

THE IPA NEWSLETTER

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

Fall 2021

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LATEST ON POSSIBLE ALUM TREATMENT FOR MYSTIC LAKE

In the winter 2021 issue of this newsletter, we reported that the IPA had recommended to Town officials that Mystic Lake be given a second alum treatment to supplement the 2010 treatment, which is viewed as inadequate. This recommendation stems from the results of the 2020 study of Mystic Lake conducted by Dr. Ken Wagner, Water Resource Services, Inc., which had concluded that internal loading (release to the overlying water from the sediments) of phosphorus (P) is still the dominant source of P in Mystic Lake that fuels the production of unwanted algae such as cyanobacteria. Wagner's report had also said that expanding the inactivation of phosphorus in the sediments with alum is the most practical and least expensive method to suppress the present P in Mystic Lake and achieve improved water clarity and reduced algae production.

Since sending that report and a written recommendation to Town officials, the IPA has had two meetings with them regarding the possibility of a second alum treatment. In July, the IPA received a written response from the Town stating that other ponds such as Schubael Pond and Long Pond in Marstons Mills were of higher priority, because of their poor water quality, than Mystic Lake and that present conditions in Mystic did not warrant an alum treatment at this time to maintain pond health. The IPA responded with comments and questions and asked for a face-to-face meeting to facilitate discussion and achieve a better understanding of the Ponds and Lakes Monitoring and Management Plan being developed by the Town. The IPA also argued that (i) the Town should view periodic alum treatments to Mystic Lake (and other ponds based on scientific analysis of water quality data) as a sound investment in routine infrastructure maintenance in much the same way as maintaining roads, buildings, and other physical resources; (ii) it would be inadvisable to assume a "wait and see" approach and not do anything until a serious problem emerges; and (iii) we do not want to wait for another catastrophic event (24 million mussels killed as a result of the 2009 cyanobacteria bloom) to take action.

Subsequently, both in writing and verbally, the Town responded again indicating that the IPA's request to have Mystic Lake receive another alum treatment was viewed as viable and that it would be submitted as a Capital Improvements Plan project this October. The project would be evaluated and ranked with all other submissions received by Town departments. After that, the Town Manager would make his recommendations to the Town Council regarding which projects would be proposed for funding in the upcoming fiscal year. Final decision on the fate of these Capital Improvements Plan projects would be made by the Town Council in April 2022.

To express your support for this new alum treatment for Mystic Lake, please contact Town Manager Mark Ells (mark.ells@town.barnstable.ma.us) and the two Town Councilors for Marstons Mills: Matthew Levesque (matthewlevesque02648@gmail.com) and Paula Schnepf (paula-barnstable@gmail.com), who are also the President and Vice President, respectively, of the Town Council.

Emory D. Anderson, PhD

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IPA, Inc., PO Box 383
Marstons Mills, MA 02648

<http://www.indianponds.org>
info@indianponds.org



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OVERVIEW OF POND TESTING AND WATER QUALITY

The annual testing of the three Indian Ponds, done at roughly two-week intervals during the spring–fall period, has been completed for this year. From the first testing on April 20 until the last on October 23, data collected over the deepest point of each pond included Secchi disk readings to gauge water clarity and temperature and dissolved oxygen measurements from the surface to the bottom at 1-meter (m) intervals. Also, the IPA participated in the Pond and Lake Stewardship (PALS) program on April 20 and September 8 when, in addition to the above-mentioned measurements, water samples were collected at various depths for analysis of nitrogen, phosphorus, alkalinity, chlorophyll *a*, and pH at the UMass Dartmouth SMAST laboratory. Volunteers who assisted in 2021 with pond testing were Emory and Geri Anderson, Peter Atkinson, Lucy Belfiore, Lindsey Counsel, Bob Derderian, Bill Hearn, and Amber Unrah.

