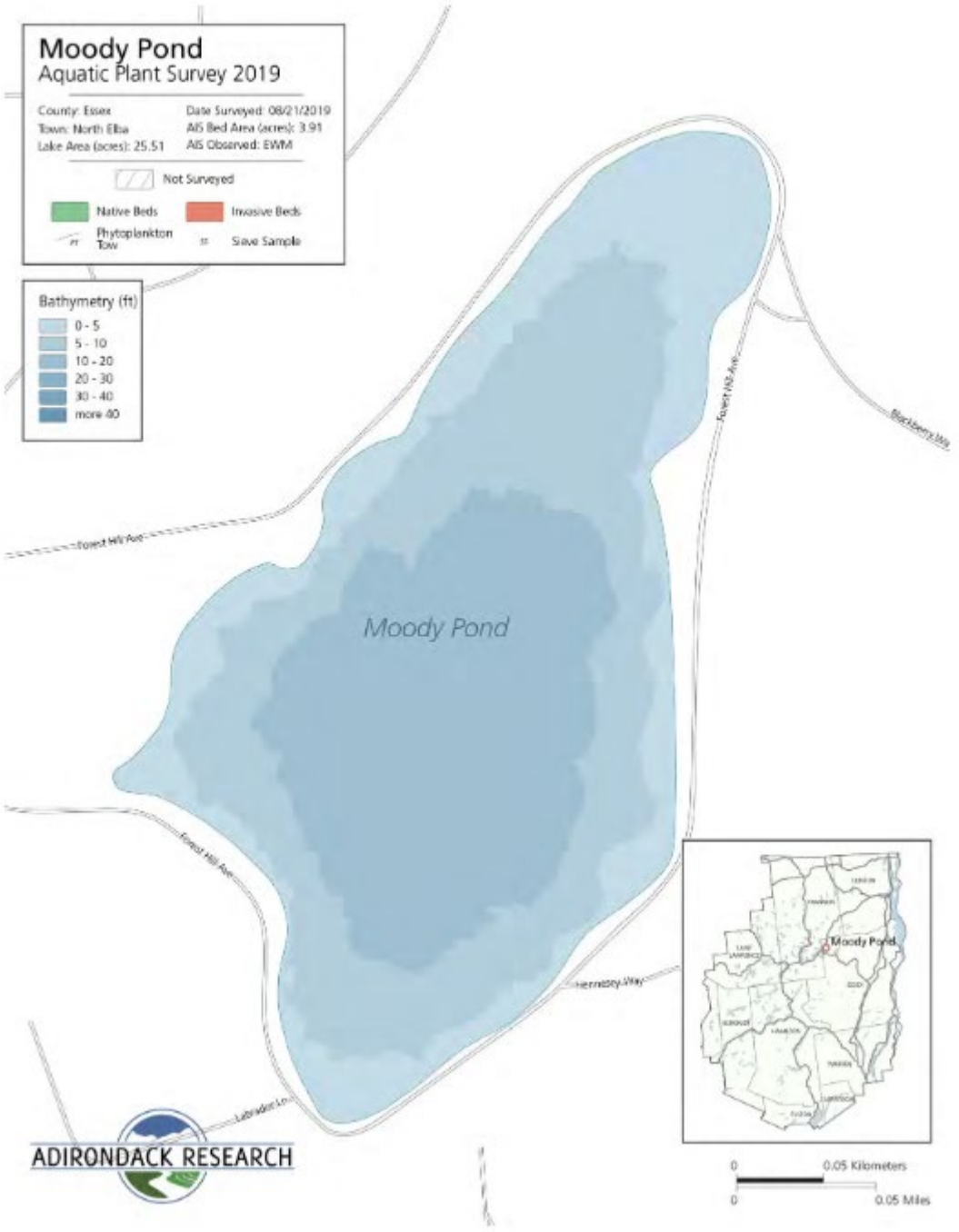
Eurasian Watermilfoil			
Bed	Size (Ac.)	Size (Sq. Ft.)	% Cover
1	.01	561.55	1-10
2	.05	2387.88	11-25
3	.02	799.46	1-10
4	.06	2756.79	11-25
5	.34	14955.80	1-10
6	.06	2470.38	11-25
7	.05	2175.78	26-50
8	2.64	115046.00	51-100

Eurasian Watermilfoil			
Bed	Size (Ac.)	Size (Sq. Ft.)	% Cover
9	.03	1168.21	51-100
10	.63	27393.70	11-25
11	.0005	20.35	51-10

