

The Watershed

Vol. 8, No. 2

The Oyster Pond Environmental Trust Newsletter

Spring 2004

OPET, P.O. Box 496, Woods Hole, MA 02543-0496

OPET Officers and Directors Elected

Officers

Robert King
President

Eric Davidson
Vice President

Bill Kerfoot
Clerk

Barry Norris
Treasurer

Consultant

Wendi Buesseler

Directors

Carl Breivogel
Jonathan Davis

John Dowling
Susan Gagosian
Melinda Hall

Dana Rodin
Arthur Silverstein

Peter Valtin
Martin White

Hon. Boardmember

Robert Livingstone

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

We'd love to have you come! For information call 508-540-7345.

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. And do visit our website,

Spohr Gardens — An OPET Partner by Arthur Silverstein

Over the course of several decades, Charles and Margaret Spohr developed more than six acres of gardens along the shore of Oyster Pond in Quissett, and on both sides of Fells Road. The Pond side is devoted to shady garden plantings, while across Fells Road are two sunny gardens. From the outset, the Spohrs opened the gardens year-round to the public, and it has become one of the foremost treasures of Falmouth.



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OPET Annual Meeting

We have a special treat for this year's OPET Annual Meeting. It will be held at the beautiful Spohr Gardens on **Saturday, July 24th from 2:00 to 4:00 pm**. There will be a short business meeting at 2:30 to review and report on OPET's past year's activities and vote on new board members. A Spohr Gardens member will also present a brief history of the garden.

Following the presentations, you can try your hand at sampling the Pond from the Spohr Gardens dock and/or tour the gardens. Equipment will be set up to demonstrate the sampling techniques used in the ongoing study on the health of Oyster Pond. Spohr Gardens

volunteers will also be stationed around the grounds to answer any questions.

If you are able, we encourage you to please carpool, walk or bike ride to the meeting, as parking space is limited.

Light refreshments will be served. Rain date is Sunday, July 25th.

Spohr Gardens is located at the end of Fells Road. Fells Road is located off Oyster Pond Road near Surf Drive.

Please join us at this lovely spot on the shore of Oyster Pond.

Oyster Pond to Benefit from Estuaries Project

By Wendi Buessler

What are the nutrient sources to Oyster Pond? Where do they come from? What is the “nitrogen threshold” level that Oyster Pond can tolerate before it experiences the negative impacts of nitrogen loading? What are the best management options for reducing nitrogen sources to the Pond? These are questions that will be answered in a study of Oyster Pond under the Estuaries Project, a collaboration between the Massachusetts Department of Environmental Protection, UMASS Dartmouth School of Marine Science and Technology (SMAST), Cape Cod Commission and southeastern Massachusetts communities. Oyster Pond is fortunate to be the 17th out of the 89 estuaries selected for the Project. The ultimate goal of the Estuaries Project is to provide communities with a watershed/estuary computer model that will predict water quality changes of the selected estuaries under different management scenarios.

The four-step process begins with data collection. First, the geographic area that makes up Oyster Pond’s watershed is delineated. Then, the type and amount of nutrients coming from each land use in the watershed (septic systems, storm water runoff, or lawn fertilizers) is estimated. Next, the nitrogen “threshold level” or Total Maximum Daily Loads (TMDLs) is determined based on the level of nutrient the Pond can accept while protecting the embayment health and also meeting water quality standards. This information,

along with other data such as a 3-D embayment circulation model and tidal variations, will be put into a Linked Watershed-Embayment Management Modeling Approach which will link nutrient inputs into Oyster Pond with a circulation model and its nitrogen characteristics.

This Linked Model can then run different management scenarios or “what-ifs” for reducing the nitrogen load to the Pond while assessing their impact. Possible management choices include reducing or eliminating storm water inputs to Oyster Pond, purchasing land to prevent development, upgrading septic systems, and/or reducing fertilizer inputs. Running these different computer scenarios will give the Town of Falmouth the ability to decide how each management option or combinations of options will compare in ease of implementation, cost effectiveness and benefits. Over time, the Linked Model can be updated as land uses or embayment characteristics change. In the end, the hope is that the project will provide a consistent, statewide, scientifically defensible approach to control and manage nutrients on an estuary-by-estuary basis.

Massachusetts DEP, SMAST, and the communities of the selected estuaries share the costs of the program. In April, Falmouth’s Spring Town Meeting voted to appropriate \$73,800 in matching funds to the Estuaries Project for Little Pond, West Falmouth Harbor and Oyster Pond.

OPET Awards Science Fair Prize to FHS Student

By Eric Davidson



Falmouth High School student, Ashley Banks, was awarded the OPET science fair prize for the best project related to the biology, chemistry, or physics of Oyster Pond and its watershed. Entitled “Atmospheric Deposition as a source of Nitrogen,” Ashley’s project demonstrated that rain falling within 100 feet of the Woods Hole Road was enriched in nitrogen relative to rain falling about 300 feet away from the road. Passers-by may have seen Ashley’s white funnels adorning the front lawn of The Woods Hole Research Center, where the study was conducted under the supervision of

Dr. Eric Davidson, an OPET board member. Ashley also placed funnels underneath trees to capture water dripping through the tree canopy, and these samples were even more nitrogen-enriched. The exhaust from automobiles includes nitrogen both as a gas and in tiny particles, called aerosols, which get deposited on nearby foliage. When it rains, this nitrogen gets washed into the soil and may eventually make its way into the groundwater or into surface runoff that goes to Oyster Pond. Nitrogen is one of the nutrients that contributes to noxious algal blooms in the pond. “Vehicular traffic does

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OPET Profile: Bill Kerfoot

By Mindy Hall

If the name Kerfoot sounds familiar, it should: Bill Kerfoot was one of the founding members of the Oyster Pond Trust, which later evolved into OPET; and both he and his wife, Pat (see bio in *Watershed*, Vol. 7, No. 1, winter 2002) have remained dedicated members over the years.

