

**2024 AQUATIC MANAGEMENT PROGRAM
ANNUAL REPORT
Lake Singletary
Millbury and Sutton, MA**

Report Prepared on: November 18, 2024

Report Prepared for: Lake Singletary Watershed Association
c/o Mr. Paul Kawolis, President
95 West Sutton Road
Sutton, MA 01590
paul@lindersinc.com

Please accept the following as our 2024 Year-End Report for the Aquatic Management Program performed at Lake Singletary in Millbury and Sutton. The focus of this year's program was to monitor and manage fanwort (*Cabomba caroliniana*), Eurasian watermilfoil (*Myriophyllum spicatum*), variable watermilfoil (*Myriophyllum heterophyllum*), and nuisance native species in Lake Singletary. This was accomplished with early & late seasons surveys and spot-treatment using USEPA/MA DEP registered herbicides. Management of cyanobacteria was also part of the program, where copper sulfate algaecide would be applied should conditions dictate. Activities completed as part of this project during the 2024 season are presented in the following report.

All management activities were consistent with the Orders of Conditions (DEP #224-0831 Millbury, DEP File #303-503 Sutton), and the License to Apply Chemicals issued by the MA DEP – Office of Watershed Management (#WM04-0001498).

INTRODUCTION

Monitoring and management of vegetation in Lake Singletary has been conducted annually since 1997 as part of an ongoing aquatic management program developed to address non-native, invasive fanwort, Eurasian watermilfoil, and variable watermilfoil. Annual monitoring helps to track target plant distribution and abundance, monitor changes in the native plant composition, assess effectiveness of invasive plant control efforts, and guide future management goals and actions.

Recent in-lake management has consisted of targeted diquat and flumioxazin herbicide treatments from 2014 to the present. Half-lake copper sulfate algaecide treatments have been applied periodically to reduce algal cell densities, especially for cyanobacteria. The following report has been prepared to document the 2024 treatment and the survey work performed by SOLitude Lake Management this past year.



2024 Program Chronology:

- | | |
|--|------------|
| • Received MA DEP License to Apply Chemicals | 04/18/2024 |
| • Early-Season Survey | 06/20/2024 |
| • Herbicide & Algaecide treatment | 07/25/2024 |
| • Late-Season Survey | 09/13/2024 |

Early Season Survey

On June 20, 2024, a Solitude Biologist conducted an early-season survey at Lake Singletary. The littoral zone was toured by boat and observations were made utilizing visual observation and a throw-rake, to confirm the vegetation composition. Trace to moderate growth of Fanwort (*Cabomba caroliniana*) was observed in the historical areas of the lake, primarily in the southernmost end, the mid-western cove, and the northern point by the boat launch (**Figure 1**). Those specific areas are consistently shallow (<13 feet) and therefore provide stable habitat for fanwort growth. No Variable watermilfoil (*Myriophyllum heterophyllum*) or Eurasian watermilfoil (*Myriophyllum spicatum*) was observed at this time.

Native species observed at this time included thin-leaf Pondweed (*Potamogeton pusillus*), clasping-leaf pondweed (*Potamogeton perfoliatus*), American tapegrass (*Vallisneria americana*), water-starwort (*Callitriche stagnalis*), yellow waterlily (*Nuphar lutea*), macroalgae, filamentous algae, and aquatic moss (*Fontinalis spp.*). (**Figure 2**)

HERBICIDE/ALGAECIDE TREATMENT

A single treatment was completed on July 25, 2024, for nuisance vegetation and algae growth. Based on the early-season survey, treatment areas coinciding with the presence of target species were selected to be treated with the herbicides Tribune (diquat) and Flumigard SC (Flumioxazin). A half-lake algaecide treatment was also conducted on the same day with copper sulfate. (**Figure 5**)

Treatments were performed using an airboat with an onboard mixing tank. Lake water was brought onboard to dilute the herbicide mixture using a calibrated pump system. This mixture was then applied subsurface via weighted hoses to the determined treatment areas of the lake while the boat operator was guided by a GPS unit to ensure equal coverage.

