AQUATIC CONTROL TECHNOLOGY

December 8, 2015

Charlton Conservation Commission
c/o Mr. Todd Girard
37 Main Street
Charlton, MA 01507
todd.girard@townofcharlton.net

Via Email and First-Class Mail

RE: Glen Echo Lake, Charlton, Massachusetts
2015 Summary Report

Dear Commission members:

Please find enclosed the 2015 Summary Report for Glen Echo Lake. This document includes a detailed summary of ACT's management activities during 2015 as well as broad management recommendations for 2016.

Should you have any questions regarding this report, please feel free to contact us at the office by telephone (508-885-0101) or by email (info@aquaticcontroltech.com).

Sincerely,

Dominic Meringolo
Senior Environmental Engineer

DMM/rlg

Enclosures

GlenEchoLk15.rpt

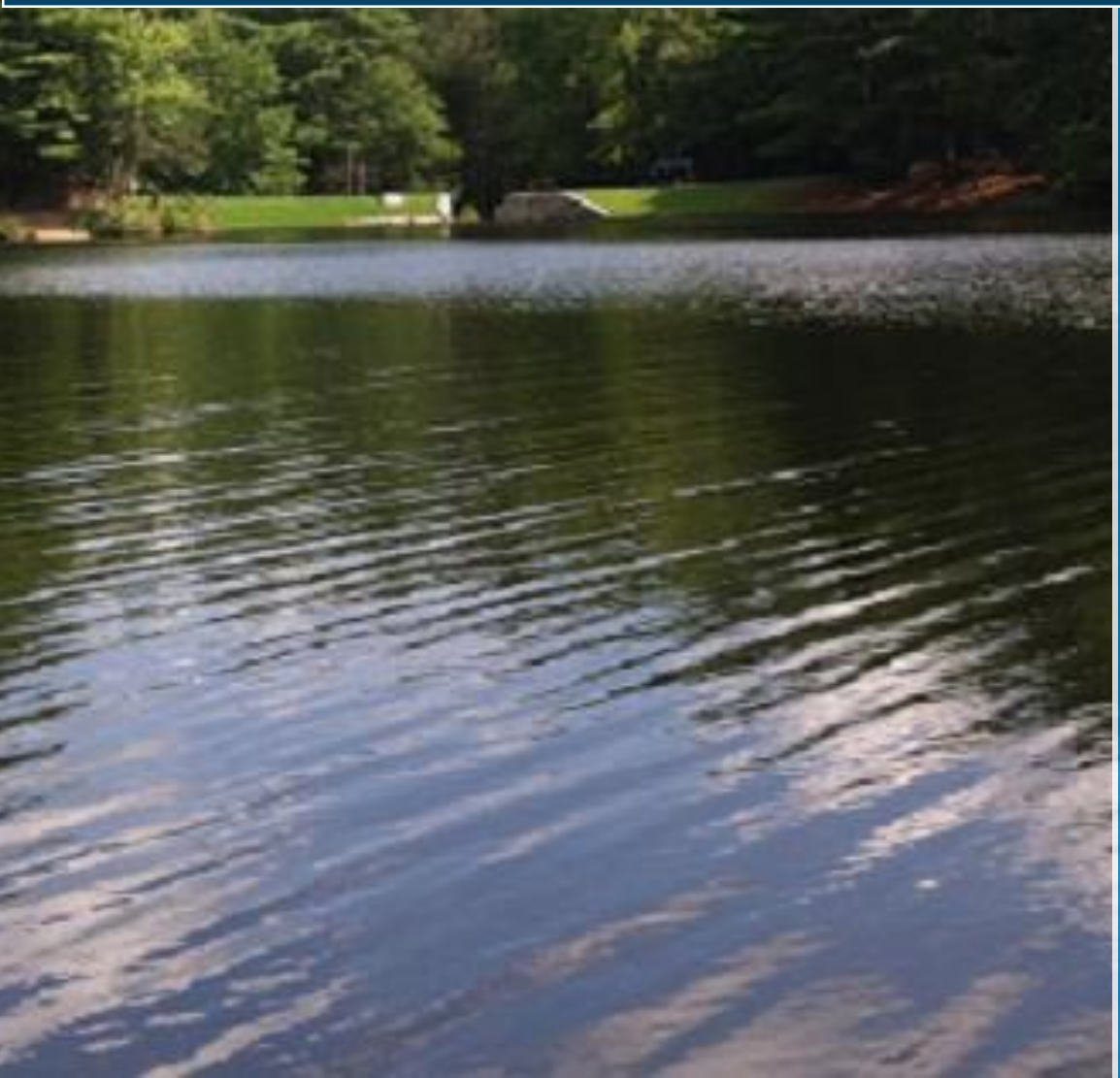
cc: Ms. Jackie Nowak (nowak151@verizon.net)

AQUATIC CONTROL TECHNOLOGY

Final Report for 2015 Aquatic Plant Management

Glen Echo Lake

Charlton, Massachusetts



Submitted: December 8, 2015

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President/Aquatic Biologist

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21 West Main St (Route 9)
Spencer, MA 01562

Table of Contents

1.0 Background

Glen Echo Lake is a 116 acre, fresh water lake located in Charlton, Massachusetts. This lake is primarily used for recreational activities (i.e., fishing, swimming, boating, etc.) by the residents living on it; Glen Echo's shoreline is approximately 90% developed by seasonal and year round residents.

