



Bats: Miraculous Mammals of the Night

OPET Annual Meeting
Thursday, August 8th, 7pm

Sea Education Association
171 Woods Hole Road, Falmouth

Come learn about our local bats and the valuable role they play in our ecosystems at the OPET Annual Meeting. One bat can eat up to 3,000 insects a night! Dr. Luanne Johnson, a biologist at BiodiversityWorks on Martha's Vineyard, is our featured speaker. She will talk about their long term study of northern long-eared bats.

We may also get to hear the bats that live in OPET's conservation lands! Luanne will lend us a bat detector that we will place on our lands overnight. Bat detectors convert the bat echolocation signals to audible frequencies for human ears. We hope to hear our neighborhood bats calling during their flight and feeding. Luanne will also discuss BiodiversityWorks' research on how northern long-eared bats are persisting on Martha's Vineyard despite the white-nose syndrome that has decimated populations elsewhere.

It's a Wonderful Life ... on the Pond?

What would Oyster Pond look like if the Oyster Pond Environmental Trust (OPET) never existed? Clarence the guardian angel isn't available to take us on a review of the past 25 years to show us what the pond might look like today like he did for George Bailey. However, we know it would be a very different pond!

Without OPET...

Algal blooms might be an annual summer event!

Remember the terrible summer of 2016 when Oyster Pond was literally pea-soup green? A convergence of events created the worst algal bloom in recent memory. There was little to no rain. The flow out of Trunk River was slow because phragmites plants, sand and gravel had gradually filled the river. Meanwhile the lagoon had filled with decomposing eelgrass. As a result, the water in the pond became stagnant and less salty. Furthermore, the hot sun evaporated the pond water concentrating the nutrients in the pond.



Testing found five types of algae growing in the samples including cyanobacteria which can be toxic in large doses or with long term exposure. We don't know if the bloom ever reached toxic levels, but we took the precaution of informing the public and warning them to avoid contact with the water.



Smelly muck being dredged from the lagoon in Feb. 2017.

The bloom was comprised of freshwater species which flourished as the salinity in the pond dropped, so OPET focused on increasing the inflow of salt water from the Sound. Our goal was to increase the salinity

(continued on page 4)

Join OPET Today!

Your Donations make it possible to continue our work to conserve and protect the natural environment and ecological systems of Oyster Pond.

Officers & Directors 2018–2019

President - Melinda Hall

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Clerk - Meredith Golden

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Dana Rodin	Richard Hale
Jonathan Smith	Bill Kerfoot
Mike Spall	Steve Leighton
Dan Vlock	Martin Monk

Visit our web site at www.opet.org

Or send us an email at - info@opet.org

OPET Board meetings are open to all OPET members. Meetings are at 4:30 pm on the second or third Sunday of the month at the Treetops Clubhouse.

*We are a 501 c3 organization.
Contributions are tax deductible.
Tax Id number—04-3278142*



A Message from Melinda Hall, OPET President

Welcome to another summer in the watershed! Maybe you have seen the swans with their cygnets on the pond; or maybe you've spotted coyotes, the fisher cat, foxes and other wildlife that inhabits or passes through the Headwaters land. Some abutters have even seen the piebald deer! These opportunities make Falmouth – indeed, Cape Cod – such a special place to live. We, the OPET board, strive to keep Oyster Pond and the Headwaters property special by providing the necessary oversight, while inviting friends and neighbors to enjoy them (responsibly!).

This past year, we completed the trail brochure with its map of hiking trails in the Headwaters and Zinn Park properties. Brochures are stocked in a waterproof holder on the kiosk at the Fells Rd. entrance: they are proving very popular!

We have also begun the process of surveying the boundaries of our new property: Conservation restrictions require OPET to responsibly use the conservation land and to make sure that no one is encroaching on it. Dumping and gardening could introduce invasive species onto OPET's property while storage or dumping of toxic materials could impact the ground water and the pond.

OPET has finally received permission to treat the remaining stand of phragmites at the southern end of Oyster Pond, along the bike path. This will open new vistas of the pond. The work has been approved by the Town and funds have been procured from the Falmouth's Community Preservation Committee and the Woods Hole Foundation. You can expect to start seeing results this summer.

Winter storms brought the usual drama to the pond, and also supplied it with salt, as seawater advanced up Trunk River, through the lagoon, and over the weir into the pond (see opposite page). In the absence of storms, the tendency is for the pond's salinity to decrease, so these occasional injections of salt are necessary to maintain the desired balance. It is important, too, to keep Trunk River free of sediment, so that the natural outflow occurs. Our executive director has worked with the Town to incorporate regular dredging into the normal maintenance budget.

