



## Seeing is Believing

**F**or the second time in three years Lycott Environmental, Inc. has received the prestigious "Seeing is Believing" award from SePRO Corporation. This award is given to the preferred applicator company in the United States that demonstrates the management of a pond or lake utilizing before and after photographs as proof of the successful treatment.

In the spring of 2007, Lycott was retained by a private resident to undertake a management program for a small privately owned pond located in Barrington, RI. The pond was totally inundated with the non-indigenous, invasive aquatic plant commonly referred to as Fanwort (scientific name: *Cabomba caroliniana*). The pond also had an over-abundance of Lily pads (*Nymphaea* and *Nuphar* species). A large waterbody, Echo Lake, lies just a few feet downstream from this pond. Lycott has been periodically managing Fanwort in Echo Lake for the last two decades. The fact that we have now successfully eliminated the Fanwort from this small pond seriously reduces the likelihood of Echo Lake becoming re-infested.



Pre-treatment, above. Post-treatment, below.



## Restoring the Ponds In Roger Williams Park

### Providence, Rhode Island

**F**or the past several years, Lycott has provided lake and pond management to seven of the water bodies associated with the Roger Williams Park located in Providence, Rhode Island. Like many parks, these ponds are an integral part of the



Area previously inundated with lily pads.

visitor's experience. Annually, thousands of people visit the park and feed the waterfowl, picnic, rent paddle boats or simply sit by the ponds and relax.

One of the ponds was even used, a few years ago, for a nationally televised wake boarding tournament.

The ponds have experienced cultural eutrophication over the years, as well as the introduction of non-indigenous aquatic plants such as Curly-leaf Pondweed (*Potamogeton crispus*). Other more indigenous species, such as Lilies (*Nymphaea*) and algae also inundated the ponds before Lycott began instituting management efforts. These ponds will require continual management due to the presence of high concentrations of nutrients and the threat of other non-indigenous species being introduced by waterfowl.

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## Red Tide In Fresh Water?

This past summer Lycott was contacted by a client to notify us that there was a red scum floating on her pond. She went on to say that it would come and go and therefore asked that Lycott inspect that pond as quickly as possible. Thanks to the technological era that we live in, cell phones provided Lycott the means to visit the pond within an hour. Given our thirty-six plus years of experience managing hundreds of lakes and ponds in the northeast on an annual basis, we thought we had seen almost every kind of weed and algae problem. However, this red scum observed at this pond was unique.

At the time of the site visit Lycott found tiny red clumps floating on the surface of the pond. Lycott also noted that the sizable duck population in the pond would not touch this suspicious material. We collected a sample and brought it back to Lycott's laboratory where we conducted a phytoplankton analysis. The sample revealed many round red cells which we were not familiar with, as well as a considerable number of euglena (single-celled freshwater organisms).

As a result, the sample was forwarded to Ann St. Amand, Ph.D., President of PhycoTech, Inc. located in St. Joseph, MI, for her analysis. Upon receiving the sample, Dr. St. Amand immediately contacted



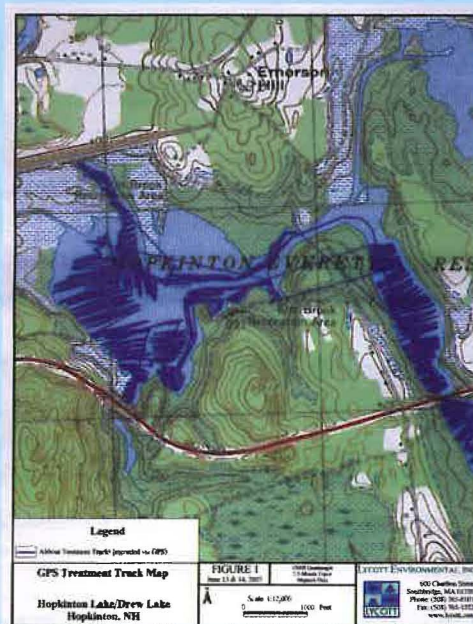
Euglena in this Massachusetts pond.

