



The Oyster Pond Environmental Trust Newsletter
OPET, P.O. Box 496, Woods Hole, MA 02543-0496

Summer 2001

Environmentally Friendly Landscaping for Cape Cod is the topic of Keynote Address at OPET's Annual Meeting July 26th

Please join us for OPET's Annual Meeting, which will take place at 7:30 pm on Thursday, July 26th, in the meeting room at the Sea Education Association on Woods Hole Road, at the corner of Ransom Road. The meeting will begin with the year's overview and reports on OPET's activities, and we will vote on new board members.

Our special program will begin at 8:00 pm, and features a talk on **Environmentally Friendly Landscaping** by guest speaker **Lindsay Strode**. Mr. Strode is owner of Cape Organics in Harwich, who for 16 years has specialized in native and naturalized landscaping, erosion control, and organic lawn and plant care on Cape Cod. Mr. Strode will describe how to plant and maintain a lawn without relying

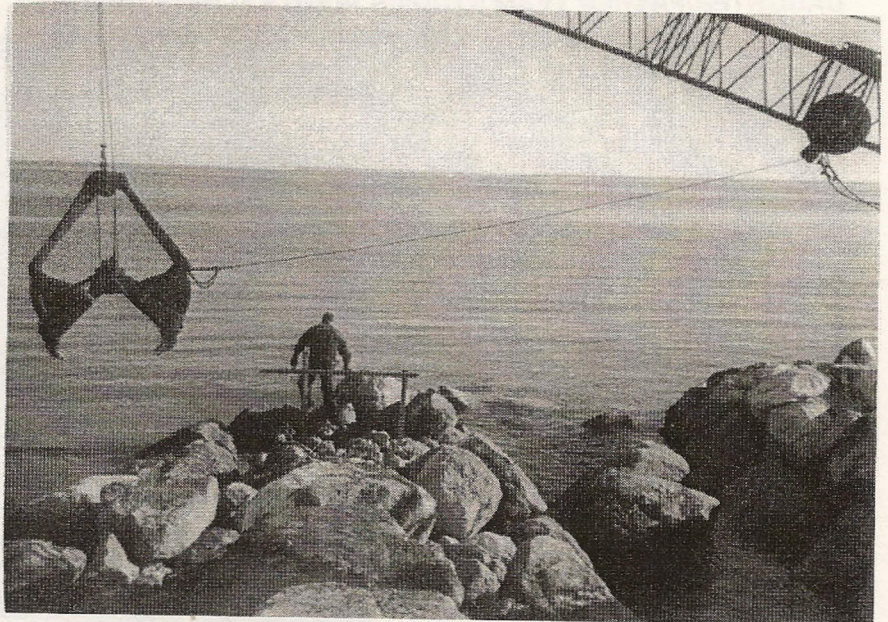
on pesticides and nitrogen-heavy fertilizers that can end up in nearby ponds. He will share with us his prescription for a healthy landscape, which includes soil testing and creating a soil amendment using composted leaves, grass, seaweed and manure. He will also discuss healthy agricultural practices that were in use before man-made chemicals were developed. Mr. Strode's experience has shown that ecological landscaping is viable. By using his approaches we can have beautiful yards and healthy ponds. After the presentation he will be available to answer questions, and then we will adjourn for refreshments and socializing. **Please plan to join us and learn about landscaping that is good for the pond.**

Pond Management Report: Trunk River Project

We thank the Town of Falmouth's Town Meeting, Conservation Commission and Board of Selectmen for agreeing with our plan for the management of Oyster Pond. They came through with the money to do the construction work.

The weir was completed two years ago and now the Trunk River has been dredged, the bottom has been lined and the jetties have been rebuilt. We do not anticipate that any more construction work is needed. What we need to do now is to monitor the salt content in the Pond to accumulate data so we can know how to best set the height of the boards in the weir. Of course, the Trunk River will also have to be monitored to make sure there is no sand build-up. So far, the system seems to be working as planned.

Barry Norris



Winter 2001 Trunk River Jetty Construction

Photo by B. Norris

Bronze Plaque Update

The word is that with luck, by the date of this year's Annual Meeting, the Bronze Plaque honoring those who made major contributions towards the purchase of what is now the Zinn Park, will have been cast, burnished and set in the boulder to mark the park's entrance. Again, thanks to all those who have made this park a reality!

Reminder: go easy on that fertilizer!

