THE IPA NEWSLETTER

Mystic Lake, Middle Pond, and Hamblin Pond

Spring 2007 A quarterly publication of the Indian Ponds Association, Inc. Vol. 7 No 2

TOWN COUNCIL APPROVES ALUM FIRST PHASE

On April 26, the Barnstable Town Council voted unanimously to authorize the expenditure of $80,000 from the Capital Trust Fund for the design and permitting of an alum treatment for Mystic Lake. This was one of three projects included in the Town Manager's FY 2008 Capital Budget under the category of lake/pond restoration submitted to the Town Council for funding.

The vote gives the go-ahead for the first of two phases of an alum treatment for Mystic Lake. The design and permitting phase covers aspects such as a request-for-proposal process to select a qualified vendor and obtaining necessary Town and State permits that will likely include some additional water sampling and surveys of the mussel distribution. The Massachusetts Natural Heritage & Endangered Species Program will play a major role in the review and permitting process because of the presence of several rare and endangered species of freshwater mussels and damselflies in Mystic Lake. The second phase, hopefully to be funded next year, would be the actual implementation of the alum treatment as well as post-treatment monitoring for a number of years.

This affirmative vote represents the culmination of considerable effort by the IPA and its members over the past year to promote this project with the Town Manager, other Town officials, and Councilors. Members and neighborhood associations within the IPA area who sent letters and e-mails to the Town Manager and Councilors encouraging their support of the alum treatment are to be commended. Town Manager John Klimm indicated that these efforts were instrumental in convincing him to assign high priority to treating Mystic Lake.

The two other lake/pond restoration projects also funded in the same Appropriation and Loan Order included the dredging of a permanent connection between Rushy Marsh Pond in Cotuit to Nantucket Sound ($120,000) and the design and permitting for the eventual dredging of Mill Pond in Marstons Mills ($50,000).

SENATOR ROB O'LEARY TO BE ANNUAL MEETING GUEST SPEAKER

Senator Rob O'Leary from Cummaquid, who represents Cape Cod and the Islands in the Massachusetts State Senate, will be the guest speaker at the 50th Annual Meeting of the Indian Ponds Association to be held Sunday, July 15 He will talk and answer questions about **environmental and water quality legislation** of interest and relevance to Cape Cod as well as the escalating **home insurance costs** and efforts in the Legislature to moderate these costs.

Senator O'Leary has a Ph.D. in history from Tufts University and has taught history and political science at the Massachusetts Maritime Academy for nearly 30 years. Prior to his election to the State Legislature, he served as a Barnstable County Commissioner from 1987 through 2001.

The Annual Meeting will be held outdoors at the home of Jon and Debbie Halpert at 470 Turtleback Road in Marstons Mills from 4:00 to 6:00 PM. The short business meeting and our guest speaker will be from 4:00 to 5:00 PM followed by a social hour. Business will include various reports, election of new Directors, and the presentation of checks to the two recipients of the Edward Schwarm Memorial Scholarship (see article on page 3).

In case of rain, the meeting will be indoors at the home of Lewis and Nancy Solomon at 28 Heath Row in Marstons Mills. Reminder postcards, including directions to the Halpert home, will be sent to IPA members two weeks before the meeting.

– IN THIS ISSUE –

- TOWN COUNCIL APPROVES ALUM FIRST PHASE
- O'LEARY ANNUAL MEETING GUEST SPEAKER
- PRESIDENT'S REPORT
- TWO RECIPIENTS OF SCHWARM MEMORIAL SCHOLARSHIPS
- DERELICT BOAT AND DEBRIS CLEANUP
- UPDATE ON INVASIVE GRAY WILLOW AND *PHRAGMITES*
- HERRING COUNTING PROJECT
- DANFORTH PROPERTY NEWS
- MIDDLE POND HERRING RUN
- DO FISH MAKE NESTS?
- PURPLE LOOSESTRIFE WATCH
- IS ALUM TREATMENT SAFE?
- SMEDLEY
- RIVER DAY 2007