Asian Clam	Spiny Waterflea
Present (Y/N)	Present (Y/N)
No	No

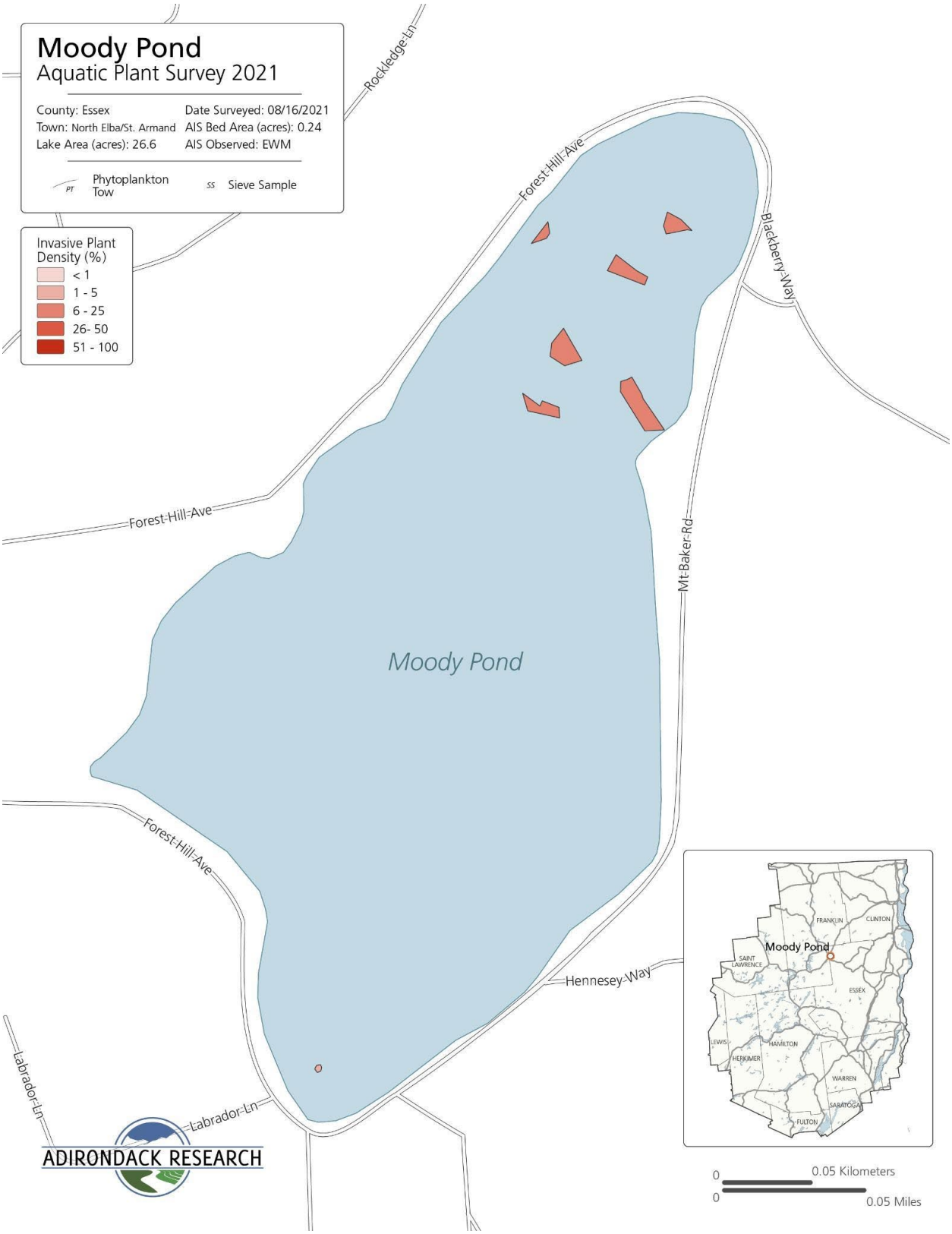


Map of EWM extent in Moody Pond in 2019 produced by Adirondack Research and APIPP, showing EWM beds in red and native plants in green



Contour map of Moody Pond produced by Adirondack Research and APIPP

APPENDIX B


Moody Pond
Aquatic Plant Survey 2021
County: Essex
Town: North Elba/St. Armand
Lake Area (acres): 26.6
Date Surveyed: 08/16/2021
AIS Bed Area (acres): 0.24
AIS Observed: EWM
PT Phytoplankton Tow
SS Sieve Sample
Invasive Plant Density (%)
< 1
1 - 5
6 - 25
26- 50
51 - 100
Rockledge Ln
Forest Hill Ave
Blackberry Way
Forest Hill Ave
Mt Baker Rd
Moody Pond
Forest Hill Ave
Hennesey Way
Labrador Ln
Labrador Ln
ADIRONDACK RESEARCH
Moody Pond
FRANKLIN
CLINTON
SAINT LAWRENCE
ESSEX
LEWIS
HAMILTON
HERKIMER
WARREN
SARATOGA
FULTON
0
0.05 Kilometers
0
0.05 Miles

Photos

EWM plant (approximately 6 foot in length) including substrate root system (divers left hand) and a developing in-water column root system in preparation for fragmentation (divers' right hand) – Photo: Guy Middleton

Divers utilizing a Hookah floating air compressor and buoys marking EWM plants in the background - Photo: Guy Middleton

Literature Cited:

Stager, C. (March 14, 2021) Management Plan for Moody Pond (Saranac Lake, NY).

Schwartzberg, E.G., Hoh, J., Fountain, M., LaLumiere, S., and Epifanio, A. (2019). 2019 Adirondack AIS Surveys. Adirondack Research, Saranac Lake, NY.

Schwartzberg, E.G., Firkins, T., Privee M., Bly, P., Young, J., Johnson, L., Murphy, T., Aveson, S. and Greene, B.T. (2021). 2021 Adirondack Aquatic Invasive Species Surveys. Adirondack Research, Saranac Lake, NY.