Student Projects on Oyster Pond

WHOI PROJECT: WATER FLOW IN THE CULVERT

Jason Hyatt, a graduate student in the WHOI-MIT Joint Program in Oceanography and a resident of Ransom Rd., completed a project for the class "Principles of Oceanographic Instruments Systems - Sensors and Measurements", for which he built a hydrometer from scratch. The goal of the project (entitled OPSaFE, for Oyster Pond Salt Flux Experiment) was to measure flow rate and salinity of water entering or leaving the pond, and correlate it with influencing factors such as precipitation and tides. Life in the pond is sensitive to the pond's salinity, so identifying and understanding factors that change it are important. Working with his professors, **Drs. Sandy Williams** and **Jim Irish**, Jason created a hydrometer (normally a several thousand-dollar instrument) entirely from spare parts, though he confessed that getting it to work was quite a challenge. The 10-ft instrument was installed in the culvert just downstream of the weir. He found that flow in the culvert was nearly always seaward, even during rising tides in Vineyard Sound. Correspondingly, measured salinity remained very low during these times. Exceptions occurred during times of spring tides, the stronger tides associated with full and new moons. Then, flow was towards the pond and high

levels of salinity were recorded. Does this mean all the high-salinity water measured actually reached the pond? Jason does not think so: the instrument and its sensors were near the bottom of the culvert, but the flow on the bottom of the culvert is not the same as that at the surface or as that across the weir. First, water coming from the pond will always be less salty and thus be lighter than water coming in from the lagoon, and hence may flow near the surface with different velocity than the heavier bottom water. Second, in a sort of vertical eddy effect, the incoming water may get deflected upward by the weir and be swept along by the water leaving the pond across the weir. The instrument would log flow towards the pond in the bottom layer, but the incoming water would be circling right back out into the lagoon, flowing in the opposite direction on the surface. Thus, to measure the salinity flux actually entering Oyster Pond, instruments need to be installed upstream of the weir as well. Though the class for which Jason started this project is long over, he plans to continue with the experiment, expanding to include such measurements on the other side of the weir. But first, he's off to Antarctica on the Research Vessel *Palmer* (an ice-breaker) for about seven weeks. Good luck, Jason and keep warm!

By Mindy Hall

DAUGHTER/FATHER TEAM STUDIES POND SALINITY BEFORE & AFTER THE DREDGING OF TRUNK RIVER

Falmouth Academy 7th grader **Emily Tietje** chose to study salinity of Oyster Pond for her science project and won honorable mention for her work. OPET's **Bob Livingstone** offered guidance on location, instrumentation, collection method, and analysis of water samples. Emily's dad, **Jim Tietje**, who, like Emily's mom, grew up on Oyster Pond, did not want to be left out and Emily graciously allowed him to assist in the data collection. In fact, when the school project was finished, Jim continued to sample Oyster Pond for OPET. From November to February, Emily took samples at the weir, at 2 or 3 locations in the pond and in the lagoon. The weather was cold, the pond froze over - no deterrent for this hardy trio! Dad would chip a hole in the thick ice for Emily to take samples and readings and Bob was there to take pictures and give advice. Salinity at all pond locations and at the weir was about 0 parts per thousand (ppt) in November and December. Work on Trunk River began December 21, the pond level fell 9 inches and now storm-related high tides reached the pond and Emily measured an increase in pond salinity to 1.0 ppt. Samplings in February and March by Bob and Jim showed a further gradual increase to the current 2.0 ppt. OPET is grateful to Emily and Jim for their careful and rather heroic study under adverse winter conditions, and to Bob, for his unfailing contributions to OPET's projects!



Emily Tietje, collecting samples, assisted by her father Jim

Photo by R. Livingstone

FOCUS

on

'Vista Pruning'

Fact: Unobstructed views from a house on a pond are nice! But trees and bushes along the shore are important for the pond's health!

Why Trees and Bushes Along Pond Shores are More Important than Vistas. Last winter trees were cut along a section of the Treetops pond shoreline – undoubtedly for a better view of Martha's Vineyard. But did you know that the Wetlands Protection Act forbids most landscaping activities – and definitely tree cutting – within 100 ft of a shoreline without express permission from the Falmouth Conservation Commission (ConComm)? A vegetation buffer zone of at least 100 feet is crucial for the wellbeing of ponds, especially of ponds under pressure from lots of septic systems in its watershed, like Oyster Pond. Trees and brush in this buffer zone intercept fertilizer and pesticide runoff from the yards behind, they stabilize the soil, prevent shore erosion and afford suitable habitat to lots of critters relating to the pond. A wetlands property owner caught cutting trees without a permit from ConComm, will have to appear for a hearing before the Commission and may have to undertake expensive remedial action to mitigate the damage inflicted on the buffer zone. Moral? Think thrice before doing that vista pruning: once for the benefit of the pond, once for saving you the time to appear at a hearing, and once more for keeping the money in your pocket! B. Rose



TreeTops' Pruning along Oyster Pond Winter 2001 Photo by E. Hahn

POND SAMPLINGS

POND LEVEL

Since the repair of the jetties and the associated dredging of Trunk River, the pond level has dropped 9 inches to the target level of the Oyster Pond Management plan. For the first time since its construction, the weir finally is the element in the Oyster Pond-Lagoon-Trunk River system that controls the pond level.

