



**Salt Ponds
Coalition**

The Tidal Page

News of the Rhode Island Salt Ponds

www.saltpondscoalition.org

Official Watershed Council for the Salt Ponds

Fall 2016



**Sand Flat on Ninigret Pond
Spring 2015**

A Busy Summer for SPC!

As Art mentions in his President's Letter, this summer was busy for SPC! We are happy that we were able to reach out to so many people and families, and hope to grow our outreach in future years. When SPC combines all of its summer programs and outreach, it is evident that we reached over 600 people. And that is probably a conservative number. This doesn't include the outreach that we do via email, Facebook, and of course our newsletter as well.

In late June, we hosted a Coastal Lawn Care Seminar featuring Vanessa Venturini, a Master Gardener from the University of Rhode Island. She spoke to us about what any person could do in their own back yard to have a nice lawn and still protect the ponds. Tom Gentz and Virginia Lee from the Charlestown Town Council also came and spoke about the town's initiative to protect its drinking water. That night we had about twenty people in attendance.

Throughout the summer, we also hosted our free public programming – specifically our ever popular Salt Pond Safaris and our guided paddle tours. We hosted five highly attended salt pond safaris throughout the months of June, July, and August. Each safari had about 15-20+ children plus their families. Art also led two well attended kayak trips, one on Quonnie and the other on Winnapaug Pond; both trips had about 20 kayakers.

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Rust Tide on the Salt Ponds

by Claire Hodson

If you have been out on the salt ponds or the ocean in the past month, you may have noticed red-brown patches on the surface of the water. This is a naturally occurring phenomenon called Rust Tide. Rust Tide is a large plankton concentration (bloom) of a dinoflagellate known as *Cochlodinium polykrikoides*, an organism with red photosynthetic pigments that cause the rust color. Large blooms are wide-spread all along the Atlantic coast from Virginia north into Massachusetts, and this is not the first time it has plagued Rhode Island's coastal waters. While Rust Tide occurs in some level most summers, Dave Borkman, of the Department of Environmental Management, believes that this is the biggest bloom we have seen.

The two most important factors leading to the Rust Tide bloom are high nutrients and warm water. These conditions have been prevalent in our salt ponds for at least the last decade and have increasingly become a concern. Scientists believe that the dry summer and onslaught of significant rain events and stormwater runoff in late August and early September may have led to the severity of this year's bloom. Additionally, drought conditions may have reduced estuarine circulation causing water to be more stagnant, thus allowing *Cochlodinium* cells to accumulate and grow. The Salt Ponds Coalition has received reports of the bloom in all six ponds we monitor; many of these reports have come from pond residents concerned for their health.

Fortunately, while Rust Tide looks fairly similar to Red Tide, a phenomenon that has resulted in shellfish closures both north and south of Rhode Island, it is not known to be toxic to humans or mature fish and shellfish. However, when the plankton die they decompose and this process uses up the oxygen in the water, creating

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Message From Our President

Dear members,

It was a whirlwind summer! (That is why this issue is late.) Since the early spring Alicia, our intern Claire, and I have been out in the community. We have greatly expanded our educational programs through school field trips and community groups. We estimate that over 200 hundred children have had the opportunity to learn about our salt ponds and why they are so important. We have addressed over ten community



groups to present what citizens can do to protect our salt ponds watershed. Finally, our Quonnie kayak trip was a big success and we thank historian Bill Wilson for helping out. Our September kayak trip on Winnapaug Pond was equally successful. This year we had a great turnout for both trips.

We continue to be involved in the progress of the Charlestown Breachway dredging and salt marsh restoration scheduled to begin in November. The planning and permitting process for both Quonnie and Weekapaug Breachway dredging and marsh restoration is underway. Alicia and I continue to be engaged in the Beach SAMP process, and continue our efforts to seek a balance between the ever-expanding aquaculture leases and protect the public's activities around the ponds. Partnering with the Town of Charlestown and URI, we secured a grant from the USEPA to further expand wastewater management in the Green Hill watershed.

Financially, we continue to do well but have had a couple of setbacks. Not the least of which was the General Assembly cutting community grants, which included funding to the R.I. Rivers Council (RIRC). A RIRC grant has supported several sampling stations not funded by donations. We currently have insufficient station sponsorship for sites in Point Judith and Potter Pond.

Our Pond Watcher results from 2015 were delivered by URI in June, and we will post our results and AHI as soon as we get caught up from our busy summer! So stay tuned.

This year we welcome Ann Manion to the Board. Ann has been working with us over the past year. She is a resident of Green Hill and runs a marketing firm. She has many good ideas for us to develop over the next few months, which hopefully will increase our visibility and expand membership.

I certainly want to thank our retiring Directors: Martha, David, and Mark for many years of dedication. Special thanks to our Board, volunteer Pond Watchers, and Alicia for a job well done. Thanks to all for your continued support. Please ask your neighbors and friends to join SPC, which is tax-deductible donation.



Rhode Island Rivers Council and the Rhode Island Water Resources Board are sponsors of SPC's water quality monitoring program.



Salt Ponds Coalition

The Salt Ponds Coalition stands up for the health and sustainable use of the southern Rhode Island salt ponds. SPC is the only organization whose sole charter is to monitor and protect these unique resources.

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Thank you to our Retiring Directors

by Art Ganz

I am sad to report the retirement of three long serving Directors. All three have been faithful volunteers.

Martha Hosp

Martha Hosp has been a Board Member for over 15 years, and during that time has been involved in every aspect of SPC. She has been and will continue to be an advisor and confidant. Her legal expertise and guidance has shaped SPC in many ways. Through her administrative skills, she has updated our by-laws, administered our annual elections, been fundraising chair, and served on the planning team of all our fundraising events.



David Bailey

David Bailey was our Secretary and served on our planning committee. He served on the Board of Directors for almost 10 years. Using his great whit and pleasing smile while serving as our raffle ticket seller at fundraisers always brought in great donations!



