



## Expectations of In-Lake Management

**T**wo of the many questions often asked of lake managers are (a) can the pond be fixed? and (b) do we need to keep managing the pond? Water bodies can be fixed, but they usually require additional management.

As lakes and ponds get older, they tend to become more eutrophic. If the condition of a water body is to be maintained, it is necessary to implement management techniques. Managing a water body is not unlike maintaining your lawn or garden where nature provides the necessary ingredients and nutrients for weeds to flourish.

Typically it is impractical for one action to "fix" a water body, however, there have been occasions when one action has decelerated the natural process. In Lycott's thirty-three years of experience in managing water bodies, there have been occasions where a specific technique was implemented that successfully managed the invasive aquatic plants for a number of years with little or no additional follow-up action. A few examples include the following:

Two years prior to Lycott's treatment program at **Big Alum Lake** in Sturbridge, Massachusetts, the lake association installed



Big Alum Lake in Sturbridge, Massachusetts

benthic barriers in an attempt to manage a small 1/4-acre patch of Variable Milfoil (*Myriophyllum heterophyllum*). After a couple years of effort, the Association determined that the benthic barriers were not effectively managing the Milfoil. Lycott was retained to acquire the necessary permits and undertake a treatment to the Milfoil with the U.S. EPA registered and state-approved herbicide 2,4-D. In 1993 Lycott applied twenty-five pounds of 2,4-D. The Milfoil was managed within 2-4 weeks and has not been observed in the lake since that time.



Farrar Pond in Lincoln, Massachusetts

For the past thirteen years Lycott has worked with the **Farrar Pond Associates** to manage the excessive aquatic plant growth in their 126-acre water body. At Lycott's recommendation the outlet structure was redesigned and reconstructed to facilitate lake-level drawdown. The implementation of lake-level drawdown has considerably reduced the excessive aquatic plant growth. A treatment was undertaken in 1998 with the herbicide Sonar\*, which helped restore this valuable resource. *(Continued next page)*

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## Expectations of In-Lake Management (cont.)

Several years ago the invasive plant Water Chestnut (*trapa natans*) was identified in Farrar Pond. This invasive plant has been successfully managed by the Association members via an annual hand-pulling operation; 10 – 50 plants are removed annually. This activity has precluded the Water Chestnut from becoming well established in Farrar Pond and requiring a more aggressive management technique such as weed harvesting.

After the construction of **Lyman Pond** in Southbridge, Massachusetts in 1983, the aquatic plant Duckweed (*Lemna*) was present in five of the fifteen acres. The pond was treated with the herbicide Sonar\* A.S. Six weeks after the treatment the Duckweed turned milky white and decayed. To-date the pond has not required another treatment for Duckweed.



Lyman Pond in Southbridge, Massachusetts prior to treatment

In the late 1970's Lycott conducted a diagnostic/feasibility study of **Lake Lashaway**. Prior to the study, the lake had been treated



Aerial photograph of Lake Lashaway, East Brookfield, Massachusetts

periodically with aquatic herbicides to manage the invasive aquatic vegetation. After conducting the study, Lycott recommended, for the first time in Massachusetts, that the Association implement

lake-level drawdown as a management tool. Lake-level drawdown has been undertaken on an annual basis in Lake Lashaway with great success, precluding the need for any other lake management technique.

A successful in-lake management plan should incorporate periodic biological surveys along with sampling of pertinent water quality parameters such as dissolved oxygen, pH, temperature, total phosphorus and transparency (secchi disk). In addition, the watershed should be evaluated to determine if it is providing excessive nutrients and sediment to the water body, thus precluding the effectiveness of any in-lake management technique over a period of time.

While most water bodies need to be managed on an annual basis to be maintained as a viable resource, residents should realize that maintaining a certain percentage of aquatic plant growth is beneficial. An annual management program aids in the reduction of the invasive aquatic plants, prevents the establishment of non-indigenous plants, and enables more desirable vegetation to support the fisheries, wildlife and recreational activities.

## Sonar\* Application in Hudson, New Hampshire

**D**uring 2001 representatives from the New Hampshire Department of Environmental Services (NH DES) discovered a major infestation of the non-native plant Fanwort (*Cabomba caroliniana*) in Robinson Pond, Hudson, New Hampshire.

This 97-acre pond has approximately twenty summer homes, a public swimming beach and a State boat-launching ramp that is heavily used for recreational purposes. The remainder of the shoreline is wooded and undeveloped.

Lycott was retained to treat the pond with the herbicide Sonar\* A.S. (active ingredient fluridone) to manage the invasive Fanwort population. On June 17, 2002 Lycott conducted a treatment to the pond to obtain and maintain a fluridone concentration of 10 – 20 ppb for a forty-five day period. The FasTEST\* analyzes indicated that the fluridone concentration was maintained above the optimal level for



Aerial photograph of Robinson Pond, Hudson, New Hampshire

a six-week period, and a booster treatment was not required or undertaken.

