6th Annual
Cape Coastal Conference
December 4-5, 2018



Town of Falmouth Case Study

Chuck Martinsen

MES Deputy Director & Shellfish Constable

Town of Falmouth, MA

THE TASK

WHAT STARTED IT ALL

FALMOUTH'S OBJECTIVE

- Falmouth MES was tasked with growing shellfish in a water body that was both compromised and surrounded by a very heavily populated neighborhood
  - Using oyster aquaculture to reduce nitrogen in a compromised water body through phytoplankton consumption

THE CHALLENGES

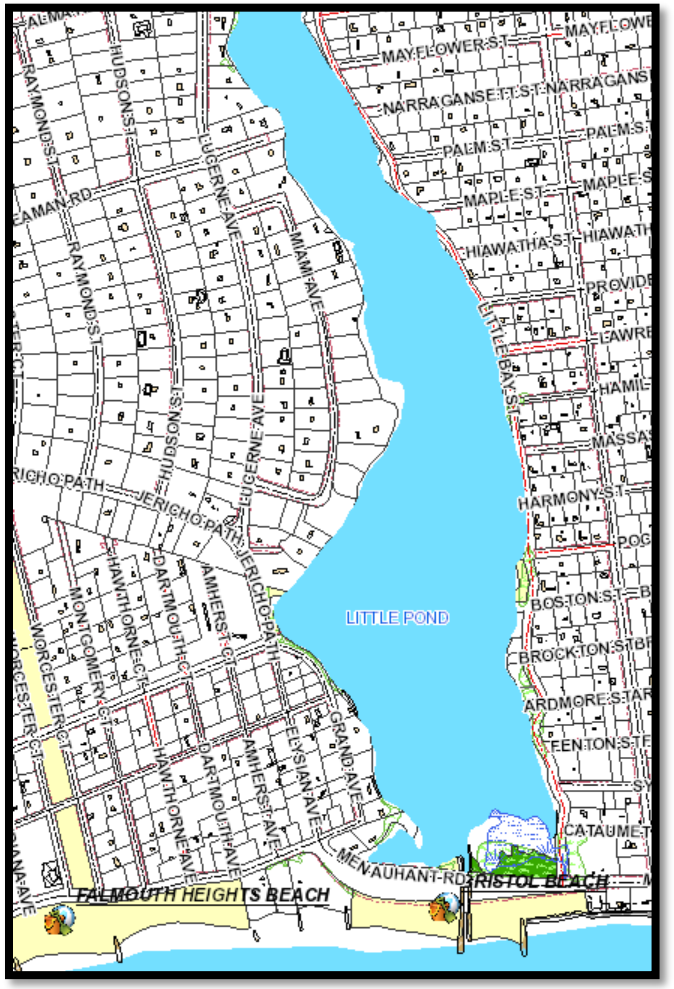
WHAT NEEDED TO BE ADDRESSED

CHALLENGE #1

- Address growing conditions and determine where would be good areas to grow

CHALLENGE #2

- Identify a location that had limited ocean exchange when sampling work was conducted
  (e.g. further up in the estuary)



CHALLENGE #3

- Change the perspective of community members of the water body from a fallow area to productive shellfish habitat

CHALLENGE #4

- Develop strategies for handling both shellfish seed-size and mid-size on the farm, overwintering, and then for making shellfish available for harvest

THE LOGISTICS

WHAT NEEDED TO BE DONE TO MOVE FORWARD

LOGISTIC #1

- NEEDED upwellers for primary nursery growth, BUT… did not know where to site them

LOGISTIC #2

- NEEDED to build floating bags for grow-out farm gear, BUT did not know how many were needed or the ideal volume of oysters to stock the bags

LOGISTIC #3

- NEEDED classified *Prohibited* shellfish growing areas, BUT did not have these areas already permitted for growing

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 2 – Determination of Applicability
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. General Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

From:
Conservation Commission

To: Applicant
Name
Mailing Address
City/Town State Zip Code

Property Owner (if different from applicant)
Name
Mailing Address
City/Town State Zip Code

1. Title and Date (or Revised Date if applicable) of Final Plans and Other Documents:
Title Date
Title Date
Title Date

2. Date Request Filed:

B. Determination

Pursuant to the authority of M.G.L. c. 131, § 40, the Conservation Commission considered your Request for Determination of Applicability, with its supporting documentation, and made the following Determination.