Mark Bullinger

Mark Bullinger served first as our Executive Director, and later on the Board. Mark began our "Tidal Page" newsletter and established the quality, which has been kept up by Alicia. Mark ramped up the Salt Pond Safari program, which also has been expanded by Alicia. He promises to return to SPC when his job obligations allow.



These folks have been great supporters of SPC and we thank them for their service.

Welcome to our Newest Board Member

At the annual meeting this year, we voted to add one new Board Member.

Ann Manion

Salt Ponds Coalition would like to welcome Ann Manion to the Board of Directors. As a summer resident of Green Hill, Ann first entered the salt ponds scene last summer with the introduction of GreenHillRocks.com, a blog that shares her love for the Green Hill area and her drive to protect South County's natural treasures. During the colder months, Ann lives in Southborough, MA, with her husband of 22 years, Farzad Parsaie, and her children, John, Mark and James. Ann's background in business and marketing is impressive to say the least. She graduated from the University of Denver with a BSBA, earned her MBA in Service Marketing from Simmons College, Boston, studied International Tourism at Richmond College, London and completed certifications in the culinary arts at the Culinary Institute of America in Hyde Park, NY. Ann has specialized in the management of food & beverage operations, marketing and business development for premium hospitality companies like Marriott International, Omni Hotels, The Bostonian Hotel and Nantucket Island's White Elephant Hotel. Today, Ann owns and leads a digital marketing company [AnnManion.com] serving established businesses and emerging brands. She holds a deep appreciation for the beauty and unique specialness of RI salt ponds, and in the few weeks she has been on the board, Ann has already been a dynamite addition to the Salt Ponds Coalition family.



Thank you to those who came to the 2016 Pizza Party

SPC is so fortunate to have a wonderful membership base that support us. We had another successful Pizza Party this year. Despite the threat of a thunderstorm looming, SPC supporters came out in full force!

We can't thank enough all those who came and donated to SPC. Also, we'd like to extend our thanks to George and Cathy Hill for graciously hosting the event, Martha Hosp for planning the event, and to the rest of the Board for ensuring the party went off without a hitch. Finally, SPC is so grateful to all those who donated raffle items for the Pizza Party including Charlestown Wine and Spirits, the Weekapaug Inn, Diana Sartor, Thomas Dodd, and Martin Bothroyd.



A Busy Summer for SPC, continued.

This year, we also participated in two different camp programs by hosting safaris for the campers. We worked with the Westerly Land Trust and the Tower Street Community Center in Westerly to host safaris on the land trust's Winnapaug Pond adjacent property, the Winnapaug Pond Preserve (pictured). We worked with about 45 campers over three days. We also went to the Weekapaug Yacht Club in Westerly and worked with 50+ campers over four days.

SPC also hit the road giving presentations about who we are and what we do at various places and for different neighborhood groups including the Wakefield Rotary, the South County Museum, and the Museum of Primitive Art and Culture. We had a booth at both Narragansett Environmental Awareness Day and Family Day at the South County Museum where kids could try their hand at testing pond water and identifying local sea shells. Art also spoke at the inaugural meeting of a citizen based group focused on cleaning up Green Hill Pond that Board Member Mary-Gail Smith put together.

Finally, to round out our summer, we hosted our Annual Meeting in August where we had about 50 people attend and Tracey Dalton from URI gave an excellent presentation about user groups on the salt pond and the public perceptions of aquaculture in RI.

All in all, it was a busy summer for SPC. In the future, we hope to grow the number of people that we reach with our message of protecting and preserving our wonderful salt ponds.



Photo: Kelly Presley, WLT



Kayaking on Winnapaug Pond

Prof. Dalton from URI this year's SPC Annual Meeting Speaker

This year's SPC Annual Meeting speaker was Tracey Dalton, a University of Rhode Island Marine Affairs professor and the current Department Chair. Over the past few decades, salt pond use has not only changed but intensified. More people are recognizing the salt ponds as beautiful places for recreation as well as commercial enterprise. Prof. Dalton highlighted some of her findings from her research on recreational uses in the salt ponds and public perceptions of shellfish aquaculture in Rhode Island. We featured an article about her study in the Spring 2015 issue of the Tidal Pages.

The first study that Prof. Dalton spoke about was a project aimed at mapping human activities on the salt ponds. The goal of this study is to better understand when, where, and why people use our coastal ponds. They used a combination of boat-based observations and land-based interviews to compile their data on randomly selected days in Ninigret, Quonochontaug, and Point Judith Ponds. By mapping the data, they are able to get a sense of how people are using the salt ponds, and how they are interacting in space and time. As more and more users are coming to ponds, this data is important as it allows us to see what user groups are compatible and which are not. For example, three of the groups that they studied were kayakers, motor boaters, and beach-goers. Their data showed that kayakers were less favorable than other users about encounters with motor boaters. In contrast to kayakers, motor boaters were less favorable than other users about encounters with beach-goers, kayakers, and even other motor boaters. Lastly, beach-goers were more favorable than other users about encounters with motor boaters. Why is all this important? It may eventually help municipalities and policy makers when making decisions about that could affect salt pond users.

The second set of results that Prof. Dalton spoke about was from a mail survey investigating the public perceptions of shellfish aquaculture in Rhode Island's coastal waters. The goal of this research is to understand why people support or oppose aquaculture and what levels of shellfish aquaculture are most acceptable to Rhode Islanders. Analysis of their data showed that there are several key attitudinal factors that will affect an individual's support for shellfish aquaculture here in Rhode Island. For example, according to Prof. Dalton, those who are supportive often correlate aquaculture with the economic and health benefits of having locally-sourced shellfish; however, perception is negatively influenced by aquaculture farms' effects on aesthetic quality and their interference with other salt ponds users. Their data showed that the perceived social impacts that aquaculture would have on users had a greater impact on the level of support for aquaculture than perceived environmental impacts to the water. To this end, the degree of support is strongly influenced by how and where individuals participate in recreational activities. For example, those who do not directly recreate in the ponds and adjacent shoreline, such as bicycle riders, tend to be more supportive of shellfish aquaculture than those who sail or bird-watch. According to Prof. Dalton, by analyzing and quantifying public opinion of shellfish aquaculture, this study and others like it can be used to "address public concerns, incorporate public perceptions and attitudes into permitting decisions, and

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Sea-Level Rise affects on Septic Systems

by Claire Hodson

Drinking-water quality has been a hot topic around the world for decades. Here in R.I., we approach discussions on drinking water with an air of safety; this is not, after all, the midwest with thousands of miles of chemically treated fields or an undeveloped country with an underdeveloped waste management system. Our water should be fine to drink, right?

