

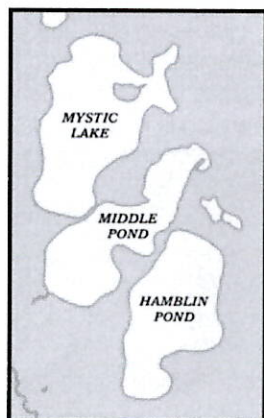
THE IPA NEWSLETTER

Mystic Lake, Middle Pond, and Hamblin Pond in Marstons Mills, MA

Summer 2014

A quarterly publication of the Indian Ponds Association

Vol. 14 No. 3



TROUBLE IN HAMBLIN POND

For the past nineteen years, since its alum treatment in 1995, Hamblin Pond has been a sustaining habitat for trout as well as native fish, and a particularly clear and inviting place for swimming. Last September, a pond-wide algae bloom in Hamblin was photographed from the air, creating concern that the effects of the alum might have begun to fade. This summer a massive bloom of cyanobacterial algae began in early July and has persisted to the end of August. The popular Hamblin Pond Town Beach has been closed for weeks, and continues to be closed as this Newsletter goes to press. Hamblin Pond is clearly experiencing a crisis.

A brief review of this pond's history is in order, for those who may not know it. Originally, Hamblin was connected to the sea via Tracy's Brook, an important route for migratory herring. Tracy's Brook was filled in when the Barnstable town landfill was created, and the pond no longer has either an outlet to the sea nor a surface connection to its two neighboring ponds. The Clear Lake Duck Farm was established in 1930 on 120 acres on the south shore of Hamblin Pond. During its years of peak production, it grew 125,000 ducks per year. It closed in 1956, leaving the pond heavily polluted with duck manure and its waters green with algae. The 1995 alum treatment produced a transformation in water quality, and for many years, Hamblin had the best water quality of the three Indian Ponds. Fishing recovered, and the pond was stocked with trout, which require clear, well-oxygenated water. It became a favorite pond for swimmers and fishermen.

The 1995 alum treatment raised many concerns at the time. Fish were killed. The quantities of chemicals used were not well-controlled, nor was the amount of buffering. However, the ruination caused by the duck farm was overcome, and the pond was, if not restored to a pristine habitat, at least cleaned up.

(Continued on page 6)

IN THIS ISSUE

--HAMBLIN POND
ALGAE BLOOM
--IPA ANNUAL MEETING
--CAPE WASTEWATER
PLAN
--DEAD MUSSELS IN
MYSTIC AND MIDDLE
--HYDRILLA REPORT
--AN ACT PROTECTING
LAKES AND PONDS

AND MUCH MORE ...

56th IPA ANNUAL MEETING

On July 13, 2014 the members and officers of the IPA gathered on the lawn of Jon and Debbie Halpert's and Janis and Michael Maloney's house overlooking Mystic Lake on one side and Middle Pond on the other. Again we were blessed with a lovely day as about 70 members heard a brief business meeting, an informative presentation about aquatic plants and pond management by Tom Flannery from the Mass DCR (see following article), and then mingled under the trees enjoying wine and delicious food.

After a brief introduction and thanks to those who contributed to the meeting, President Alex Frazee requested a motion approving the minutes of the 2013 Annual Meeting. She then called for a Treasurer's report, which, in the absence of Treasurer Greg Cronin, was presented by Holly Hobart. Holly referred to the annual financial statement,

(Continued on page 3)



President Alex Frazee opens the Annual Meeting.

56th ANNUAL MEETING *(Continued from page 1)*

which was printed on the back of the agenda, thanked everyone who donated time and money to support the IPA's mission, and cited three members in particular for their especially generous contributions: Jane and Don Smith, Carl Thut, and the Allan Williams family. The IPA is solvent and, with the help of the Town, State, and amazing volunteers, will be able to protect the ponds again this year.



Jack Riley receives his Schwarm Scholarship award from Roberta Gough.

Alex presented the slate of nominees for the Board of Directors after first acknowledging our departing Vice President Bob Nichols who recently moved to New Hampshire after making an outstanding contribution of time and knowledge to IPA. Nominated for first-term Director was Aaron Fishman. Second term nominees were Greg Cronin, Chris

Bizinkauskas, and Roberta Gough, and Emily Wheeler was nominated for a third term. Joining the Board as Associate Directors are Barry Schwartz, Maggie Fearn, and Dean and Kathy Bryan.

