

THE IPA NEWSLETTER

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

Summer 2012

A quarterly publication of the Indian Ponds Association, Inc.

Vol. 12 No. 3



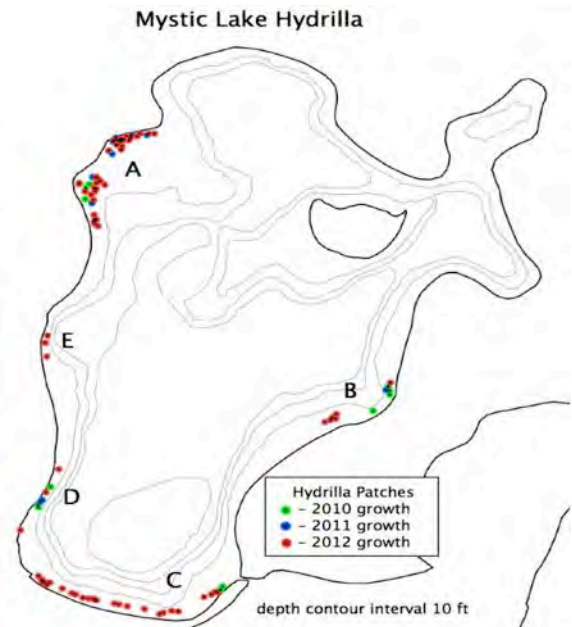
INVASIVE *HYDRILLA* CONTINUES TO SPREAD IN MYSTIC LAKE

We continue to find new patches of *Hydrilla* in Mystic Lake during our third summer of battling this invasive aquatic weed. *Hydrilla* has now been found in five areas of the lake as indicated on the map. At this point our efforts have been successful only in preventing the development of very large patches and somewhat slowing the spread of *Hydrilla*. **We are not making headway in eradicating it from the lake.**

Last summer the greatest spread of *Hydrilla* was the expansion northward in Area A, located along the northwest shoreline. Only minimal expansion was observed in Areas B and D and no expansion found in Area C. The Town of Barnstable funded four days of hand pulling by two SCUBA divers last year, with most of this effort directed at Area A and one deep patch in Area B. IPA volunteers also performed hand pulling in all four areas last year.

This year many additional *Hydrilla* patches sprouted in Area A, but with only slight overall expansion of the area involved. In early July IPA volunteers also installed two new benthic barriers over patches in this area to kill the plants by depriving them of sunlight. By the end of July, numerous patches had developed in this area. The Town of Barnstable funded 7 days of DASH (Diver Assisted Suction Harvesting, see article, page 5) work to remove *Hydrilla* patches from this area in late July and early August.

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To see this map in color, download the Newsletter from the website, www.indianponds.org.

IPA 2012 ANNUAL MEETING HIGHLIGHTS

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The fifty-fourth IPA annual meeting was held on Sunday, July 15, at the summer home of Jon and Debby Halpert overlooking Mystic Lake and Middle Pond. Although thunderstorms threatened earlier in the day, the sun broke through and let us hold the meeting at 4:00 out on the lawn under tall shade trees, the pleasantest of places. President Holly Hobart conducted a business meeting which included approving the minutes of last year's Annual Meeting, accepting the Financial Report presented by Treasurer Carl Thut, electing three new Directors to the Board of Directors, presenting the Edward Schwarm Scholarship awards, and giving a brief President's Report on the condition of the ponds.

The first order of business, as always, was thanking the many people who had contributed items or worked on this Annual Meeting. Hobart then introduced the IPA Board and Officers and described special responsibilities that individual Directors have taken on, such as Chief Scientist Bob Nichols, Data Base Manager Betsey Godley, and Webmaster Tamar Haspel. She also introduced Gail Maguire, President for many years of the Wequaquet Lake Protective Association, and mentioned the continuing contributions of IPA President Emeritus Emory Anderson. Lastly, Hobart saluted the members of the IPA, who have generously contributed money and maintained their annual memberships, and especially all those who have taken the time to share with her their concerns, compliments, complaints, advice, and questions

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IPA OFFICERS AND DIRECTORS: 2011-2012

Officers

Alex Frazee
President

Robert Nichols
Vice President

Emily Wheeler
Clerk

Greg Cronin
Treasurer

Directors

Chris Bizinkauskas
Robert Derderian
Betsey Godley
Roberta Gough
Tamar Haspel
Gay Rhue
Lewis Solomon

Database Manager
Betsey Godley

Newsletter Editor
Holly Hobart

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Webmaster
Tamar Haspel

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 over 650, 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.