Prior to treatments, notifications were submitted to both the Millbury and Sutton Conservation Commissions. SOLitude provided the LSWA with hi-visibility posters to put up around the lake detailing the treatment date and water-use restrictions to be imposed following treatments. At no time during the treatment were adverse impacts to fish or other aquatic organisms either observed or reported.

Late Season Survey

The late-season survey was conducted on September 13, 2024, by a Solitude Biologist. Fanwort was primarily identified at trace to moderate densities, observed in parts of the northern and southern ends of the lake. On the contrary, fanwort was only observed in trace density in only on fanwort treatment zone. From these findings, we can see that while fanwort is still present in the lake, our targeted areas for fanwort management have



been successful in reducing its population density. No variable or Eurasian watermilfoil was observed during the survey. **(Figure 3)**

Native species observed at this time included thin-leaf pPondweed, American Tapegrass, bladderwort (*Utricularia spp.*), slender naiad (*Najas flexilis*), filamentous algae, and cattails (*Typha spp.*). **(Figure 4)**

SUMMARY AND ONGOING MANAGEMENT RECOMMENDATIONS

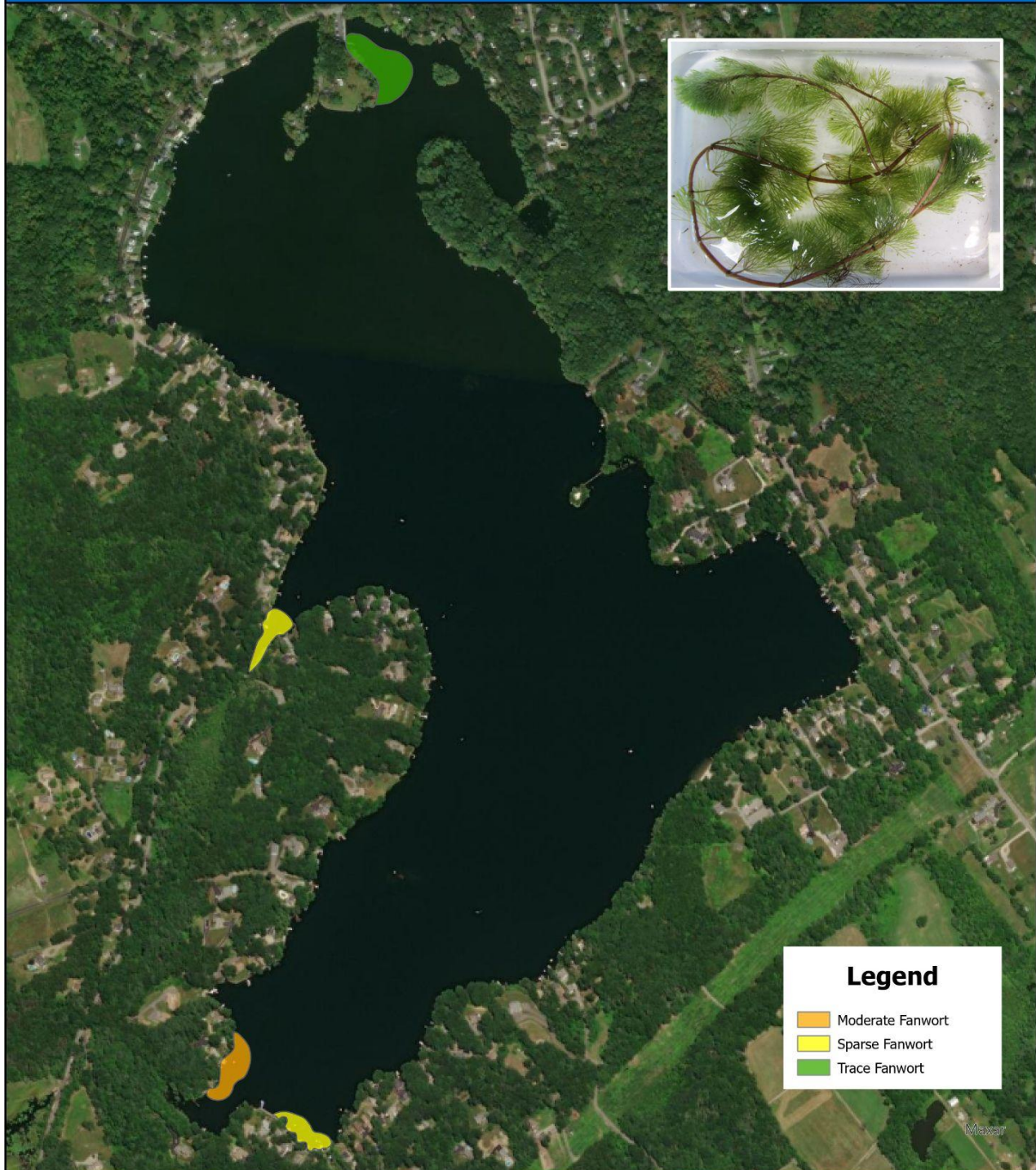
Once again, the spot-treatment of herbicides provided sustainable management of the target species throughout the 2024 season. We anticipate continued monitoring and management of areas of non-native species and/or nuisance native species will be required in 2025. Additionally, we recommend being prepared to perform an algaecide treatment next year, if bloom conditions arise.

