

## Goings On

### **"A Coastal Pond" reprint by OPET**

OPET is having reprinted the study of Oyster Pond by oceanographic methods written by Pond resident and oceanographer, K.O. Emery. This classic, long since out of print, is being re-issued and brought up-to-date with the assistance of K.O. Emery, Brian Howes and Stanley Hart.

Publication, scheduled very soon, is being undertaken to provide the community with background on the history and current status of Oyster Pond and its environs. Current plans are to sell it at the Market Bookshop.

### **We were there: The Fourth of July Parade**

All work and no play makes for a dull summer. Not us! OPET was a significant presence in the Quissett July Fourth Parade. Marchers sported a new OPET T-shirt, carried a banner, walking or riding in Bill Kerfoot's truck. We expect to see an even larger OPET presence next summer!

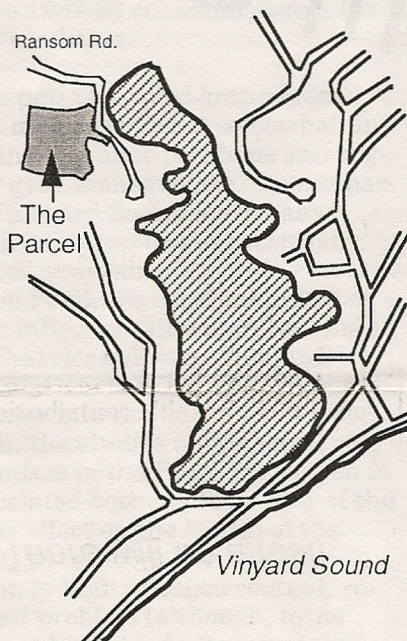
## Undeveloped Land

### **Preserving it from development**

As mentioned in the Committee reports, OPET plans to take over the effort to purchase an undeveloped piece of property at the head of the pond. This property is currently owned by Salt Pond Bird Sanctuaries, Inc., and has a remaining mortgage of about \$100,000. It is strategically located, and OPET hopes that it can be the starting point for preserving the one section of open land immediately adjacent to the pond.

### **A critical parcel**

The parcel, shown in gray in the drawing at the right, is 7.5 acres of undeveloped land. OPET considers this parcel to be of critical importance in its drive to preserve what remains of open space around the pond. It and a larger adjacent piece are the only unbuilt parcels near the pond.



### **We need your help**

Our hope is to retire the mortgage as soon as possible. Contributions are urgently needed, and until OPET gains tax exempt status should be made to Salt Pond Areas Bird Sanctuaries, Inc., so that your contributions will be tax exempt.

### **Make your contributions to:**

Oyster Pond Trust  
c/o Salt Pond Area Bird Sanctuaries, Inc.  
881 Palmer Avenue, Falmouth, MA, 02540  
Tel. (508) 548-0711 or (508) 548-0703

## The Big Picture

### **Why did the pond get in trouble?**

In the last few decades many houses have been built around Oyster pond. These households put nutrients into the pond: fertilizers, detergents and waste products. All contribute to a huge new nutrient source to the pond. These nutrients support algae blooms. The algae die off, sink to the bottom of the pond and decay, eating up the oxygen on the bottom of the pond and leading to an ever increasing layer of muck. Solutions to this problem require reducing the input of nutrients, and increasing the flushing of nutrients out of the pond.

### **What you can do about it**

Use less fertilizer, use detergents sparingly, and work against further building in the Oyster Pond watershed.

### **Strength in numbers**

The more people we have actively involved in trying to solve the problems of Oyster Pond, the better chance we have of solving them. We need financial help in trying to reduce development, political help to allow us to make the changes to the pond that will make it healthy again, and organizational help to pass the word that all of us in the watershed have an influence on the pond! Help us find more members for OPET!

## The Amateur Hydrologist

### **Good stuff in, garbage out**

We get about 40" of rain a year directly onto the pond. About that much again reaches the pond by runoff and infiltration. About half of the total evaporates, and the rest runs off through the culvert connecting to Trunk River. This rate could exchange all of the water in Oyster pond in about three years. Unfortunately, because of the stratification of the pond, only the top layer is good water being well oxygenated, and the least salty, and that's the water that leaves by Trunk River. We keep the poor quality bottom water, and lose the nice stuff at the top.

### **Solution is no pipe dream**

Make the connection to Trunk River through a pipe that runs to the bottom of the first kettle hole! Water that goes out through the pipe must come from the bottom. Out goes the saline, deoxygenated water, while the fresh oxygenated water stays!