Project Description (if applicable):

Project Location:
Street Address City/Town
Assessors Map/Plat Number Parcel/Lot Number

LOGISTIC #4

- NEEDED to manage staff work flow to accommodate moving shellfish out of the upweller onto the farm following growth "pop", BUT had never done this before

LOGISTIC #5

- NEEDED to figure out how to move shellfish from farm and overwintered, or from the farm and seeded, BUT had no prior experience with this

LOGISTIC #6

- NEEDED to learn how to/whether to overwinter oysters, BUT did not know what method was best

THE PROJECT

HOW IT ALL CAME TOGETHER

PROJECT SUPPORT

- Project supported by Falmouth Department of Public Works (DPW) and the Falmouth Water Quality Management Committee (WQMC)
- Funded by Town of Falmouth voters and Cape Cod Economic Development Council

UPWELLER SITE

- A propagation center was constructed at the Falmouth Inner Harbor Marina on Scranton Avenue

UPWELLER SITE

- A propagation center was constructed at the Falmouth Inner Harbor Marina on Scranton Avenue
  - With 5 fiberglass upwellers for growing oyster seed

GROW-OUT FARM SITES

- The Little Pond Demonstration Project farm site started off of **Narragensett Street** (in the northern end) and ended off of **Brockton Street** (in the southern end) where the Little Pond farm still operates
  - An anoxic event during the summer of 2015 spurred this change

LITTLE POND, NARRAGANSETT STREET

- From **HERE**…

LITTLE POND, BROCKTON STREET

- …to **THERE**

OYSTER SEED IN UPWELLERS

- From **THIS**…

OYSTERS DURING BOTTOM PLANTING

- …to **THAT**

FROM FILTERING TO FOOD (2016)

THE LESSONS LEARNED

JUST KEEP LEARNING!

LESSON #1

- Falmouth MES can grow a much more desirable oyster for the market by holding oysters for two years