ALEX FRAZEE, NEW PRESIDENT OF THE IPA

Alex is a parent of two grown Barnstable natives, a retired teacher who founded St. Peter's Nursery School in Osterville, and a certified Master Gardener who works with the Children's Community Garden program at the Long Pond Conservation Area here in Marstons Mills. She and her husband Bob are among the founding members of Barnstable Land Trust, and in recent years Alex has served as a Director, Clerk and President of BLT. In her own words,



"I grew up on a family farm near Reading PA, the youngest of five children, with very large organic gardens and an amazing variety of animals. My mother, Tasmanian born and raised, kept sheep throughout her life, and recycled practically everything literally decades before the word "recycle" had even been invented. My parents were both committed land stewards, setting an example of resource conservation that has shaped my whole life. My family began summering in Hyannis Port in 1950, and I have lived in Barnstable since 1975. While not a native myself, I do have deep roots here!

"A graduate of Wheelock College, I taught Nursery School both in the Boston area, and here on Cape Cod as well as being a shopkeeper, innkeeper and parent. Involvement with Rivers 2000 with BLT led to water testing of the Indian Ponds as soon as I, my husband Bob, and children Erin & John moved to Wheeler Road in 1995.

"This is a very exciting time to be involved with the IPA because Emory, Holly and their active boards have taken the organization to new heights of involvement. As recent newsletters have outlined, the ponds need our vigilant care more than ever. I hope to continue efforts to eradicate invasive species from the shores and the water. With your help we can reduce the Gray Willow, Purple Loosestrife, and especially the *Hydrilla* that threaten the ponds' ecosystems. Supporting the remaining mussel population is of critical concern. Fortunately the recently completed alum treatment in Mystic Lake seems to have made a substantial improvement in water quality—hugely important to the mussels, the rest of the ponds' flora and fauna, and also to all of us who use these precious, fragile resources. Monitoring all aspects of the health of the ponds is a substantial task requiring an active team of volunteers and constant funding.

"Teamwork is likely to be the theme of my time as President. The Town of Barnstable and the State have both responded to the dire situation of the mussel die-offs of years past, and to the ongoing *Hydrilla* problem, supplying both expertise and either manpower or money to pay for the supplies and people needed to do the work. While they have been extremely helpful, you, the members of IPA, have also responded with incredible generosity with both money and time in support of whatever the scientists have declared necessary for the health of all three ponds. To all, thank you so very much!

"The need for your support will continue, and likely even grow in the short term. I wish it were not so, but the reality is that the more swiftly and decisively we respond to the present threats, the more likely we are to prevail against them. If it takes a village to raise a child, it will take a community to protect these ponds, and I am very proud to play a role with all of you in this important process!"

Photos and brief biographical sketches of the three newly elected Directors will appear in the next issue of the IPA Newsletter.

IPA 2012 ANNUAL MEETING HIGHLIGHTS *(Continued from Page 1)*

Guest speaker Ken Moraff, Deputy Director of Ecosystem Protection, EPA, spoke informally about the EPA's perspective on the Cape's nitrogen problem, with which he is thoroughly conversant. He recommended consideration of innovative alternatives to a "one size fits all" sewerage of Cape Cod. His presentation was received with interest and appreciation.



Outgoing President Holly Hobart presides.

Treasurer Carl Thut spoke briefly about the IPA's income and bank balances, but warned that, while the organization is in good financial shape for the present, the cost of professional work such as annual pond testing and occasional mussel surveys is expensive, and he encouraged members to continue donating generously to the Pond Restoration Fund, which directly supports pond-related activities.

Directors elected by the IPA membership were Chris Bizinkauskas and Greg Cronin of Whistleberry, and Roberta Gough of Race Lane. These new



IPA Members enjoy a sunny afternoon.