Roberta Gough presented a \$1,000 Schwarm Scholarship to Barnstable High School senior Jack Riley as he heads off to college, and the audience enjoyed an enthusiastic and insightful presentation by our guest speaker, Tom Flannery. Immediately following the approval of a motion to adjourn, the newly-elected Board of Directors gathered briefly to elect officers for the coming year. Elected for a second term as President is Alex Frazee. Holly Hobart is Vice President, Greg Cronin continues as Treasurer and Emily Wheeler continues as Clerk.

A congenial gathering under the trees with refreshments wrapped up another pleasant and informative Annual Meeting.

--Alex Frazee

TOM FLANNERY TALKS ABOUT STATE'S ROLE IN LAKE AND POND MANAGEMENT

Guest speaker at this summer's IPA annual meeting was Tom Flannery, Aquatic Ecologist with the Massachusetts Department of Conservation and Recreation's Lakes and Ponds Program. He described the work his program does and what he had observed in visiting the Indian Ponds. The Friday prior to the annual meeting, Tom held a well-attended class in identifying aquatic plants, both native and non-native, with many samples of actual plants. He also paddled all three of the Indian Ponds and mentioned how impressed he had been with the improvement in the water quality of Mystic Lake since his previous visit.

Introducing himself and his work, Tom said that, while the Lakes and Ponds program deals with all 3,000 lakes and ponds in Massachusetts, its funding covers actual work only on those located in state-owned areas such as state parks. It does, however, exercise a regulatory and advisory role over all inland water resources in the state.



Tom Flannery and Dr. Gail Maguire at aquatic plant identification class.

(Continued on page 7)

HAVE YOU LOST A BOAT?

A small boat in good condition washed ashore on Middle Pond and has been unclaimed all summer. If you are missing a boat, please call (508) 428-0235 and identify it.

IPA OFFICERS AND DIRECTORS, 2014**President**

Alex Frazee

Vice President

Holly Hobart

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Clerk

Emily Wheeler

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Christine Bizinkauskas

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Scan the above QR code with your smartphone to go to the IPA website.

The IPA is a 501(c)(3) organization and a registered public charity. All dues and contributions are tax deductible. This newsletter, with a circulation of 700, is a forum for the exchange of ideas on matters concerning the IPA mission, and the views expressed by authors of articles do not necessarily represent official IPA policy.

NEW CAPE COD WASTEWATER PLAN READY FOR REVIEW - LOWER COST, MORE OPTIONS

During the past year, the Cape Cod Commission, working with stakeholders all over the Cape, including representatives of the Indian Ponds Association, plus scientists, financial planners, and state and local government personnel, has been developing an update to the 1978 Wastewater Plan for Cape Cod. This plan specifically addresses the degradation of the Cape's salt water estuaries by nitrogen in groundwater. The new plan is now completed (on time, under budget) and is ready for public review and comment.

The 1978 plan was never implemented because it recommended the construction of central waste treatment systems ("sewering") to replace the Cape's existing on-site septic systems, a solution that was too costly in a spread out, non-urban setting and in times when public money is not readily available. The new plan has a number of novel aspects, not the least of which is its projected cost, a savings of 50% or more from the previous plan. The Cape has 57 separate watersheds, most of which overlap two or more town boundaries and each of which has different characteristics, degrees of degradation, and potential solutions. The new plan recognizes this, as well as recognizing that many new technologies have come along that offer more varied and tailored approaches, possibilities for phased implementation, and lower cost.

The new plan, "Draft Cape Cod Area Wide Water Quality Management Plan, August 2014" is available for you to download from the Cape Cod Commission website, www.capecodcommission.org and at www.cch2o.org. The 21-page Executive Summary is a good overview of the key points, and definitely the best place to start reading. For more information, you can dig into 2,000 pages of well-organized detail, including the plan for our own local estuary, the Three Bays Watershed. Many well-designed charts, graphs, and graphics illustrate and explain what would otherwise be an overwhelming amount of information. You are encouraged to leave questions and comments on the website.