Temperature. The results of the bi-weekly testing indicated that the ponds behaved much as they do every year in transitioning from low surface temperatures in the spring, to high temperatures in mid-summer, and back again to low temperatures in the fall. The warmest surface temperature recorded this summer was 27.8°C (82.2°F) in Hamblin Pond on August 13 (also the warmest recorded last year). At the time of the first testing on April 20, each pond had almost the same temperature from surface to bottom. However, this changed as the ponds warmed throughout spring and summer resulting in cooler temperatures at deeper depths. The upper water layer, generally above a depth of 4–5 m in May–June and 6–7 m in July–August, which is heated by the sun and mixed by the wind, stayed warm. Below those depth bands or boundaries called thermoclines, water was progressively cooler and more dense than near the surface. This situation was evident in Mystic Lake and Hamblin Pond, which are both deep, with maximum depths of 48 and 63 ft, respectively. Middle Pond, because of its shallower depth (maximum of 33 ft) behaved differently; sunlight and wind action resulted in its entire water column being continually mixed and with nearly the same temperature from top to bottom throughout the year. Testing in October indicated that water temperatures in Mystic and Hamblin were transitioning back to nearly constant levels from the surface down to about 10–11 m. Bottom temperatures (at 13 m) in Mystic Lake throughout the entire testing period averaged 11.6°C (52.9°F), while bottom temperatures (17 m) in Hamblin Pond averaged 9.2°C (48.6°F); in contrast, bottom temperatures (9 m) in the shallower Middle Pond were much higher and averaged 17.6°C (63.7°F).

Dissolved oxygen was observed at all depths in Middle Pond except at the very bottom in July. In Mystic Lake, except on the first testing on April 20 when oxygen was detected all the way to the bottom, oxygen was absent below 6 m in July, below 7–8 m in June, August, and September, and below 10 m in May and October. In Hamblin Pond, adequate oxygen was generally found at all depths down to 12 m except in April and May when it was observed almost to the bottom.

Water clarity, as measured by Secchi disk, provides a quick measure of general pond condition and is influenced by suspended material such as algae in the water column. Of the three ponds, Hamblin had the highest clarity, with readings averaging 6.4 m (21 ft) (compared to 5.8 m or 19 ft in 2020), with Middle Pond next averaging 4.5 m (14.8 ft) (same as in 2020), and Mystic Lake the lowest averaging 3.4 m (11.2 ft) (same as in 2020). Taking into account both water clarity and dissolved oxygen measurements, Mystic Lake clearly has the poorest water quality of the three Indian Ponds.

Cyanobacteria monitoring was done this year by the Association to Preserve Cape Cod (APCC) under contract to the Town. Fortunately, none of the three Indian Ponds were found to contain levels of cyanobacteria toxins sufficient to warrant closure, warnings, or pet advisories.

Emory D. Anderson, PhD

ALDO LEOPOLD'S "LAND ETHIC" REVISITED

Today, we are barraged by alarming news about our planet's ecological health: groundwater pollution from PFAS and other chemicals, nutrient pollutants causing cyanobacteria blooms in our ponds and piles of rotting seaweed along our coastline, climate change, huge losses of rainforest, a species extinction crisis, etc., etc. Where does it end? Does it end well?

Environmental problems largely stem from the same things that have made mankind so successful on this planet. Boundless scientific and technical achievements have more than doubled the average age of human mortality and vastly increased the world's human population. The increased standard of living for billions of people has been accomplished through a complex network of land acquisition, natural resource extraction, farming, construction, transportation, and other commercial interests that pursue continuous expansion of our species' footprint on the earth. We have paid insufficient attention to the costs of unrestrained development and our individual needs for bigger and better. However, we have been warned by a few far-sighted individuals, including Aldo Leopold, one of the true godfathers of the environmental movement.

In his signature work, *A Sand County Almanac*, Aldo Leopold brilliantly extolls the beauty and complexity of nature in the farmlands of Wisconsin, and he bemoans the unrelenting expansion of civilization without sufficient regard for its impacts on the environment. He explicitly calls for a "land ethic", suggesting that without it, mankind is in deep trouble. In his book, Leopold explores the nature and evolution of ethics, pointing out that the execution of slaves was sanctioned in Homer's ancient Greece, while at the same time, other common ethical standards were observed. Leopold and Charles Darwin (among others) argue that ethical standards evolved to ensure the survival and reproductive efficiency of a species dependent on social organization and tribal cohesiveness. How could tribal communities coexist if murder and theft are left unpunished, and so ethical standards evolved to constrain self-serving behavior in deference to a higher community good. Leopold regarded land and water as components of a greater community in which mankind is only a part. Recognizing the complexity of ecosystems and the long-term adverse consequences of unrestricted development, Leopold believed that ethical systems for maintaining community order might evolve to include a sense of obligation to preserve and protect our land and water. He reasoned that if we disregard this greater community comprised of complex ecological systems upon which we depend, it will break down and imperil our survival.

