

**2017 Vegetation Evaluation
Lake Massapoag
Sharon, MA**

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SŌLitude Lake Management (SŌLitude) was contracted by Noah Siegel to monitor the existing aquatic growth conditions throughout Lake Massapoag. The focus of the survey was to document current plant conditions, especially fanwort (*Cabomba caroliniana*) and variable milfoil (*Myriophyllum heterophyllum*), in order to develop and maintain a recommended management program.

SITE DESCRIPTION

Lake Massapoag is a 385-acre waterbody located in Sharon, MA with a maximum reported depth of 14 meters. The lake bottom is primarily rocky, with two underwater plateaus in the northern center of the lake. Groundwater springs and intermittent streams feed the lake system, however, inflow also occurs at high-flow periods from a small lagoon adjacent to the southern end of the waterbody. ~~Narragansett Bay is the ultimate fate of the water flowing out of Lake Massapoag; water flows from Massapoag Brook to the Canoe River and eventually into the Neponset River before flowing into the bay.~~ According to StreamStats, the watershed (or drainage basin) is covered by approximately 50% of forested land, while much of the surrounding area and shoreline are developed: summer camps, communities, and hotels.

Lake discharge flows to Massapoag Brook, then Neponset River, then Boston Harbor (LMSC edit)

SURVEY METHODOLOGY

A visual littoral survey was used to determine the dominant plant assemblage at Lake Massapoag. In addition to visual observation, a throw-rake was used to sample areas where visual observation was inadequate. Lake locations were surveyed based on previous survey years; the littoral zone is confined to the shoreline, plateaus, Fletcher's Cove, and the southern end. The rocky substrate is relatively hostile for supported vegetation growth, if any.

VEGETATION INVENTORY RESULTS

On September 11th, 2017 SŌLitude performed a survey of Lake Massapoag to monitor the extent of non-native species, specifically fanwort and variable milfoil. Weather was optimal for a visual survey, with low wind (1-5 mph) and mostly sunny.

At the time of the survey, fanwort was only documented in the southern-most cove and the adjacent lagoon (Figure 1). In the lake basin, the fanwort growth was scattered in dense patches, no more than those documented during the 2016 survey. In the lagoon, dense white and yellow waterlilies (*Nymphaea odorata*) were noted around the lagoon perimeter with

dense, topped-out fanwort. It is likely that the density of fanwort growth is inhibiting the expansion of waterlily growth or emergent/wetland species growth.

Few variable milfoil plants were documented in the northern portion of Fletcher's Cove, more than the single stem that was noted during the 2016 survey.

Few (or trace) species of native macrophytes were noted in the southern cove of the lake, consistent with the 2016 survey: tapegrass (*Vallisneria americana*), clasping-leaf pondweed (*Potamogeton perfoliatus*), snailseed pondweed (*Potamogeton bicupulatus*), bladderwort (*Utricularia sp.*), marsh seedbox (*Ludwigia palustris*), and a sparse patch of yellow waterlily (*Nuphar variegata*).

2018 MANAGEMENT RECOMMENDATIONS

Since no management was performed prior to the September 2017 survey, the observed fanwort infestation had matured for a year. Removal efforts were employed at the lake later in the season. While the infestation did not appear greater than that of 2016, spread of fanwort is imminent and threatens plant and wildlife diversity, desirable open water habitat, fishery dynamics, and water quality. Consistent with 2016 management objectives, the use of Sonar herbicide (active ingredient fluridone) continues to be the most appropriate option to prevent further seeding from the lagoon into Lake Massapoag and maintain a native-dominant ecosystem. Due to Natural Heritage involvement, approval of Sonar for us in the main waterbody will be a challenge. Based on the extent of the main-lake infestation, we recommend continuing with manual removal efforts in conjunction with the implementation of herbicide application in the lagoon.