For the most part, yes, you will not have any adverse health effects from drinking out of your faucet. However, 100% of Charlestown and much of the surrounding area rely solely on groundwater for their drinking-water. Recent ground water well samples in the salt ponds area show nitrate concentrations between 5 and 10ppm, over 100 times the natural concentration. Unfortunately, levels over 10ppm can cause health concerns for infants and those with compromised immune systems, as well as pollute our ponds. Evidently, we are not as safe as we thought.

Septic systems currently contribute 80% of the nitrates in the ponds, and according to a team of researchers at the University of Rhode Island, this discharge could potentially get a lot worse. A recently published study by doctoral candidate Jennifer Cooper, URI Professor Jose Amador, and research assistant George Loomis, found that a 1-foot increase in sea-level rise and a 5-degree-celsius increase in air temperature would reduce septic systems effectiveness substantially. Systems would have trouble filtering out phosphorous and nitrogen, as well as removing bacteria and carbon. Such compromises would leach potentially harmful nutrients and potentially disease ridden bacteria into our groundwater and nearby waterways. The study determines that under current climate conditions, almost all bacteria, phosphorus, and carbon were filtered from the wastewater before it reached groundwater and between 5% and 12% of nitrogen was removed. However, when climate related increases in temperature and water table level were simulated, "contaminant removal declines across the board".

This is a consequence of how conventional septic systems are designed. According to Amador, a professor of soil science, "[i]n conventional septic systems, we rely on the soil to remove bacteria, phosphorous, carbon, and nitrogen before treated effluent reaches the groundwater... When sea-level rises, it makes the water table rise, and that reduces the distance between groundwater and the drainfield. It means there is less of an opportunity for the soil to treat the wastewater before it reaches the groundwater." Similarly, increases in temperature reduce the soil's ability to absorb contaminates.

Researchers suggest that town wastewater management officials should immediately start thinking about how to upgrade existing systems and change design regulations. Loomis suggests implementing advanced nitrogen removal systems which rely less on soil for treatment, and shallow pressurized drainfields, which do not require as much depth to the water table for filtration. However, in the last decade, the town of Charlestown already underwent extensive septic system reform and updating home wastewater treatment systems is a very expensive ordeal, averaging about \$30,000 per household.

If we do not make these changes, what is at stake? Environmental degradation due to nitrogen loading and bacteria contamination is a frequently visited topic in our salt ponds. Excess nitrogen can produce algal blooms which results in a phenomenon called eutrophication. This leads to a lack of oxygen in the water, causing fish kills and reducing ecosystem viability for a wide array of organisms. Too much nitrogen in the groundwater contributes to eutrophication when the water table interacts with water bodies, and nitrogen levels around and above 10ppm can cause blue baby syndrome. Bacteria in the water is responsible for shell-fishing closures and exposure can cause a variety of diseases. We have already experienced shell-fish closures in Green Hill Pond and some areas are even closed to swimming. Similarly, algal blooms covered acres of pond surface water in late August. If septic system leakage has already caused such problems, it is imperative that something is done before climate change begins to amplify this contamination. Locally, this study put the relationship between climate change and the need for septic system reform on the political map. Residents and town representatives must work together to help ameliorate the problem before the projected sea level and temperature increases.

Sources:

- <http://www.ecori.org/climate-change/2016/9/8/sea-level-rise-to-reduce-effectiveness-of-home-septic-systems>
- *Town of Charlestown, Protect Your Drinking Water, Spring 2016*

Town of Charlestown awarded EPA Grant, and SPC is a partner

The town of Charlestown was awarded a grant from the U.S. Environmental Protection Agency (EPA) on September 16 to fund a four year project focused on protecting our salt ponds (specifically Green Hill, Ninigret, and Quonochontaug) and groundwater in this area. SPC is excited to be a partner in this project with the town of Charlestown along with the University of Rhode Island and Save the Bay. The town received \$674,201 in grant money and will contribute \$20,518 in fiscal match and \$184,141 in in-kind match. The goal of this grant is to quantify the nutrients in the salt ponds and reduce their impacts. This grant is aimed at improving older septic systems and for fine tuning de-nitrification systems in the area. This grant will also help the town develop a recommended landscaper process, install demonstration rain gardens on town property, and establish water sampling stations in Green Hill Pond to track the impact of nutrients. Stay tuned for more information as we get it!

A Tale of Two Ponds: Potter and Point Judith Ponds

In this newsletter, we finish our “Tale of Two Ponds” series using our 2014 data. It is here that we will keep you up to date on our water quality monitoring results two ponds at a time; this year we have been going from western Rhode Island and working our way east. In this installment, we will have a look at Potter and Point Judith Ponds. We have

received our 2015 data, and are in the process of analyzing it. Stay tuned for the results!

Water quality results are presented as Aquatic Health Indices (AHI). The AHI scores water quality results on a scale of 0 to 100, like a school report card. For AHIs, a score of less than 35 is poor and a score of greater than 65 is good. AHIs are calculated and summarized at three levels: for each testing parameter (dissolved oxygen (DO), chlorophyll-A, dissolved inorganic nitro-

gen (DIN), total organic nitrogen (TON), and Secchi depth (a measure of water clarity)), for each site, and for each pond (Figure 1). We produce a one-page report for each pond showing a table of AHI values and a map with symbols for each AHI score (Figure 2). These reports are available on our web site: www.saltpondscoalition.org. There you will also find more detailed data reports for each sampling site and parameter.