We trust this report provides a concise summary of the 2024 Aquatic Management Program at Lake Singletary. A separate report will be provided pertaining to the water quality monitoring program that SOLitude took over this year for the Association. We look forward to assisting the LSWA again in 2025 to manage Lake Singletary through monitoring and herbicide and/or algaecide treatments. Please feel free to contact us if you have any questions or require additional information.



Figure 1. Pre-Management Survey Results
Fanwort (*Cabomba caroliniana*)

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Lake Singletary
Millbury, Massachusetts
Center: 71°46'42"W 42°9'35"N
Scale: 1:10,658



LAKE SINGLETARY

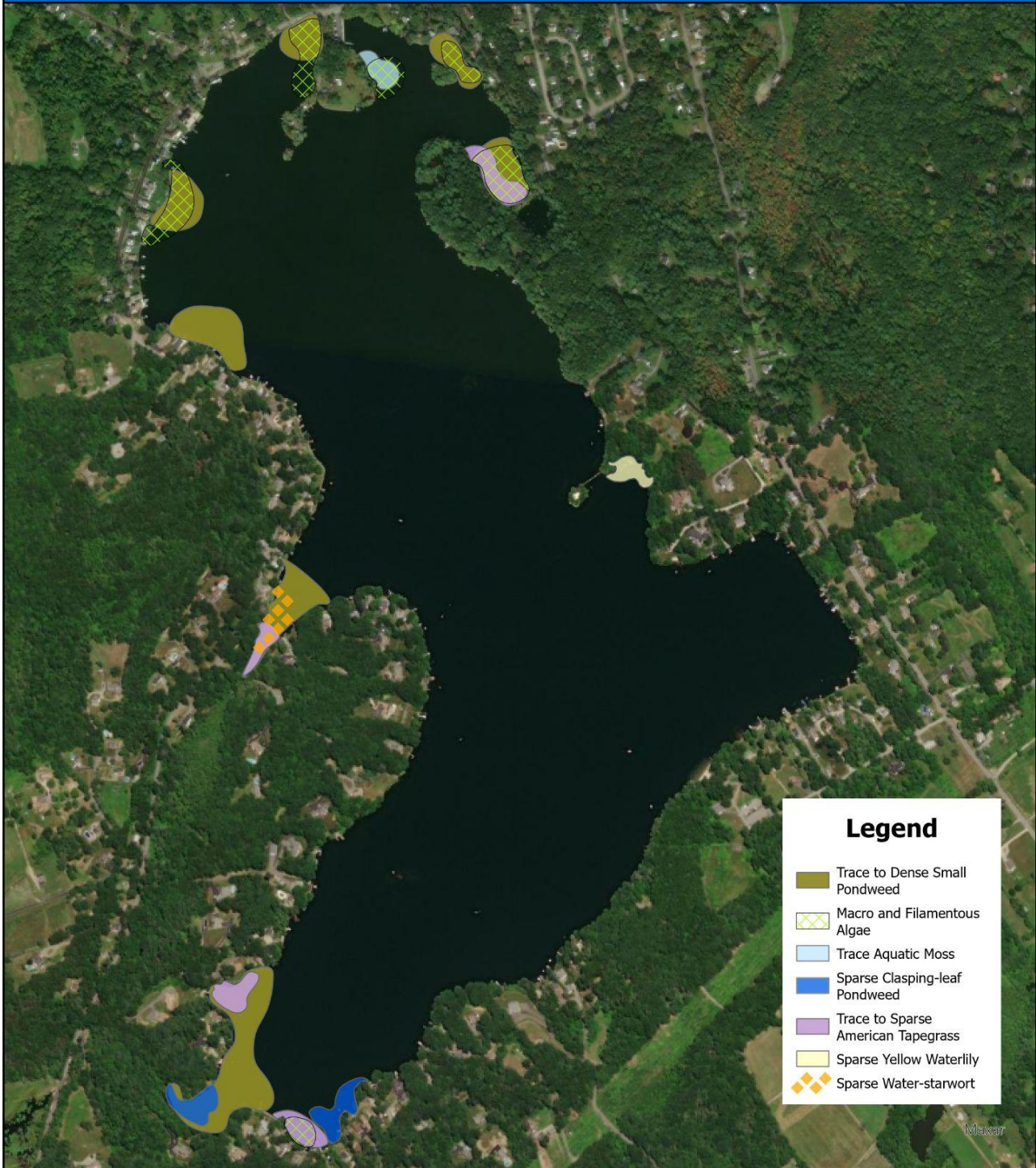
0 500 1,000
US Feet

Survey Date: June 20, 2024
Prepared by: E. Vulgamore
Office: SHREWSBURY, MA



Figure 2. Pre-Management Survey Results
Native Vegetation

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Lake Singletary
Millbury, Massachusetts

