The Watershed

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The Oyster Pond Environmental Trust Newsletter **Summer 2008**

***OPET*, P.O. Box 496, Woods Hole, MA 02543-0496** **www.opet.org**

Letter from the President

This year OPET celebrates twenty years of protecting Oyster Pond. The articles in this issue of the Watershed cover several aspects of OPET's history, from our formation in the 1980s, to the purchase of the Zinn Park property, to efforts to stabilize the pond's salinity and revive the fish populations. This is a time to look back and reflect on how far we have come and what we have achieved. I am in only my second year as President of the Board, and I am pleased with and proud of the dedication the Board of Directors has shown in maintaining the health and beauty of Oyster Pond. But I am in awe what of was accomplished before my service on the Board.

This is also a time to look to future challenges; monitoring the increased nitrogen load to the Pond, reducing exotic invasive plants in the Pond's watershed and continuing the periodic cleaning out of Trunk River to insure adult herring can make the trip to Oyster Pond. Keeping Trunk River open continues to be a challenge; the western end of the lagoon is clogged with dead eel grass blown in by storms, blocking the herring migration and contributing to the unsightly summer algal growth and smell. We are actively seeking solutions to all of these problems. We hope that each of you reading this letter support our work and indicate that support by being generous in your financial contributions to OPET. *Thank you, Lou Turner*

Please Join us for the

OPET Annual Meeting

Thursday, July 31, 2008

7pm Light Refreshments

7:30pm Meeting with a Presentation by

Dr. Richard Payne

Chair of the Wetlands Invasive Steering Committee

Phragmites Control:

We're Making Some Headway

Woods Hole Research Center

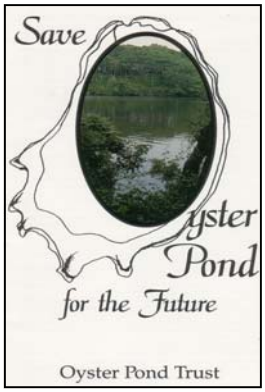
149 Woods Hole Road, Falmouth

OPET: The Early Days *by John Dowling*

OPET was formed in the fall of 1994 and incorporated early the next year. Two groups concerned with the health of the pond joined together to form OPET. The Oyster Pond Trust, begun in 1986 by a group of individuals concerned with the utilization of lands surrounding the Pond, especially the so-called Fisher property (now the Zinn Park) which was to be sold for development; and participants in the Falmouth Pond Watch program who throughout the summer months beginning in 1987 took systematic water samples from the Pond as well as making oxygen and turbidity measurements to monitor the water quality of the Pond.

I had the pleasure of serving as President of OPET from its beginning in 1994 until 1998. We were facing two great challenges at the inception of OPET. The Oyster Pond Trust was then a part of Salt Pond Sanctuaries. The Fisher property had been secured, primarily with monies obtained by a mortgage, but Salt Pond Sanctuaries felt they could not continue the fund-raising efforts to retire the mortgage under the recessionary conditions of the time. They made it clear they wished to rid themselves of this potential liability. OPET agreed to take over the mortgage once our application for 501c3 status was approved, and this occurred early in 1996. Thus, fund raising was an early and urgent need and a top priority of the fledgling organization. Thanks to the generosity of many, we were successful and managed to pay off the mortgage in its entirety by the year 2000.

The other major issue facing OPET concerned the Pond itself and how it should be managed. Although initially a salt water inlet that supported the growth of marine organisms including oysters, it had gradually become brackish as the major entrance to the Pond narrowed. This resulted mainly from natural forces including the build-up of a sand bar across the entrance. In 1875, with the construction of the railroad tracks along the southern end of the Pond, the entrance was completely closed, leaving Trunk River as the only connection between the Pond and Sound. The ecology of the Pond changed to that of a mainly freshwater body with a salt concentration of less than five parts per thousand (ppt). The Pond remained healthy in that state until the mid 1980's. At that time, the number of housing units in the watershed rose substantially, first with the development of Treetops and later SEA. Nitrogen levels in the Pond quickly followed the rise in housing units, and, soon exceeded the level proposed as acceptable by the town's nutrient by-law. In addition, aquatic weed growth began to cover the northern basin causing lower oxygen levels. This was because the outlet culvert under Surf Drive had collapsed, restricting even further the amount of salt water entering the Pond. To encourage the exchange of water between the Pond and the Sound the Town installed a new and much larger culvert was installed by the town between the Pond and the Trunk River lagoon, the hope being that the enhanced water exchange would lower Pond nitrogen levels and increase its salinity somewhat.