Figure 3 is a plot of average AHI values for Potter Pond, where SPC is currently monitoring two sites: Mid-Pond and North Pond. The overall AHI score for Potter Pond was 49.4 or Fair-. Both sites in Potter Pond had a decline in AHI score in 2014 as compared to their 2013 scores. Despite the decline, the AHI scores for the North Pond site are too variable from year to year to determine a trend. At the Mid-Pond site, the overall trend water quality shows a decline, but there is a weak fit of the data to the trendline showing this decline ($r^2 = 0.25$).

The Chlorophyll-A scores did change in Potter Pond. At the Mid-Pond site they improved from Fair+ to Good, but they decreased from Fair- to Poor at the North Basin site. The score for Dissolved Inorganic Nitrogen (DIN) in the water at both sites decreased between 2013 and 2014 – both had a score that was is classified as Poor. Mid-Pond had the more dramatic decrease, falling from the Good score of 70.2 to a poor score of 18.5.

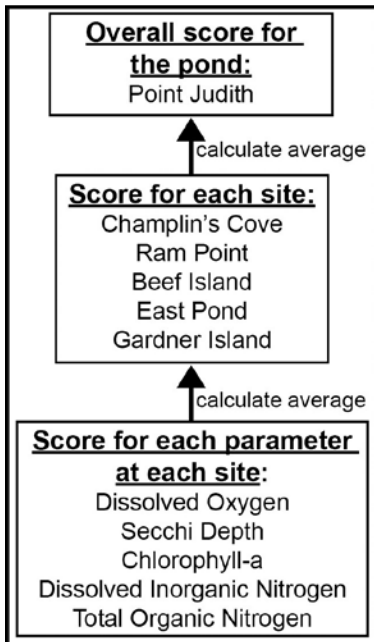


Figure One

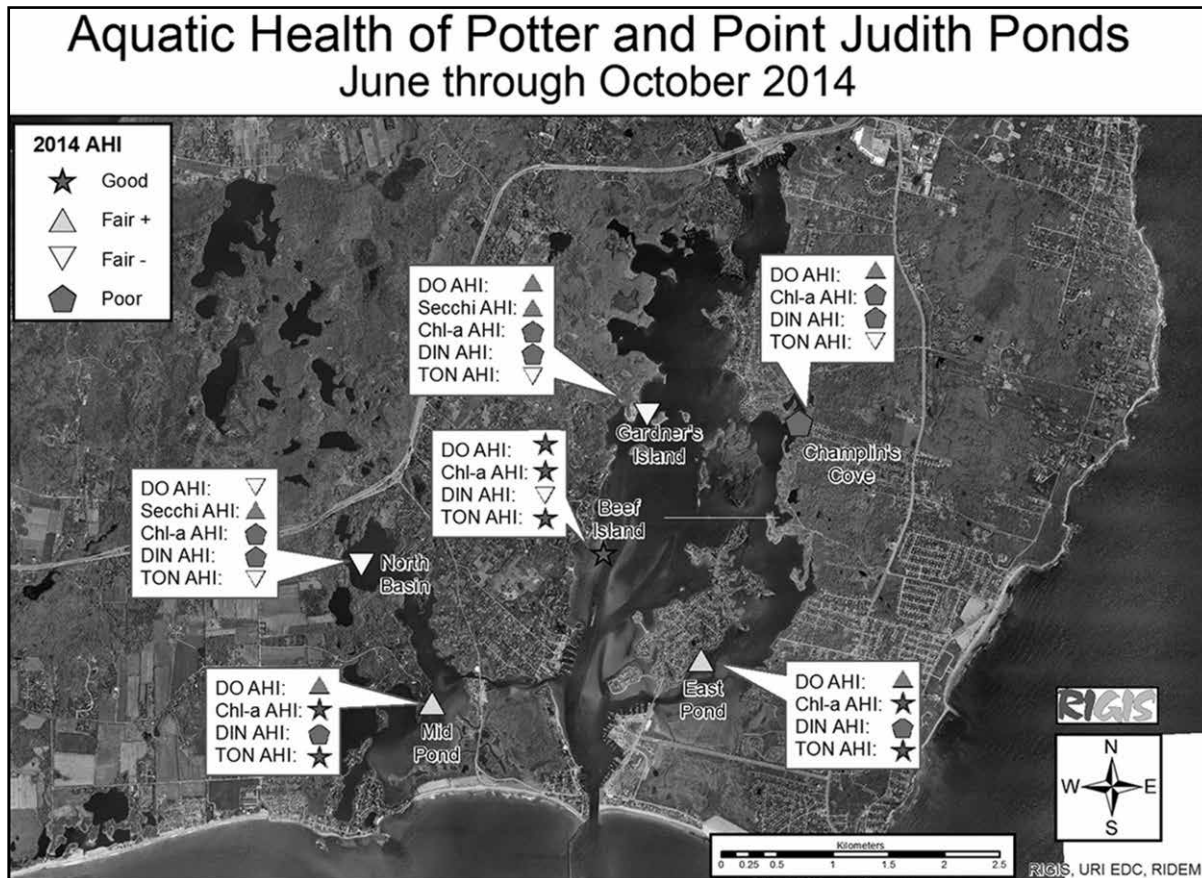


Figure Two

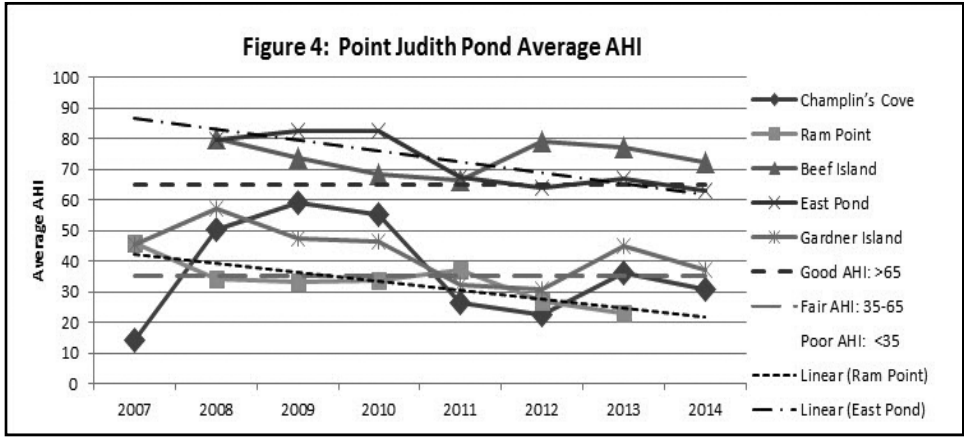
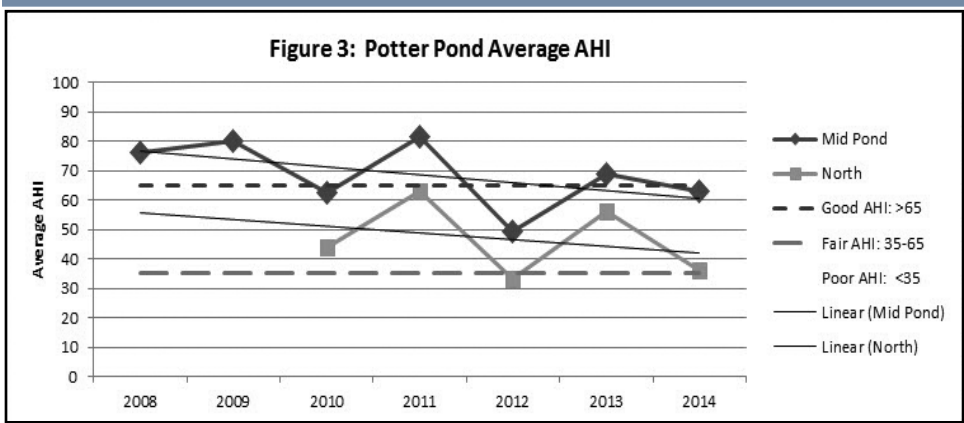


Figure 4 is a plot of average AHI values for Pt. Judith Pond, where SPC monitored 4 sites in 2014: Champlin's Cove, Beef Island, East Pond, and Gardner Island. (Ram Point was not sampled in 2014.) The overall AHI score for Point Judith Pond was 50.65, or Fair +. At all of the sites, there was a decrease in AHI score between 2013 and

2014. The AHI scores at the Champlin's Cove and Beef Island sites were too variable to determine a trend. At the East Pond site, the overall trend in water quality shows a decline, as indicated by the trendline (moderate fit to the data, $r^2 = 0.75$). At the Gardner Island site, there is a declining trend, as indicated by the trendline (weak fit to the data, $r^2 = 0.37$).

Chlorophyll-A scores remained relatively constant at all sites in Point Judith Pond. Both Champlin's Cove and Gardner Island remained categorized as Poor in regards to Chlorophyll-A, however, we did see improvement in the score at the Gardner Island site. The other two sites in Point Judith are both categorized as Good for Chlorophyll-A. Similar to Potter Pond, all sites saw a decrease in DIN scores between 2013 and 2014, all sites are either in the Fair- or Poor range.