Four explanatory and public comment sessions are scheduled to be held in September and October in various parts of the Cape. The Mid-Cape session, which covers the Three Bays and Centerville River watersheds, will meet on Tuesday, October 7 in the Innovation Room at Cape Cod Commission headquarters in Barnstable Village. (The Innovation Room is not in the Commission's office building, but is located up the hill near the cell-phone towers.) An explanatory session will run from 2:00-4:00 p.m., followed by a public comment session that lasts until 6:00 p.m.

We urge you to acquaint yourself with the contents of this new plan and to attend the public meeting on October 7. Wastewater is a critical issue for Cape Cod, and it directly affects every one of us.

--Holly Hobart

GOOD NEWS ABOUT LOVELL'S POND

Lovell's Pond on Santuit-Newtown Road has been generating algae blooms since the 1990s. Aeration devices were installed several years ago, but, while they oxygenated the water well, they did not eliminate the phosphorus that was the cause of the problem. In 2013, the pond was treated with alum and has shown a rapid and well-documented recovery. It was one of the most popular local swimming holes this summer.

MUSSEL KILL, SMALL BLOOMS SEEN IN MYSTIC LAKE AND MIDDLE POND IN LATE SUMMER

Until August, Mystic Lake and Middle Pond appeared clear and continuing to improve since Mystic's 2010 alum treatment. On August 8 and 9, Betsey Godley reporting seeing several dead or dying mussels while kayaking and about two dozen that had washed up on her downwind beach. Within a couple of days, a few more dead mussels were reported along the east shore of Mystic by a Wheeler Road resident. People snorkeling for Hydrilla along the same shore also reported swimming into cloudy patches of water with greatly reduced visibility. A few dead mussels were also found in Middle Pond.

Alex Frazee, IPA President, after surveying the area by boat and finding dead mussels floating, invited Dr. Peter Hazelton of the Massachusetts Natural Heritage and Endangered Species Program (NHESP) of the Department of Conservation and Recreation, an Aquatic Ecologist and mussel specialist, to come and have a look at the situation. On August 26, Dr. Hazelton spent several hours touring Mystic and Middle Ponds on the IPA boat with Alex, Holly, and Rob Gatewood of the Town Conservation Department and afterwards surveyed Hamblin Pond by kayak. He collected a number of shells, one live mussel, and about a dozen mussels that had been collected dead and floating or washed up on beaches and frozen for preservation.

On September 2, Secchi depths were measured at five places in Mystic Lake, two where areas of cloudiness had been previously observed, and three in open water. All five were in the range of 3.0m, plus or minus 3cm, indicating that whatever had caused the turbidity may have dissipated.



Barnstable Conservation Director Rob Gatewood (left) and Dr. Peter Hazelton of NHESP examine mussel shells at the south end of Middle Pond.

--Holly Hobart

CONTROLLING *HYDRILLA* 2014

In its 2014 budget, the Town of Barnstable allocated \$75,000 for invasive aquatic plant management. The contract was awarded to Aquatic Control Technology (ACT) of Sutton MA. While the contract includes work in Lake Wequaquet, most of it will be done in Mystic Lake and Middle Pond.

After completing early summer survey work, ACT technicians applied the contact herbicide Aquathol K (Endothall) on July 8th and 9th to the most heavily infested section of Mystic, the cove along Regency Drive. In the *Hydrilla* map that is viewable on the IPA website, www.indianponds.org, this is designated as Area A. The herbicide was applied through subsurface injection using weighted hoses. A total dose of 3.0 ppm. was applied in two applications, spaced 12 hours apart. This treatment appeared to have been significantly more effective than the one done in 2013--within 2 weeks there was virtually no viable *Hydrilla* in the targeted area, although native plants such as *Elodea* appeared to be thriving.

