

# Town of Bourne Municipal Shellfish Propagation 2017



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Town of Bourne, Board of Selectmen, 24 Perry Avenue, Buzzards Bay, MA 02532-3441







# 2017 Shellfish Propagation Activities

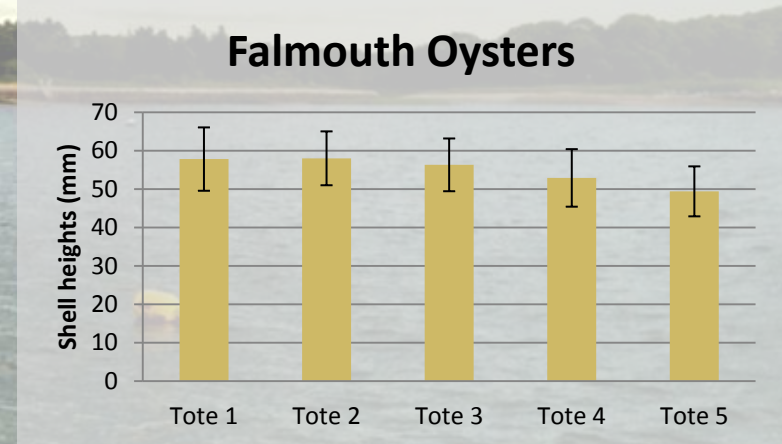
- 2016 Falmouth oysters
- 2017 Tauton River relay quahogs
- 2016 overwintered oysters
- 2017 oyster seed
- 2017 quahog seed
- 2017 soft shell clam seed
- 2017 bay scallop seed
- Inventory and gear construction
- Research activities
- Bottom planting
- Disease testing
- Overwintering
- Environmental monitoring



## Falmouth oysters and Taunton River relay quahogs

### May 2017

- 500 bushels of large quahogs were transplanted from the Taunton River to Bourne Town waters
- Overwintered oysters transplanted from Falmouth to Bourne Town waters



38 total totes  
120 oysters per 2 liter bucket  
18.5 buckets per tote (2220 oysters per tote)  
 $2,220 \text{ oysters per tote} \times 38 \text{ totes} = 84,360 \text{ oysters total}$



# 2016 Overwintered oysters

## May 2017 (initial):

- Pocasset River:  
32 floating bags
- Monument Beach:  
20 low-pros with mesh bags inside
- Cohasset Narrows:  
43 floating bags

Moved the shellfish from Monument Beach to Pocasset and Cohasset

Remove all bags at all three locations. Empty, sort, calculate survival and shell height for all locations as a baseline.

Restock bags at low density for anticipated growth, flip every 7 days through October, sort every 30 days through October and re-grade and decrease densities as needed. Collect survival and growth data every 30 days.



# 2016 Overwintered oysters

## October 2017 (final)

The 2016 overwintered oysters were split between Cohasset Narrows and Squeteague Harbor.

Cohasset Narrows was planted in October/November 2017, Squeteague will be planted next week.

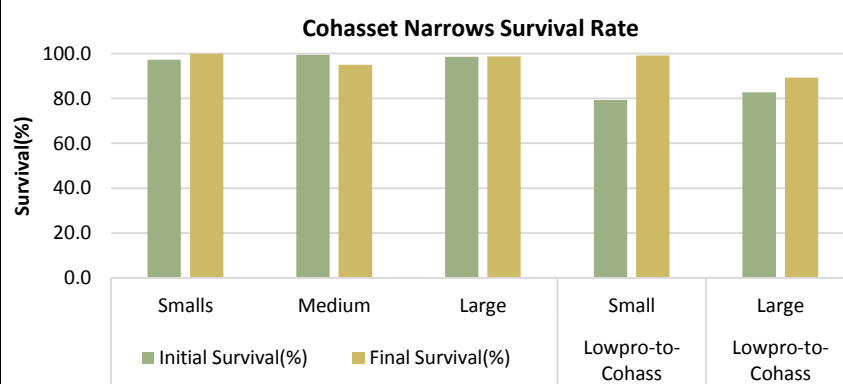
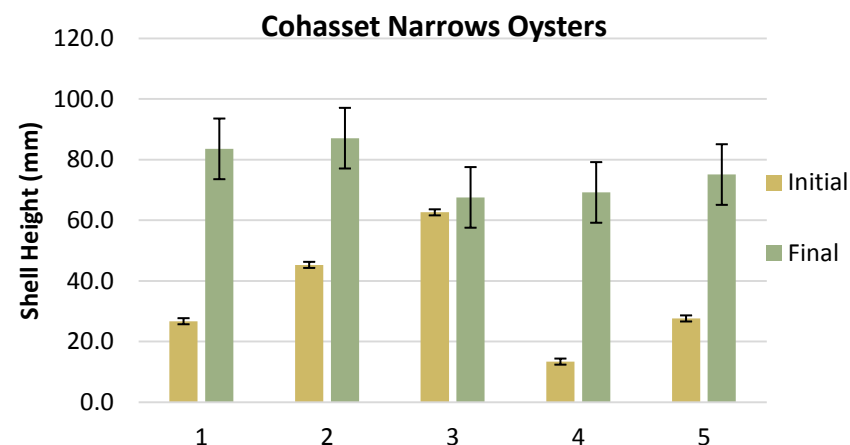
(This number will double when Squeteague Harbor oysters are planted.)

