

**Glen Echo Lake, Charlton, Massachusetts
2016 Year-End Report**

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Report Prepared for: Charlton Conservation Commission
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In accordance with the aquatic plant management contract between SŌLitude Lake Management and The Glen Echo Improvement Association (GEIA) for treatment of variable milfoil (*Myriophyllum heterophyllum*) and fanwort (*Cabomba caroliniana*) in 2016, the following document serves to provide this year's treatment and survey results and the management recommendations for next season.

All management activities were consistent with the Order of Conditions (DEP File #128-1073), and the License to Apply Chemicals issued by the MA DEP – Office of Watershed Management (#16053).

Early Season Survey

On May 9th and June 8th, a SŌLitude Biologist conducted vegetation surveys to assess the relative abundance and distribution of aquatic vegetation (specifically fanwort and variable milfoil) throughout Glen Echo Lake and to finalize management strategies for the 2016 season. During the May survey, the entire waterbody was toured and plant growth observations were noted. At the time of the May survey, fanwort growth was not yet present, and variable milfoil was just beginning to break through the sediment in the northwest finger cove. Therefore, a second survey was conducted on June 8th; at this time both fanwort and milfoil had appeared in multiple locations. These locations were recorded via Garmin GPS points and along with data collected during the 2015 fall survey, were used to designate treatment areas. A map depicting the distribution of aquatic vegetation is attached.

Initial Herbicide Treatment

Based on conditions observed during the June survey, treatment of Glen Echo Lake was scheduled and performed on June 21st. In accordance with the Order of Conditions for this project, written notification of the scheduled treatment date was sent to the Charlton Conservation Commission. Printed signs warning of the treatment and the associated temporary water-use restrictions were also sent to members of the Association for posting around the lake.

Treatment was performed using a 10-foot Jon boat equipped with a front-mounted spreader and a low-pressure pump tank. Sonar (fluridone) herbicide was applied to specific areas of fanwort growth within

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the lake and Reward (diquat) herbicide was applied to specific areas of variable milfoil growth within the lake. The granular SonarONE was spread evenly using a spreader mounted to the boat's bow. The placement of pellets directly on the plants and their timed-release of active ingredient over a several week period was utilized to maintain high fluridone concentrations specifically around the small areas of targeted plants. The liquid Reward was spread evenly using a low-pressure pump system which sits in the boat and pumps through a hose into the water.

The treatment was completed by SÖLitude's state certified applicators, and was conducted in accordance with the product label and permits issued by MA DEP. At no time during the treatment program were fish mortalities or significant non-target impacts to other aquatic organisms or wildlife either observed or reported.

Booster Treatments

The first booster treatment of SonarONE herbicide was scheduled for July 13th. Prior to the booster application, the treatment areas were surveyed to assess the previous treatment's impacts, relative abundance and distribution of aquatic vegetation. At this time, SÖLitude was asked to look at additional areas that residents had noticed. Upon observation of these areas of new fanwort growth which had emerged after the survey and initial treatment, it was deemed to be in the best interest of the project to treat these areas to prevent further spread from fragmentation of healthy plants. That being said, on July 13th the new areas of growth were treated and the June treatment areas were left alone as treated fanwort areas were still being impacted and their leaves were beginning to show signs of chlorosis. Treatment was performed using the same set up as the June treatment.

A second and final booster treatment was scheduled on August 4th. Again, the lake was surveyed to assess vegetation impacts, abundance and distribution. At this point in time, all treated areas of fanwort had been substantially impacted by the herbicide applications. The final treatment was performed to all areas of growth to maintain the appropriate concentration needed to obtain full plant chlorosis and mortality.

Post-Treatment Inspection

On September 28th two SÖLitude biologists performed a post-treatment inspection of Glen Echo Lake to evaluate the effectiveness of the herbicide applications. Results from the treatments were positive as the abundance and distribution of both fanwort and variable milfoil were reduced significantly. Ultimately, neither of these species were observed more than once during the post-treatment inspection. The only observation of variable milfoil was noted towards the back of the northwest finger cove; there was no more than a handful of new, low-biomass growth, which is to be expected when using contact herbicides as opposed to systemic herbicides. The only observation of fanwort was on the western side of the northern basin, shortly after passing through the narrow section. This patch of Fanwort appeared chlorotic and not viable.