PRESIDENT'S REPORT

It's a genuine pleasure to report some encouraging news and accomplishments. The lead article of this issue tells the most important and exciting story. The unanimous vote by the Town Council to authorize the first phase of an alum treatment for Mystic Lake marks a triumph for the IPA and a fitting culmination to an effort of more than three years that began with the planning for the pond study which concluded that remediation was needed to deal with the excessive phosphorus in the lake. **A special thanks to all in the IPA who assisted in any way in this effort, and also to those who wrote letters and e-mails to the Town Manager and Councilors.**

We owe a debt of gratitude to Rob Gatewood of the Conservation Division for having included phase one of the alum treatment in his list of recommended projects to the Town Manager, to Councilors Janice Barton (Precinct 10), Leah Curtis (Precinct 12), and Hank Farnham (Precinct 11) for helping to ensure inclusion of this project in the Town Manager's FY 2008 Capital Budget, to Town Manager John Klimm for being receptive to our many arguments and convinced that treating Mystic Lake commanded a high priority, and to the Councilors for their overwhelming support.

Particularly gratifying to me were various supportive comments given by Councilors during discussion of this item during the April 26 Council meeting. Councilor James Crocker (Precinct 5, Osterville) stated, "These are some of the best Capital requests that I've seen for the quality of life on Cape Cod, and I'm proud that we're doing this for our Town." Councilor Janice Barton said, "We did receive quite a few letters and e-mails of support for all of these items, especially item 3 [Mystic Lake]. I just want to thank everybody out there for their interest and concern."

Our annual membership campaign is doing very well. At this point, the number of registered members is 10% higher than last year at this time. The good news is that we have 18 new members; the bad news is that there are over 80 households that have, in past years, been members, but have not renewed. I urge them, as well as all others, to join our ranks.

The Annual Meeting on July 15 will be an event you won't want to miss. We will be hearing from Senator Rob O'Leary, an engaging speaker, knowledgeable and concerned about Cape Cod issues. We will also be electing three new Directors. I want to take this opportunity to thank the three outgoing Directors for their service. Paul Craig has been a valuable member of the Board for four years, while Steven Paglierani and Robert Mesrop have both served for two years.

Since 2008 will mark the 50th birthday of the IPA, the Board is already beginning to think of some special things that can be done to celebrate the achievements of this fine organization. If any of you have suggestions, please pass them along to any Board member or to me. A number of fun and rewarding activities are in store for this year. Please take note of some of these in the various articles in this issues. We need your help on them, so please volunteer.

Emory D. Anderson

CONSIDER THE SOURCE

Much of the information we receive today comes from the Internet. Such sources can be either fact or fiction, just like the Public Library. Most, if not all, scientific studies and results are today posted on the Internet for ease of access. For this newsletter, we often cite sources which we find there simply because it is quick and easy. Just because they came from the Internet doesn't mean they aren't valid. As in the case of library, newspaper, or scientific journal sources, Internet sources must also be verifiable. We try to cite only credible sources of information in our news articles.

NEW MAILING SYSTEM FOR NEWSLETTERS

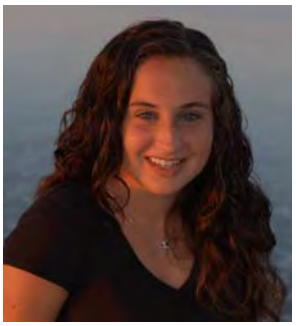
Starting with the previous issue, the IPA has begun mailing newsletters using the US Postal Service's Nonprofit Standard Mail system. This is projected to save over $400 a year in postage. One major limitation of this system is that forwarding is not possible. Since many of you go to warmer climes in the winter, it is important that you provide us with your address there, and the inclusive dates. Without this information, we are unable to ensure your receipt of every newsletter without incurring extra postage costs. So, please provide that information on your next Membership/Donation form.