A 1989 pamphlet.

Although the added salinity dramatically reduced the freshwater vegetation, it significantly worsened the condition of the Pond by adding to the oxygen depletion. White perch, an especially abundant fish in the Pond, virtually disappeared as did other organisms that had flourished previously. Why? The salinity of the Pond had increased by more than three-fold (>15ppt) and the heavier salt water now in the Pond sank to the bottom and the lighter fresh water coming from springs at the northern end of the Pond stayed on top forming a (continued on page 4)

THE BATTLE TO CREATE ZINN PARK *by Bill Kerfoot*

In 1986 plans were made public to create a housing development on the Stan Fisher property which contained the only spring inflow to the northern end of Oyster Pond. Bill Kerfoot met with neighbors and adjacent landowners to review the environmental impacts of the expected development. Historical pictures to 1860 showed untouched forests and extensive wetlands. A wetlands protection committee was set up and paid Sabatia for a wetlands and coastal vegetation review and engaged legal counsel (Weston, Patrick, and Redding) to fight the development.

Hearings were attended and appeals filed with the DEP and Town boards. At one point, Bill and Dana Rodin hand-cleared an alternative access down the valley of the Butcher/Morris property to show that an alternative access was available instead of using a roadway on a coastal bank for access to the final planned four-lot, 7.5 acre development (originally planned for 8 lots). An independent arbitrator (judge) met with the wetlands committee and legal counsel and clearly stated that the development could not be stopped but only delayed in progress due to current legal rights of the property owner. He advised the committee approach the owner for purchase of the land. The deputy general counsel of the DEP presided over negotiations under wetlands appeal to allow purchase of the land.

The Oyster Pond Trust was formed and a negotiated price worked out. Three parties gathered together $25,000 for an initial deposit (contributors: B. Kerfoot, Holger Jannasch, J. Dowling) and found a sponsor (Herb Willett) to assist in collateral for a loan from Plymouth Savings Bank. (The park parcel was named Eleanor Zinn Memorial Park to reflect her and Don's love of the area.) Barbara Lawrence documented funds received by OPT for Salt Ponds Sanctuaries, Inc.

Pat Kerfoot dedicates the Zinn Park plaque at the Park celebration in 2001. Photo E. Hahn

On September 3, 1988 a fundraising effort was begun at John and Judy Dowling's house for the Oyster Pond Trust, a subsidiary of Salt Ponds Areas Bird Sanctuaries, Inc. Bill Kerfoot, Bob Livingstone, and Paul Crocker authored the Oyster Pond Sentinel which was sent out to all identified homeowners near Oyster Pond.

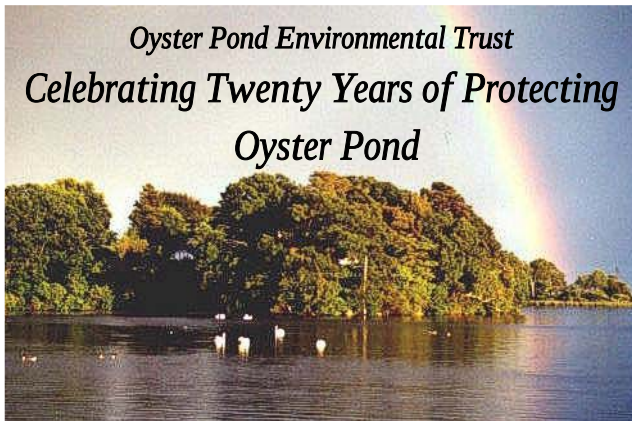
The purchase price of the Fisher parcel was set at $235,000, assuming 9% interest cost on the mortgage, the target to be raised was $380,000. The Oyster Pond Trust assumed a capital campaign, with pledges totaling $125,000 from close neighbors and interested parties.

