



OPET Initiates Water Quality Monitoring Program for Oyster Pond

For its size, Oyster Pond is one of the best studied coastal ponds on Earth. Pioneering research by K.O. Emery in the 1960s has been followed up with numerous additional studies of physical, chemical, and biological aspects of the ecosystem. In spite of this long history of research, available data are insufficient to adequately assess the current health of the pond. For example, we really don't know how the combined impacts of increasing nutrient inputs from the watershed and reduced tidal exchange with Vineyard Sound are altering the Oyster Pond ecosystem. Without this knowledge, management options for improving water quality, reducing nuisance algal blooms, improving fish habitat, and in general optimizing the health of the ecosystem will be hindered.

To help fill the data gap, OPET began a water quality monitoring program in spring 2005. The sampling is being done by Wendi Buesseler, OPET consultant, and Kate Bulygina of the Woods Hole Research Center. The

plan is to collect water quality samples approximately monthly on an ongoing basis, which will allow seasonal and interannual trends in water quality to be related to the ecological health of the pond. Samples are collected from several locations throughout Oyster Pond, including three sites along the axis of the pond, four sites near the shoreline, and at the outlet of the pond near the weir. In addition to measuring temperature, dissolved oxy-



Kate Bulygina taking water samples at the weir.

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Meet Two New OPET Board Members

We would like to welcome two new members to the OPET Board of Directors. One, Max Holmes, is replacing Eric Davidson as the board representative from the Woods



New Director, Michael McNaught

Hole Research Center. Having built their new facility within the watershed of Oyster Pond, it seemed like a perfect match to include the Woods Hole Research Center on the OPET Board and it has been a win-win relationship ever since. OPET has benefited from their environmental expertise and they have welcomed the opportunity to have a working relationship with the local community. Thank-

you, Eric, for your leadership on the board and for sharing your knowledge of environmental science over the past 5 years. We look forward to a continued relationship with you both professionally and personally. The other new board member is a recent year-round resident to Falmouth, Michael McNaught.

Michael, originally from England, attended Trinity College at Oxford, receiving an undergraduate degree in history. He then did his post-graduate study at Oxford University in the education department. Fortunately for us, he decided to "cross the pond" in 1961 and teach in New York for one year. The rest, as they say, is history. In 1968, he became the Headmaster of the Berkshire Country Day School. He and his wife Lyn then moved to New Canaan, CT and in 1976, Michael became the new upper school Headmaster of the New Canaan Country School. After 20 years, he stepped down to become the Dean of Faculty and Math Department Chairman of the upper school. During this time, Lyn, also a teacher, started and became Executive Director of Horizons, a student enrichment program for underprivileged kids. Horizons eventually grew to a national program and Lyn is currently serving on the Board of Directors.

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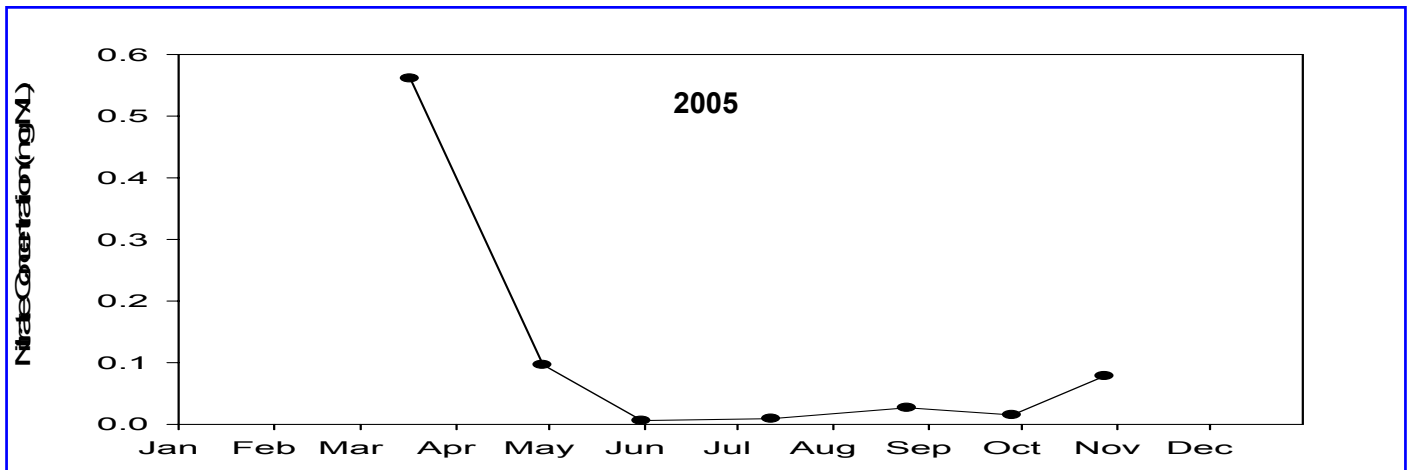
Water Quality Monitoring, continued from page 1

gen, pH, conductivity, salinity, and water clarity in the field, samples are also analyzed for concentrations of nitrate, ammonium, total nitrogen, and total phosphorus at the Woods Hole Research Center.