Representatives from the NH DES conducted follow-up surveys of the pond during 2002 and 2003. Kenneth Warren, Coordinator, Exotic Weed Control Program, NH DES indicated that the treatment was "well received by the NH DES and residents, and that there were no complaints from anyone after the treatment".

# Managing Golf Course Ponds

**M**anaging golf course irrigation ponds is a challenge to lake managers and golf course superintendents alike. Many golf course ponds are designed and constructed for irrigational purposes. At some point in time however, many of these ponds become infested with aquatic plant and/or algal growth. If the aquatic plant growth is not managed, the quality of water, i.e., temperature, bacteria, becomes a problem and the intake pipes become clogged.

The management of algae is less disruptive to the irrigation system than the management of rooted aquatic plant growth. For example, algae can be managed with a copper compound or aluminum sulfate, which will not adversely affect the turf grass. If rooted aquatic plants are the problem, the use of an herbicide needs to be timed with the use of the pond's water for irrigation. In many cases, Lycott conducts treatments to irrigation ponds during the early spring or late fall when the need for irrigation is not as critical.

Aerators and fountains are often installed in golf course ponds to improve the water quality, but this equipment does not prevent weeds and algae from flourishing. At a recent North American Lake Management Society Symposium, one of the exhibitors



was displaying SonicSolutions™ as an algae management tool. The equipment uses ultrasonic waves to burst the cell walls of the algae. Lycott is going to conduct a demonstration project with this equipment in a golf course pond that has historically had problems with algal blooms.

Irrigation ponds can also have problems with sedimentation buildup when storm water runoff from nearby streams enters the pond. The construction of sedimentation basins or entrapment areas helps capture solids before they enter the pond. If the sedimentation structures are designed and maintained properly, they can effectively reduce the amount of sediment entering and filling in the irrigation pond.

The perception that most golf course ponds have aquatic plant and algal growth as a result of the use of lawn fertilizers is not necessarily accurate. There are many golf course ponds that do not experience aquatic plant growth. Golf course superintendents need to be aware of best management practices to reduce the nutrient input from fertilization activities (see article on back page).



## Applicator License Renewals

Lake managers need to become licensed in each state that they will be applying herbicides and algaecides. In the past some New England states, such as Rhode Island and Vermont, issued reciprocal licenses for applicators that could provide documentation of licensure in the state where they are employed. Recently, the State of Massachusetts dropped its reciprocity with the other New England states. As a result, Lycott's professionals have had to take examinations to renew their licenses in these states.

Once licensed, a lake manager needs to attend workshops to obtain recertification credit. Each state has its own requirement on the length of time and amount of recertification credit hours that are needed for license renewals.

Lycott's professionals are licensed to undertake treatments in **Connecticut, Florida, Maine, Massachusetts, New Hampshire, New York, Rhode Island and Vermont.**

## Lawn Fertilizing Best Management Practices

1. Soil testing. The only way to know if your lawn needs fertilizers is to have the soil analyzed. The analysis will indicate what nutrients your soil may be lacking, if any. There is no need to add nutrients if you already have a sufficient amount.
2. Know the nutrient needs of your crop. Use this information along with the soil test to determine the amount and type of fertilizer needed. Unused fertilizer can be washed away into lakes, rivers and streams.
3. Apply at the proper time. One spring and one fall application are generally recommended.
4. Fill fertilizer spreaders on a hard surface where spills can be cleaned up easily. NEVER wash fertilizer spills into the street or other hard-surface areas where they can enter storm sewers and ultimately surface water.
5. Avoid getting fertilizer into natural drainage areas, these may not necessarily be hard-surface areas.
6. In shoreline areas, leave a ten-foot buffer zone unfertilized.
7. Take extra precautions on slopes where the fertilizer may tend to be washed away.
8. Apply fertilizers only to healthy plants or reduce the amount applied to unhealthy plants. An unhealthy plant will not use as much nutrient as a healthy plant.
9. Follow up fertilizer applications with light watering. A light watering is good to activate the fertilizer, but heavy rain or watering can leach or wash away nutrients. Light watering will also settle the fertilizer into the lawn.
10. Never apply fertilizer to frozen ground.

There are many web sites containing information on lawn fertilizing and its environmental concerns. For your convenience, several are:

[www.extension.umn.edu/distribution/horticulture/DG6551.html](http://www.extension.umn.edu/distribution/horticulture/DG6551.html)

[www.duluthstreams.org/understanding/impact\\_fertilizer.html](http://www.duluthstreams.org/understanding/impact_fertilizer.html)

[www.ces.ncsu.edu/cumberland/fertpage/environ.html](http://www.ces.ncsu.edu/cumberland/fertpage/environ.html)

[www.extension.umn.edu/info-u/environment/BD282.html](http://www.extension.umn.edu/info-u/environment/BD282.html)

<http://agebb.missouri.edu/turf/lawnnews/lawnfert.htm>

This is a compilation of information found at the web sites listed above.



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