Monitoring the pond and the land is a continual process. We invite you to explore both, and contact us with your comments and concerns: we want to know what you think!

Gifts to OPET in memory of:

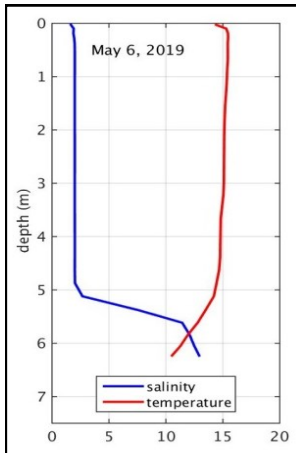
- ♥ **Dr. Artemas J. Stewart** from Jean H. Stewart
- ♥ **Barbara and Barry Norris** from John & Evelyn Steele
- ♥ **Barry Norris** from Wendy & Ed Slate, Meredith Golden & Bob Chen, Jeanne Ripps, Mary Lou Welch and Joan Wickersham
- ♥ **Friederun and Holger Jannasch** from Hans & Elizabeth Jannasch
- ♥ **Jayne A. Starosta** from Peter & Cynthia Starosta

- ♥ **Werner Loewenstein** from Joel Martin & Laurie Baefsky
- ♥ **Irwin M. Golden** from Meredith Golden & Bob Chen
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- ♥ **Cameron Gifford** from Mary & Roger Lester
- ♥ **David Sykes** from Dorene Sykes
- ♥ **H. Alfred Allenby** from Scott & Kim Muma
- ♥ **Jean Milliken** from Jean McAuliffe
- ♥ **Lewis P. Rowland, MD** from Esther Rowland

Monitoring Changes in Oyster Pond

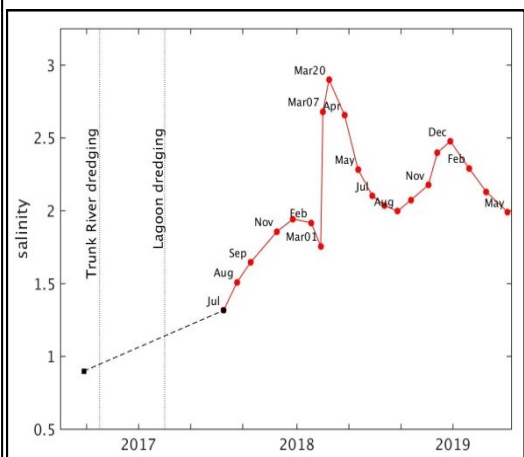
by Mike Spall

The salinity and temperature of Oyster Pond are crucial to the health of the ecosystem. Oyster Pond hosts a year-round population of white perch and is a spawning ground for anadromous herring. It is also home to a variety of turtles and birds. The pond receives freshwater from rain, surface flow from Mosquito Creek (in the northern basin), and ground water from the Oyster Pond watershed. Most of the time water is flowing from Oyster Pond out Trunk River and into Vineyard Sound. During times of strong storms and/or high tides the flow in Trunk River reverses and flows into Oyster Pond. This brings salty water into the pond and is crucial to maintaining a healthy pond ecosystem. The freshwater inflow combined with this intermittent injection of high salinity water results in a two-layer structure in the pond, warm, low-salinity water over most of the pond and cold, high-salinity water in the deepest parts of the pond. Temperature and salinity profiles taken in the deep basin at the southern end of the pond on May 6, 2019 show this layering.



Profiles of temperature (deg C) & salinity (ppt) at the south end of the pond - May 6, 2019.

The surface waters in Oyster Pond must have a salinity of between 2 and 4 ppt for optimal health and to prevent toxic algal blooms. The 2016 algal bloom was caused in part



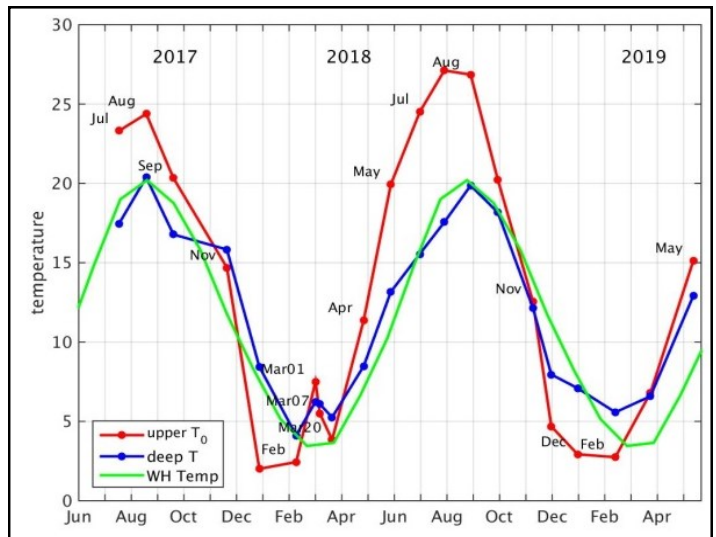
Salinity in Oyster Pond since 2017.