Nitrogen input is one of the most important variables regulating the health of the Oyster Pond ecosystem. Though some nitrogen is essential to the functioning of all ecosystems, too much can lead to severe degradation of ecosystem health. Throughout Cape Cod and indeed throughout much of the world, increasing nitrogen inputs to coastal waters are causing a wide range of environmental problems including nuisance algal blooms, loss

of eelgrass and shellfish habitat, and oxygen depletion resulting in fish kills. In Oyster Pond, nitrogen inputs have increase many-fold since Colonial times, with the largest sources being wastewater from septic systems and leaching of nitrogen from fertilizers applied to lawns and gardens in the Oyster Pond watershed. In winter when biological activity is low, nitrogen concentrations in the pond are elevated, reflecting the high inputs from the watershed. In contrast, concentrations of nitrogen in the pond during summer are relatively low, because nutrient uptake by phytoplankton and macroalgae in the pond draws down nitrogen concentrations in the water-column.

Whether the increased phytoplankton and macroalgal



Seasonal change in nitrate concentration near the Treetops dock.

Though nitrogen inputs are relatively constant throughout the year because of stable groundwater inputs, nitrate concentration in Oyster Pond varies greatly depending on whether biological activity (uptake by phytoplankton and macroalgae) removes nutrients from the water-column. As would be expected, the nitrate data demonstrate that biological activity is highest during the summer months.

growth in the pond caused by elevated nitrogen inputs is having deleterious impacts on the health of the pond is an important question that the new OPET water quality monitoring program will help to answer.

Sampling results will be posted on the OPET website (www.opet.org) and updated throughout the year. We will also periodically post data summaries and reports.

Though the primary purpose of this program is local monitoring of the health of the Oyster Pond ecosystem, the data will also be freely available to all others interested in Oyster Pond. In a sense, this water quality monitoring program is a continuation of the legacy of scientific study of Oyster Pond begun decades ago by K.O. Emery.

R. Max Holmes

Officers & Directors 2005–2006

Robert King, <i>President</i>	<i>Directors</i> Carl Breivogel	Arthur Silverstein
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Barry Norris, <i>Treasurer</i>	Max Holmes	<i>Consultant</i> Wendi Buessler
	Michael McNaught	<i>Hon. Board Member</i>
	Dana Rodin	Robert Livingstone

OPET Board meetings are open to all OPET members. Meetings are usually held on the third Sunday of the month, at 4:30 pm in the Treetops Clubhouse.

We'd love to have you come!

OPET does not have an official phone, but you can leave a message at 508-540-7345. We'll gladly get back to you!

Or e-mail asirasking@aol.com or bisler@adelphia.net.

Please visit our website, www.opet.org.

State Enacts 3 Year Moratorium on the Taking of Herring



Due to drastic declines in river herring populations across the state, the Massachusetts Marine Fisheries Advisory Commission approved a 3-year moratorium on the harvest, possession or sale of river herring from all state waters through 2008. This means no one can take herring from the Trunk River or Oyster Pond for the next three years.

At the hearing held by the Massachusetts Division of Marine Fisheries (DMF) on the proposed closings, I heard some disheartening statistics. While herring populations normally experience cyclical ups and downs, the majority of runs in the state have experienced continuous declines for the past six years. This past spring's numbers were the worst yet. Runs that normally supported 300,000 fish were down to only 4,000. Some runs had no fish at all. The average run was 20% of what it was 6 years ago.

The exact cause of the population crash is unknown, although a combination of factors is suspected. The drought in 2000 and 2001 probably limited the number of fish entering and exiting their spawning waters. Legal

catching in combination with illegal poaching also has some unknown impact.

Offshore pair trawlers might also play a role, as herring populations are falling across the region. River herring might be caught as a "by-catch" of sea herring or other fisheries. Connecticut and New Hampshire have already enacted moratoriums on the taking of river herring. Rhode Island will follow Massachusetts' lead and also close their runs.

Hopefully the 3-year moratorium will give the herring a chance to rebound. Mike Armstrong of DMF said keeping sufficient water in the streams and rivers herring use for migrating to their natal ponds is the number one priority in maintaining healthy populations.

This highlights the importance of OPET continuing to monitor and maintain Trunk River, Oyster Pond's conduit to the sea. Our resident herring were one of the few runs to see an **increase** in population this past spring. Let's hope we can continue this trend and build up the remnants of this once historic population.