Lycott to inform us that she and her staff were quite excited to see that the bloom of unhatched euglena cells (an early stage of euglena) were responsible for the red algae bloom. We asked Dr. St. Amand the reason for the red coloration, as red is not a common color for this species. She said that the pond must have a high concentration of bacteria and that the euglena will absorb iron out of the water when the bacteria counts are high. Since this pond is located in a park and the visitors are allowed to feed the ducks and other waterfowl, the concentration level of bacteria can become very high.

Subsequently, we treated the pond with a chelated copper compound (Captain) which effectively eliminated the red "pond scum".

## U.S. Army Corps of Engineers

Located in Hopkinton, New Hampshire, the Hopkinton-Everett Flood Control Area has an aquatic invader – Variable Water-milfoil (*Myriophyllum heterophyllum*). This invasive aquatic plant is an aggressive plant that proliferates to the point that the aquatic habitat is adversely affected. Fisheries, waterfowl, water quality, along with human activities, such as fishing, boating and swimming can be impaired if this plant is not managed. The Hopkinton –Everett Flood Control Area is comprised of interconnected basins which make up the large water bodies of Hopkinton and Drew Lake (~ 409 and ~ 48 acres, respectively) that are used extensively for fishing, swimming and wildlife viewing. These water bodies had become inundated with V. milfoil and Lycott was awarded the



GPS tracks of the actual airboat movement during treatment.

contract to treat this invasive plant with the systemic herbicide Navigate (active ingredient 2,4-D). The treatment took place in June 2007 utilizing three teams of professionals and two airboats over the course of two days.

Unique to this project is the fact that the Army Corps wanted the airboat personnel to track their treatment patterns with an onboard Global Positioning System (GPS). The use of GPS and the associated recordings is a method that is becoming more widely used so that the clients, and others, can see the application path made by the airboats during the treatment. Follow-up surveys of these water bodies indicated that the treatment was successful in reducing the milfoil by 90%.

# Star Lake Treatment Plan

## Belmont, Vermont

**F**or a number of years, Star Lake experienced increasing growths of non-indigenous aquatic plants. The principal plant species of concern has been Eurasian Water-milfoil (*Myriophyllum spicatum*) hereafter referred to as EWM. Other plants that have also proliferated and interfered with recreation and have altered the habitat are Lilies (*Nymphaea*) and Pondweed species (*Potamogeton species*). During 2002, residents began working with Lycott to develop a plan to restore the lake. After biological surveys were conducted and all methods for management were assessed, the Friends of Star Lake (FOSL) and Lycott prepared a permit application including a five-year management plan to undertake an herbicide treatment. This application was submitted to the Vermont Department of Environmental Conservation (VT DEC). Star Lake's five-year plan was approved by the state in 2003. Initial treatment to the lake was conducted in the spring of 2004 by Lycott utilizing the herbicide SONAR AS (active ingredient fluridone) manufactured by SePRO Corporation.

A follow-up survey in September 2004 indicated that the treatment was successful in reducing the EWM by at least 90%. The treatment also slightly reduced the Lily pad population which occupies a substantial portion of the lake's surface.

During the second year (2005) of the management plan, no plants were found in the Spring; however, a few scattered EWM plants were found during the September survey. The Spring 2006 survey revealed no EWM but by July scattered plants were found. Non-herbicide methods of control were employed including hand-harvesting with little success.

As a result, the FOSL and Lycott requested a spot treatment with a different herbicide be allowed and undertaken in 2007. Approval was granted and Lycott conducted the treatment utilizing the systemic herbicide RENOVATE (active ingredient triclopyr) also manufactured by SePRO. Using RENOVATE allowed Lycott to limit the treatment area to the western and northern areas where EWM had re-established itself and also to reduce the cost of the treatment. Post treatment surveys clearly showed that the treatment to the EWM was very successful while not adversely affecting other species of indigenous plants. Further surveys will be conducted during 2008 to assess the presence or absence of Eurasian Water-milfoil.



Star Lake, Belmont, Vermont.