On November 28, 2010, the Glen Echo Improvement Association (GEIA) contracted (Contract#110-11) Aquatic Control Technology (ACT) of Spencer and Sutton, Massachusetts to manage aquatic vegetation (i.e., invasive and/or nuisance) in Glen Echo Lake in 2015. In accordance with Contract (#110-11) and the Order of Conditions (OOC), the following document serves to provide the Glen Echo Improvement Association with a detailed summary of the 2015 management program.

2.0 Permit Information

Orders of Conditions	
DEP File #	**Expiration Date**
128-1073	3/4/2018

MassDEP License to Apply Chemicals for Control of Nuisance Aquatic Vegetation	
Application Submitted	**Permit Received**
4/7/2015	-

The Permit Extension was received on August 25, 2015; due to the timing of the receipt of the permit extension, we were unable to obtain a DEP Permit from the state, and unable to treat for the observed invasive species.

3.0 May 12th Survey

A pre-management survey was conducted on May 12, 2015 by ACT biologists, to determine the distribution and relative abundance of the target species throughout Glen Echo Lake. At the time of the survey invasive, non-native species Variable Milfoil and Fanwort were not observed. A follow up survey was scheduled for the following month.

4.0 June 30th Survey

A second pre-management survey was conducted on June 30, 2015. Results of this survey showed early growth of Variable Milfoil in the northwest cove of Glen Echo Lake. At this point, treatment was recommended to control the species and prevent proliferation (refer to the attached map for distribution and relative abundance of invasive aquatic vegetation species from May to August).

Image 1: Sparse V. Milfoil

Image 2: Subsurface look at V. Milfoil and Ribbon-leaf Pondweed

Due to delay in obtaining the permit extension from the Charlton Conservation Commission, we were unable to move forward with the milfoil treatment in 2015. During the survey, several other native vegetation species were noted, these species are listed in the table below:

Common Name	Scientific Name
Quillwort	*Isoëtes* sp.
Big-Leaf Pondweed	*Potamogeton amplifolius*
Yellow Water Lily	*Nuphar variegata*
Ribbon-Leaf Pondweed	*Potamogeton epihydrus*
Stonewort sp.	*Nitella* sp.
Floating-leaf Pondweed	*Potamogeton natans*
Snail-seed Pondweed	*Potamogeton bicupulatus*

5.0 August 25th Survey

A third survey was conducted on August 25, 2015. Results of this survey showed sparse Variable Milfoil in the northwest cove of the pond as well as several locations of trace and sparse Fanwort patches. Also noted at the time of the survey was invasive, non-native Spiny Naiad (*Najas minor*). At this point in time, given the late emergence of the invasive species within Glen Echo Lake, and the delay in delivery of the extension of the Order of Conditions, treatment of each species was not recommended. During the survey, several other native vegetation species were noted, these species are listed in the table below:

Image 3: Fanwort growth observed 8/25/15

Common Name	Scientific Name
Quillwort	*Isoëtes* sp.
Big-Leaf Pondweed	*Potamogeton amplifolius*
Yellow Water Lily	*Nuphar variegata*
Ribbon-Leaf Pondweed	*Potamogeton epihydrus*
Stonewort sp.	*Nitella* sp.
Floating-leaf Pondweed	*Potamogeton natans*
Snail-seed Pondweed	*Potamogeton bicupulatus*
Small Pondweed	*Potamogeton pusillus*
Bladderwort sp.	*Utricularia* sp.