Aldo Leopold notes that government regulations or government land ownership is logical to protect our environment. But he wonders:

"What is the ultimate magnitude of this [governmental] enterprise? Will the tax base carry its eventual ramifications? At what point will governmental conservation like the mastodon, become handicapped by its own dimensions? The answer, if there is any, seems to be in a land ethic, or some other force which assigns more obligation to the private landowner."

These are remarkably prescient words written in the late 1940s. He is saying that we can't legislate our way to address every environmental issue and problem. Environmental regulatory administration and compliance has indeed become a large and complex "industry" employing tens of thousands of governmental workers and private sector consultants and lawyers. It is important work, but commercial interests resent it and fight it. Our politicians spend a lot of time debating levels of funding for environmental agencies and the merits of complex new and old environmental regulations. The problem lies with our society's prevailing belief that we should be able to do ANYTHING that is not illegal. In seeking wealth, we have no obligations beyond trying to stay legal. Our environmental regulatory system simply cannot keep up with ever emerging environmental issues and the pace of environmental degradation.

Aldo Leopold argues that our society, our civilization needs a land or conservation ethic whereby every individual develops a sensitivity for the effects of their lifestyle and activities (both at work and at home) on the land and water, and that we must develop a sense of obligation to limit one's impact on the earth.

So, how might a land ethic become established in our society? It would seem that like other ethical considerations, we must recognize the inherent good and necessity for us to constrain our behaviors that unnecessarily impact the greater ecological community of which we are a part. Secondly, typical of other ethical standards, there would have to be societal prohibitions and consequences for those who disregard a "land ethic" needed to ensure a sustainable society. Lastly, the rationale for this ethic would need to be passed on to younger generations.

Bill Hearn, PhD

VERY SUCCESSFUL POND CLEANUP

An article in the summer issue of this newsletter reported that a cleanup of derelict and assorted items and trash from Mystic Lake and Middle Pond had been done in August. However, because that article was written before the cleanup had taken place, we thought it appropriate to report on what actually happened on two successive Saturday mornings: August 28 and September 4.



Eric Robillard, Peter Atkinson, and Greg Cronin.

Cleanup activity in Mystic Lake included collecting the remains of a derelict raft and benthic barriers that had been placed on the bottom in various locations by IPA volunteers in 2011–2014 in an attempt to suppress the growth of invasive *Hydrilla* plants. The barriers, constructed of PVC tubing and opaque matting, had outlived their original purpose. An estimated 18 barriers, including four or five from Middle Pond near the cut, were re-

trieved from the lake's bottom. Special thanks to Greg Cronin and Eric Robil-

lard who snorkeled a goodly portion of the lake's perimeter in order to locate the barriers, most of which were retrieved on the first Saturday, with a final six on the second Saturday. Emory Anderson and Peter Atkinson in one boat and Nicole and Barry Sturgis in another boat transported the retrieved barriers to the Race Lane Town landing for later pickup by Town DPW personnel.



Pile of debris at Mystic Lake Race Lane Landing.



Some of the tires together with Phil Cote at Middle Pond landing.

Work in Middle Pond, also done on both Saturdays, included three derelict rafts and a considerable number of old automobile tires. This effort, overseen by Director Butch Roberts, involved many volunteers. The tires in question (see article on page 8) were collected mainly from the shoreline of 200 Hollidge Hill Lane, but also from slightly deeper water along the central eastern part of Middle Pond. The abandoned rafts and tires, the latter which were loaded onto kayak, canoe, and boat, were transported to the Middle Pond Town landing for pickup by the DPW.



Butch Roberts, Jon Fain, and Adam Stavisky.