1st Growing season → Overwintering → 2nd Growing season

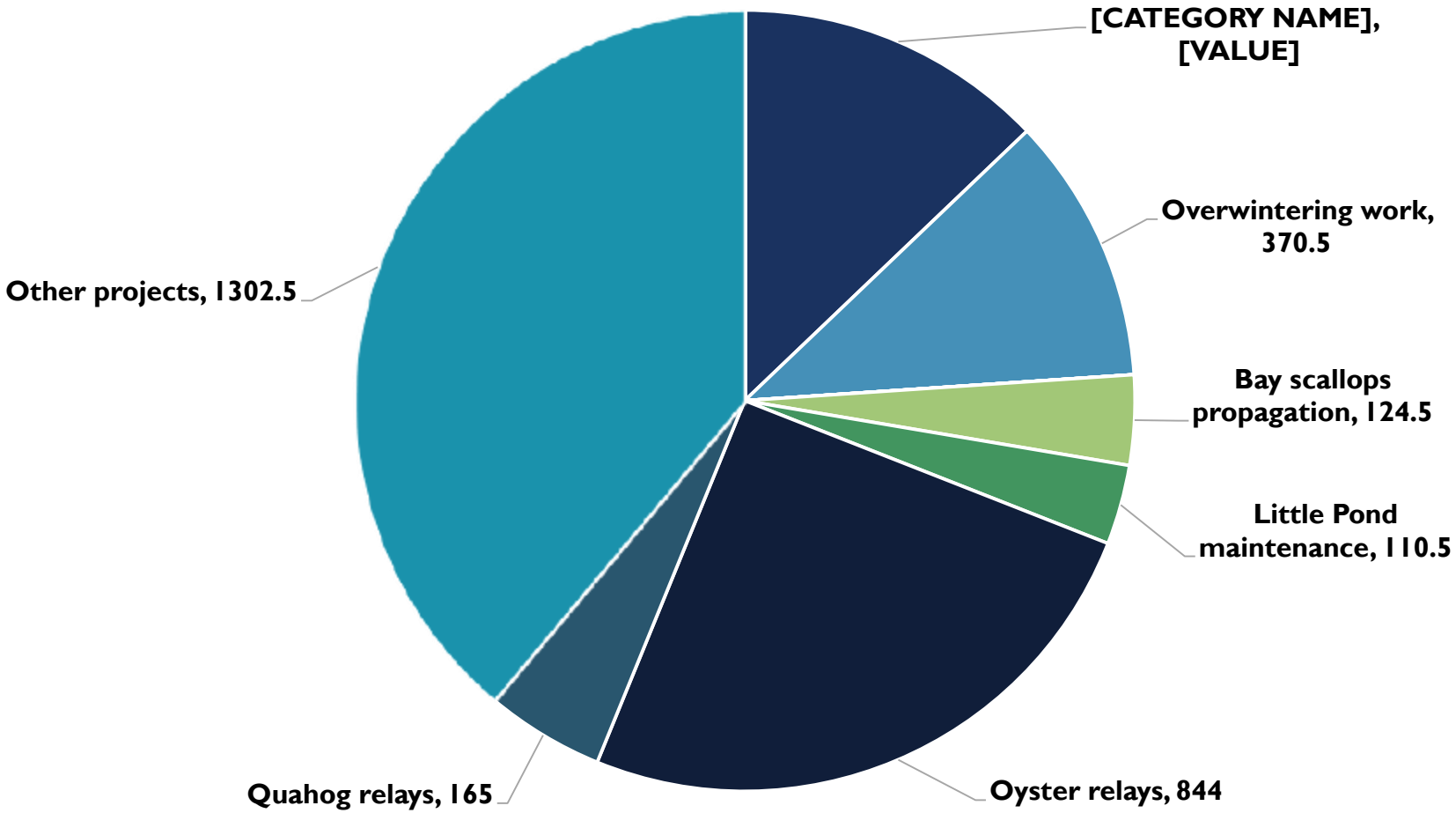
LESSON #2

- Draw on all resources available (e.g. volunteers)

2018 Volunteer Service Hours by Service Partner Organization As of 11/7/2018	
Quincy College Student Hours	
Owen Apuzzi	59
Richard Michael	90
John Bevilacqua	61
Thomas McGuinness	59
Scott Harrington	15
AmeriCorps Cape Cod Individual Placement Hours	
Taryn Szalay	168
Jennifer Lin	24
Colin Buckner	8
Barnstable County Hours	
Sheriff's Dept. Inmates	503
Falmouth Rod & Gun Club Hours	
Members	166
Commercial Digger Hours	
License holders	93
Local Community Hours	
Shellfish Division Volunteers	771
AmeriCorps Cape Cod Service Hours	
Group Service Projects	876.5
Mass Maritime Academy Student Hours	
Elizabeth Demma	182.5

2018 Shellfish Volunteer Hours

3,241 Total Hours as of 11/7/2018



LESSON #3

- Identify the needs of the resource pool (e.g. volunteer abilities, interests, schedules)

LESSON #4

- "Less is more" when it comes to growing oysters
  - Lower stocking densities yield larger and better shaped oysters

