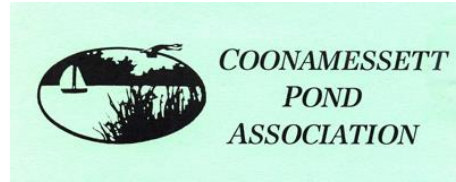


Coonamessett Pond Association Annual Newsletter August 2019



Board Officers

Donna Jewett, President
John Pohlman, Vice President
Don Sostek, Treasurer
Andrea Woods, Secretary

Board

Eileen Assad
Kate Atema
Jim Hain
John Minceli
Eric Stoermer
R. Smolowitz



The Association Board: Jim Hain, Kate Atema, John Minceli, Donna Jewett, Eric Stoermer, John Pohlman, Andrea Woods, and Don Sostek. Not pictured: Eileen Assad and Ron Smolowitz

Message from the President by Donna Jewett

We are proud of the many accomplishments of the Coonamessett Pond Association this year in 2018-19. We have a knowledgeable, energetic, and well-qualified board that has focused on making some significant changes. To accomplish our goals as an organization that is to “enhance and maintain the ecological balance...and encourage our neighbors and concerned citizens to join us in our endeavors to protect and preserve this treasure,” we have focused on the surrounding lands and the water-quality issues. We have teamed up with a number of local and Cape-wide organizations to productively work together to improve the conservation lands and test our water quality, plus engaged local citizens to join us!

Working in concert with The 300 Committee and Town of Falmouth, this year our stewardship committee, with the leadership of Jim Hain, has continued to tackle the project of cleaning up the old historic Coonamessett Inn site (see article below). As our other focus has been on the water quality monitoring of the Coonamessett Pond, we had been conducting on-going long-term science-based water testing and research in collaboration with APCC, US Dept. of Agriculture at U MASS Cranberry Station in Wareham, and the USGS center in Woods Hole. Please see articles from our researcher, Dr. John Pohlman who has spear-headed this project.

We have also supported the Coonamessett River Project Restoration (the Greenway project). You will be seeing panels posted along the the river with history, ecological information, and resources to further enjoy the experience of walking along this historic river. We thank Betsy Gladfeldter and the Massachusetts Environmental Trust for providing funds to improve the water quality for healthy aquatic ecosystems as the River feeds many of the species that spawn in the Coonamessett Pond. We, as Stewards, intend to continue to enrich our conservation lands by constructing additional panels along the paths.

Reflecting on the history of CPA.

I have enjoyed serving as President these past few years and have been active on the board for many years, but it’s time to “pass the torch”! I can’t help but reflect on my mother, Helen Dupee, who helped, along with many others, to initiate this CPA organization in 1985.

Dave and I are planning to sell our property next year and in the process of cleaning out my files,

I discovered a letter written by her addressed to the members and friends of the CPA from 1989.

She acknowledged the “passing of our dear past President ‘Pete’ Odell ...who served from 1986-88.” Thanks to his persistence, we, the Association, were influential in the Town’s vote to limit motors on the Pond to 6 horsepower, restricting the building by a developer of a long dock, and the reconstruction of the sewage system and upgrading of the building of the Falmouth Playhouse cast house...”! She continues, “two shopping malls were turned down, but Clauson’s is still in the process”!



When you consider that this was 30 years ago and we are still concerned about unwanted development and sewage issues, this seems to me a good reason to support this organization as we, in numbers, can prevail and help to shape the future of the Pond and to protect it! The CPA were co-sponsors of the plan for open space and joined the 300 Committee in funding a management plan for the town.

One of the key issues when the CPA began, was the issue of the CS-4 and CS-10 Plumes which were moving about 1 foot/ day with their contaminants. This was back in 1993 and I remember our wells being shut down and town water put in while they provided us with bottled water. It’s interesting that both my Mother and Dad had multiple myeloma, a rare form of cancer. Just saying!

Fortunately, Otis airforce has taken charge and most of the Plume issues have been resolved. But in light of the climate change and other environmental issues occurring around our country, it would behoove us to pay attention and be pro-active in protecting this precious resource. Thanks for everyone who is participating, and we look forward to having

more volunteers assist us as we go forward with our environmental projects.

Stewardship Report by Jim Hain,Chair

Work Day at the Old Inn Site

At 12:15 on Friday, 7 June 2019, nine dedicated and capable members of AmeriCorps arrived at the site of the former Coonamessett Inn off Boxberry Hill Road in Hatchville. First, there was a pizza lunch down by the beach on the pond. There was a soft sun. The pond was calm.