Additional IPA volunteers not listed above who assisted in the cleanup were Benjamin Brady, Phil Cote, Jon Fain, Jon Halpert, Tom Odjakjian, Marty Roberts, Adam Stavisky, and Elizabeth and James Young. The IPA is appreciative of the help provided by Chris Connella of the Town's DPW and his assistants who, on both Saturdays, collected and disposed of all the debris that the volunteers had deposited on both Town landings on the two ponds. A big thank-you to everyone who helped to make this pond cleanup a great success.

Emory D. Anderson, PhD

A PLETHORA OF CHICKADEES

We, in the Northeast, are in the habit of simply saying “chickadees” when we are referring to this little black and white bird. That would not work so well in any other part of North America. There are seven species of chickadees from Alaska to Mexico. Some of their ranges overlap and others have their exclusive territories. Black-capped chickadees have the biggest range which includes all of the northern US, Alaska, and much of Canada. The boreal chickadee shares much of the Canadian region with the black-capped, but very little of the United States. The Carolina chickadee picks up where the black-capped stops in the southeast and continues down through all of Florida and west to most of Texas. My personal favorite, the mountain chickadee, drops down from northern British Columbia, south through the Rockies, Cascades, and Sierras to southern Arizona and southern New Mexico, going right through Albuquerque, where I used to live.



Black-Capped Chickadee

The chestnut-backed chickadee is found mostly along the central California coast from Marin County southward. This bird has a dark chestnut colored back and sides. The gray-headed chickadee is the rarest and most poorly known chickadee, living only in remote areas of northern Alaska and northwestern Canada. The Mexican chickadee is the southernmost of the chickadees and is found in mountain forests over much of Mexico.

Chickadees are also found in England and other countries in Europe. Over there, they may be found in colors other than black and white. For instance, I have on my bird list, the blue tit, which has a blue cap and a yellow under side, the coal tit which looks pretty much like a black-capped, the great tit, which, like the blue tit, has a blue cap and a yellow underbelly, and the willow tit, which, like the coal tit, looks pretty much like our black-capped chickadee, except for the differences in color. They also have some other species that we don't have, for instance, the crested tit, the long tailed tit, and the bearded tit.

Chickadees are social birds that flock to feeders. They are also very polite birds that will wait at the side of a feeder until the one that is currently feeding is done and has left. They will usually just grab a seed and fly off to some favored perch to open the hull and consume the nut inside. They also consume small insects and can be observed flitting through treetops and pecking at tree bark in pursuit of insects and grubs.

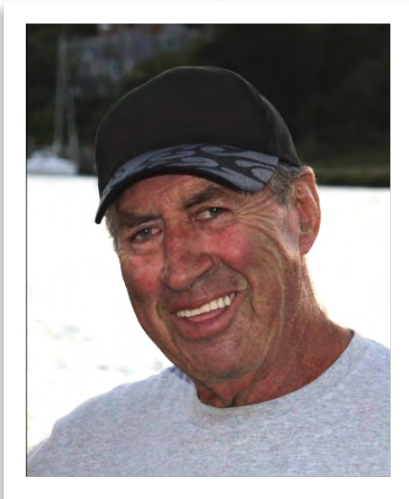
They are curious and unafraid of humans and may be induced to feed from a hand. I have had them practically hit me in their rush when I'm putting out the feeders. Pairs remain together year-round. From fall through early spring, chickadees form roaming flocks with titmice, nuthatches, warblers, brown creepers, and kinglets and occasionally with small woodpeckers.

Most chickadees are talkative, with a whole repertoire of high notes in addition to the trademark call. A super high-pitched seeeee is a warning that there is a predator in the vicinity. Many other species of birds recognize the predator warning call of the chickadee.

Chickadees will eat sunflower seeds, but peanuts and chopped nuts are irresistible. High-fat suet and peanut butter are also popular. Grab and go is their usual style, but, especially if they have up to ten chicks in the nest, they will soon be back.