Our "Tale of Two Ponds" articles paint a "big-picture" view of water quality in the ponds. Please see our Status and Trends report and individual one-page reports for each site and parameter, all available on our website, for a more detailed picture of pond health. In a subsequent newsletter, we will present the results from two of the ponds using our 2015 data.

Rust Tide on the Salt Ponds, continued.

dead zones. In this respect, growth of shellfish may be temporarily stunted and many organisms will be unable to survive in these anoxic areas. Additionally, recent research indicates that Rust Tide produces a hydrogen peroxide-like compound that damages the gills of juvenile fish and shellfish such as oysters and bay scallops. In a study conducted in the Chesapeake Bay during a similar Rust Tide bloom in 2007, scientists found that the phytoplankton caused 100% mortality of juvenile fish (*Cyprinodon variegatus*) in less than 24 hours and 20% mortality in juvenile American oysters (~21 mm; *Crassostrea virginica*) within 72 hours. The consequences of this year's bloom on shellfishing have not yet been quantified industry-wide but local oyster farmers are definitely feeling the effects. Nick Papa, owner of East Beach Blondes, an oyster farm on Ninigret Pond, states that "[w]e have experienced a complete halt in growth farm wide on every size and age oyster since the Rust Tide set in. The juveniles that remained in the upweller have seen light mortality. Less than 5%."

Although this event has been significant, the frequency and severity of the blooms reported are becoming less and less. DEM believes that once the waters reach around 60 degrees, Rust Tide will die off entirely. DEM and the Salt Ponds Coalition will continue to monitor the bloom in the coming weeks.

Sources:

- <http://www.ecori.org/climate-change/2016/9/8/sea-level-rise-to-reduce-effectiveness-of-home-septic-systems>
- *Town of Charlestown, Protect Your Drinking Water, Spring 2016*
- *Mulholland, M.R., Morse, R.E., Boneillo, G.E. et al. Estuaries and Coasts (2009) 32: 734. doi:10.1007/s12237-009-9169-5*

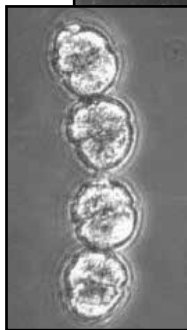
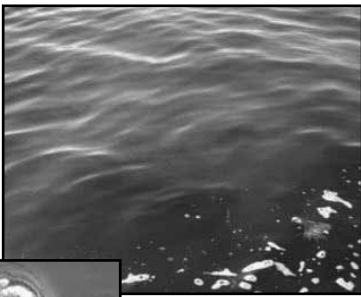


Image of the organism causing rust tide. This chain was found in Ninigret Pond in August 2016.