SALINITY

As a consequence of the dredging of Trunk River at the end of December, salinity of the pond has risen to 2 parts per thousand (ppt). Most of the salinity increase probably derived from storm tides associated with strong nor'easters, but nocturnal spring high tides (at full and new moon) have also reached the pond since the dredging

(See Student Projects). Pond salinity is now also within the target limits of the Oyster Pond Management plan!

MOSQUITOES

Last summer, late OPET Board member James Ferguson of the Moors initiated a study on mosquitoes on Oyster Pond by the **Cape Cod Mosquito Control Project**. From July 27 to September 25, Gabrielle Sakolsky of the Project trapped mosquitoes at the Treetops end of the pond and conducted larval surveys in the marshy area along Oyster Pond Rd. Freshwater mosquitoes made up the majority of trapped mosquitoes, with a few brackish species and a single member of a saltwater species among them. She found no larvae during that period.

In Memoriam: Jim Ferguson

OPET Board Member Dr. James J. Ferguson died this past winter. Jim is missed sorely by the Board, for whom he always had good suggestions. He and his wife Pat have generously contributed to OPET towards the purchase of the Zinn Park. In his will, Jim left a further large donation to OPET. Last summer, on behalf of OPET, Jim initiated a study of Oyster Pond mosquitoes by the Barnstable Co. Mosquito Control and attended hearings on the creation of a drinking water and wildlife reserve at the Otis Massachusetts Military Reservation. An MD by training, Jim turned to research in biochemistry, and had a long and distinguished academic career. Jim loved music, played the flute, delighted in sailing, skiing, and gardening. He particularly loved Oyster Pond.

In keeping with OPET's environmentally sound mission, this newsletter is printed on recycled paper and was written using recycled pixels and bytes.



Anatomy of a Jetty: Construction Work Winter 2001

Photo by R. Livingstone

The Shellfish/Herring Warden's Report on the Weir and Jetty

This year's herring run was fairly late and short-lived, but I did see many fish and elvers cross over the weir and into Oyster Pond. To facilitate their run into the pond through a deep enough passage across the weir, I raised the wide portion of the weir by adding a 2x4 to the existing board in late February and lowered the narrow fish chute portion by taking out a 2x4 there. This gave enough water depth for the fish to run into the pond under a variety of conditions. (Also, the fish like the strong flow that resulted from this board configuration.) By mid-May the pond level had lowered so that water only flowed through the fish chute. The herring run being over by end of May even for stragglers, I reset the boards to their original, same-height positions. The repaired jetties appear to be

working well. Very little material was washed into Trunk River during the spring storms. One problem are the small stones used for chinking. Those small loose stones are irresistible to aspiring young marine engineers as well as to old-enough-to-know-better herring poachers to use them for building dams in the river. I have posted signs for the herring season that warn not to move the rocks around, but the summer months will probably see an increase in such stone migration.

Paul Montague, Shellfish Constable, Town of Falmouth

Weir Stories

Do you ever go down to the weir and just stand there and watch what's going on in that stretch between the culvert and the weir? You may be in for a surprise! Recent activities observed during 10-minute watches: A baby snapper turtle trying again and again to buck the current and get to the pond – in vain. Two glass eels (elvers) alternating with the turtle in the same effort – or is it a joyride? Meanwhile a muskrat comes plowing through the culvert and disappears into the rocky bank. On another day, a 2 1/2-foot snapping turtle heaves her/himself across the wide board of the weir and heads upstream for the pond. The water between culvert and weir is thick and black with thousands of 2-inch long alewife fingerlings. They crowd up against the weir, drift toward the culvert, circle back, mill around endlessly. Once in a while, like a silver arrow, one of them flits upstream across the weir. A HUGE turtle head surfaces next to the board – the nostrils open, one eye fixes on me (the other one is missing), the mouth opens and snaps shut over several fish, a tiny tail still showing, and then the head submerges. A much smaller turtle, its back bright green with algae, comes up for air, is shocked by the sight of me, and paddles off in a hurry. A fat, 2-foot or so eel slithers across the board in a flash. The green heron of last *Watershed's* issue is back, anxiously waiting for me to leave so that he/she can fish in

peace. Frequent splashes sound from the culvert, presumably white perch, eel or more turtles trying to catch a meal. A large blue crab now also retreats from my shadow in the water. I take the hint and move to the lagoon-side of the culvert, across Surf Dr. There are lots of