Dave Reid

**TO SEE NEWSLETTER PHOTOS IN FULL COLOR
GO TO THE IPA WEBSITE: www.indianponds.org**

JOHN HAMBLIN: 8/28/1943–12/9/2020

It is difficult to believe that it's been almost a year since the passing of our neighbor and friend John Hamblin. Especially because his essence is still so present out on the many acres of cranberry bogs that he arduously cultivated for over five decades. Because of this, many wonderful accounts of John Hamblin and his industrious, yet kind and jovial, character are reminiscent among the cranberry bogs and surrounding wetlands.

John never knew a stranger, always pausing to impart lessons on cranberry agriculture to anyone who showed an interest. For the especially lucky bog walker, he might offer a ride on a berry-beating tractor through a flooded bog during harvest season. This was exceptionally popular with kids! Children also enjoyed learning about the cranberry bogs during school field trips that John generously hosted, sending each child home with a cup full of berries.

John was more than a cranberry grower. He was a true steward to the ecosystems of the Indian Ponds. With his lovely wife and life-partner Jeannette by his side, he was attentive with researching and instituting the most ecologically sound practices in order to protect and preserve the surrounding environment and wildlife. He collaborated with local town, county, and state officials, monitoring the appearance and flow of water through the river. Many times during the year, he measured and reported data such as the water levels of Mystic Lake and Middle Pond to state natural resource services. What is more, he facilitated water flow into the ponds by weeding and removing obstructions from the river's branches and flumes. Artifacts of his measuring strips, bridges, and stone dams still remain at the herring run as an indication and fond remembrance of John's diligence.

Cranberry farming is extremely hard work, but John somehow made it seem peaceful. His demeanor was always calming when he was seen out on the bogs tending to weeds or mowing along the bog gulley edges. He made the labor of working the boom to gather cranberries on the flooded wetland look tranquil. Even the headlights on his truck that flashed through the windows of bog-abutting homes at 2 am seemed serene. Many have recalled turning over in bed thinking "there goes John, tending to the irrigation...there must be a frost tonight."

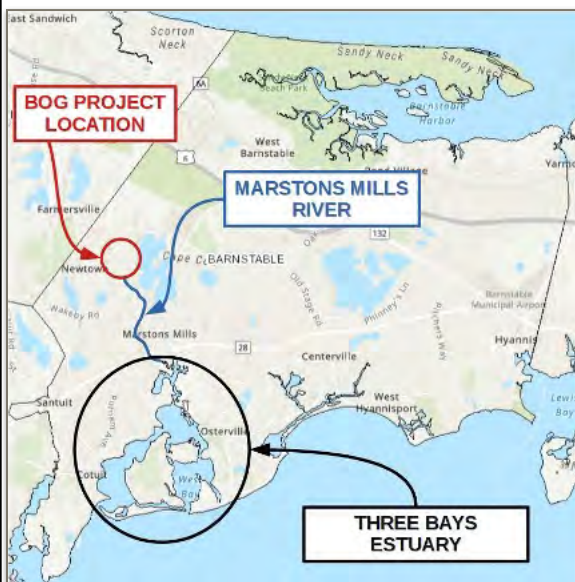
To his friends and family, John's spirit resonates in the pump houses that spot the landscape, in the Marstons Mills River and its bog tributaries, in the dikes and bridges that guide the flow of water through the wetlands, and especially in each and every cranberry vine that twines its way through the carpets that make up the cranberry bogs. What better time than now, the cranberry harvest, to fondly remember the man who wholly loved and nurtured his 90+ acres of cranberry bogs, surrounding ecosystems, and wildlife as well as his family and the people he loved and befriended.

Sandy Leo-Clark

MARSTONS MILLS BOG RESTORATION PROJECT

Barnstable Clean Water Coalition (BCWC) is working on an exciting new project focused on the restoration of a 56-acre network of cranberry bogs (active and retired) where the headwaters of the Marstons Mills River are located. The plan is to purchase the bogs or contract conservation easements from the cranberry farmers involved in this project.