By 1993 over half the cost of the land had been raised, with only $160,000 remaining on the $380,000 goal. But a recession caused concern for Salt Pond Sanctuaries that the remainder would not be met. Salt Ponds threatened to post a "For Sale" sign on the property and back out of all involvement. The committee was reorganized to form Oyster Pond Environmental Trust. Dana Rodin filed for a separate 501c3, allowing the organization to take charitable contributions. John Dowling was elected the first president with annual meetings at SEA. Cecily Selby worked with John and Judy Dowling to assist in rejuvenated fundraising activities. Salt Pond allowed the computer program for fundraising documentation and personal contact to be transferred to Bill Kerfoot and OPET.

The parcel was renamed Zinn Park after the passing of Don Zinn in 1996, to honor the families' support of Salt Ponds, the special pathways Don would clear, and his great friendship with neighbors. OPET set up a special committee for land acquisition to follow the received funds for the park. All members enthusiastically participated.

By 2000, the loan to Plymouth Savings was paid off. In 2001, a bronze plaque with a short introductory paragraph containing the names of major contributors was placed at the entrance to the park in a September dedication and baptized with champagne by Pat Kerfoot to commemorate its opening.

Watch your mailbox for this invitation! On August 31, OPET is hosting a Fund Raiser to Celebrate Twenty years of Protecting Oyster Pond and to Address Future Challenges.



OYSTER POND HERRING: A PERSONAL HISTORY

by Wendi Buesseler

Scooping Fish by the Bushel

Herring are a "canary in the coal mine" for judging the health and water quality of Oyster Pond. No one knows more about the history of Oyster Pond's resident alewife herring population than Carl Breivogel. Carl saw the historic abundance of fish in Oyster Pond, watched the populations dramatically decline in the 1980s and early 1990s and is hopeful about the current resurgence.

Carl Breivogel (right), George Heufelder and K.O. Emery at the first OPET Annual Meeting in 1995. Photo R. Livingstone

Carl served on the OPET Board of Directors for eight years and is currently the Wellfleet Assistant Herring Warden.

Carl grew up in Falmouth and remembers coming to Trunk River to watch the herring and sea run white perch run into Oyster Pond while a very small boy. He was so young in fact that he can't remember a time when he didn't accompany his father to the Trunk River on Friday nights to watch the spring migration of the fish. Back then, in the 1950s, fish were so abundant that lobstermen and commercial fishermen could bail out bushels of herring over the entire several week spring migration. "The run was so hard and fast that you could scoop and still several dozen fish would pass by," says Carl, "the run seemed inexhaustible, night, after night, after night fish moved up the river." His father told him there used to a small shack at the edge of Trunk River for fishermen to get a little sleep or play cards during the long nights of the spring migration.

Back then, the configuration of the river and lagoon were different. There was a culvert with a clapper valve that covered 2/3 of the opening under the then railroad tracks (now the bike path). North of the culvert to the "elbow" of Trunk River was a long wooden trough. This prevented stones and sand from crumbling into the run and made for easy scooping. The clapper valve allowed fresh water to get out and prevented seaweed from pushing up into the lagoon. Carl remembers the lagoon as a nice little fresh water pond "I caught lots of white perch with a rod and reel" he says "and the entrance to Oyster Pond, where the weir is now located, was a small, shallow stream that you could walk across with knee boots, similar to Trunk River now."