Then the work began. The curved fence line by the entrance was cleaned, a vigorous growth of invasive sumac was removed, the area under the trellis was cleared (will be location for future educational/historical informational signs), paths cleared to the pond and beach, and litter removed.

This endeavor was accomplished through the partnership with AmeriCorps, the Coonamessett Pond Association, the 300 Committee, the town of Falmouth, and the Cape Cod Country Club.



The AmeriCorps team at a workday at the site of the former Coonamessett Inn in Hatchville on June 7, 2019. Jim Hain, stewardship chair, Coonamessett Pond Association, on the left; Dave Jewett, Coonamessett Pond Association, 4th from left; Donna Jewett, president, Coonamessett Pond Association, 7th from left; Mark Kasprzyk, Conservation Commission, Town of Falmouth, 8th from left; and Meredith Ballinger, program coordinator, AmeriCorps, right. Not shown, Alex Zollo, the 300 Committee

The effort maintains open space for the Town of Falmouth. More than that, it maintains an important historical connection. From the 1920s through the 1970s, the Coonamessett Inn stood atop the rise overlooking Coonamessett Pond. The white clapboard inn stood at the end of a horseshoe-shaped driveway. At its peak, it operated year-round, with a dining room, a bar, and 60 rooms for guests.

In 1986, this area was part of the initial purchase by the Town of Falmouth, in partnership with the 300 Committee, for a land acquisition program for the purposes of conservation and open-space preservation.

We are planning an open house and community day at the site for this summer to introduce our citizens to this wonderful parcel and a bit of town history.

Stewards and HELP Needed!

As described above, and in previous issues of our newsletter, the Association is actively involved in clearing and maintaining the open-space parcels around the pond. More effort is needed. Once a parcel is cleared, regular maintenance is required lest it once again become overgrown and neglected. There is also a need for litter pick-up. Service is a component of our mission. As members, we suggest that each member donate an hour or two a month. Visit the parcels, walk the trails, walk the roadsides—take gloves and a trash bag. Not a glamorous task, but important. You may want to go to the hardware store and purchase one of those nifty trash grabber/picker upper thingies (a pole with claws on one end and the handle/trigger on the other—image right). The CPA has two, and we can tell you—your knees and back will thank you. Next, we will advise via email when we have workdays, and ask our members



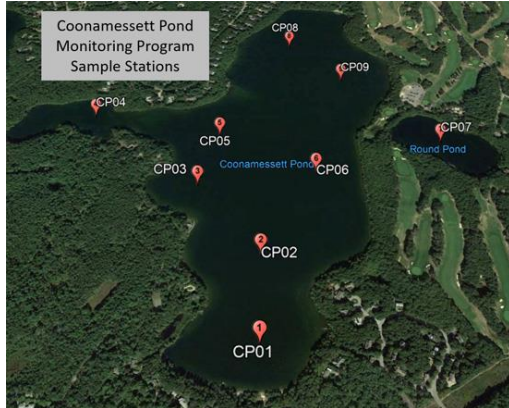
to come out for an hour or two with weed-whackers and loppers.

The Ecological State of Coonamessett Pond from Year One Monitoring *by John Pohlman*

Most Coonamessett Pond area residents are familiar with the Massachusetts Military Reservation groundwater plume that has carried fuel additives and solvents to the Coonamessett River. Fortunately, that plume flows safely beneath Coonamessett Pond. Ironically, the greatest threat to the health and viability of the Pond, and indeed all coastal and inland ponds on Cape Cod, is us, the residents who so cherish them. Discharges of nitrogen and phosphorus coming from our lawns, septic systems and other sources impact the life and water quality where we swim, kayak, fish, otherwise recreate, and relax. On the one hand, these elements support the bounty of life we admire. On the other hand, excess nutrients promote rampant growth of algae, some of which can produce toxins that are harmful to humans, pets, and wildlife. Decomposition of the algal sludge consumes oxygen and has the potential to create oxygen-free (anoxic) dead zones where fish and other oxygen-dependent animals would otherwise live.

Central to the interests of the Coonamessett Pond Association (CPA) is the health of the 158-acre Coonamessett Pond. To address this topic, the CPA collaborated with scientists from the US Geological Survey (USGS) in Woods Hole, the US Department of Agriculture (USDA) at the UMass Cranberry Station, and The Association to Preserve Cape Cod (APCC) in the summer of 2018 to establish baseline monitoring. The objective of the program is to evaluate the present state of the pond and to create a reference for future monitoring and protection with the hope of avoiding the need to remediate.