TWO RECIPIENTS OF SCHWARM MEMORIAL SCHOLARSHIPS

Terri Anne Guarino

Two graduating seniors from Barnstable High School have been selected by the IPA to receive Edward Schwarm Memorial Scholarships. The recipients are Terri Anne Guarino, daughter of Richard and Joanne Guarino of 346 Mistic Drive in Marstons Mills, and Katherine Patellos, daughter of Samuel and Deborah Patellos of 65 Olde Homestead Drive in Marstons Mills. Both young women will be presented with $750 checks at the IPA Annual Meeting on Sunday, July 15.

The Schwarm Memorial Scholarship was established in 2005 in memory of Edward Schwarm, a former IPA Director and officer who died in May 2005. IPA members have been very benevolent in contributing to the Scholarship fund.



Katherine Patellos

When the Scholarship was set up, the intent was to give a $500 award annually to a single recipient. This year, however, the IPA selection committee judged both young women to be so outstanding in terms of their academic achievements, extracurricular and volunteer activities both in school and in the community, leadership roles, awards, and honors that both were recommended to receive a scholarship. In addition, the generosity of IPA members in contributing to the Scholarship fund made it possible to increase the amount of the award to $750.

Terri plans to enroll at Simmons College and pursue a career in the medical field. Katherine plans to become a veterinarian and intends to enroll at Duke University this fall. We wish both young women well in their educational and career pursuits.

DERELICT BOAT AND DEBRIS CLEANUP

On Saturday, May 26, the IPA will sponsor a second annual cleanup of derelict boats and debris from around the shores of the Indian Ponds. A similar removal activity last year on the Saturday of Memorial Day weekend involved 10 volunteers and produced a sizable amount of abandoned material which was removed and disposed of by personnel from the Town's Highway and Solid Waste Divisions.

IPA Director Bob Kohl will again organize and coordinate this year's cleanup. Individuals wishing to participate should contact Bob (tel: 508-428-1667).

Waterfront residents or others who may have left or lost boats, floats, docks or dock parts, or other items are urged to retrieve them before May 26. **Unless retrieved or otherwise claimed by owners prior to this date, all items collected will be removed.**

UPDATE ON INVASIVE GRAY WILLOW AND *PHRAGMITES* REMOVAL

As reported in the 2007 Winter issue of this newsletter, a small-scale pilot project is currently being considered to deal with gray willows and *Phragmites* on some of the Town-owned property on Hamblin Pond, Middle Pond, and Mystic Lake. Several options for control measures on these invasive plant species are being investigated. **Regardless what option is selected, the fall is the most appropriate time for implementation.**

Since there are many willow species, it will be necessary to verify the identification of gray willow trees. The IPA intends to assist in the identification and marking of gray willows around the three ponds this summer.

Rob Gatewood, Director of the Town's Conservation Division, reports that he intends to request a permit for the pilot project from the Conservation Commission later in the year. More information on this will be provided in the 2007 Summer issue of this newsletter.

The pilot project, if successful, should provide the basis for a future, broader-scale effort for removal of gray willows on private waterfront property.

Some IPA members have asked about obtaining permission to remove gray willows from their waterfront property. According to Gatewood, this is acceptable and can be done. For information on how to obtain a permit, contact him at 508-862-4093 or rob.gatewood@town.barnstable.ma.us.

HERRING COUNTING PROJECT

This program was started in 2006 to develop a history of the herring migration in the Marstons Mills River and also to provide the Commonwealth with numbers for a macro view of the herring population.

When we sent in our 2006 counts, they were projected to a total number of 6,906 herring. While that may seem small, some of the runs in the Commonwealth last year only had a couple hundred fish; some had none.

Charlie Thifault of Marstons Mills was the winner of last year's contest to guess the total size of the run. His guess was off by just 16, and he won the $375 prize. We'll have another contest this year, so be sure to enter your guess on River Day.

This year, we have about 30 volunteers who will count 10 minutes at a time. Each counter averages about 20-25 different times over a 45-day period from about April 15 to June 1. The counting is done from 7 am until 7 pm at the herring run by the intersection of Routes 149 and 28 during daylight hours.