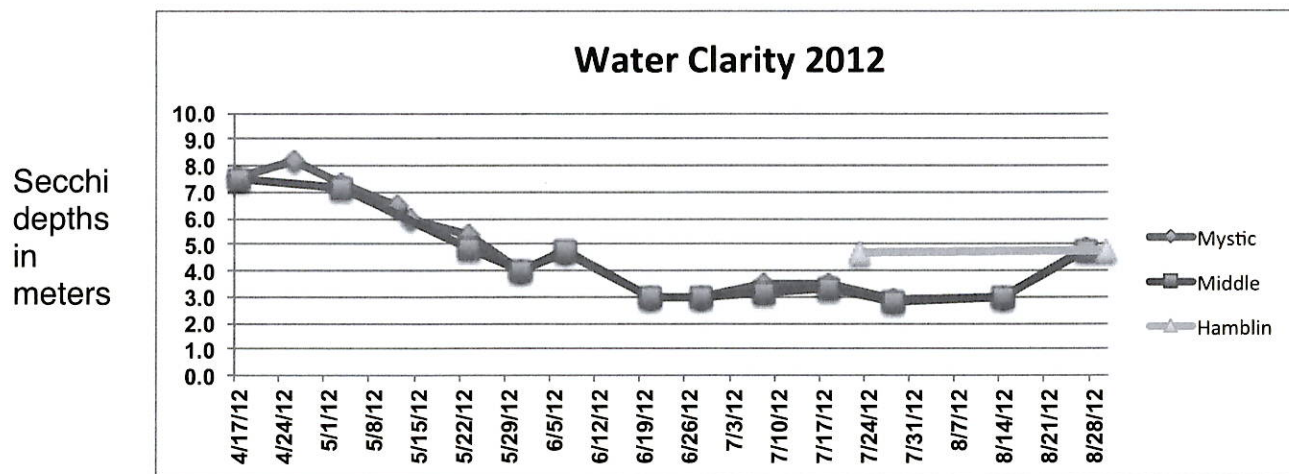
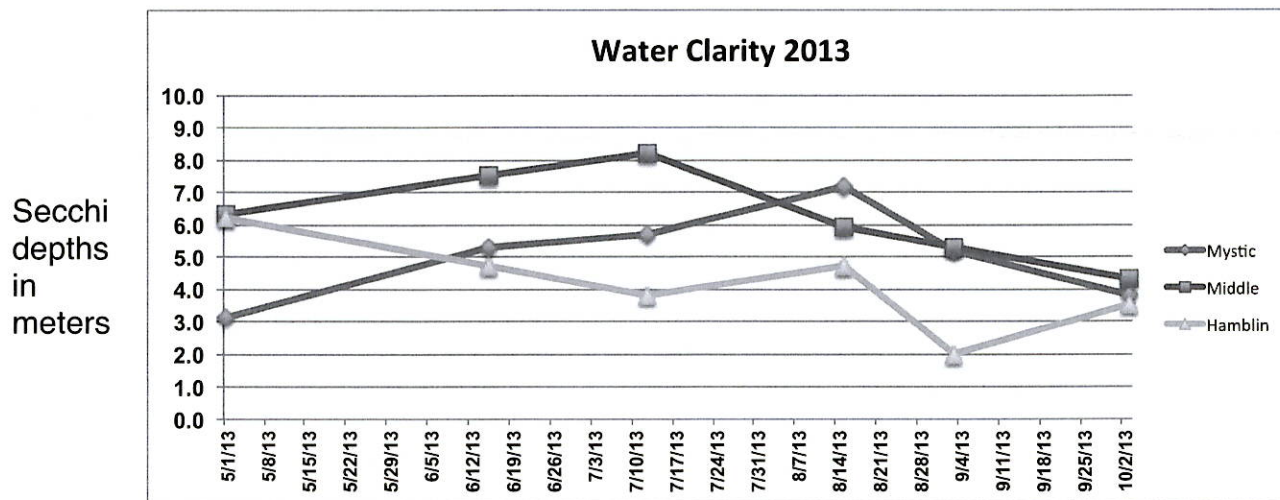
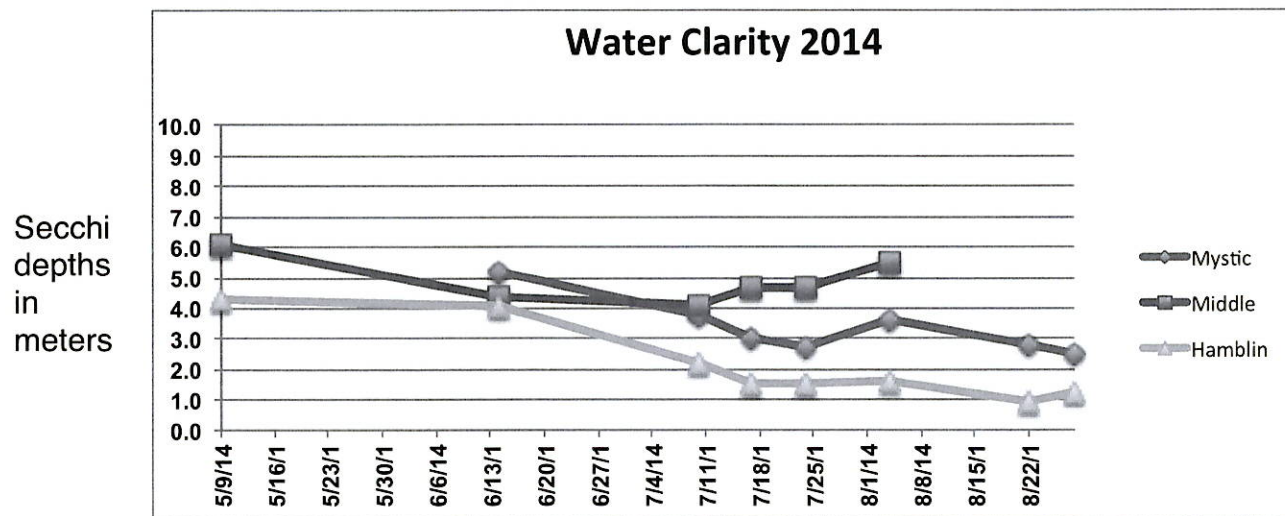
IPA volunteers have conducted snorkeling surveys in some of the other known problem areas of Mystic, with varying results. Scattered plants have been found in most of the previously infested areas, with the most extensive growth in a small section on the eastern side of the lake (Area B). A couple of dense patches have been found in the southern end of the lake (Areas C and D), but generally the new growth in that part of the lake was considerably less than in the previous two summers. While we've done some hand pulling and re-positioned several benthic barriers, an unknown number of plants still remain dispersed along the shores of Mystic Lake and there are areas that have not been thoroughly surveyed for possible infestation.