Aerial view of Barkley Lake.

## IPM Process At Barkley Lake

### Hebron, New York

**I**n 2007, the Barkley Lake Association contracted Lycott to implement an Integrated Pest Management (IPM) program to decrease the biomass of Lilies (*Nymphaea species*) and Curly-leaf Pondweed (*Potamogeton crispus*). This 53.5-acre mesotrophic lake with desirable water clarity sits in a valley surrounded by several homes and camps on the west and south sides, farmland on the north side and forest on the east side. The western half of the lake has a maximum depth of 35 feet and is mostly weed-free. The eastern side of the lake is shallower with an over abundance of aquatic plants.

Stage one of the IPM, completed in August of 2007, was to establish a channel from weed-free deep water in the middle of the lake to the earthen dam at the eastern end. The purpose of the channel was to re-establish a water flow to the outlet structure compromised by aquatic vegetation and debris. The clearing of a one-quarter mile by 20-foot channel was accomplished mechanically by the use of Lycott's custom built hydro-rake and weed harvester. The biomass, seeds and debris were scraped from the bottom by the hydro-rake, then floated on the surface for the weed harvester to collect and transport to the off-load site. The approximate eighty cubic yards of biomass and debris removed predominately consisted of Lily pad rhizomes, Curly-leaf Pondweed and submerged timbers.

Stage two of the program, scheduled for the 2008 season, calls for an herbicide treatment utilizing Aquathol-K (active ingredient endothal) to control Curly-leaf Pondweed in the lake. This plant is considered a non-indigenous invasive aquatic species.

It is the intention of the Association to maintain Barkley Lake in a mesotrophic state by controlling existing aquatic plant densities/biomass and the emergence of new species. Their IPM program will continue through proactive monitoring of the watershed, mechanical removal of excess biomass when necessary, and herbicide treatments to control aquatic plant density. We look forward to assisting the Barkley Lake Association with their plan.

## The Ponds At Brooksby Village Retirement Community

No water body is immune from the spread of invasive plant species. Over the past decade, Lycott has been contracted to manage numerous man-made retention basins and ponds for high-rise, apartment, townhouse and other types of mixed community living spaces.

Brooksby Village, a retirement community located in Peabody, MA, contracted Lycott in 2005 to manage aquatic vegetation in

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The surface coverage of filamentous algae was observed to be greater than fifty percent on the pond and basin surfaces.

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four ponds and two drainage retention basins located within their community. The ponds were originally constructed to provide storm water drainage and secondarily provide aes-

thetic appeal for the community. These ponds have also provided habitat for local wildlife and other aquatic organisms.

In August of 2006, Lycott conducted an aquatic vegetation survey and wildlife habitat evaluation of the Brooksby Village ponds. The survey revealed vegetation infestations of three non-indigenous species; Curly-leaf Pondweed (*Potamogeton crispus*), Purple Loosestrife (*Lythrum salicaria*), Common Reed (*Phragmites australis*), as well as excessive growth of an indigenous species Common Cat-tail (*Typha latifolia*). The surface coverage

of filamentous algae was observed to be greater than fifty percent on the pond and basin surfaces.

Based on the findings of the 2006 aquatic vegetation survey and wildlife habitat evaluation, Brooksby Village management's plan was to reduce excessive vegetative growth to maximize water storage capacity and slow the rapid eutrophication process while maintaining a habitat for local wildlife and fishery populations.

After review and consideration of various means of vegetation management, it was determined that U.S. EPA registered and State approved herbicides and algaecides was the most viable approach. Lycott, acting as the agent for Brooksby Village, submitted the Notice of Intent and received the Order of Conditions from the Peabody Conservation Commission.

We have performed yearly treatments to control the coverage of algae and regulate the growth of the targeted aquatic plant species. Pre and post treatment surveys were conducted to evaluate the effectiveness of each application.

Long-term management of these ponds will be necessary to balance the growth and coverage of the aquatic plant species and ensure the preservation of the wildlife and aquatic habitat.



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**We  
were  
the First...**