While Bill's formal education was in biology, in which he holds a Ph.D. from Harvard University, his innate engineering abilities and concern for the environment have propelled him through a diverse, decades-long career that has included stints with the Woods Hole Oceanographic Institution, Environmental Devices Corporation (ENDECO) in Marion, the Massachusetts Offshore Oil Exploratory Drilling Program, and the National Oil Spill Response Team, which took him to the Amoco Cadiz spill off the coast of France in 1987. Then, in 1987, he founded K-V Associates, Inc. (renamed Kerfoot Technologies, Inc., in 2004) to develop new environmental devices for groundwater applications and to provide consulting services. It was clearly a good move for Bill, who now holds over 50 patents, the most notable being one patent for soil gas detectors—for detecting leakage from underground tanks; and another for ozone injection systems—for treating contaminated soil and groundwater. He has also found time, in his professional life, to author over 60 publications, as well as numerous chapters in noteworthy environmental engineering books.

Fortunately for the community, Bill's energy and enthusiasm for solving environmental problems doesn't end with his "day job." For years he was a director for the APCC (Association for the Preservation of Cape Cod), and afterwards remained on its scientific advisory board. Bill was particularly busy during the decade of the 80's: besides founding Oyster Pond Trust, he served on the county water resource advisory board from 1979 to 1984. He was also involved with



the Falmouth Planning Board in work that would lead to the nutrient-loading bylaws in the Towns of Falmouth and Mashpee. In 1987, after serving on the Massachusetts ocean sanctuaries study group of the Office of Environmental Affairs in Boston, Bill received a commendation from the U.S. EPA: "In recognition and appreciation for noteworthy contributions and special achievements in environmental protection services."

These days, his involvement with environmental problems continues apace: he is on the board of the Association for the Environmental Health of Soils (AEHS), and is a frequent speaker and contributor to the National Ground Water Association (NGWA). He has served as a Licensed Site Professional (LSP) in the Commonwealth of Massachusetts, and currently heads a group conducting training seminars to consultants and regulators for introducing chemical oxidation processes for groundwater and soil remediation. Clearly, Bill's talents make him an asset not just to OPET, but to all of Cape Cod!

Science Fair, continued from page 2

create an increase of nitrogen deposition closer to the road," concludes Ashley's study. Another FHS student, Faisal Rana, conducted a study of nitrogen in road runoff on both Woods Hole Road and Quissett Avenue. Although he had only a few samples, Faisal's data showed that

nitrogen concentrations are higher in the water running off of the busier Woods Hole Road.

Collaborating with scientists from Cornell University, Eric Davidson is continuing to study the importance of roads and vehicle exhaust as sources

of nitrogen for coastal ponds. Davidson has also written a grant proposal to continue sponsorship of high school science fair projects such as those completed by Ashley Banks and Faisal Rana.

Spohr Gardens, continued from page 1

In the spring, flowering trees and many thousands of daffodils bloom, followed by azalea blossoms and lilies of the valley, then rhododendrons, day lilies, and numerous other species. In addition to the plantings, Charlie Spohr scattered items from his large collection of millstones and bells along the many paths. Along the Pond shoreline, he placed a number of centuries-old large ship anchors, one of which is reputed to have come from HMS Bounty.

In their wills, the Spohrs (who died several years ago) established a

Charitable Trust to ensure that the Gardens would continue to serve the public. They left the greater part of their estate to fund the maintenance of the Gardens, although the principal does not fully cover expenses and fund raising efforts are required to build up the endowment.

One of the great assets of the Gardens is the presence of Oyster Pond and the lovely views from the pondside walk. Thus, the Board of Trustees of the Gardens has a large stake in the health of the Pond, and a strong interest in

the successful activities of the Oyster Pond Environmental Trust.

To this end, the Spohr Gardens and OPET Boards have joined forces to ensure an ecologically healthy Pond and watershed. A member of the OPET Board (Bill Kerfoot) serves on the Garden's Board, and a member of the Garden's Board (Art Silverstein) serves on OPET's Board. More than this, OPET has generously contributed to the Garden's fund raising, and the Garden has provided storage space for OPET's papers and supplies.

In Memoriam...

Pete (Albert) Swain, of Oyster Pond Road and a member of OPET, died in early June at the age 94. His love for the sea led to a lifetime devoted to the ocean as a lobsterman, boat builder, owner of Edwards Boat Yard in East Falmouth and as an assistant harbor master. He leaves behind two sons, a daughter, seven grandchildren, 11 great-grandchildren and his longtime companion, Julie Rankin, also a resident of Oyster Pond Road and an OPET member.

Visit the OPET Website

We would like to remind our readers to visit our online website, <http://www.OPET.org>. Here you will find everything from a history of our organization to a variety of maps, a discussion of projects, and archived newsletters dating back to 1995 (plus a predecessor from 1991). Our photo gallery features Oyster Pond beautifully documented in all four seasons, thanks especially to Birgit Rose, long-time board member. We also provide a list of useful links to related websites of interest, and annual meeting highlights of the past five years. We welcome feedback on the website, so have a look!