One of the things Carl misses from those times "Is the sense of anticipation and excitement of the spring fish runs. Waiting for the fish was one of the first signs of spring. It was an event when the first herring or white perch started making their way back up Falmouth's streams." His father would wake him up in the middle of the night to say "Herring up", the old Cape Cod expression for when the herring started their run and they would head out to catch some fish.

Change in the 80s

Sometime in the 1980s a change was noticed in the Pond. For the first time, Carl saw water from Trunk River flowing into the Pond at tides when it shouldn't. He attributed it to the DPW over-digging Trunk River, allowing sea water to push farther up into Oyster Pond. This caused dramatic salinity changes in Oyster Pond. Herring and White Perch populations started falling. Once a larger culvert was placed under Surf Drive, this allowed even more salt water into the Pond. Barnacles started showing up on rocks near Treetops at the northern end of the Pond. This was a sign to Carl that the salinity was too high to support fresh water fish populations. But what to do? Many people were concerned, but no one could agree on what the Pond should be. The salinity was randomly changing depending on who operated the DPW back hoe and how deeply they dug out the River, not on science.

Carl took his concerns to Don Bourne of the American Littoral Society. Don Bourne received a grant to start a series of "Pond Lunchers" meetings to discuss the science and the management issues of Oyster Pond. Individuals with an interest and/or expertise would meet monthly at lunchtime. Many of the attendees became OPET members. Participants were asked to write down their views and concerns on the Pond, Carl wrote 25 pages of handwritten notes, a sign of his knowledge and dedication to the fish of Oyster Pond!

During this time the herring and other fish populations were steadily declining. Yellow perch appeared to completely disappear. Yellow perch in particular are a significant loss as Carl says "They tend to be prolific, like weeds." On a peak night when other runs in town were teeming with fish, Carl saw only 4 herring and no sea run white perch in Trunk River.

Present and Future

Once the weir was put in place, which limited the inflow of salt water except on the very highest tides, herring started to make a comeback. Not only did this keep the Pond at the target salinity, but it also stabilized the Pond, preventing the previous wide swings. During one month period in 1992, salinity jumped from 14ppt to 6ppt and back up to 13ppt.

After a few years of improved conditions, the herring started to make a comeback. "We have come a long way from the crash of the mid 1990s," according to Carl. While other runs in Falmouth are declining or remain steady, Trunk River, though it has its ups and downs, is steadily increasing. Of course it is still not what it could be and there are many possible reasons for that. Off shore herring fisheries still play an unknown role. Though this fishery catches sea herring, river herring might be caught up in the

Herring fry gather at the weir. Photo by R. Livingston

nets. There are still obstacles in the run itself, rocks in the river and problems in the lagoon might cause an unknown loss. All these things need to be investigated and monitored. This will allow us to once again wait in anticipation for large spring runs of fish coming up the Trunk River and into Oyster Pond and call out "Herring up".

(continued from page 1) stratification. The strata did not mix well and so a good deal from of the Pond's bottom became anoxic - had no oxygen. The creatures who lived there could no longer do so.

What to do? The town engineers were considering two alternatives: 1) opening a large entrance from the Pond to the Sound returning the Pond to its salt water origins, or 2) constricting the salt water flow into the pond, maintaining it as it had been since 1875. One of OPET's first tasks was to help decide between these alternatives. We asked those around the Pond their preference by formulating a questionnaire that was sent to all those in the watershed. We learned there was no consensus as to how the Pond should be managed. Most were happy with the way the Pond had been prior to the mid-1980's and so the Board of OPET developed a management policy to move in that direction. It called for a weir to be constructed at the entrance to the Pond such that the Pond levels and salinity could be controlled. A slit on one side of the weir ensured that herring and perch and other fish that travel between salt and fresh water could be accommodated.