You can find more information about the 2006 results and an interesting comparison to some numbers from 1912 at www.marstonsmills.org. We've also established a blog at www.marstonsmillsherringcount.blogspot.com for this year's herring counting project where you can get the latest updates about the herring run as it will be regularly updated.

If you'd like to help out with the counting this year, we're always looking for backup in case someone can't count as planned. It's only 10 minutes a count and it's fun! Or, we can get you all enrolled to help us out next year if you want, and you can practice with our new online counting procedure using Google Docs. See the info at www.marstonsmills.org or call me at 508-420-0075.

This is where the herring counting takes place. Are these two seagulls registered as counters with Kevin?

Kevin Galvin
Herring Counting Project Manager

DANFORTH PROPERTY NEWS

The subcommittee appointed two years ago by the Town Manager to provide guidance for the newly purchased Danforth Recreation Area in Marstons Mills met twice in the past 30 days after a lengthy hiatus. Since its last meeting in July 2006, Town staff and several Councilors consulted regularly to draft a document that would ultimately limit use of the most environmentally sensitive acreage to "passive recreation" and also reaffirm the opportunity to continue "active recreation" on acreage where that level of use has already been long established, including Cape Cod Airfield, the radio controlled airfield, and dog training areas. At both meetings, after lively discussion, support for a Resolve to put before Town Council that would accomplish this objective received unanimous support, including affirmative votes by IPA President Emory Anderson and Wheeler Road Association representative Bob Frazee. It is perceived that primary concerns to protect wildlife habitat, conserve soils where erosion could damage Mystic Lake, and other conservation values are adequately met in this document, although some attending the April 24 meeting expressed dismay that the Town seemed unwilling to pursue a formal Conservation Restriction. Council action on the Resolve, now known as Order No. 2007-115, by the Town Council is expected on May 24. The Subcommittee will hold its next meeting on July 16.

Robert Frazee

MIDDLE POND HERRING RUN

In the Fall 2006 issue of this newsletter, we reported that personnel from the Town's Natural Resources Division had rebuilt the first 140 ft of the Middle Pond herring run immediately below the concrete ladder. They replaced the experimental sections of FastDitch, a patented, plastic ditch-lining product installed during the summer of 2005 that proved to be unsatisfactory, with environmentally safe pressure-treated lumber. We also reported that additional funding was being sought to cover the cost of replacing the deteriorating wooden walls of the remaining 800-900 ft of the herring run.

Doug Kalweit of the Natural Resources Division recently reported that a $14,000 grant has been awarded to the Town by the Gulf of Maine Council on the Marine Environment for further improvements to the Middle Pond herring run. He has also reported that environmentally safe pressure-treated lumber can no longer be used on the herring run. Alternative materials, such as concrete half-culverts, are presently being considered.

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www.indianponds.org
ACCESS NEWSLETTERS IN COLOR

DO FISH MAKE NESTS FOR THEIR EGGS?

Yes, some species do build and tend nests just like birds, while others simply broadcast eggs and sperm either on the bottom or elsewhere in the water column and provide no parental care. In the Indian Ponds, several well-known species build nests which are visible from a boat, dock, or shore.

Three familiar species in our ponds are nest builders: pumpkinseed (*Lepomis gibbosus*), largemouth bass (*Micropterus salmoides*), and smallmouth bass (*Micropterus dolomieu*).

Pumpkinseed

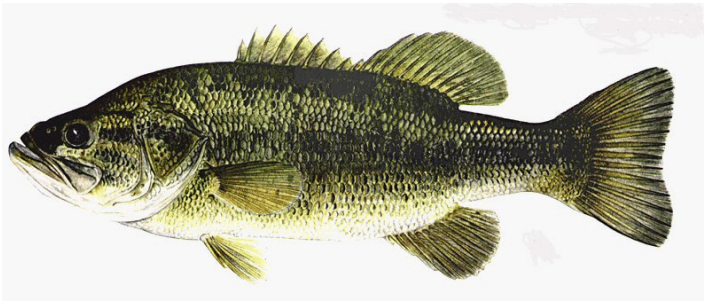
From early May until mid-August, males build nests 1-3 ft in diameter along the shore in depths of 1-7 ft of water on silt or gravel. As many as 3-15 nests may be built in loose colonies

*Pumpkinseed (*Lepomis gibbosus*)*

6-10 ft apart from each other. Males entice females to their nests and spawn with multiple females, who shed an average of about 2,000 eggs. After releasing their eggs, the females depart and leave the rearing to the males. Eggs hatch in about 3 days and the fry remain near the nest for about 10 days.