Additionally, late summer surveys revealed at least five new patches in Middle Pond, adjacent to and just north of the "cut" where it connects to Mystic Lake. So it was encouraging when ACT's senior biologist reported that they plan to spend up to 12 days conducting a Diver Assisted Suction Harvesting (DASH) effort in early September, which will include dealing with the new patches in Middle Pond. The ACT crew is performing this work as this Newsletter goes to print. Many thanks to the Town for funding this important effort to protect our ponds.

The IPA Hydrilla Crew needs volunteers who enjoy snorkeling and are willing to survey areas of both ponds for signs of new growth. *Hydrilla* grows close to the shore and can generally be spotted in water 6' deep or less. It's a task perfectly suited for anybody who snorkels and likes to swim in the ponds. Please contact me at (774) 238-8441 if you are interested in helping out.

--Greg Cronin

MEASUREMENTS OF WATER CLARITY INDIAN PONDS, 2012-2014



TROUBLE IN HAMBLIN POND

(Continued from page 1)

The cyanobacterial bloom in Hamblin this summer has been well-documented. The Town of Barnstable Health Department's Karen Malkus has vigilantly monitored the town beach and closed the pond to swimming when visibility decreased to less than four feet. Dr. Ken Wagner, a professional pond consultant who has worked closely with the Town and the IPA for many years, sampled the bloom and identified it as *Anabaena*, a common producer of blooms and toxins. This identification was confirmed by Dr. George Zoto of the Massachusetts Department of Environmental Protection (DEP), who measured concentrations of 83,000 cells/ml in late August.

What causes cyanobacterial blooms? Those who followed events in Mystic Lake during the years 2009-2010 know the answer. The culprit is phosphorus, which is a limiting nutrient in freshwater environments, meaning that it is usually in sufficiently short supply to keep algae growth from exploding. However, when the supply of phosphorus increases, the pond becomes "eutrophic", supporting profuse growths of algae.