In 1996, the town approved the plan and provided funds for the design of the weir. The next year funds were approved for the weir itself and it was in place by the spring of 1998. Since then the Pond has remained quite healthy. The weir has effectively dampened the salinity swings except for storms or Trunk River delta deposits do not interfere. Ideally, we try to oscillate the low salinity range to lower the salinity level during spring (1-2 ppt), ideal for the spawning of herring, and raise the level slightly (3-4 ppt) during July-August to control freshwater aquatic vegetation and allow volume outflow for exiting young herring. The perch have returned in great numbers, the herring runs have been considerable and the oxygen levels down to 9-10 feet are substantial. Nitrogen levels in the Pond continue to climb, however, and this is a serious problem that we still face.

Other major projects accomplished in those early days included a reprinting of K.O. Emery's classic book on Oyster Pond with an epilogue by Brian Howes and Stanley Hart on how the Pond had changed from the 1960's when Emery carried out his studies through the mid-1990's, as well as the management scheme we put into place in the mid-1990's. The book is still available from OPET and contains many nuggets of information about the Pond and its history. For example, as early as 1767, the town established a committee to investigate changes occurring in the Pond and why oysters were disappearing from it! I recommend it to everyone.

Construction of the weir in 1998. Photo R. Livingstone

Many, many good things have happened since I stepped down a decade ago as OPET's president. I remain on the Board as much as our by-laws allow. What impresses me still is the dedication and hard-work of those who serve on the Board and as its officers. OPET is in wonderful hands, and I remain convinced we can save this gem of a Pond for future generations.

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 508-540-3263. We'll gladly get back to you!

Or email *lturns67@comcast.net* or *wbuesseler@comcast.net*

Please visit our website www.opet.org.

Falmouth Pond Watchers on Oyster Pond

by Barry Norris

Falmouth Pond Watchers have worked on Oyster Pond for over 20 years to try and maintain the good health of the Pond. When we first started, we sampled in June, July, August, and September, but analysis revealed that any problems occurred only in July and August. Samples are now taken only four times a year, twice in July and twice in August. Four stations, spread across the Pond, are sampled at various depths. There are two crews of two people responsible for two stations. At each depth, four things are done; a one liter sample is taken, its temperature recorded, a small sample is filtered, and the oxygen content of the water measured (with a chemical kit) . We also measure the station depth and use a Secchi disk to measure the clarity of the water. Samples are taken to Dr. Brian Howes' lab at the University of Massachusetts at Dartmouth for analysis. Information on pond testing results is at our website, opet.org.

That says what we do. By the way, 'we' has been many people since we started. John Dowling and I have been there since the beginning and work now with Peter Antonellis and Barbara Peri. Over the years other people involved included, Bob Livingston, Margery Zinn, Martin White and Julie Rankin. (If anyone is interested in volunteering, contact John or me. Testing takes about an hour and a half.) What has resulted from the testing? The quick answer is a management plan for the Pond the preparation of which was the initial goal of Pond Watchers. This plan was approved by OPET, the Conservation Commission, and the Selectmen. It has been partially acted upon.

The testing revealed that Oyster Pond has a fresh water layer on top of saltier, heavier water on the bottom. This saltier water has little to no oxygen making it impossible for fish to live there. The management plan called for controlling the salinity of the pond at 2-4 ppt and lowering the boundary of the salt water as much as possible (by comparison Vineyard Sound is 32 ppt salinity). To do this, it would be necessary to limit the influx of ocean water. OPET worked with Dr. Brian Howes to design and build the weir that is now in place at the outlet of the Pond. This work was funded by a Town Meeting article. By adjusting the height of the boards in the weir's openings, only the highest high tides can enter the Pond thus limiting the amount of salt water entering the Pond.

At least this was the plan, but problems remained. The Trunk River kept silting up with seaweed. The next step was to design and build new jetties at the mouth of the Trunk River also funded by money from Town Meeting. This was done and they were built. They help tremendously, but do not completely solve the problem. The town dredges the Trunk River when it is needed, but the accumulation of sand and decaying eel grass that are brought into the Lagoon are the big problem as they limit the flow out of the Pond and into Trunk River. We need to figure out a long-term way to guarantee that herring can have a path from the Trunk River to Oyster Pond.