Largemouth bass

Spawning begins in late spring, with a peak in mid-June, and can last until August. Males build saucer-shaped nests 20-30 inches in diameter on sandy or gravel bottoms generally in less than 6 ft of water and usually no closer than 30 ft to other nests. Females lay about 4,000 eggs per lb of body weight. Males, which may spawn with multiple females, guard the

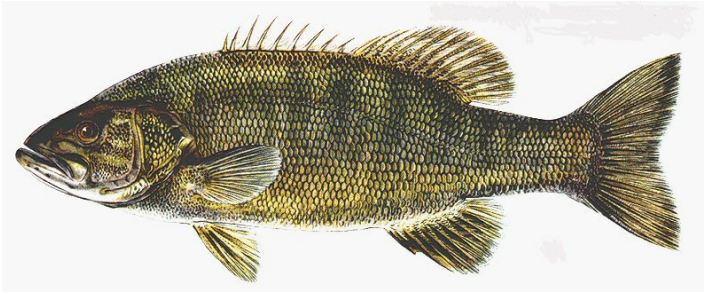


Largemouth bass (Micropterus salmoides)

nests and the newly hatched fry. Hatching occurs in 7-10 days, and fry depart the nest in schools a few days later.

Smallmouth bass

Nests are comparable in size and shape to those of largemouth bass, but may be as close as 10 ft to other smallmouth nests. Males entice females to their nests, and may also spawn with multiple females. Males may guard their nests for



Smallmouth bass (Micropterus dolomieu)

as long as 4-6 weeks. Eggs hatch in 4-10 days and leave the nest in schools 7-10 days later.

Can you tell them apart?

The smallmouth bass looks a lot like its cousin the largemouth bass. However, on the smallmouth, the back of the mouth goes only back to the middle of the eye. On the largemouth bass, the back of the mouth goes back much farther than the back of the eye.

PURPLE LOOSESTRIFE WATCH

In late July 2006, IPA volunteers mounted a major effort to pull the invasive plant, purple loosestrife, from along the shores of Hamblin Pond and Middle Pond (see 2006 Summer issue of this newsletter). This removal was made possible by a three-year permit issued in September 2005 by the Town Conservation Commission authorizing the removal of these plants by means of pulling or digging. The permit applies to all three Indian Ponds as well as Mill Pond.

No purple loosestrife plants were observed in 2006 in Mystic Lake or in Mill Pond (where they had been seen in 2005). In spite of the intensive pulling of loosestrife around Hamblin and Middle Ponds in 2006, it is most likely that some plants were missed or only partially removed and that new growth will be evident this summer. Periodic checks will be conducted early in the summer to determine if additional pulling of plants is warranted. If needed, this would be done again in late July or early August.

Individuals wishing to participate in this activity should contact IPA President Emory Anderson (tel: 508-420-2303, e-mail: info@indianponds.org).

IS ALUM TREATMENT SAFE?

For getting rid of algae in a large, deep pond, there is no doubt that alum works, and works well. You need look no farther than Hamblin Pond, once a soup of green slime, today clear and inviting, 12 years after an alum treatment. But is it safe to add large amounts of chemicals to a pond? What are the risks? What are the long-term effects?