Wendi Buesseler

Oyster Pond's Invaders: Phragmites and Purple Loosestrife Update

This spring the Wetlands Invasives Steering Committee (WISC) will release 10,000 beetles in the Oyster Pond and Salt Pond areas to reduce the exotic invasive plant purple loosestrife. In late summer, OPET is looking for volunteers to help remove the phragmites that are invading Oyster Pond's shoreline.

Why do we need to use beetles for the loosestrife, why not just cut or treat the plant with herbicides?

Beetles are by far the most efficient method for long-term control of loosestrife. A single plant can produce up to 300,000 seeds annually. These seeds remain viable for years in the soil, ready to sprout at any time.

Why do we need to remove the loosestrife? The purple flowers are pretty.

Unfortunately, purple loosestrife spreads rapidly into wetlands forming impenetrable stands that overrun our native wetland plants. Loosestrife is already rapidly replacing Oyster Pond's native cattail marshes. With little wildlife value, our neighborhood birds, butterflies and turtles lose their food and shelter sources to this "purple plague".

Will the beetles attack my garden plants?

Two species of beetles will be released, *Galerucella californiensis* and *Galerucella pusilla*. Both are host specific to loosestrife, meaning they only lay eggs on loosestrife

and their larva only feed on loosestrife. Rarely, adults may feed for a short while on other plants. These beetles prefer loosestrife to all other plants. The USDA rigorously tested them for potential impacts prior to approving their use in 1992. Since then dozens of states have used them with much success. The only problem, there are not enough beetles to meet the demand!

How long will it take?

By the second season, the plants will be reduced in size and scope, perhaps up to 80%. It may take 3 to 5 years to completely eradicate or at least control the loosestrife, giving native vegetation a chance to remerge or at least compete.

What about Phragmites? Can we use the beetles for them also?

Sadly, no. Human effort is still needed to control this even more widespread exotic invasive. The canes are cut off in late August and Rodeo, an herbicide similar to Roundup, is dropped into each hollow cane. Phragmites then pull the pesticide deep into its root zone as it prepares for winter. It takes a few years for this to work.

Who will be cutting and removing the phragmites next summer?

OPET volunteers! OPET is organizing a workday in late August to treat the phragmites population ringing Oyster Pond. **We enthusiastically welcome all volunteers!** If interested, please phone or email and we can add you to our contact list.

Wendi Buesseler

New Board Members , continued from page 1

Michael and his family first came to Falmouth in 1976. They bought their present home in 1978 and summered here with their two children. He and his wife both retired in 2004 and moved to Falmouth permanently. Michael has always been keenly interested in the environment and, already aware of OPET, was eager to become a more active member. We are sure this interest, coupled with his exceptional teaching and administrative background, will greatly enhance our organization. As well as being on the OPET board, Michael is the Vice-chairman of the Berkshire Choral Festival and is a member of the Falmouth Chorale and the St. Barnabas Church choir. He is a US Civil War authority and is also a genealogy expert.

OPET's other new board member, R. Max Holmes, is an associate scientist at the Woods Hole Research Center. Max received his undergraduate degree in Texas. From there he went to Michigan State University and earned a Master's degree in science, studying fresh water ecosystems. This led him to a PhD from Arizona State University, working on fresh water rivers and streams. Upon the completion of his PhD in 1995, he took a post-doctorial position with the Ecosystems Lab at MBL in Woods Hole. Here he was introduced to the marine environment studying estuaries, and eventually became more interested in climate change and the environment. This was also an introduction to his wife, Gabrielle. Gabrielle is a PhD student with the Boston University Marine Program at MBL, where she is studying estuarine ecosystems. She is also a member of Falmouth Associations Concerned with Salt Ponds and Estuaries (FACES) board of directors. Max then moved

to the Woods Hole Research Center in early 2005 where he is currently studying climate change, particularly in the Arctic regions. He also is interested in bringing his research into the classroom of those children living in the Arctic areas and has worked on projects toward this goal.



Max Holmes introducing his new son, Nate, to the pleasures of boating.

Max is an avid fisherman of pretty much any type of fish, he says: salt water or fresh, on-shore or off, fly rod or bamboo pole with a hook. He describes his yard as "littered" with boats to accommodate his fishing. These days though, life is welcomingly confined to home, as he and his wife are the new parents of a baby boy, Nathaniel. A fishing buddy for sure. Congratulations and welcome to the board, both Max and Michael.

Susan Gagosian

Upcoming Events for 2006

Keep these events in mind in 2006. As dates are still tentative, please contact us if you are interested in helping. We can add you to our email or phone list. Contact information is on page 2.

Zinn Park Cleanup Day

Volunteers are needed to clear debris from paths on OPET's conservation land. Third Weekend in May

OPET Annual Meeting

Third week in July

Phragmites Removal Work Day

End of Aug. (See page 3).



Lou Turner and Wendi Buesseler work to clear a fallen tree from a pathway during the Zinn Park work day in November.