Photo: David Borkman, RIDEM

A Dismal Fate for the Salt Marsh Sparrow?

by Claire Hodson

In November, the much anticipated Charlestown Breachway dredging and salt marsh restoration project will get underway. Last summer, SPC hosted a lecture series focused on the problems that this project will be addressing. During the second lecture and subsequent Tidal Page (Summer 2015) article, Suzanna Paton from U.S. Fish and Wildlife Service highlighted the plight of the salt marsh sparrow. With new research out on the effects of sea-level rise on salt marsh sparrow reproduction, this project could not come at a more appropriate time.

The salt marsh sparrow is a small songbird with an orange-yellow face and streaked breast and flanks. It lives exclusively in salt marshes in the Atlantic and Gulf Coast. Its total population is estimated at 50,000 individuals, 900 of which live and nest in Rhode Island. While they do forage in the low marsh area, salt marsh sparrows spend most of their life cycle in the high marsh. High marsh differs from low marsh because it only floods occasionally during monthly high tides and storms, whereas low marsh floods with daily high tides. It is this lack of constant flooding that makes the high marsh a successful habitat for saltmarsh sparrow breeding. However, as sea-level rises, the high marsh is being flooded out more frequently or changing to low marsh entirely. Consequently, the sparrows do not have adequate area in which to build their nests and protect their chicks from flooding. Just as the marshes are drowning, the sparrows' nests are as well.

Because habitat and range is so limited, this decline in reproductive success has placed salt marsh sparrows on the International Union for Conservation of Nature (IUCN) vulnerable species list. Earlier research estimated that their populations were declining about 5% per year. However, earlier this summer, University of Connecticut researchers Chris Elphick and Chris Fields estimated that this number is closer to 9% annually. Walter Berry, a research biologist at the Environmental Protection Agency in Narragansett, has conducted annual surveys of saltmarsh sparrows at Ninigret and Quonochontaug since 2007, and while he hasn't observed a population decline during that period, he is pessimistic about their future. Now that the Ninigret Pond marsh restoration project is gearing up for dredging, it is important that the community remains informed and aware of just how much is at stake. The marsh sparrow is but a small resident of our salt ponds, but new research suggests this local treasure will be extinct even sooner than expected. Your support for the restoration project ensures the possibility of saving this species and our salt marshes as well as sets the ground work for similar projects in the future.

Sources:

- <http://www.ecori.org/natural-resources/2016/7/18/extinction-predicted-within-50-years-for-local-sparrow>
- <http://www.providencejournal.com/article/20160409/NEWS/160409256>



Volunteer Spotlight

SPC has quite a few dedicated volunteers. In this newsletter, and others in the future, we will be featuring some of them.

Fred Seebeck

Fred has been an active volunteer with us for the past two summers. He has helped out with many of the safaris that we host for the public, and also helped us out when we worked with some camp groups this year. He is great at engaging the children we work with on our safaris, and passionate about the salt ponds. Fred lives near Ninigret Pond and he loves paddling, paddle boarding, and sailing. He kayaks out toward Ninigret Park every other morning, and on alternate days he heads toward Green Hill Pond. He described paddling on the pond, “[d]uring my last paddle of the summer, I ventured out on a beautiful, calm Sunday morning and saw a couple of dozen blue crabs and horseshoe crabs, an abundance I have never before witnessed. Paddling under a full moon may be my most favorite pastime, though - it's truly breath-taking.”

When not adventuring out on the ponds, Fred teaches freshman and senior English at Loomis Chaffee, including a senior elective called “Literature of the Sea”. He is starting his 34th year at the school, and in addition to teaching he also coaches water polo, swimming, and track. Recently, he took classes at UConn/Avery Point, including a Biological Oceanography class and one called “Archeology in the Age of Sail” about shipwrecks from the 15th – 18th century.

When asked why he likes volunteering for SPC he said, “I love learning from [Alicia] and Claire, especially when we discover something we have rarely seen before (if ever). Even more inspiring to me are the looks of wonder and shouts of glee that we behold when those little kids go wild with excitement.”



Green Hill Community Group organized by SPC Board Member

by *Claire Hodson*

Last summer, Salt Ponds Coalition expressed its concerns about the water quality of Green Hill Pond with “A Call for Action”, an environmental education initiative that used a video, newsletter articles, and community talks to give light to those issues that plague Green Hill Pond. SPC aimed to encourage communities most affected by the Department of Environmental Management’s condemnation of the pond as “impaired” to come together and fight for environmental change. A few weeks ago, Mary-Gail Smith organized an open forum for the Green Hill community that has finally begun this fight.

In the most recent Green Hill Pond meeting, Brian Zalewsky from the Department of Environmental Management presented on the sources of pollution and the viability of proposed solutions. For those of you who did not attend the meeting, the points that Brian addressed align with SPC’s “Call for Action” and offered insight from some of Brian’s previous professional experiences. Below is a summary of his presentation:

Green Hill Pond was once an eden of productivity, harboring a large and healthy oyster population. However, anthropogenic nutrient loading and bacteria pollution have rendered the pond unsuitable for shellfishing. Nitrogen is an important nutrient for plant and algal growth. However, too much nitrogen (i.e. nitrogen loading) can cause algal blooms, carpets of algae that cover large areas of the pond’s surface. These blooms eventually die off, decompose, and ultimately decrease the amount of oxygen in the water, creating oxygen-depleted dead zones where life cannot thrive. Additionally, homes in the immediate Green Hill area, as well as those within the watershed of Green Hill’s tributaries, Teal Pond and Factory Brook, contribute large quantities of coliform bacteria, a potentially harmful bacteria found in human and animal waste. To put it simply, Green Hill Pond is no longer a viable environment for many marine species, and consumption of shellfish from the pond can make you sick.