A map depicting the post-treatment aquatic vegetation distribution is attached.

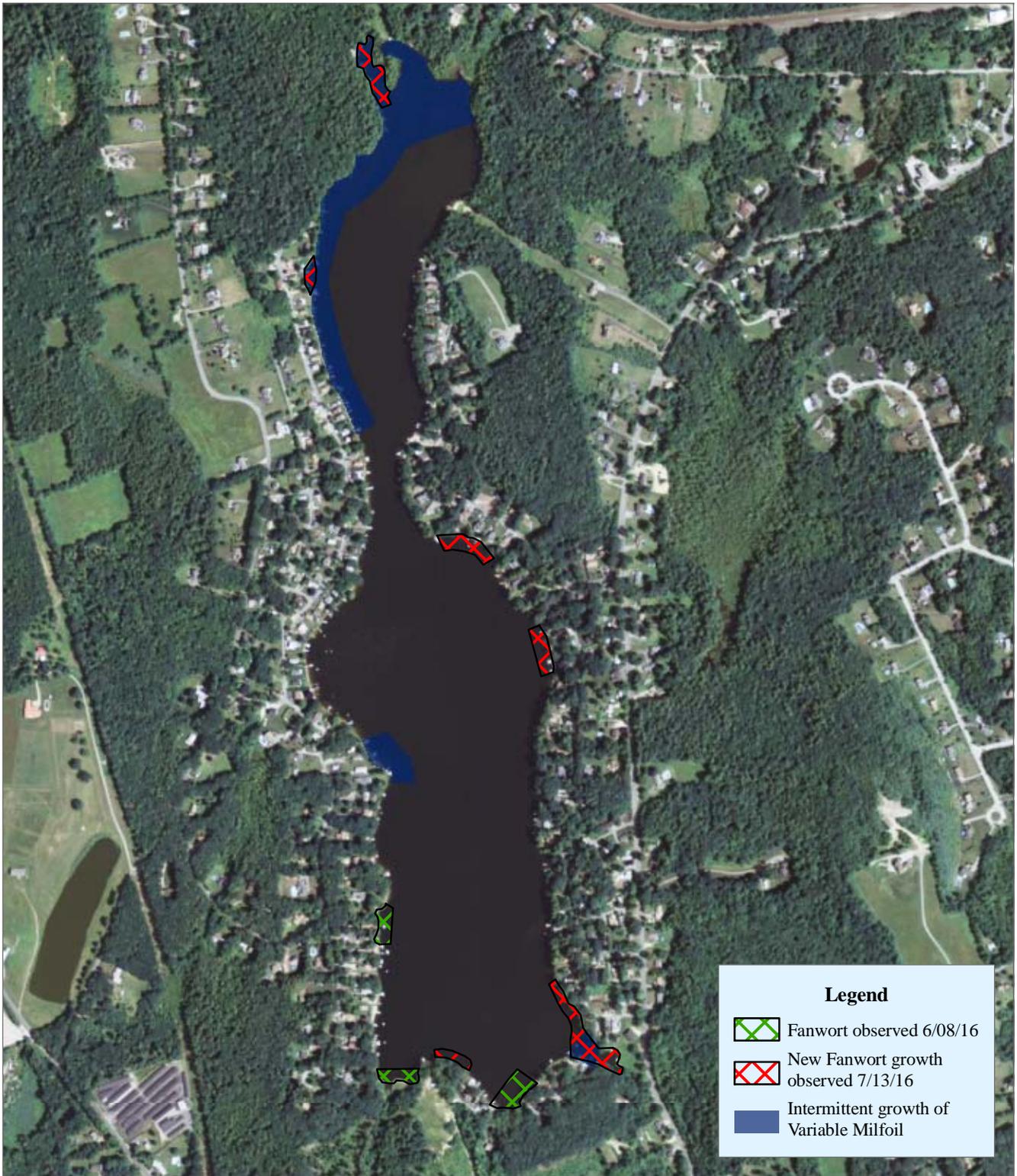
Ongoing Management Recommendations

Based on the success of the Sonar and Reward treatments performed in 2016, we recommend continuing with this approach for the 2017 season. Given the management success in 2016, we anticipate less growth in 2017 however pre-management surveys will continue to give us the most accurate area and acreage. In the past couple of years, fanwort growth has been sporadic and areas of growth have emerged at different times so we will continue to conduct surveys on the day of treatment



to ensure that all growth is documented. If any additional treatment is required, we will advise and receive approval from the GEIA prior to proceeding.