First, we need to be clear about what alum is and how it is used in ponds. The purpose of treating a pond with alum is to clarify the water and lock up the phosphates in the bottom sediments of the pond so they can no longer be regenerated into the water to nourish the growth of algae. Alum is a chemical compound, aluminum sulfate. The word "chemical" has become associated in many people's minds exclusively with harmful substances. But a moment's thought disproves this generality: table salt is a chemical, sodium chloride, as is Vitamin C, ascorbic acid, as are many substances commonly viewed as beneficial or even necessary to life. A "chemical" may be either harmful or not harmful, depending on what it is and how it is used.

"Alum has been used as a water purification and wastewater treatment for centuries, and in lake restoration for decades."[1] It can be administered in either powder or liquid form, either spread over the surface of the water, or injected below the surface. **The alum combines with water to form "floc", a white precipitate (aluminum hydroxide, a common ingredient in antacids such as Maalox)**, which sinks to the bottom at the rate of about six feet per minute, carrying with it any suspended particles it encounters on the way down, including bacteria, suspended sediments, and floating algae particles. The treated water becomes clearer almost immediately. When the floc reaches the bottom, it binds with phosphorus-containing compounds in the top few centimeters of the sediments, thus keeping them from re-entering the water column. Once bound in this way, phosphorus cannot dissolve and fertilize the growth of algae. **Alum is not an algicide or a herbicide of any kind. It does not kill algae.** It simply removes it from the water column, and then denies it the nourishment it needs to re-grow.

Alum only treats phosphorus that is already in the pond sediments. It does not remove phosphorus entering the pond from runoff, lawn fertilizers, septic systems, or bird droppings, so if external sources are not controlled, the newly-clarified pond will eventually be full of algae again.

Floc accounts for the aluminum part of aluminum sulfate. But what about the sulfate part? The sulfate associates with the hydrogen in the water to form sulfuric acid, which lowers the pH of the pond water and, in sufficient concentrations, can kill fish and other pond life. Therefore, administration of alum requires vigilant monitoring of the water's acidity during the treatment process to avoid harming these organisms. Buffered alum compounds (such as sodium aluminate) are also used to reduce the acidifying effect.

IPA believes that a responsibly-managed alum treatment of Mystic Lake will take into consideration the following factors:

- Use of a liquid form of alum, so there will be no powder to blow around;
- Injection of the liquid alum below the surface of the water;
- Treatment of only the deepest parts of the pond where the bottom sediments are anoxic and there are few living organisms;
- Careful monitoring of acidity during treatment and cessation of treatment if the pH becomes too low; use of buffered alum;
- Application at a time of year when the fewest fish and native plants are present;
- Involvement of the Massachusetts Natural Heritage & Endangered Species Program to assure that the needs of all threatened or endangered plants, insects, and mussels are planned for;
- Water quality monitoring before, during, and after treatment.

Safety of People

Alum is used in immense quantities in water treatment plants throughout the United States, for both potable and wastewater clarification. Aluminum, the most abundant metal in the environment, occurs in such foods as teas and leafy green vegetables such as spinach, and is used for items like cookware and aluminum cans. A causal connection between alum-treated drinking water and Alzheimer's disease has not been confirmed. According to the National Institute of Environmental Health, "epidemiological studies attempting to link AD with exposures in drinking water have been inconclusive and contradictory".[2] In any case, people don't usually *drink* large quantities of pond water. The average residence time of water is Mystic Lake is only 13.3 months[3], so any dissolved aluminum residue would be expected to attenuate fairly rapidly.

According to the Pesticide Action Network (PAN), the database of pesticides and chemicals created by an international network focused on community and environmental health, **there have been no "weight-of-the-evidence" assessments as to alum's toxicity in humans**. It is not listed as hazardous by PAN, by the World Health Organization, or by the U.S. Environmental Protection Agency. Alum has been in common use for such a long time that if it were hazardous, it seems as though we would know it.

Safety of Pond Life

According to PAN, the only known ecotoxicity for alum is that it kills molluscs. This is a serious concern, as the three species of mussels found in Mystic Lake are already listed as "threatened". IPA expects that Natural Heritage will perform, or require, a survey of the pond to identify areas where living

mussels and other rare organisms are found, and issue an order of conditions that prohibits the use of alum within these specified areas.