LESSON #5

- Measure and weigh everything, and do so consistently

LESSON #6

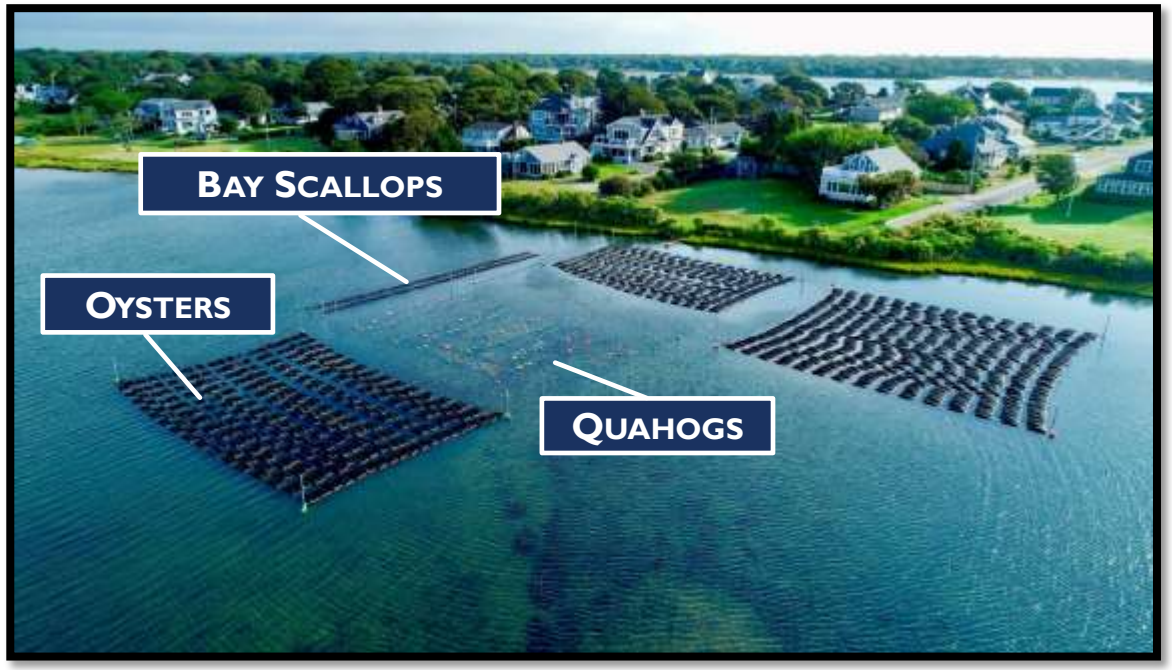
- Don’t reinvent the wheel (or the shellfish bag), just modify it!

LESSON #7

- Surge labor when it is needed
  - Useful for completing large projects in less time

LESSON #8

- Have a multi-species propagation program
  - To have a responsive and flexible program in the face of changing habitats, we need to utilize different shellfish species



LESSON #9

- Troubleshoot problems before they happen (e.g. anticipate problems in advance)
  - This makes the ability to grow in compromised water bodies more robust

THE GROWTH OF THE PROGRAM

FALMOUTH'S PROPAGATION PROGRAM THEN AND NOW

WHERE ARE WE NOW?

- Falmouth MES has successfully grown shellfish in a number of different water bodies
  - This shellfish propagation is one tool for helping to meet TMDLs

FALMOUTH'S SHELLFISH PROPAGATION PROGRAM

- While Falmouth historically has propagated quahogs for resource enhancement, the current Falmouth shellfish propagation program truly started with the Little Pond demonstration project for nitrogen remediation in 2013
- The program has grown and changed so much since then!

EVOLUTION OF THE OYSTER FARM, 2013

EVOLUTION OF THE OYSTER FARM, 2015

EVOLUTION OF THE OYSTER FARM, 2016

EVOLUTION OF THE OYSTER FARM, 2017

EVOLUTION OF THE OYSTER FARM, 2018

PILLARS OF FALMOUTH'S SUCCESS

FALMOUTH'S PROGRAM DIVERSIFIES OVER TIME

2013	2014	2015	2016	2017	2018
Quahogs	Quahogs	Quahogs	Quahogs	Quahogs	Quahogs
*Oysters[D]	*Oysters[D]	*Oysters[D]	Oysters	Oysters	Oysters
				*Bay Scallops	*Bay Scallops

* Denotes trial propagation
[D] Denotes demonstration project

2018 Little Pond Farm

THE END

QUESTIONS?