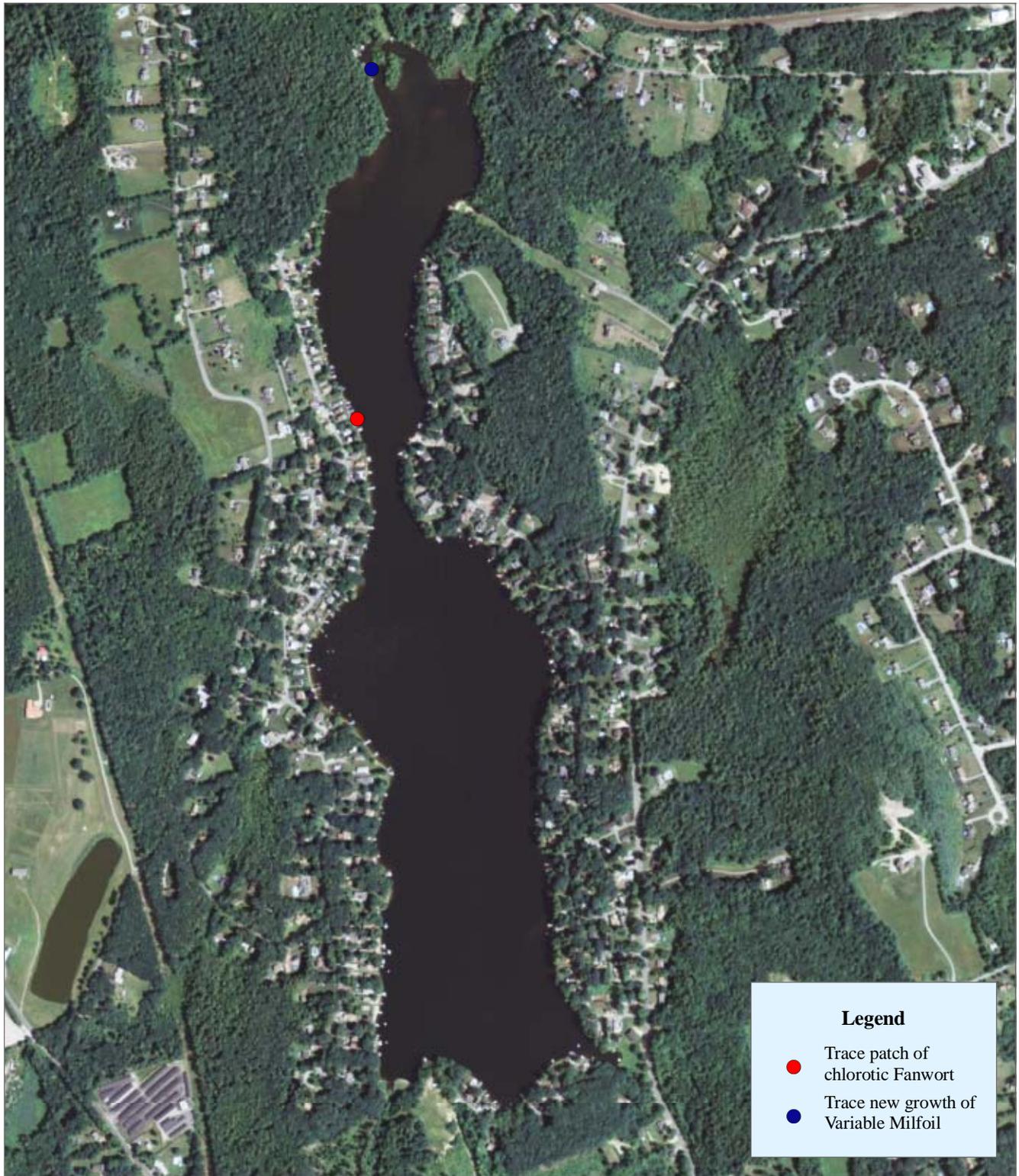
Figure 1: Pre-Treatment Distribution of Invasive Aquatic Vegetation Species



Glen Echo Lake
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Figure 2: Post-Treatment Distribution of Invasive Aquatic Vegetation Species



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