Center: 71°46'42"W 42°9'35"N
Scale: 1:10,658



LAKE SINGLETARY

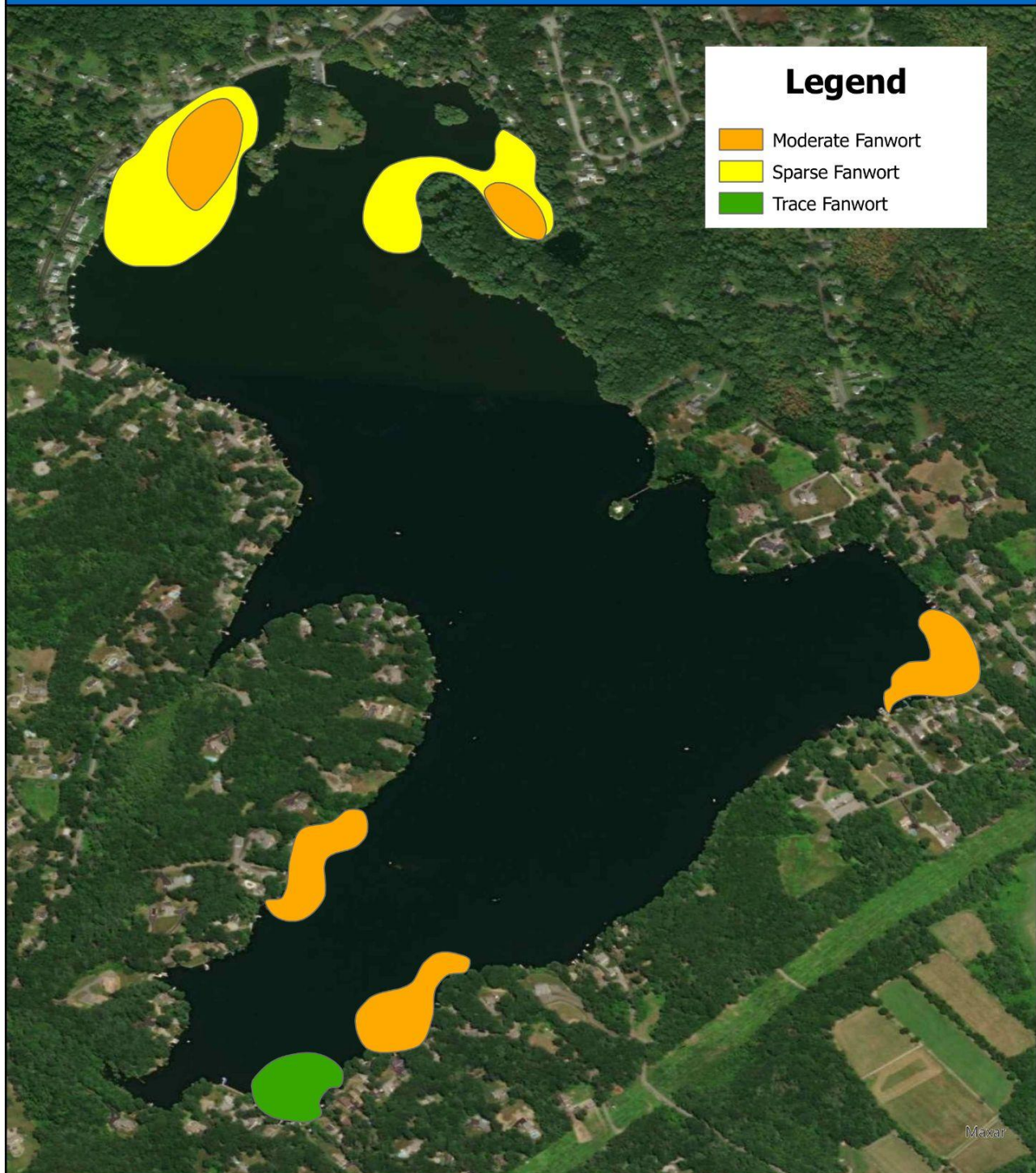
0 500 1,000
US Feet

Survey Date: June 20, 2024
Prepared by: E. Vulgamore
Office: SHREWSBURY, MA



Figure 3. 2024 Post-Management Survey Results
Fanwort (*Cabomba caroliniana*)

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Lake Singletary
Millbury, Massachusetts