The majority of this pollution stems from homeowner’s septic systems and lawns. Lawn fertilizer is the most obvious source of excess nitrogen, but waste from pets and geese is also an important contributor of both nitrogen and bacteria. When it rains, runoff washes these pollutants right off your lawns and into our waterways. Brian suggested that Green Hill Pond residents address these issues first. First and foremost, use fertilizer sparingly or not at all. Native vegetation and rain gardens can reduce the need for fertilizer and capture some of those nutrients before they enter the pond (see the Salt Ponds Coalition website for some information on rain gardens). Additionally, geese do not like area of cover where predators can hide; thus, waterfront gardens deter geese from depositing waste in areas that are very vulnerable to runoff. Lastly, pick up after your dog! This simple change completely eliminates a source of nitrogen loading and coliform bacteria.

State ordinance is slowly eliminating cesspools and direct piping of waste into Rhode Island waterways. However, Green Hill neighborhoods are built on filled-in wetlands, where a high water table often interacts with septic systems, increasing the chances that leakage seeps into the pond. This septic system leakage in the entire Green Hill Pond watershed eventually finds its way into the pond. Despite the fact that septic systems contribute ~80% of the nutrients and coliform bacteria, SPC suggests that the small-scale sources are addressed before septic system reform. A reason for this is that while denitrification systems would almost eliminate nitrogen in septic waste; the upgrade cost is substantial at an average of \$30,000 per household. In the early 2000s, the Town of Charlestown offered low interest loans to aid with an incredibly successful septic reform initiative, but Charlestown only accounts for approximately 20% of Green Hill. A successful initiative here requires political support from South Kingstown, a much more challenging feat because Green Hill must compete with Wakefield and Matunuck for attention and funds.

The recent Green Hill Pond community meetings are the first steps in mobilizing the entire community for small-scale and, ultimately, large-scale, environmental action. Despite EPA condemnation, many residents are completely unaware of just how bad the water-quality is. Thus, the first meeting in August was a forum where members of the community were educated on the issues, expressed their concerns, and proposed potential methods for water quality restoration. The goal of this meeting was to evoke concern for pressing environmental issues and give those who attended the ability to spread this concern to other members of the community. The response was so great that Mary-Gail brought together representatives from most neighborhood associations a week later to create a Green Hill Pond committee. This committee will work to integrate community concerns with topics addressed at the various forums in order to accomplish their goals, both in terms of small-scale residential changes and larger-scale changes that require political involvement. As decided in the first committee meeting, the first step is to hear from experts in the realm of water quality restoration to determine the most affective way to approach Green Hill Pond restoration. Brian’s was just the first in a series of meetings.

I think all would agree that it is about time somebody did something. Thank you to Mary-Gail for demanding that the Green Hill community take matters into their own hands and thank you to all who listened. Environmental restoration is a long journey so stay tuned for updates and information on the next Green Hill Pond forum. Visit www.saltpondscoalition.org for more information on what you can do at home to reduce pollution.

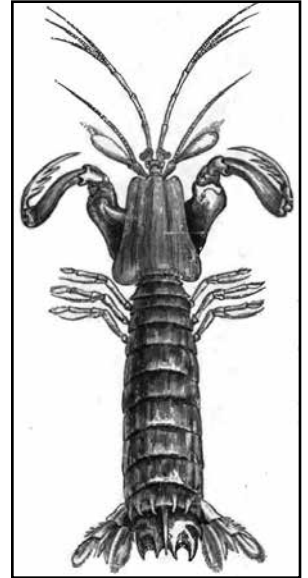
SPC Kids' Corner

This section will highlight some of the amazing aspects of our ponds in a way that will be fun and easy to read by kids! Please share this section with your child, grandchild, niece or nephew, etc. Children really are the future stewards of the environment, so we want to start looking for ways to get them engaged now!

Creature Spotlight: Mantis Shrimp

There are about 400 species of mantis shrimp found around the world. In our salt ponds, we often find Common mantis shrimp, a lobster-like crustacean that burrows in the sandy and muddy bottom.

- They can only grow up to about 12 inches but pound for pound, the mantis shrimp is one of the strongest animals relative to its body size and they can live up to 20 years.
- Unlike many crustaceans, mantis shrimp do not have claws on their front arms. But rather, they have spears or clubs that they can thrust towards their prey at the speed of a bullet shot from a .22 caliber gun! That is 50 times faster than the blink of a human eye! If you could throw a baseball as fast as the mantis shrimp punches, you would launch the ball into space! Because the mantis shrimp is so fast, its punch results in something scientists call cavitation -- a super heated bubble that also exhibits force when it "pops". Between the punch and the bubble, the mantis shrimp's prey doesn't stand a chance!



- While humans have three different photoreceptors in our eyes, allowing us to see colors, mantis shrimp have twelve -- they have the broadest visual spectrum of any animal we know of! Like a lobster, the mantis shrimp's eyes are on stalks that the shrimp can move around. They can even move their eyes in different directions, seeing both in front of and behind their own bodies.
- Some aquariums have mantis shrimp but they have to be careful because a mantis shrimp can break the glass of its own tank!

Mantis Shrimp in Quonochontaug Pond found by Claire!

Puzzle: Mantis Shrimp Edition

Solve the crossword!