We established eight (8) sampling stations in Coonamessett Pond and one (1) station in our connected neighbor, Round Pond (Figure 1). On four occasions, Dave Jewett and John Pohlman collected samples for chemical analysis, deployed a sonde (an instrument probe that automatically transmits information for



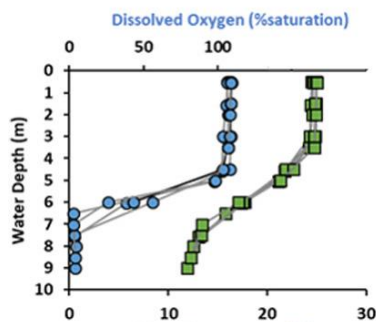
in situ physicochemical analysis of the water column), and cast a Secchi disc to measure water clarity.

Additionally, on three occasions, Bryan Horsley of the Association to Preserve Cape Cod (APCC) and his team collected samples at three (3) monitoring stations (CP01, CP04, and CP09) and one station of opportunity to look for the occurrence of bloom-forming cyanobacteria that can produce toxins.

Sonde (or sensor) surveys provided temperature, dissolved oxygen, pH, conductivity, and oxidation/reduction potential data for four occasions in the early-late summer from July 7 – September 17. In Figure 2, temperature measurements are

indicated by green squares. The blue circles indicate dissolved oxygen as percent saturation.

At about 5 m, the oxygen decreases to zero oxygen, a condition known as anoxia. Anoxia,



or the absence of oxygen, is lethal for animals like fish and invertebrates that require oxygen, but it is not necessarily devastating for the larger body of water provided the condition is not overly widespread or long lasting.

We compared our results to those of other similar Cape Cod ponds (2008 data). While Coonamessett Pond does experience periods of oxygen stress and anoxia in the bottom waters, in comparison to other ponds, oxygen conditions were relatively healthy and stable.

Our monitoring also included nutrient analysis and water clarity measurements. Although fresh water lakes and ponds are generally nutrient-limited by phosphorus, nitrogen (another critical element for growth and easier to analyze since it is present in higher abundance) is frequently used to evaluate water quality. For Cape Cod ponds, total nitrogen concentrations (includes dissolved and particulate forms) with concentrations below 0.16 mg/L are considered to be “unimpacted” and concentrations below 0.31 mg/L are considered to be “healthy.” Total nitrogen levels above 0.31 mg/L are cause for concern. Of 688 Cape Cod freshwater pond surface water samples (<0.5 m depth) compiled by the Cape Cod Pond and Lake Stewardship (PALS), 21.6% of the samples are in the healthy range, with almost none (1.1%) being unimpacted. By comparison, for the Coonamessett Pond surface waters, all measured value were in the healthy range with an average total nitrogen concentration of 0.25 ± 0.2 mg/L. To relate our observations on the Pond to something tangible to canoeists, kayakers, swimmers and those who prefer to gaze upon (and look into) the pond, we compared the total nitrogen content and Secchi disc depth readings to the PALS database of Capewide ponds. (A Secchi disc depth is the depth at which a round black and white checkered disc disappears from view when lowered from the surface. It is simple, has been around for ages and represents the accumulated effect of biological, chemical and physical processes and

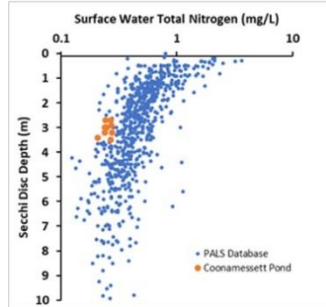


events that may be hard to determine from targeted measurements.)

The graph below compares surface water (less than 0.5 m) values of total nitrogen against Secchi disc depths and provides several interesting

items for our ecological evaluation of Coonamessett Pond. First, it places our total nitrogen concentration measurements

into the context of the PALS data along the horizontal axis. Please note that the values along this axis are plotted in “log scale” which is a way to make lower concentration value separate from one another.



The values from Coonamessett Pond (orange circles) fall into the lower end of the range, but there are locations with less total nitrogen, so we must not rest on our laurels and think our job is done. Of interest and possible concern is that the Secchi disc depths are low (meaning water clarity is limited) when compared to the other values with similar total nitrogen (data below our measurements). Another way of looking at this is that other places with similar Secchi disc depths have significantly high total nitrogen loads (data to the right of our measurements). This observation could be of significant concern as the most basic analysis of pond water quality is that clear water equates to healthier water for Cape ponds.