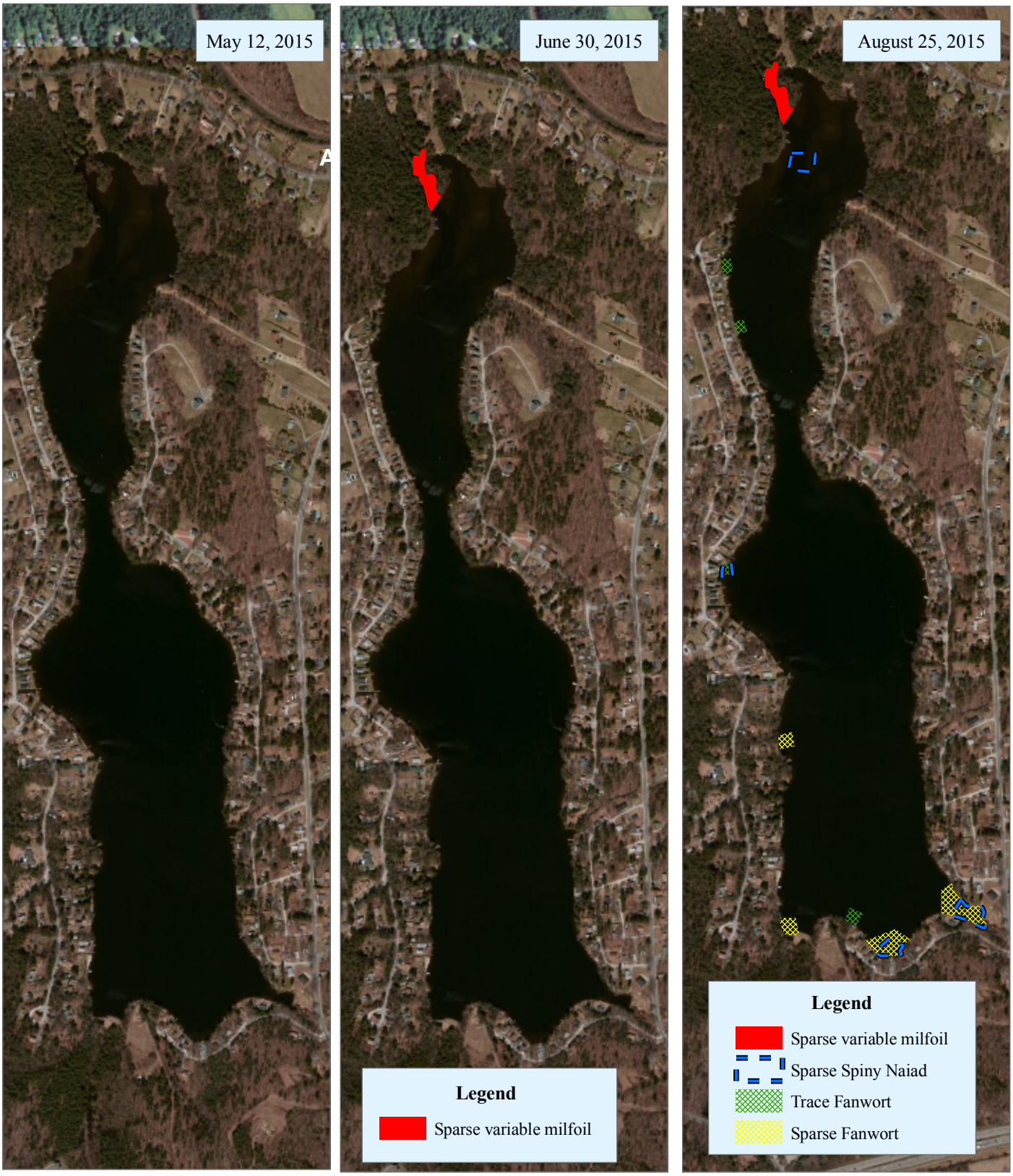
6.0 Conclusion and Recommendations

Given the reduction in invasive species, Variable Milfoil and Fanwort, from 2014 to 2015, ACT believes the management activities which were conducted at Glen Echo Lake in 2014 worked well to reduce the distributions of V. Milfoil and Fanwort throughout the water body. Much of the Fanwort observed emerged late in the summer and was unhealthy and even chlorotic. While the delay with permitting unfortunately did not allow for treatment in 2015, the fact is that V. Milfoil regrowth was relatively sparse and the Fanwort emerged too late in the season to be effectively treated. Therefore the lack of treatment should have a minimal effect on the management in 2016.

Due to the fact that Fanwort and V. Milfoil are highly invasive, competitive plant species that have the capability to proliferate rapidly, and because a season of treatment was lost in 2015, ACT recommends treatment be initiated shortly after growth is observed.

The products recommended are Sonar® One, PR, or Q for Fanwort, and Reward® for V. Milfoil and Spiny Naiad. Systemic herbicides, like Sonar®, offer longer lasting control of target species; they reduce/eliminate both recruitment (i.e., new plants added to the population in subsequent years) as well as the standing crop by attack the root system of the plant killing it from the root rather than burning it back at the leaves. Large areas of growth, when treated with systemic herbicides, are often eradicated or reduced to small areas of growth which are cheaper and easier to maintain in future years. Clipper®, a contact herbicide which is proven effective on Fanwort, may potentially be used in treating isolated areas of growth in future years. Depending on size of isolated patches, hand harvesting/D.A.S.H (diver assisted suction harvesting), can be investigated if the GEIA wants to consider it. The sparse and limited extent of V. Milfoil and Spiny Naiad growth does not warrant or allow for effective treatment with systemic herbicides, this treatment will be conducted with Reward®, a contact herbicide.

May-August 2015 Distribution and Relative Abundance of Invasive Aquatic Vegetation Species



Glen Echo Lake
Charlton
Massachusetts

Map Prepared:11/06/2015
For: Glen Echo Lake Improvement Association
Basemap © 2013 Esri

0 360 720 1,440
1:12,000 Feet
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