Directors replace Jon Halpert and Holly Hobart, who have served their maximum three two-year terms, and Carl Thut, who is resigning his positions as Director and Treasurer to move to Yarmouth Port. Re-elected for a second term were Bob Nichols and Emily Wheeler, and for a third term, Gay Rhue.



Outgoing Treasurer Carl Thut delivers the financial report.

Two Schwarm Scholarship awards of \$1,000 each were presented by Betsey Godley in the absence of Scholarship Committee Chair Gay Rhue. The awardees were Carolyn Morin and Amanda Kennedy, both graduates of Barnstable High School. (For biographies of Carolyn and Amanda, see the IPA Newsletter, Spring, 2012, on www.indianponds.org.)

Hobart also paid tribute to the outstanding contributions of Geri Anderson, outgoing Editor of the IPA Newsletter for the past eleven years, presenting her with an orchid plant. Geri's Newsletter has brought the IPA widespread recognition as a proactive, science-based pond organization with a great Newsletter. Holly Hobart takes over as Editor beginning with the present issue. The Board of Directors made a surprise presentation to outgoing President Hobart, giving her a framed aerial photograph of the three Indian Ponds.

After the meeting was adjourned at 5:00 p.m., the attendees gathered to share food, wine and conversation, while the newly-elected Board of Directors met briefly to elect officers for the coming year. The new IPA President is Alex Frazee of Wheeler Road (see Alex's bio, Page 2). Replacing Carl Thut as Treasurer is Greg Cronin. Vice President Bob Nichols and Clerk Emily Wheeler will continue in their present positions.

A synopsis of Ken Moraff's remarks will be found on Page 6.

INVASIVE HYDRILLA CONTINUES TO SPREAD IN MYSTIC LAKE (Continued from Page 1)

In Area B, on the eastern shoreline, three new patches were discovered this year well to the southwest of the original patches. The largest of these was about 10 ft. in diameter and has been covered by a benthic barrier to kill it. The other two smaller patches were hand pulled by the IPA.

Many new patches were discovered this year to the west of the original patches in Area C and extending along the entire south shoreline. Many of these were small early stage patches in shallow water less than 3 ft. deep. Most of these have been hand pulled by the IPA. Benthic barriers were installed over the four largest patches, which ranged in size from 8 to 10 ft. in diameter. The only good news in Area C is that the original 2010 patches, which were located closer to the cut to Middle Pond, appear to have been eliminated with no new growth after the barriers were removed.

Only minimal new growth has been observed in Area D this year and it has been hand pulled. One small patch was discovered well south of Area D and it was hand pulled. However, an 8 ft. diameter patch was discovered north of Area D and it has been covered by a barrier.

Unfortunately two large dense patches of *Hydrilla*, approximately 10 ft. in diameter, were discovered this year in an entirely new area E, located along the western shoreline halfway between Areas A and D. Benthic barriers were placed over these patches. A smaller patch was also hand pulled.

All known areas of *Hydrilla* are visited about once a week by IPA volunteer snorkelers to inspect for any new growth and remove it promptly if found. In the case of Area A, there is always *Hydrilla* present and volunteers work on it regularly. Although the DASH work removed most if not all of the large patches from Area A, there are many small patches and individual plants remaining throughout this area.

IPA snorkelers will be continuing to survey the rest of the Mystic Lake shoreline, as this is the best means to identify small patches when they are most easily removed. Boat surveys are also conducted, but typically a patch needs to be relatively dense to be easily spotted by boat.

Hydrilla spreads by plant fragments taking root and turions (winter buds) that form on the plant late in the season. The turions are dispersed when the growth breaks up in the late fall and drifts around depositing the turions which sprout the following season. The volunteers take great care not to allow fragments to disperse when hand pulling. However, any plants remaining late in the season have the potential to widely distribute their turions. It is therefore important that we reduce the amount of *Hydrilla* over the coming weeks to minimize its spread next season.

--Bob Nichols



IPA Volunteers Bob Nichols, Greg Cronin, Annette Nichols, Roberta Gough, and Rob Lawrence, with masks and snorkels, team up to harvest *Hydrilla* by hand.