Center: 71°46'44"W 42°9'35"N
Scale: 1:11,394



LAKE SINGLETARY

0 500 1,000
US Feet

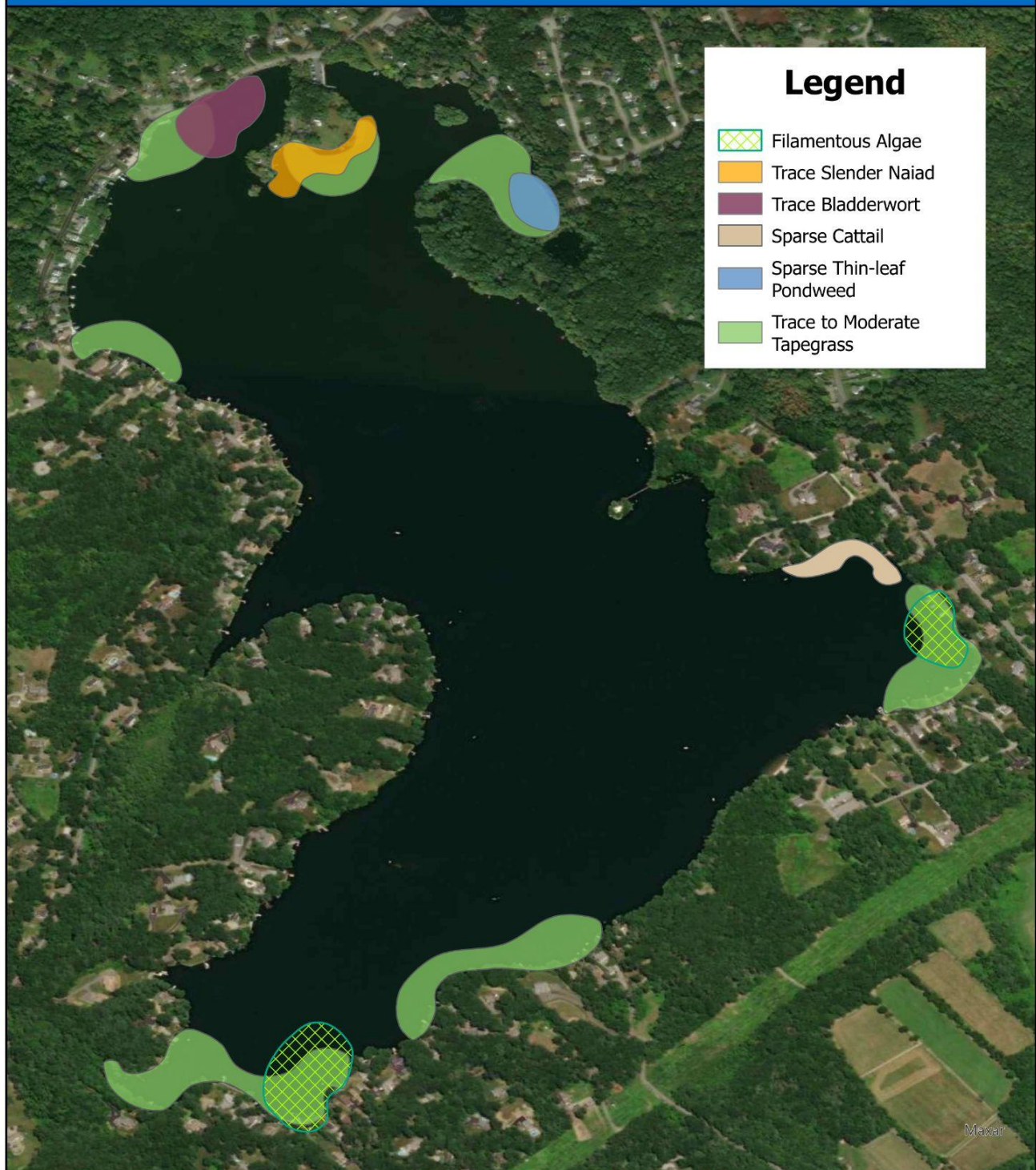
Survey Date: 09/13/2024
Map Date: 09/18/2024

Prepared by: E. Vulgamore
Office: SHREWSBURY, MA



Figure 4. 2024 Post-Management Survey Results
Native Vegetation

SOLITUDE
LAKE MANAGEMENT
888.480.5253
solitudelakemanagement.com



Lake Singletary
Millbury, Massachusetts

Center: 71°46'44"W 42°9'35"N
Scale: 1:11,394



LAKE SINGLETARY

0 500 1,000
US Feet

Survey Date: 09/13/2024
Map Date: 09/18/2024

Prepared by: E. Vulgamore
Office: SHREWSBURY, MA

