

**2017 Annual Summary Report
Aquatic Management Program
Nipmuc Pond
Mendon, MA**

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SŌLitude Lake Management was contracted by the Town of Mendon to conduct an aquatic vegetation management program at Nipmuc Pond. The 2017 program focused on the control of invasive Variable watermilfoil (*Myriophyllum heterophyllum*) and nuisance algae. The management program was comprised of an initial herbicide treatment with the USEPA/MA DEP registered aquatic herbicides Reward (active ingredient diquat) and copper sulfate algaecide. An outline of the 2017 program along with our recommendations for ongoing management follow.

2017 PROGRAM TASK CHRONOLOGY

Project Task	Date Performed
File MA DEP pesticide use permit	March 27 th
Received approved MA DEP permit	April 20 th
Performed pre-treatment vegetation survey	June 13 th
Conducted initial herbicide/algaecide treatment with Reward and Copper sulfate	June 13 th
Post-treatment inspection	October 18 th

PRE-TREATMENT VEGETATION SURVEY

On June 13th, 2017 a SLM Biologist performed a pre-treatment vegetation survey of Nipmuc Pond. The intent of this visual inspection of the dominant vegetation growth was to document pre-treatment plant growth conditions in order to have a baseline in which to evaluate the efficacy of the herbicide treatment, gauge non-target impacts, if any, and assess future management needs and/or necessary program modifications. This survey was conducted by traveling throughout the pond with a small boat or canoe to record visual observations of the plant growth. In addition to the recorded visual observations random vegetation samples were collected throughout the pond to confirm plant species composition and visual surface observations. A list of the dominant plant species along with a general description of the observed distribution and abundance is provided below.

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Dominant Plants

- Variable milfoil (*Myriophyllum heterophyllum*)
- White waterlily (*Nymphaea odorata*)
- Tapegrass (*Vallesneria Americana*)
- Ribbon-leaf pondweed (*Potamogeton epiydrus*)
- Naiad (*Najas flexilis*)

General Description

Common - scattered patches throughout lake
Common – scattered patches throughout lake
Sparse – scattered patches around shoreline
Common – scattered patches throughout western shore
Sparse - scattered low-density patches around shoreline

HERBICIDE/ALGAECIDE TREATMENT PROGRAM SUMMARY

Following the receipt of an approved MA DEP permit, the initial herbicide/algaecide treatment was performed on June 13th to control identified areas of variable milfoil growth using Reward (active ingredient Diquat) and copper sulfate (algaecide). The treatment was conducted by diluting the liquid and granular herbicide concentrate with lake water on board the treatment vessel. The herbicide dilution was then sprayed over the water surface using a small gasoline pump spraying system. Even application of the herbicide was achieved through the use of GPS and a calibrated chemical pumping system.

In addition to the Reward and copper sulfate herbicide/algaecide treatment, a post-treatment survey was conducted to assess treatment efficacy and impacts on non-target species if any.

Herbicide/Algaecide Applied	Application Date	Application Rate	Acreage Treated
Reward	June 13 th	1.5-2.0 gals/acre	~ 10 acres
Copper sulfate	June 13 th	2-6 lbs/acre ft.	~ 10 acres

POST-TREATMENT SURVEY AND 2018 MANAGEMENT RECOMMENDATIONS

On October 18th, 2017 a SLM Biologist revisited Nipmuc Pond for a post-treatment survey. Most of the variable milfoil in treatment areas was gone, with some minor regrowth along southwestern shoreline. Native species remained consistent with pre-treatment conditions, but a small amount of invasive spiny naiad (*Najas minor*) was found growing in the northwest cove adjacent to Nipmuc Drive. White waterlilies were also present but weren't problematic. Although the 2017 treatment program worked well to control invasive variable milfoil and problematic algae growth during the summer season, we did observe a minimal amount of invasive spiny naiad growth later in the summer. We therefore, feel that a modified plant and algae management strategy is required to improve conditions in 2018. The recommended program modifications are outlined below.

- Continue to monitor and treat nuisance vegetation and algae with similar methodology as previous years, as the combination herbicide/algaecide has worked well over the years and remains the best strategy for Nipmuc Pond. However, the herbicides permitted to control target species provide seasonal control, so some regrowth should be expected to reoccur in 2018.
- Perform a late season Reward herbicide treatment to control spiny naiad growth, which typically has a later growing season than the majority of the plant assemblage.

We feel that these proposed program modifications are necessary for the long-term maintenance of Nipmuc Pond's recreational and ecological value. We appreciate the Town's business over the years and look forward to working with you again in 2018. If you have any questions about the 2017 program or our 2018 management recommendations, please do not hesitate to contact our office.