



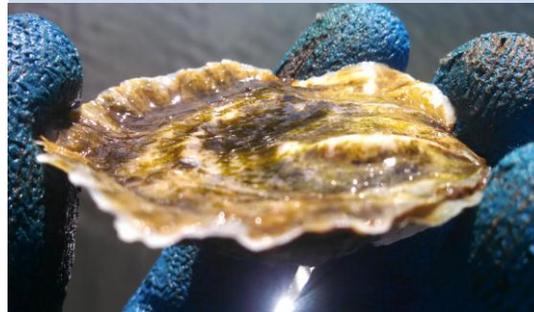
Little Pond is a shallow coastal pond that is overloaded with nitrogen.

Objectives of the Little Pond Shellfish Demonstration Project include:

- Measure water quality indicators
- Quantify the ability of oysters to remove nitrogen from the water column
- Correlate oyster cultivation with water quality improvements

End Goals

- Improve overall water quality to restore once flourishing eelgrass beds and estuarine habitat
- Determine if oyster aquaculture can be used as an alternative nitrogen management solution



CONTACTS:

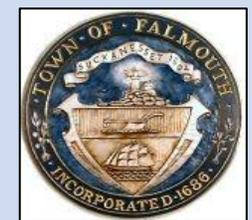
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Little Pond Shellfish Demonstration Project



Evaluating the ability of oyster aquaculture to improve overall water quality



This project is operated by: Department of Marine and Environmental Services with support from the Department of Public Works and Water Quality Management Committee.

Funding provided by Town of Falmouth voters and Cape Cod Economic Development Council

Overview of Project



Falmouth is testing a non-traditional method to lower excessive nitrogen levels in Little Pond. This technique will help reduce eutrophication (nutrient pollution). Oyster farming/aquaculture provides many valuable ecosystem services, particularly water quality improvement. Oysters (*Crassostrea virginica*) are highly efficient filter feeders, and reduce excessive nitrogen levels in the water through phytoplankton consumption. The oysters are being grown in 700+ floating mesh bags. They will grow to approximately 1.5', and then be moved for a second year of growth and harvest. The goal of this multi-year project is to quantify the relationship between shellfish cultivation and improved water quality.

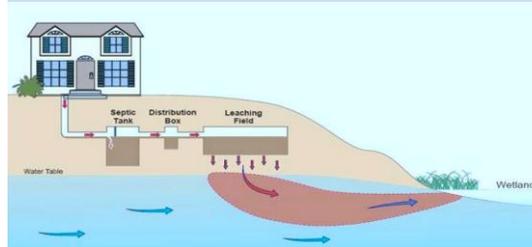
This project is growing a valuable local agricultural product. The monetary value of the two million oysters that will be relayed from Little Pond to other water bodies for clean-out and harvest is estimated to be \$1 - \$2 million dollars.



Little Pond Water Quality

Little Pond has excessive amounts of nitrogen (N). The main Sources of N include:

- Septic system effluent (entering the ground water)
- Residential + Urban Surface Run-off (fertilizer/storm water)

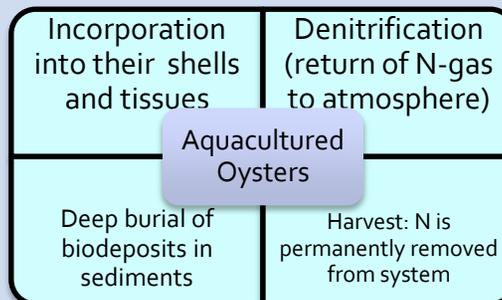


Phytoplankton & algae thrive on high levels of N – causing an overabundance that eventually die and decompose. This leads to unpleasant odors, turbid water, hypoxia (low oxygen), loss of biodiversity, and sometimes fish kills.

Oysters feed on plankton, serving as biofilters, thus have the ability to help clean up the water.

Oysters and Nitrogen Removal

4 paths of N-removal via Oysters



Aquaculture

Oyster seed is obtained from a shellfish hatchery (2mm in size) and raised in an upweller nursery system – where they receive a constant supply of dissolved oxygen + plankton. They remain in the protective silos until they grow to ~8mm.



Once the oysters grow large enough, they are transferred into floating mesh bags in Little Pond. They will grow-out until they reach ~2" all while feeding & removing nitrogen-rich plankton. A mature oyster can filter up to 50 gal water/day.



Oysters in Floating Mesh Bag

Once oysters reach about 2", they are relayed into other estuaries in Falmouth for further grow-out and eventually for recreational and commercial harvest.