DASH (DIVER ASSISTED SUCTION HARVESTING)

The pictures show the DASH rig, which is built on a pontoon boat, in action. A 6-inch suction hose is used to suck up the plants as the diver pulls them from the sediment. The suction is created by a high-pressure water pump discharging lake water at a high velocity into a branch fitting which intersects the suction line at a very shallow angle. This creates a strong suction in the hose, drawing in lake water and anything else in the vicinity of the inlet held by the diver. The advantage of this system is that the suctioned material does not pass through the pump. Animals that are accidentally sucked in, such as the occasional turtle or crayfish, emerge unharmed. The suction line is floated by orange balls and can extend some distance from the boat as the diver moves around.

The suctioned material is discharged on a large perforated tray aboard the boat where the *Hydrilla* plants are gathered and feed into plastic tubs for eventual disposal. Live crayfish and any other bycatch are sorted and returned alive to the lake. The water and

any fine sediment goes through the perforated tray and is discharged through a large diameter chute that extends straight down to the lake bottom. This discharge arrangement minimizes clouding of the water by the returning sediment.

DASH is commonly employed for removing invasive aquatic plants. The DASH rig used on Mystic Lake was used the week before on Lake Wequaquet to remove the invasive aquatic plant Fanwort. One advantage of using DASH is its ability to keep loose plant fragments from escaping, which in the case of *Hydrilla* and Fanwort can root and grow new patches.

Funding for seven days of suction harvesting of *Hydrilla* was provided by the Town of Barnstable

--Bob Nichols



The DASH rig: pontoon boat with the diver submerged at the right where the bubbles are. The 6-inch suction hose is suspended from the orange floats. The small diameter hose on the water surface is the diver's air line.



The suction hose discharges water and harvested *Hydrilla* into this perforated tray where the *Hydrilla* is loaded into plastic tubs for disposal.

HYDRILLA VOLUNTEERS NEEDED

The IPA needs volunteers to help find and remove *Hydrilla* from Mystic Lake. We need snorkelers to survey for *Hydrilla* and also to help with the hand pulling. We also need boaters to survey shallow water areas in both Mystic and Middle during calm conditions to spot potential *Hydrilla* patches.

With waterfowl being a possible vector and with a heavily used public ramp, Hamblin Pond is also at some risk for *Hydrilla* and other aquatic invasives. It should have a monitoring activity. If you can help with any of these needs, please send e-mail to:

info@indianponds.org.

MASSACHUSETTS BANS PHOSPHORUS IN LAWN FERTILIZERS

The Massachusetts House and Senate have recently passed new legislation restricting the use of phosphorus in lawn fertilizers.

The new law will help ease the pressure on municipalities to reduce phosphorus in stormwater by reducing the amount used by consumers. A ban on phosphorus in lawn fertilizers has the potential to save communities millions of dollars. Some of the phosphorus in lawn fertilizers does not bind with the soil and runs into stormwater systems or directly into bodies of water (lakes, streams, estuaries) during rainstorms or watering. Stormwater runoff is typically not treated by sewage facilities, some of which have the ability to remove phosphorus.

The U.S. Environmental Protection Agency has ordered municipalities, treatment plants, businesses, and other large producers of wastewater to reduce the amount of phosphorus being discharged by stormwater systems into rivers, lakes, and streams, where it stimulates the growth of algae. The EPA is expected to issue more stringent stormwater and sewer permits in the future, which have the potential to cost communities hundreds of millions of dollars. In the Charles River alone, the EPA estimates the potential savings of switching to phosphorus-free fertilizers at \$103 million per year, compared to the cost of structural changes that would be

required to remove phosphorus from stormwater. A University of Michigan study showed that a ban on phosphorus in lawn fertilizers reduced the amount of phosphorus entering the Huron River by 28% in the first year. The EPA estimate for the Charles River was based on a reduction of just 10%.

Numerous other states have adopted phosphorus restrictions or bans in fertilizers, including Vermont, New Hampshire, Maine, New Jersey, Maryland, New York, Wisconsin, Minnesota, and Michigan. Massachusetts banned the use of phosphorus in household cleaning products in 1994 and in 2008 banned phosphorus in laundry and dishwasher soaps.