These cranberry bogs, known as the Hamblin Bogs, are former wetlands that are a collection point for water and excess nutrients that are then carried by the river to the Three Bays estuary in less than eight hours. The main nutrient of concern in the groundwater flowing up and through the bogs is nitrogen from the hundreds, possibly even thousands, of septic systems in homes that surround the bogs in this part of the Three Bays watershed that stretches all the way to Sandwich. Nitrogen travelling through this bog system makes up approximately 40% of the excess nitrogen flowing into the estuary. This excess nitrogen causes algal blooms, continued decline in water quality, and degradation of the benthic habitats in the estuary.



BCWC is partnering with local cranberry farmers, the Massachusetts Division of Ecological Restoration, the U.S. Environmental Protection Agency, the U.S. Geological Survey, and many others to address the nutrient overload in the bogs. The restoration of these bogs will utilize natural processes that will remove and attenuate excess nitrogen, reducing the amount of nitrogen flowing downstream and ultimately into our bays.

Possible restoration strategies include reestablishing natural wetlands; constructing a retention pond; and reconstructing the historic river herring passage through the bogs. To accomplish all this, the bog restoration will entail filling drainage ditches, grading the bog surface, removing water control structures, reconstructing stream channels, removing sand, digging down into peat, and moving sediment.

In October, the U.S. Environmental Protection Agency's Southeast New England Program (SNEP) awarded BCWC a five-year, \$750,000 Pilot Watershed grant. One of only four recipients, BCWC will receive \$150,000 a year from this new grant program to fund the design, permitting, and a portion of the implementation of the 56-acre

cranberry bog restoration. The design and permitting for this project will take approximately two to three years, with construction set to begin in three to four years.

This restoration project to improve water quality in the river and downstream in the bays will benefit not only people, but the aquatic organisms found in and around the Marstons Mills River, Mill Pond, and Three Bays estuary. In addition, reducing the nutrient load and helping Three Bays estuary come into compliance with the Clean Water Act will free up resources to address pond water quality.

Given the financial downturn in the New England cranberry industry, BCWC's bog restoration project will help us forge a roadmap for future cranberry bog restoration efforts around Cape Cod and the southeastern New England region. Visit BCWC's website at BCleanWater.org to learn more about our work.

*Heather Rockwell
Barnstable Clean Water Coalition*

WHY WERE THE TIRES IN MIDDLE POND?

(Continued from page 8)



Tires "skewered" onto a long pole. Photo by Tom Odjakjian.

shooting range. It has been speculated that the tires might have been placed along to the shore to protect the sand bank from eroding into the pond and also to catch stray bullets fired to targets onshore from a location somewhere on the point of land protruding into the pond (i.e. the short peninsula of land at the end of Hollidge Hill Lane). However, Halpert thinks that the tires may have been part of a system of boat bumpers as many of the tires removed during the cleanup had been "skewered" onto a long pole (see photo). It is thought that the small inlet (see figure) along the shoreline of 200 Hollidge Hill Lane was where Col. Hollidge may have kept boats. There are the remains of a wooden framework from some kind of canopy or shelter at the mouth of the inlet (see photo) where boats were likely kept. Some have speculated that the inlet may have been part of a cut connecting Middle Pond with adjacent Hamblin Pond, but this has never been confirmed.

Records suggest that the Hollidges acquired the property bordering Middle Pond as early as 1946. Their property abutted Camp Alpine to the north which was operated by Mark and Lillian Budd. It is unclear when the tires were placed along the shore of the property or for what specific purpose. However, it is known that Col. Hollidge was an avid sportsman and loved to hunt and shoot. It is known that he had a shooting range on his property and used to invite friends and neighbors for target practice, including Mark Budd. Jon Halpert, who is a third-generation Halpert to live on Middle Pond, remembers, as a youngster, hearing the sound of gunshots echoing across the pond from Hollidge's



Remains of old wooden framework over inlet. Photo by Tom Odjakjian.

*Emory D. Anderson
Jon Halpert*

If you have articles or information about the history of the Indian Ponds, the Hord farm, the duck farm on Hamblin Pond, the Cape Cod Airfield, Camp Alpine, or anything else of interest in Marstons Mills, send them to us at info@indianponds.org.

"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." IPA Mission Statement

INDIAN PONDS ASSOCIATION, INC.
P. O. BOX 383
MARSTONS MILLS, MA 02648

FORWARDING SERVICE REQUESTED