Alum introduced to the deepest areas of a pond falls through the water column to a layer of water just above the bottom that contains little or no dissolved oxygen. No organism that requires oxygen can live there. If the alum is confined to the parts of the pond where there is the least amount of dissolved oxygen and thus the fewest (if any) live organisms, it should do minimal damage.

SMEDLEY **by Gordon Nelson**

Long-Term Effects

Perhaps the most relevant study of the long-term effects of alum treatment is the one done on Lake Morey in Fairlee, VT, 20 years after alum treatment in 1986. Lake Morey's pre-treatment description somewhat resembles that of Mystic Lake: low phosphorus inputs from the watershed and from septic systems, but high internal phosphorus regeneration, with resulting algae blooms, and low dissolved oxygen. Treatment was done over deep sediments only, using buffered liquid alum. The two adverse effects on organisms noted 20 years later were 1) a temporary reduction in the density of bottom-dwelling invertebrates followed by an increase not only in density, but also in species diversity, and 2) a temporary reduction in the weight of yellow perch (possibly due to a decrease in their food sources). Scientists also noted an initial elevation of dissolved aluminum levels, but this attenuated over time. In all other respects, the general condition of Lake Morey 20 years after treatment was greatly improved.

Alum is not an insoluble chemical that gets into the food chain like dioxin, PCBs, or similar synthetic organics that are causing environmental damage. Nor is aluminum a toxic heavy metal like mercury or cadmium.

The aluminum phosphate compounds that are formed in the sediments remain stable. Over the course of many decades, they eventually become covered by particles of decaying matter that fall into the lake or die in the lake in a long-term natural process that will eventually produce nutritional forms of phosphorus, thus starting the growth of algae again. In this long-term natural evolution, all ponds, if left alone, slowly become swamps, then meadows, and finally forests. What an alum treatment does is to prevent that process from happening prematurely as a result of human activity.

The Risk of Doing Nothing

Finally, the risk of treating Mystic Lake with alum must be weighed against the risk of doing nothing. **If the current eutrophication process is allowed to continue, oxygen levels will keep dropping and the pond will become increasingly inhospitable to living things.** If blooms of toxic blue-green algae were to develop, the pond could actually become dangerous to people and animals.

IPA's Role

The IPA is deeply concerned with safety of both people and the many plants and animals that inhabit our beautiful ponds. We will work closely with all parties involved in the proposed alum treatment to insure that anything that is done to Mystic Lake is done with the health of people, the pond, and the environment constantly in mind.

We'd Like to Hear From You

If you have concerns, questions, or comments, please do not hesitate to contact the author of this article at (508) 428-0235 or hhobart@comcast.net or c/o IPA Newsletter, P. O. Box 383, Marstons Mills, MA, 02648.

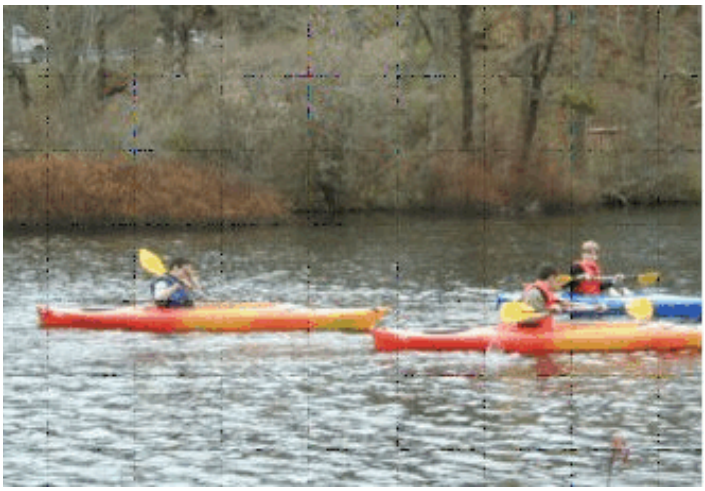
Holly Hobart

[1] *http://www.minneapolisparks.org, Minneapolis Park & Recreation Board – Alum Treatments.*
[2] *http://www.niehs.nih.gov/external/faq/aluminum.htm.*
[3] *Eichner, Ed, et al., "First Order Assessment of the Indian Ponds, Final Report", Cape Cod Commission, March 2006.*

RIVER DAY 2007

Sunday, May 20 is the date this year for the 11th annual River Day, an event packed with family fun and varied programs geared towards education and awareness of the issues confronting the Marstons Mills Watershed.