The new ban does not apply to organic compost or natural organic fertilizer. Exceptions also apply when a soil test indicates that additional phosphorus is needed for growth of a lawn or non-agricultural turf, or the phosphorus fertilizer is confirmed to be used on a new lawn or new non-agricultural turf area during the first growing season.

After the bill is signed by Governor Patrick, it is scheduled to take effect on January 1, 2014.

--Emory D. Anderson

AN E.P.A. PERSPECTIVE ON CAPE COD'S WASTEWATER PROBLEM

IPA Annual Meeting guest speaker Ken Moraff kicked off his remarks by describing to his audience a particular public toilet he had seen in India. Inscribed on the outside, in Tamil, was the price: half a rupee. The thing that struck him as unusual was that, instead of the customer paying to use the toilet, the owner of the toilet was paying his customers! Moraff's point was that human waste, in some parts of the world, is considered a valuable commodity. It is used as fertilizer for crops. The reason it is a good fertilizer is that it contains nitrogen and phosphorus, elements that Westerners tend to regard as undesirable end products of the waste treatment process, to be discarded as though they were useless.

This was the preamble of Moraff's informal and engaging presentation. On behalf of the EPA, he has worked on Cape Cod's nitrogen problem for years. He explained that nitrogen from septic systems leaches into the groundwater and is carried by ground water to the sea, where it causes algae blooms in saltwater estuaries. Nitrogen produces the same undesirable results in salt water as phosphorus does in fresh water, and both elements emanate from septic systems. Every estuary on the Cape has had

a Total Maximum Daily Load (TMDL) of nitrogen established, which is the permissible limit for added nitrogen from all sources, beyond which the waters of the estuary start to degrade and become hostile to marine life. Since nitrogen travels many times faster through the soil than phosphorus, its effects are seen sooner and it builds up in estuaries quickly.

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EPA attorney Ken Moraff addresses the IPA Annual Meeting.

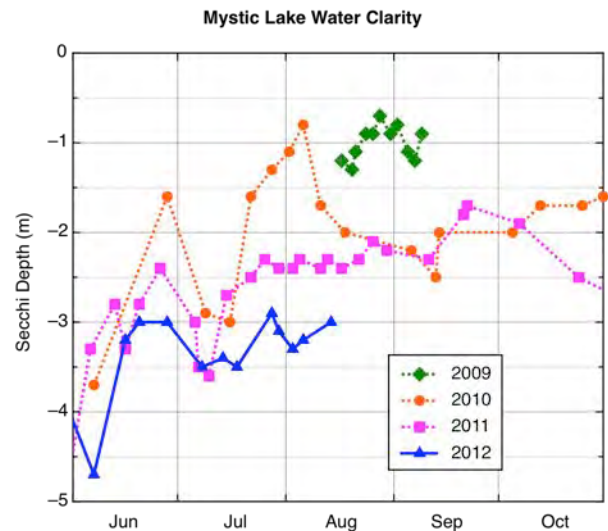
MYSTIC LAKE WATER QUALITY – THE BEST IN YEARS

This year Mystic Lake has the best midsummer water clarity it has had since 2008. The figure shows how the Secchi depth has varied during the June to October period over the last four years. The Secchi depth is the maximum depth at which an 8 inch diameter black and white disk can be seen from above the water surface. It is the standard method of measuring water clarity.

In 2009 Mystic Lake experienced its lowest water clarity on record, a Secchi depth of just 0.7 m (about 2.3 ft.), during the August cyanobacteria bloom and coincident major mussel kill. The following summer in 2010 another bad bloom reduced the Secchi depth to a low of 0.8 m.

The alum treatment occurred in the fall of 2010. Following the treatment, there were high hopes for much improved water clarity in 2011. It did improve somewhat in 2011, with a minimum Secchi depth recorded of 1.7 m (5.6 ft.). Even though this was over twice the minimum of the previous year, it did not meet expectations.

This summer the Secchi depth has been consistently near or better than 3 m (9.8 ft.), in spite of a record high water temperature of 84 degrees F, measured at the end of the July heat wave. High water temperature can help fuel algae blooms if sufficient nutrients are present.