Why the pond water clarity is compromised despite relative low total nitrogen is a question we cannot definitively answer, but one possibility is that excess phosphate may be promoting the growth of light blocking algae and driving nitrogen to low levels. This idea is consistent with the APCC finding bloom-forming cyanobacteria in all their samples, albeit at low levels. Such blooms often occur with high phosphate driving nitrogen depletion, which cyanobacterial compensate for by “fixing” their own nitrogen.

Our pilot study provides a foundation for evaluating the ecological state of Coonamessett Pond in relation to other neighboring ponds on Cape Cod. While we did observe an extended period of anoxia in the bottom waters along the main channel that runs north-south along the eastern edge of the pond, on average, the levels are mostly above the minimum regulatory limit of 5 mg/L. Regarding total nitrogen loading, the concentrations we measured in the surface waters were low relative to other ponds on Cape Cod, but reduced Secchi disc depths in relation to the nitrogen load and repeated observations of toxin-producing, bloom-forming cyanobacteria suggests other water quality compromising processes are at play.

As an organization, we must decide what to do going forward. The most aggressive strategy would be to implement a long-term program that includes seasonal sonde surveys, nutrient



analysis, Secchi disc depth readings, and cyanobacterial bloom monitoring. Of course, these efforts will require financial resources and an organized member-based field program. Funding is required for obtaining a suitable vessel for safe and effective sampling, establishing sampling protocols and equipment that are compatible with the PALS recommendations minimally, purchasing and maintaining a sonde, laboratory analysis of water samples, training volunteers, and coordinating with partners such as PALS and the Falmouth Water Stewards. While this appears daunting, we have demonstrated that the CPA has the knowledge and will to take on this important task.

At our upcoming meeting, we invite you to share your thoughts about our findings, ideas for future efforts, and most important your willingness to get behind the CPA to develop a program that supports out stated mission to “enhance and maintain the ecological balance

that gives the Coonamessett Pond its special character.”

References:

Eichner, E.M., T.C. Cambareri, G. Belfit, D. McCaffery, S. Michaud, and B. Smith. 2003. Cape Cod Pond and Lake Atlas. Cape Cod Commission. Barnstable, MA.

Eichner, E. 2008. Brewster Freshwater Ponds: Water Quality Status and Recommendations for Future Activities. Coastal Systems Program, School for Marine Science and Technology, University of Massachusetts Dartmouth and Cape Cod Commission. New Bedford and Barnstable, MA. 98 pp.

Acknowledgements: *Dave Jewett, Bryan Horsley, and Casey Kennedy contributed to this article.*

PALS Laboratory Data provided without cost and in support of the Cape Cod Pond and Lake Stewardship (PALS) Program by: Coastal Systems Group, School for Marine Science and Technology, University of Massachusetts Dartmouth. All Rights Reserved. No permission required for non-commercial use.

In memory of Debby McIntosh.

We are saddened by the loss of our previous



Treasurer and long time land steward here at Atamansit, Debby McIntosh, who passed away suddenly this winter. We will plant a shrub along next to the bench on the conservation trail that was placed in memory of

Debby's husband Rick who passed away two years ago. They will both be missed.

The CPA Annual Meeting!

SAVE THE DATE!! Our annual meeting will be at The Coonamessett Farm from 5:00-8:15 on Sunday, August 25th located at 277 Hatchville Rd. E. Falmouth. There will be a potluck before the meeting. A Reminder that everyone is requested to bring a **dinner item in one of four categories: Appetizers, salads, dinner items, and dessert. Please bring your own alcohol beverages. (BYOB)** and a dish to share for eight. The CPA will provide a variety of non-alcoholic beverages, plates, napkins, utensils, colorful flower arrangements, and general good cheer.

A brief meeting will follow the dinner. It includes the treasurer's report, election of new board members, and stewardship reports, followed by a dynamic speaker, Kristin Andres, Director of Education, and Outreach at the Association for the Preservation of Cape Cod (APCC). She has been involved with APCC's native plant initiative and has promoted ecological land care and thoughtful stewardship of managing landscapes. She has served the town of Chatham as a conservation agent for 16 years and is knowledgeable about ecological landscaping and sustainable land care practices. We look forward to her enlightening us on how we can be better stewards of the earth with pond health, climate-wise land care practices, and native plant use!



Membership Renewal and Dues

Please help us through your membership dues. The information is enclosed.

Our membership period is July 1, 2019 through June 30, 2020.

Just fill out the enclosed form (print please) and mail it along with your **check to PO Box 1393, North Falmouth, MA 02556.**

We have provided a self-addressed envelope for your convenience.

We thank you in advance for your support!