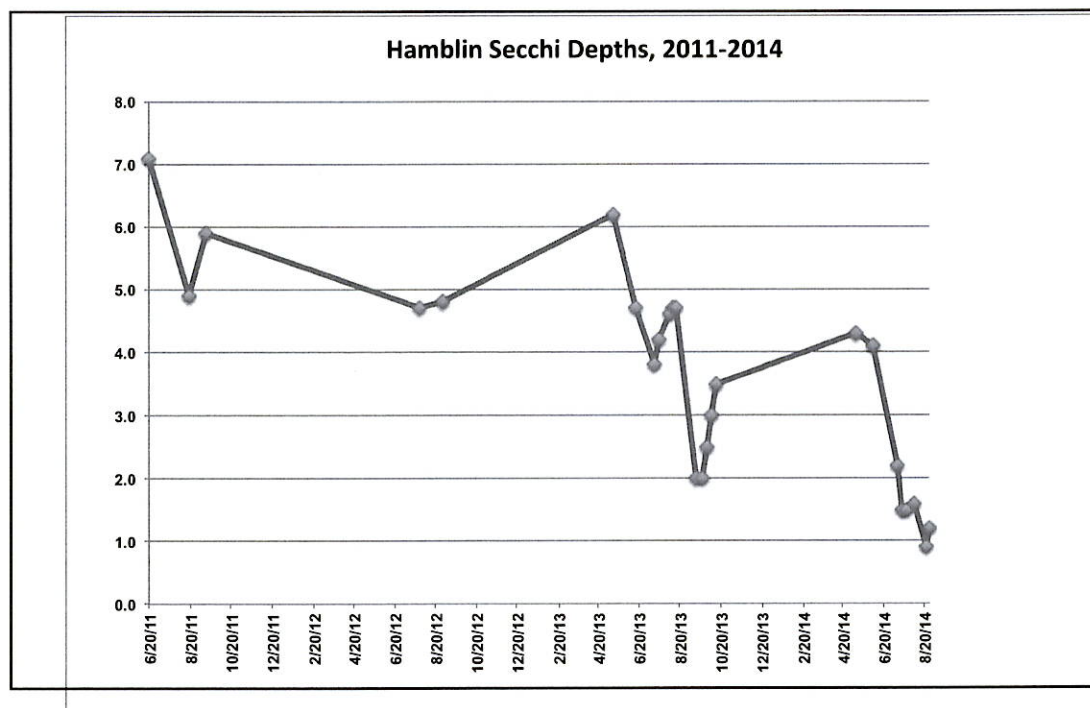
Where does the phosphorus come from? The phosphorus causing the blooms in Hamblin is *internal*. It is regenerated from the sediments, which contain phosphorus from all the living things that died or deposited waste in the pond since the end of the last ice age, and more particularly since the last alum treatment. During conditions of low oxygenation during the

summer, some of this accumulated phosphorus is released from the deep sediments into the water column, where it fertilizes algae. Treatment with alum inactivates the sedimentary phosphorus by chemically binding it into a sand-like compound, sealing the accumulated sediments and phosphorus from the water column. *External* sources of phosphorus include runoff from roads, lawns, and gardens around the pond, and from waterfowl. The way to treat these problems is to stop the runoff and discourage the waterfowl. *Internally*-regenerated phosphorus is, percentage-wise, the greater problem in Hamblin at this point.

In July, Kevin Flaherty and Tamar Haspel generously provided their boat and their time to conduct a preliminary benthic survey of Hamblin Pond that produced a map of more than 500 GPS-located depth soundings, the most complete depth mapping ever done of this pond. This map will be helpful in locating areas of sediment that may contain particularly heavy concentrations of phosphorus. You can see the new benthic map of Hamblin Pond on the IPA website, www.indianponds.org.

Meanwhile, Bob Derderian has again done water quality testing all summer and has taken water samples for the annual Cape-wide Pond And Lake Sample (PALS) program. The chart accompanying this article displays some of the results that have been observed in Hamblin Pond. Secchi disk readings, as shown in this chart, are measurements of water transparency which is generally a good indicator of water quality.

--Holly Hobart



Secchi disk depths in meters measured in Hamblin Pond, June 2011 through August, 2014.

AN ACT PROTECTING PONDS AND LAKES FROM AQUATIC NUISANCES

Enacted by the Massachusetts State Legislature in January, 2013, this law amends Chapter 21 of the General Laws to make it illegal for anybody to "knowingly or intentionally place, or cause to be placed, an aquatic nuisance", including animals or plants, "in or upon inland waters". *Specifically included* is introducing a boat or trailer, *whether intentionally or not*, that "has growing thereon or attached thereto an aquatic nuisance", into a water body, unless it has been "cleaned, decontaminated, or treated to kill or remove" such plant or animal. Fines range from \$25 up to \$5,000 and jail time for each instance of placing such a nuisance into the water. "Aquatic nuisance" is defined as "undesirable or excessive substances or populations that interfere with the recreational or ecological potential of a body of water or interfere with the natural resources thereof [...]".