Middle Pond has been averaging over 1m greater Secchi depth than Mystic Lake this season and is also significantly improved in clarity from last year. Let's hope that the good water clarity in the ponds can last the rest of the season.

--Bob Nichols

AN E.P.A. PERSPECTIVE ON CAPE COD'S WASTEWATER PROBLEM

(Continued from Page 6)

The most commonly-heard **recommendation** for dealing with nitrogen loading from septic systems is to build a large sewage treatment plant that is integrated with sewage piping throughout the town, a monolithic and expensive approach. Moraff says that we should be considering cheaper, more sustainable alternatives, and that one size doesn't necessarily fit every situation.

The principal themes of Moraff's remarks were that solutions need to be sustainable and suitable to different situations. One size doesn't fit all. Affordability counts.

Ken Moraff has thoughtfully provided two references to websites that shed more light on this vital subject: www.thegreencenter.net and www.iwawaterwiki.org/xwiki/bin/view/Articles/NutrientRecoveryProceedings.

PHOTO CREDITS: Page 1, Map, Bob Nichols; page 2, Jim Preston, Cape Cod Times; page 3, Annette Nichols; page 4, Betsey Godley; page 5, Bob Nichols; page 6, Annette Nichols.

AN OSPREY, BY ANY OTHER NAME ...



Well, here we are again. You should all know that I do not choose the topics I write about. They are chosen by you. If there is something you want to know about tell Holly and she will tell me. The list of suggestions she gave me to start the IPA's new year included the Osprey and I jumped on it.

The Osprey is a very unique animal. He has a whole family (*Pandion*) all to himself. In contrast, for instance, all of the many types of Hawks are divided into two families, *Accipiter* and *Buteo*. There are four subspecies of Osprey, but they are all Osprey. No matter what they are called, anywhere in the world, they are Osprey.

Osprey exist on every continent except Antarctica. Their diet is primarily freshly caught fish so they live within flying distance of any body of water where they can catch fish. My neighbor has a small backyard fish pool that got cleaned out of a number of large goldfish by two Osprey who nest in the area.

Ospreys are brown above and white below. When viewed from below, the wings are predominantly white. The head is white and has a broad brown stripe through the eyes. Juveniles have white spots on their backs.

They live 15 to 20 years and may log up to 160,000 miles in migration during their lifetime. In general, the Osprey we see on Cape Cod migrate as far as South America during their annual migration. They breed on Cape Cod and in the winter fly south.

Osprey possess a thumb of sorts. They have a reversible outer toe which allows them to grasp a slippery fish more readily. When flying with prey, they line the fish up head first for less wind resistance.

Osprey mate for life. The female generally lays two or three eggs each season and both parents share in the duties of raising their chicks. The eggs are laid over several days and hatch more or less in the order laid. The older hatchlings dominate their younger siblings and hog all the food brought in by the parents. When fishing is good and there is plenty of food the hatchlings share meals with little problem, but with inexperienced parents or in times of poor fishing, the younger ones may starve to death.

Osprey readily adapt to man-made structures for their nesting sites. You can see Osprey platforms constructed all over Cape Cod. Some of the structures have been used regularly and some have never been used. Some have had nests built on them that have been destroyed by high winds and storms. Some have been built by inexperienced couples and just have not stood up to the rigors of time.



There are any number of Osprey WebCams, both on the Cape and across the country. You can locate these WebCams by simply Googling "Osprey WebCams". Woods Hole Oceanographic Institution has a very good WebCam which looks directly down on a nest. This year however, the nest was not occupied so the camera is not turned on. This nest has been constantly occupied the last 20 years and has been a lot of fun to watch. The WebCam looks directly into the nest and meticulous records have been maintained showing the dates of arrival of the parents, the dates of the eggs being laid, the dates of the eggs hatching, the fledging of the young Osprey, and their departure on their migration.

All of the life stages of these animals are interesting and fun to watch. It is particularly interesting watching them fish. They usually have a success rate of about 25% but it can be as high as 70%. That is much better than most of us humans manage.

--Dave Reid

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