

LYCOTT ENVIRONMENTAL INCORPORATED

600 CHARLTON STREET • SOUTHBRIDGE, MASSACHUSETTS 01550 • 508 765-0101

July 6, 2007

Mr. Lee Thompson
Chairman- Fort Meadow Commission
37 Lakeshore Drive
Marlborough, MA 01752

Dear Mr. Thompson:

Enclosed, please find the survey report and maps summarizing the aquatic vegetation survey of Fort Meadow Reservoir conducted by Lycott on June 29, 2007. As you will see, widespread infestations of Eurasian Water-milfoil were observed during the evaluation.

If you have any questions regarding the survey, please feel free to contact us at your earliest convenience.

Sincerely,

Tom Flannery

Aquatic Biologist

Cc: Priscilla Ryder- Marlborough Conservation Commission

**FORT MEADOW RESERVOIR
MARLBOROUGH/HUDSON, MASSACHUSETTS
AQUATIC VEGETATION SURVEY
2007**

1.0 Introduction

An aquatic vegetation survey of Fort Meadow Reservoir, Marlborough and Hudson, Massachusetts was conducted on June 29, 2007 by Lycott Environmental, Inc. The primary purpose of the evaluation was to identify and map aquatic macrophytes throughout the lake's littoral zone, with special focus on growth of non-indigenous species.

Lake management activities in the past have involved the reduction of excessive non-indigenous aquatic vegetation to increase biodiversity while enhancing recreational opportunities within this resource area.

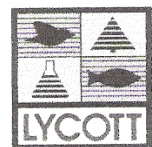
1.1 Conditions

Conditions during the survey were sunny and windy with temperatures in the seventies. Wind had moderate impact on the water surface and visibility into the water, although visual observations were still made with ease due to the good water clarity observed (secchi disc readings to approximately ten feet). Timing of the survey date was optimal as plant growth was active, at or near peak biomass, with species easily identifiable during this time frame.

1.2 Site Description

Fort Meadow Reservoir is a 284-acre recreational water body of moderate depth located within the Towns of Marlborough and Hudson, Massachusetts, with the majority of surface acreage located in the former (figure 1). The lake is located just east of Route 85, and north of Marlborough center. The pond is surrounded primarily by year-round and seasonal residences with occasional forested landscape. Fort Meadow Reservoir receives moderate to heavy recreational use during the summer months. Boat access to the main basin is available to Marlborough and Hudson Residents via boat ramp adjacent to the causeway on Marlborough Street. Other access includes a carry-in boat launch in the smaller central basin and Town beaches in the eastern region of the main basin.

As of the most recent publication (10/1/06), Fort Meadow Reservoir is not located within an area designated by the Natural Heritage & Endangered Species Program (NHESP) as a priority habitat of rare species or an estimated habitat of rare wildlife. Fort Meadow Reservoir is not located in a designated area of critical environmental concern (ACEC).



2.0 Survey Methodologies

In accordance with General Performance Standards, the *Final GEIR on Eutrophication and Aquatic Plant Management in Massachusetts*, and the *Guidance for Aquatic Plant Management in Lakes and Ponds, as it Relates to the Wetlands Protection Act* (DEP, 2004), the area of concern was evaluated regarding plant community composition, distribution, and abundance utilizing the rake-toss relative abundance method (originally designed by the U.S. Army Corps of Engineers, with further expansion by Cornell University) and with the aid of hand-held GPS equipment. Due to the good water clarity observed throughout the pond, the entire water body was surveyed visually in addition to sampling aquatic vegetation at random points via throw-rake.

In addition to a complete shoreline survey, hand-held GPS equipment was utilized to navigate the survey vessel along transects, where random points were sampled with data collected to include plant community composition, and relative abundance. Aquatic vegetation was observed visually at each point in addition to sampling with a throw-rake. Data was collected to include the plant community in the immediate vicinity of the watercraft.

Random points were also established throughout the pond and sampled with the throw-rake. Where identified, the locations and extent of non-indigenous plant beds were marked with GPS equipment (table 2), with all aquatic plants identified to the species level when possible. Data was later transferred to create GIS (Geographic Information System) based images of the project area (figures 2-3). Species distribution was grouped into broad coverage area descriptions or as single presence representations and depicted on USGS 1/2-meter orthophotos.

3.0 Aquatic Vegetation Summary

Overall growth of aquatic vegetation was determined to be moderate (40-70% vegetative coverage) throughout the majority of the water body, although dense (>70%) growth was observed in several locations (figures 2-3). Observed plant growth included widespread beds of both indigenous and non-indigenous species. The moderate to dense relative abundance of non-indigenous species and some indigenous species throughout the lake was determined to be detrimental to this aquatic ecosystem, as 20-40% indigenous vegetative cover is considered to be ideal by many fisheries biologists. This dense vegetative growth slows fish movement, reduces foraging opportunities (predator/prey relationships), replaces beneficial indigenous plant species, and reduces recreational opportunities.

A total of nine (9) species of aquatic vegetation were identified at the time of this evaluation in varying abundance, listed in greatest to least observed occurrence below:



Table 1: Aquatic Vegetation Species List

Eurasian Water-milfoil (<i>Myriophyllum spicatum</i>)*
Clasping-leaf Pondweed (<i>Potamogeton perfoliatus</i>)
Bladderwort (<i>Utricularia</i>)
Thin-leaf Pondweed (<i>Potamogeton pusillus</i>)
Northern Water-weed (<i>Elodea Canadensis</i>)
Stonewort (<i>Nitella</i>)
Variable Water-milfoil (<i>Myriophyllum heterophyllum</i>)*
Big-leaf Pondweed (<i>Potamogeton amplifolius</i>)
Tape-Grass (<i>Vallisneria americana</i>)

*Indicates Non-Indigenous Species

The most common species identified during the evaluation was the non-indigenous Eurasian Water-milfoil (figure 2). This plant has been present in this water body for a number of years, and was observed to be most prolific throughout the majority of the main basin. Total acreage of areas containing growth of Eurasian Milfoil was calculated to be 110-acres. Relative abundance was frequently observed to exceed 40 % plant cover and occasionally was observed at greater than 70%. This invasive growth has not precluded indigenous plants from inhabiting these regions, although may do so in the future as the Milfoil propagates further. Growth was observed at or near the surface in most regions.

Other non-indigenous growth was found to be limited to several isolated Variable Milfoil plants, observed in the smaller central and western basins (figure 2). Several floating fragments of this species were observed in the main basin, although an established bed was not identified at the time of this evaluation.

In addition to the non-indigenous milfoil noted previously, Fort Meadow Reservoir was observed to support a moderately diverse community of indigenous rooted macrophytes (figure 3). The dominant species observed was Clasping-leaf Pondweed, which was easily seen in widespread beds of vast acreage, topped-out on the water surface (figure 3). This particular species can provide wildlife and fisheries habitat, but has grown to excessive, invasive densities at this time. Other significant growth included moderate densities of Bladderwort and Thin-leaf Pondweed throughout the majority of the water body, usually observed to be mixed in with stands of Clasping-leaf Pondweed.

Other indigenous community observations were limited to scattered, light growth of Stonewort, Big-leaf Pondweed, and Tape-Grass (figure 3).

4.0 Summary

Although stands of indigenous submerged aquatic vegetation are considered significant to wildlife and fish, the Department of Environmental Protection presumes that non-indigenous aquatic plants are not "Significant to the protection of wildlife habitat". "The