by the poor exchange between Trunk River and Vineyard Sound which inhibited the inflow of salty water. As a result, the salinity in the pond dropped to less than 1 ppt. In re-

sponse to this, the Town of Falmouth dredged Trunk River in the fall of 2016 and dredged the lagoon in February of 2017. Since that time we have been using instruments provided to OPET by Dr. Malcolm Scully at the Woods Hole Oceanographic Institution to monitor on a monthly basis the temperature and salinity throughout the pond.

The dredging increased the pond salinity into the desired range. The natural cycle we have found from these surveys shows an increase in salinity in winter/spring, when storms are prevalent, and a decrease over the rest of the year when runoff flushes the pond.

Not surprisingly, the temperature in Oyster Pond has a very large seasonal cycle. The upper pond warms to over 25 C (77 F) in summer and drops to about 3 C (37 F) in winter. The deepest part of the pond also has a strong seasonal cycle, although it warms to only about 20 C (68 F) in summer. The deep temperature closely follows the climatological temperature of the waters in Vineyard Sound, indicated here by the monthly average temperature



Temperature in Oyster Pond from 2017 to present.

Red: upper pond Blue: deep pond Green: climatological temperature in Woods Hole

at the Woods Hole Oceanographic Institution dock (green line). In the winter the water at the bottom of the pond is actually warmer than the water near the surface. This is because the surface water is also very fresh, and so is less dense than the saltier water near the bottom.

At present, the salinity is about 2 ppt, near the low end of the preferred range. While monitoring will continue, the recent drop in salinity is of some concern and may indicate a need for another dredging of Trunk River.

(continued from page 1) from the very low 0.9 parts per thousand (ppt) to at least 2ppt. (Vineyard Sound has a salinity of 32ppt).

We worked closely with the Town of Falmouth, particularly with Chuck Martinsen, the Town's herring warden, to reopen the exchange. Trunk River was dredged twice that summer and in February the following winter, Chuck arranged for a crane and a 1,000 foot dragline to remove 750 cubic yards of muck from the lagoon. It worked! We continue to monitor the salinity levels and work with the Town to keep the exchange open. (See page 3).

The shoreline habitat would be overrun with invasive reeds.

In 2006, OPET started our campaign to remove the exotic, invasive reed *Phragmites Australis* from the southern shore of Oyster Pond. The native vegetation was completely overrun with a wall of phragmites. Shorelines are an important habitat link be-



Before—2006

tween water and uplands and support a diversity of life. Not only were the phragmites a major ecological problem, they also destroyed the beauty and enjoyability of the pond.

We employed applicators to treat the phragmites and Americorps and OPET volunteers to remove the reeds. Now, nearly 98% of the phragmites has been removed from the treated areas. The remaining patch will be tackled this summer thanks to the new owners on Surf Drive who are allowing us access to their land. Hooray!

Best of all, native vegetation long choked out by the phragmites is rebounding. This preserves habitats for birds, fish and animals that depend on native plants for food sources and shelter. Funding from Falmouth Community Preservation Fund and the Woods Hole Foundation helped defray the majority of costs for this work.



Now

Trunk River would no longer flow freely to Vineyard Sound.

OPET constantly monitors the flow of Trunk River to make sure the pond is flushing as it should. As stated above, a blockage can cause the pond to be too fresh. Salinity in Oyster Pond is like Goldilocks: we don't want too little or too much – it has to be just right. Between 2ppt to 4ppt is optimal for the herring and white perch populations, and to prevent toxic algal blooms.

The pond flows under Surf Drive into the lagoon and then Trunk River. It is easy for this system to be impacted by storms. We alert the town when the channel needs to be dredged. OPET also wants to keep the channel open for the local river herring. In the spring we hand dig the channel (in consultation with Chuck Martinsen) to make sure the herring can reach the pond to spawn.



Americorps cheerfully removing phragmites from Trunk River.

OPET removed invasive phragmites from the river thanks again to the help of Americorps. It was a huge effort! These pesky plants had crept into the channel slowing the water exchange. Maintaining Trunk River is key to maintaining the health of the pond!

The Headwaters property might have been developed into 10 to 17 (or more) houses.