The MA Department of Conservation and Recreation is empowered to "establish and maintain an aquatic nuisance control program", which "shall receive and respond to aquatic nuisance complaints, work with municipalities, local interest organizations and agencies to develop long-range programs regarding aquatic nuisance controls, work with federal, state and local governments to obtain funding", and administer grants, establish quarantines and "suppress, control, or otherwise mitigate or reduce the risk of the spread of aquatic nuisances." To read the full text, Google the title of this article.

--Holly Hobart

TOM FLANNERY SPEAKS ABOUT STATE'S ROLE IN LAKE AND POND MANAGEMENT

(Continued from page 3)

Tom said that humans have been influencing ponds and lakes through agriculture and also through ignorance and a lack of regulations in the past. The worst problem he sees today is phosphorus, which can cause algae blooms. The second-worst problem is invasive plants. Many in the audience nodded agreement, having dealt with both issues in the Indian Ponds.

On the subject of phosphorus, he mentioned that there are two kinds of phosphorus loading, internal and external. He said that external loading has largely been brought under control through the recent bans on phosphorus in laundry detergents and lawn fertilizers, as well as better control of runoff from pavement. He said that one Canada goose creates as much phosphorus in a day as 40 fertilized lawns do in a year, and that the worst thing we could do to our ponds in terms of external loading is to feed waterfowl. Not only do they deposit phosphorus, they also create bacterial contamination. Additionally, bread, which people tend to feed to waterfowl, is a harmful food for ducks and geese, causing malnutrition and birth defects. Aside from waterfowl contamination, in most ponds these days the phosphorus causing problems is regenerated internally from the sediments.

Cyanobacterial blooms can produce toxins harmful to humans and pets. He said that Cliff Pond, in Brewster, had several dog deaths last year from cyanobacterial toxins, mainly microcystins, that the dogs had ingested by drinking the pond water during a bloom. He added that a good indication of a developing bloom is observing a drop of 50% in Secchi disk readings of water clarity.

Tom also spoke of *Hydrilla*, warning that, if left alone to spread, it can quickly cover an entire lake, and he congratulated the IPA for taking timely and energetic actions to control it. He mentioned that recently-passed state legislation, An Act Protecting Lakes and Ponds (see previous article on this page), which makes it illegal to introduce foreign plants or animals into any freshwater resource, is now official, and that his office has just finished training all Natural Resource officers in the state. He said that he had seen no *Hydrilla* in his visit to Mystic Lake, probably because growth was slow this year owing to low temperatures in the early summer.

Tom's presentation was lively and full of interesting details. His enthusiasm for his work and deep interest in his subject were evident. He praised our work, offered us his services as an advisor on any pond problems we experience, and was happy to answer questions. He brought stacks of free literature on identification of aquatic plants and other pond subjects, as well as a number of actual plant samples.

--Holly Hobart

DON'T FEED THE DUCKS AND GEESE!

It's fun to feed waterfowl, but it's bad for three reasons--it's bad for the birds, it's bad for you, and it's bad for the ponds. Ducks and geese are harmed by eating bread and people-food; but any food source attracts them. They pollute ponds with phosphorus, nitrogen, and bacteria. The bacterial contamination is dangerous for swimmers and a frequent cause of beach closings on our ponds. Phosphorus fertilizes the growth of algae, including cyanobacteria, which may also be harmful to animals and people. Nitrogen travels quickly in groundwater and destroys salt water estuarine habitats.

Photo Credits: Cover: "Kayaker Paddling Through the Cut", Betsey Godley; Page 1, Michael Maloney; Page 3, scholarship photo, Michael Maloney; Page 3, lab photo, H. Hobart; Page 4, H Hobart; Graphs, H. Hobart.

" To preserve and protect the natural environment and ecological systems of the Indian Ponds and surrounding parcels of land and watershed and to participate in studies and work with other agencies, individuals, and groups to educate the public, serve the community, and promote and preserve the Indian Ponds and surrounding areas."

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FORWARDING SERVICE REQUESTED

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