Jason Hyatt positioning hydrometer at the weir
Photo by E. Hahn

mummichogs and other fish I can't identify around the culvert mouth, some with a beautiful blue head, golden-rimmed rounded fins and tail. They all are shy and shoot off into deeper water when I crane my neck over the railing. WHOOSH, SPLASH – an osprey plummets down and grabs a fish not 30 feet from where I stand, and rises with a triumphant wheeeeieeee. All that life in that little stretch of water of our Oyster Pond! B. Rose

OPET needs a sturdy dinghy for pond studies – do you have a 'spare' one to donate or sell?

\$\$\$\$\$\$

Money Matters: From the Treasurer's Books

\$\$\$\$\$\$

For those of you who want to know where *OPET's* money comes from and goes to.

+\$\$\$\$+

OPET Income & Expense

June 2000 through May 2001

-\$\$\$\$-

Income

Book Income	430.15
Cost of Books Sold	-340.49
Total Book Income	\$89.66
Contributions Income	
Membership	6,175.00
Donations	17,959.17
Total Contributions Income	\$24,223.83
Interest Income	411.23
In-kind Contributions (equivalent \$ value)	475.00

Expense

Meetings	75.00
Bank Service Charges	23.30
Dues and Subscriptions	90.00
Insurance	1,663.00
Mortgage	166.32
Office Supplies	84.41
Postage and Delivery	493.18
Printing/Copying	377.44
Professional Fees (CPA)	1,200.00
Fundraising*	77.85
Water Testing	701.00
Taxes	71.35
Telephone	35.57
Website	1,205.00

Total Income**\$ 25,110.06****Total Expense****\$ 6,263.42**

Please note: less than \$100 spent for fundraising!

Oyster Pond, White Perch, Vision Research, and OPET's John Dowling

OPET's founding Board member John Dowling is a neurobiologist interested in how vision works. He bought his house on Oyster Pond in 1981, a time when the pond was teeming with white perch. White perch are very useful donors for the culturing of retinal neurons of the eye, so John began to fish his back 'yard', the Oyster Pond. Assured by a fisheries expert that culling the white perch could only be beneficial for the pond, he took up to 300 fish at a time to his lab at Harvard University. But in the late 80's white perch disappeared at an alarming rate. John wondered "why?" and took an interest in the health of the pond. When Alan White of WHOI began the Falmouth Pond Watchers (FPW) program in 1987, John agreed to help take measurements on Oyster Pond. To this day, John remains 'pond captain' for FPW with Julie Rankin. By 1990, White perch totally disappeared from the pond, barnacles grew on the rocks; oxygen measurements showed that 80 % of the pond was anoxic (without oxygen). This led the scientists directing the Pond Watch program to propose reducing salinity of Oyster Pond to improve its health. In a first step, the town was asked to stop dredging out Trunk River, Oyster Pond's link to the ocean, and by the summers of '93-'94 the pond had become fresher and the oxygen levels improved. The next step was to construct a weir at the efflux end of Oyster Pond to better control the influx of salt water, and finally to repair the jetties of the Trunk River. Thanks to *OPET's* initiative and persistence, these steps were financed and completed by the town. White perch have made a comeback since 1996, it's taken a long time, much money and much work by many, but Oyster Pond is getting healthier! Although John has since moved on to another fish species for his research, he can't resist fishing for white perch in Oyster Pond.

By Erika Hahn

OPET Website Update!

OPET's website, www.opet.org, is online. All the *OPET* Watersheds are there with color photos, you can find info about *OPET*, board members, and additional photos. Soon detailed postings of student-project results will be featured. The website has a site search engine. (In the past 12 months, people who searched the site searched for "oyster"!). Over 1100 visitors have been logged. Len Kreidermacher is the *OPET* contact for the website phone 508- 548-5560 or e-mail serene@capecod.net

Spohr Gardens Update

Mrs. Margaret Spohr passed away in February 2001. People who have enjoyed the flowering gardens on the estate for years have wondered what will happen to the property. Cam Gifford, Trustee of the Margaret K. and Charles Spohr Trust, said the house on the property will be rented in the future, but that the land and gardens will be held in trust in perpetuity for all to enjoy.

By Erika Hahn