When OPET heard that the Woods Hole Oceanographic Institution (WHOI) was divesting itself of

properties not related to its core mission, we approached them about purchasing the properties adjacent to our conservation land, Zinn Park. After negotiations and a huge fund raising effort, OPET raised the \$2 million to purchase the land in 2015. Now the 22 acres of wetland, forest, vernal pools and shoreline are preserved in perpetuity. We have completed a network of trails linking the highlights of the lands and now the beauty of this property can be enjoyed by all.

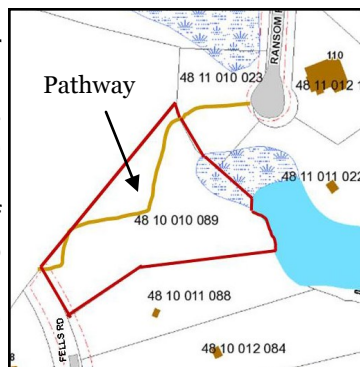
This development would have added more nitrogen to an already stressed pond system.

High nitrogen levels already degrade Oyster Pond's water quality and the primary source of this nitrogen is from septic systems. Reducing this source will be the key to restoring Oyster Pond to a healthier ecosystem. One of our overriding reasons to purchase the Headwaters property was to prevent introducing more wastewater flow from new septic systems into the pond's watershed.

The Town is now reviewing plans to reduce the amount of nitrogen in the pond either by sewerage part of the Oyster Pond watershed or requiring homeowners to upgrade to advanced low nitrogen emitting septic systems. OPET is closely monitoring this discussion and will keep our members up-to-date about the Town's plans. The Town will make a decision sometime within the year.

The pathway between Ransom Rd & Fells Rd would now be under a house.

Many people never realized that the popular footpath linking Ransom Road and Fells Road was owned by WHOI until we purchased the property. The lot at the end of Fells and adjacent to Spohr Garden was a particularly attractive



and valuable property. It likely would have been cleared and a house built right over the pathway. This pathway is heavily used not only by neighbors, but also people at the institutions across the street on Woods Hole Road to reach the bike path.

Thankfully, NONE of this happened because people who cared about the pond formed OPET.

Two groups who shared an interest in the health of the pond joined together in 1994 to create OPET. The first group, the Oyster Pond Trust, was formed in 1986 to prevent four fragile wetland lots from being turned into a housing development. The wetlands flow into Mosquito Creek, the only surface water source to Oyster Pond. After several legal battles, they ultimately purchased the property to prevent the development. It is now OPET's conservation land known as Zinn Park.

The other group was comprised of volunteers for the Falmouth Pond Watch who sampled Oyster Pond. The Falmouth Pond Watch was formed in 1987 to track the precipitous drop in the water quality of the Town's salt ponds. Volunteers took systematic water samples and documented how water quality had dropped since Falmouth's housing boom. As nitrogen levels in the ponds increased, the water quality dropped.

These two groups came together to form OPET in the fall of 1994 and incorporated the next year. They created the only organization whose mission is to monitor and protect Oyster Pond.

None of the above distressing scenarios have come to pass because you and people like you have supported OPET over the years. Just as it has been for the past 25 years, Oyster Pond's ecological health will remain OPET's top priority into the future.

This is why your continuing support is so important!

Thank you!

Gifts to OPET in honor of:

- ♥ **Cecily Coles Selby** from George & Katharine Woodwell
- ♥ **OPET Board** from Cecily Selby
- ♥ **Lou Turner** from Stephen Turner
- ♥ **Norman Allenby** from Millicent Allenby
- ♥ **Mindy Hall, OPET President** from Leslie Hall

- ♥ **Lou and Lee Turner** from Judy Ziss
- ♥ **June Kolzak** from Nancy Barnett & George Taylor
- ♥ **Wendi Buesseler** from Anne-Marie Runfola & Ken Kostel
- ♥ **John and Judy Dowling** from George W. Logan
- ♥ **Birgit Loewenstein** from Joel Martin & Laurie Baefsky



This fisher cat has been lurking around the Oyster Pond neighborhood. They are not related to cats, but to martens, otters and weasels. Nor do they fish. They eat rabbits, squirrels, raccoons, mice, reptiles, amphibians, dead fish and occasionally house cats (so keep cats indoors!). Fishers once roamed the forests of Cape Cod, but all but vanished once the canal was built. They resurfaced in 2005 and sightings have increased significantly since then.



**Bats: Miraculous
Mammals of the Night**
Presented by
Dr. Luanne Johnson
of BiodiversityWorks
at the
OPET Annual Meeting

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Sea Education Association
171 Woods Hole Road, Falmouth
Light Refreshments Served

OPET Annual Meeting — Thursday, August 8th at 7pm



**The Oyster Pond
Environmental
Trust**

**P.O. Box 496
Woods Hole, MA 02543**

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