Across

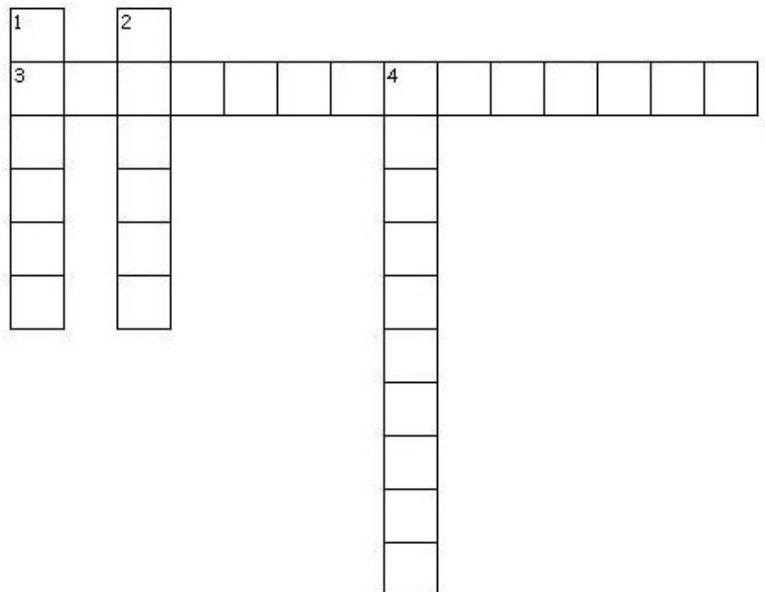
3. Mantis shrimp have 12

Down

1. Mantis shrimp may have these instead of claws

2. Type of mantis shrimp we have in our salt ponds

4. The super-heated bubble caused by the punch



Information from:

- <http://www.kidzone.ws/animals/mantis-shrimp.htm>

SPC Annual Meeting Speaker, continued.

develop outreach targeted at specific stakeholders.”

A second facet of the study is to see how much aquaculture is acceptable in our social system. Studies have been done in the past to determine what the biological carrying capacity of the salt ponds is in regards to aquaculture, but until now, no efforts had been made to do the same on the social front. This is extremely timely as we see the aquaculture industry expand throughout the ponds. The results found that support for and opposition to aquaculture development is not black and white. Respondents cited the waterbody where aquaculture is occurring, the acreage used, and the method of farming as factors that influence their level of support. Furthermore, comparisons among sub-groups of respondents show a difference in opinion of the level beyond which shellfish aquaculture is no longer acceptable, i.e. social carrying capacity. Results of this evaluation can be used in conjunction with physical, ecological, and biological carrying capacity, as well as shellfish management objectives, additional natural resource use, and desired social and economic conditions to better direct policy discussions about shellfish aquaculture development in Rhode Island’s coastal waters.

Full results from these studies will be published soon. As grant money becomes available, Prof. Dalton and her colleagues would like to continue studying the social carrying capacity of the salt ponds.



Follow Us on Facebook and Sign Up for Emails

The easiest way to keep up to date with all things SPC is to follow us on Facebook. Feel free to post on our wall, we love to hear from those following us! Also if you aren’t already receiving emails from SPC, please contact Alicia at saltpondscoalition@gmail.com. She will be happy to put you on SPC’s email list. We send periodic emails out about important upcoming events, and issues affecting the ponds. We encourage you to share our Facebook page and email blasts with friends, family, and neighbors in the area. We love to spread the word about how amazing our salt ponds are and how we can protect them!



We need you to renew your membership for 2016! And if you already have, thank you!

If you have already renewed, thank you for your support! If you haven’t yet renewed, let me first sincerely thank you for your previous support, and ask you to please consider renewing again. The vast majority of our income is from membership donations--you truly are the lifeblood of our organization. Thanks to your support, we can continue advocating for our ponds on the state and local levels, add more years of valuable water quality monitoring data to our 30-year database, take dozens of children on fun and educational Salt Pond Safaris, lead kayak trips, and reach out to the public to educate everyone on how to be a good pond neighbor.

Don’t forget to encourage friends and neighbors to join as well!

Remember that with your renewal of \$250 or more, you can choose a SPC hat: khaki (regular or long-bill), red (regular or long-bill), green, coral, pink, or white. Thank you!

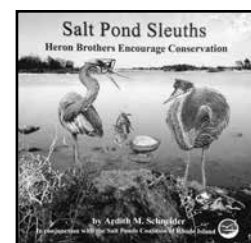


Also, we have a few copies of our children’s book “Salt Pond Sleuths” available for \$10, or \$12.50 if mailed. It is a great story set on our own salt ponds, filled with science facts and a conservation message. And we have 2.5’ x 4’ map banners of the salt pond region for sale for \$20 each.

Lastly, our SPC wine glasses are perfect for drinking your favorite wine or juice. The glasses cost \$10 each, six glasses for \$50 or a dozen for \$100.

Please contact us at (401) 322-

3068 or saltpondscoalition@gmail.com if you would like to purchase any of these items. They can be picked up at the Kettle Pond Visitor Center.





Salt Ponds Coalition

PO Box 875
Charlestown, RI 02813

**Thank you for
your ongoing
support of
our work
on behalf of
the ponds!!!**

Salt Ponds Coalition
is a 501(c)(3)
non-profit.
Gifts to SPC are
tax-deductible.

Please Help Us to Help the Ponds

Please use this form or the card we sent to you in January to renew...
and please ask your friends and neighbors to become members, too.

Please make checks payable to Salt Ponds Coalition. SPC memberships are for the current calendar year.

- \$1000 + Benefactor
- \$500 - \$999 Steward
- \$250 - \$499 Advocate
- \$150 - \$249 Sustaining
- \$75 - \$149 Supporting
- \$40 - \$74 Contributing

Name: _____

Permanent Address _____

Town _____ State _____ Zip _____

Summer Address _____

Town _____ State _____ Zip _____

Email _____

Phone _____

Check if you would like a hat with your \$250+ membership, and circle the color you'd like: khaki khaki long-bill red red long-bill green pink coral white

Our sampling stations cost \$625 per season in lab fees alone. Please consider sponsoring a station or banding with a group of neighbors to sponsor a station.



Salt Ponds Coalition

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02813
401-322-3068

*We appreciate
your continued
generous
support!*

\$ _____ Donation to the
Aukerman Scholarship Fund

Abby Aukerman Scholarship Fund

Please help us fund this worthwhile scholarship, which helps support a deserving undergraduate student in marine studies at URI. If you would like to make a contribution to the scholarship fund, please use the form above and fill in the amount of your gift at left.