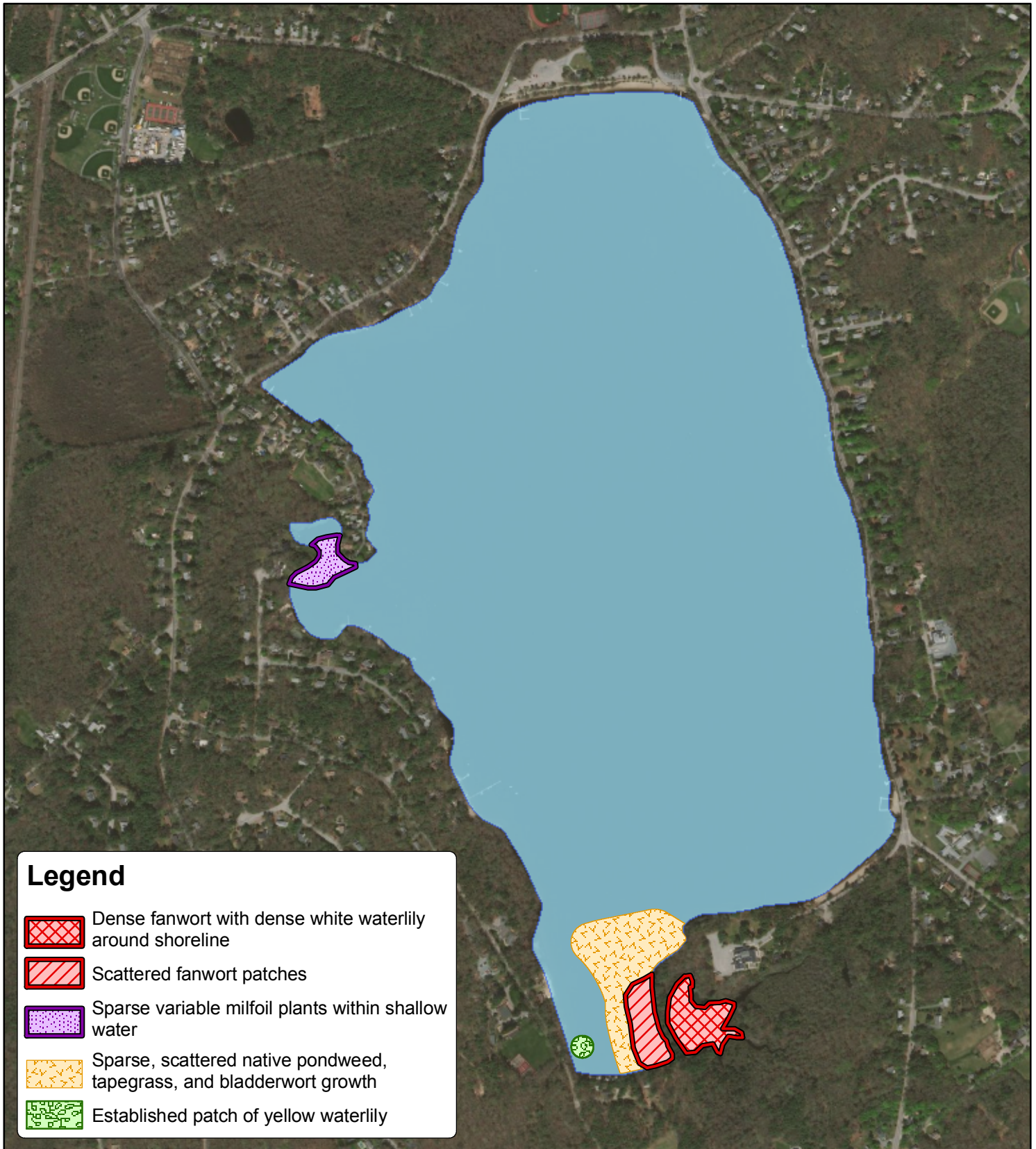
The contingent plan for 2018 management at Lake Massapoag is unchanged from the 2016 recommendations. The first application would occur in mid-late summer when flow into the lake from the lagoon is low (if present) and when fanwort growth is starting to emerge. Moreover, maintaining appropriate low-levels of fluridone in the lagoon for a 60-90 day period may require subsequent "bump" applications.

We expect 2-4 years of nuisance-level fanwort control following a successful treatment. However, monitoring should continue on an annual basis as a minimum to ensure management success. Future management will likely be required to maintain desirable conditions in the lake.

We hope that you find this information in making your lake management decisions. If you have any questions or need anything further, please do not hesitate to contact our office.



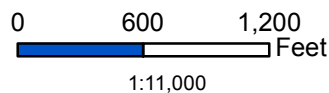
FIGURE 1: 2017 Vegetation Assemblage



Lake Massapoag
Sharon, MA
Norfolk County
42.10334°, -71.17713°



Lake Massapoag



Map Date: 12/20/17
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