Lon Hocker



**Currently the top water leaves**



**Change would have bottom water leave**

# Text of the pond management statement sent to Peter Boyer, Town Administrator, for consideration as Town policy.

## Policy for the Management of Oyster Pond

### Introduction

OPET has distributed a survey form to all the property owners in the Oyster Pond water shed and to other interested parties. The results of this survey indicate two interesting facts, namely: 1) the interest of the interviewees is weighted heavily towards aesthetics as their primary concern regarding the Pond and 2) there is no strong polarization of opinion as to how the Pond should be managed to accomplish the desired end.

To help formulate a plan of action for the management of the Pond, there have been ongoing studies of the Pond since 1987 by the laboratory of Dr. Brian Howes of the Woods Hole Oceanographic Institution, sponsored equally by the Town of Falmouth and the National Sea Grant program. This study is broadly known as the Falmouth Pond Watchers program. In addition, there is data available from the work of Dr. K.O. Emery dating from the late sixties.

### These studies point to the

Goal that we should manage the Pond to try to approach, as closely as possible, the pre 1987-88 conditions when the Pond was in a more healthy condition.

Problems Oyster Pond is a pair of flooded kettle holes whose depth in excess of six meters makes it somewhat unusual as a coastal pond, giving it unique problems and suggesting unique solutions for good management. Its comparatively long distance from Vineyard Sound makes any water communication between the two bodies potentially very expensive and difficult to maintain.

Because of the depth of the Pond, the constant inflow of fresh water and the periodic inflow of salt water, there is a consequent stratification of heavier salt water and lighter brackish water. In the summer, there is not enough wind mixing to get oxygenated water into the heavier salt water. Because of this stratification, the studies have shown, only approximately 35% of the bottom of the Pond has oxygen in summer. This kills the associated bottom life on 65% of the bottom and has a deleterious effect on the health of the Pond's animal and plant life.

The Pond has an inordinately high nitrogen content, reduction of which is the second problem (although, by no means, secondary) which must be tackled after stratification.

Solutions To reduce the stratification problem, two solutions have been proposed:

1. Cut a channel across the bike path and Surf Drive into the Pond to give the necessary water exchange from tidal action so the stratification would be eliminated and turn Oyster Pond into a salt pond. Needless to say, the cost to build and maintain such a channel would be extremely high and the permits would be difficult to obtain.

2. Keep the Pond as a brackish pond (2-4 ppt) similar to the pre 1987-88 conditions. Reduce the salt content so the depth of the brackish water increases until the top four plus meters, separated from the deeper salt water, stays oxygenated all the time. If this can be accomplished, there should be an increase in constant oxygenated bottom area such that approximately 80% of the bottom will always be oxygenated. This solution could be accomplished by installing an adjustable height weir (to control salinity), with a herring run/fish ladder, to control the depth of the Pond and prevent tidal action from bringing in salt water on a daily basis. It is understood that hurricane action will periodically charge the Pond with some salt water but this is acceptable. The constant inflow of underground fresh water and rain water would normally cause a flow over the top of the weir taking salt with it. This becomes the mechanism for removing salt from the Pond. It is believed that the cost of this solution would be very much lower than solution number 1. In any event, the low cost of this option and its reversibility do not preclude adopting solution number 1 or other options after several years.

### OPET endorses the second proposal

Implementation of Pond management is suggested for three phases:

Phase I Make no attempt through dredging, enlarging of the culvert under Surf Drive or any other means to increase the interchange of water between Oyster Pond and Vineyard Sound. Our goal is to keep the salt water out! This phase has been partially implemented for the past two years.

Phase II Design and construct an adjustable rising weir and a herring run/fish ladder based on the requirements which Dr. Brian Howes, backed by his current seven years of research on this Pond, will be prepared to furnish as consultant to the engineers. OPET will be pleased to offer whatever assistance it can.

The problem of the high coliform bacteria counts in the summer (probably arising from a combination of surface water run-off, faulty septic systems and water fowl population) needs to be addressed in this phase by identifying which contributor is the source(s). If the coliform is human, then correction must be implemented.

Phase III When the plan is put into operation, its results should be monitored for effectiveness. OPET's position is flexible, and it is prepared to suggest change if solution 2 doesn't work as expected. OPET also feels, however, that the solution needs to be given a chance of several years to work before any new plan should be contemplated.

It is almost certain that nitrogen levels will have to be reduced, but the evaluation of how much must wait until the stratification problem is reduced,

Adopted 9/24/95

## In this issue:

Organizational stuff

Committee reports and the like

Our statement to the Town Administrator

News of OPET's reprinting of K.O. Emery's Oyster Pond book

An overview of how the pond got the way it is.

An appeal for help

And much more!

*Required reading... There will be a test!*

---

News from OPET!

---

Oyster Pond Environmental Trust

74 Ransom Road

Falmouth, MA 02540