We'll have updates about the plans for treating Mystic Lake with alum and the project to rehabilitate Mill Pond, which will also reduce the nitrogen levels entering the Three Bays estuary. There'll be information about the plight of the river herring stocks and an update on this year's Herring Counting Project conducted here on the Marstons Mills River.



Don't miss the kayaking on Mill Pond, which is always a big draw. It's suggested that you don't delay trying this for too many years, as the pond is filling with mud…

We have lots of prizes for the Fishing Derby (ages 16 and younger), so be sure to register between 9:30 and 10:30 at the Marstons Mills Chiropractic in the Village center.

The Recycling Puppet Show, which is presented by AmeriCorps-Cape Cod and is a favorite with the kids, has a brand new production this year – so don't miss it!

And the crew from the Liberty Hall Club has been spotted behind Liberty Hall all spring practicing their hamburger flipping – they have promised shorter lines at lunch this year.

Plus much, much more, so be sure to join the fun!

River Day is held at the William Marston House, beside Mill Pond, at the junction of Routes 149 and 28, Sunday May 20, 10:00 am to 3:00 pm, rain or shine.

Visit [http://www.marstonsmills.org/rdc2007program.htm] to see the entire program.

Kevin Galvin
River Day Committee

SAFE FERTILIZERS

Fertilizers contain nitrogen and phosphorus which can run off into ponds and streams. If you must fertilize, compare the alternatives below taken mainly from http://www.greencape.org/FertilizerTable%20and%20GCdoc.pdf.

FERTILIZER NAME	SOURCE	% NITROGEN	% PHOSPHORUS	WATER SOLUBLE N OR P*	OTHER INGREDIENTS, COMMENTS
Grass clippings	Biological	4	1	Medium	Reduces need for fertilizer by 50%
Finished compost (varies with ingredients	Biological	0.4 – 3.5	0.3 – 3.5	Medium	Improves soil quality, drainage, water-holding capacity
Horse manure, composted	Biological	0.7	0.5	Medium	Soil conditioner
Cow manure, composted	Biological	0.5	0.2	Medium	Same as above
Coast of Maine fermented salmon	Biological	1.4	0.2	Low	Micronutrients, vitamins
Cockadoodle DOO Super-Premium Organic Fertilizer	Biological	4	1	Low	Same as above
Cockadoodle DOO Super-PremiumOrganic Weed Control	Biological	10	1	Low	Corn gluten provides organic grub, weed control
Organica Lawn Booster	Biological	8	1	Low	Organic grub, weed control
Milorganite	Sewage sludge	6	2	Low	May contain heavy metals and other unknown toxins
Agway's 4 Stage Lawn Program	Chemical	22 – 27	3 – 4	High	Chemical pesticides: Benefin, Trifluralin, 2,4-D, Mecoprop, Diazinon, Chlorine
Scott's Turf Builder/Plus 2 Weed Control	Chemical	28	3	High	2,4-D, Mecoprop (pesticides)
Scott's Miracle Gro	Chemical	31	3	High	No pesticides
Greenview Green Power	Chemical	30	4	High	Chlorine
Scott's Super Turf Builder, 4-stage	Chemical	30	3	High	Pendimethalin, Chlorine, 2,4-D, Mecoprop, Dicamba, Diazinon (pesticides)

* Low = <1-8%, Medium = >8-15%, High = >15%. The more water soluble N or P in the fertilizer, the more of it runs off into surface and groundwater.