## Cohasset Narrows oysters only:

Total number of oysters planted:  
522,563

Overall average final shell height:  
74.2  $\pm$  10.6 mm

Overall average survival:  
96.4  $\pm$  4.4 %





# 2017 Shellfish seed

- **Initial activities:**
- Paint all silos and troughs with Netminder, and construct both upwellers.
- Switching out all mesh to 0.75mm, and painting all silos and troughs with Netminder, ecologically safe antifouling coating.
- Check upwellers daily, stir daily, sort and grade every 14 days through May, and every 7-14 days from June through September.
- **Oysters 2017**  
100,000 oysters (1.5 mm)  
Hatchery: Muscongus Bay Aquaculture (Bremen, ME)
- **Bay scallops 2017**  
10,000 bay scallops (10 mm)  
Nursury: Ward Aquafarms (North Falmouth, MA)
- **Quahogs 2017**  
500,000 quahogs  
Hatchery: ARC (Dennis, MA)
- **Soft shell clams 2017**  
200,000 soft shell clams  
Hatchery: Downeast Institute (Beals, ME)



# 2017 Oyster seed

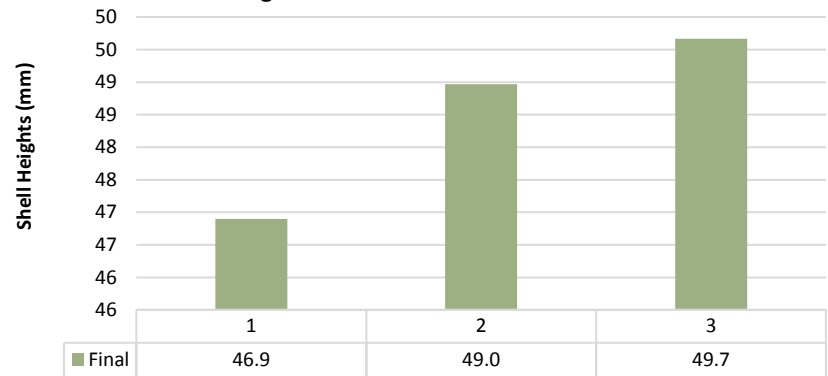
## Nursery:

- 300,000 oysters received from Muscongus Bay Aquaculture (Bremen, ME) on June 16<sup>th</sup>, 2017
- Stocked into 8 silos within one upweller at Monument Beach Marina
- All shellfish removed from the upweller, graded, cleaned, measured, every 7-14 days from June – September

## Intermediate growout:

- Initially taken out of the upweller, put into 4mm and stocked under the pier at Monument Beach marina for 14 days
- Then stocked into 9 mm-mesh bags and deployed in the Pocasset River
- Track growth, survival, and labor throughout the growing season
- All oysters removed from the Pocasset River and moved back to Monument Beach for overwintering by December 6, 2017
- **Survival:  $99.1 \pm 0.1$  % (297,000 oysters overwintered) (350 bags)**

Final Shell Heights Pocasset  
August 22 2017 - December 6 2017





# 2017 Bay scallop seed

- Bay scallops seed form Ward Aquafarms, LLC
- Stocked into bags in Monk's Cove on October 6<sup>th</sup>, 2017
- Planted in Monk's Cove December 5, 2017
- $99.5 \pm 0.7\%$  Survival
- $34.4 \pm 3.7$  mm Final shell height

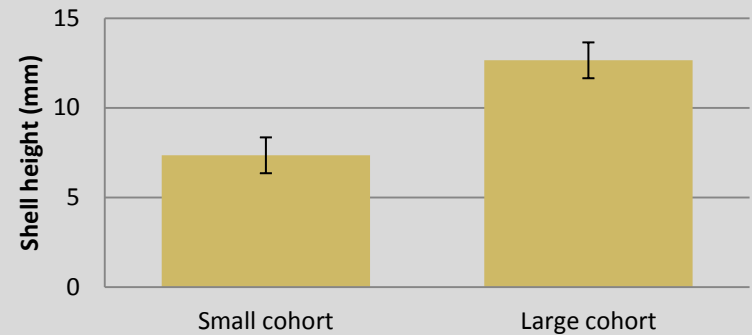




# 2017 Quahog seed



**Final quahog shell heights**



- Quahog seed from ARC
- Stocked into 8 upweller silos on June 9<sup>th</sup>, 2017
- Stocked into 4 mm bags under the pier at Monument Beach Marina
- Broadcast planted in October 2017
- Overwintering 10,000
- Increase in volume from 0.75 L to 61.5 L in one growing season
- $99.7 \pm 0.4\%$  Survival



# 2017 Soft shell clam seed



- Soft shell clam seed from Downeast Institute (Beals, ME)
- Stocked into 4 upweller silos on July 10<sup>th</sup>, 2017
- Stocked into 4 mm bags under the pier at Monument Beach Marina
- Broadcast planted in October 2017
- Overwintering 10,000
- Increase in volume from 1.5 L to 402 L in one growing season
- $93.2 \pm 2.3\%$  Survival
- $18.5 \pm 2.6$  mm Final shell height



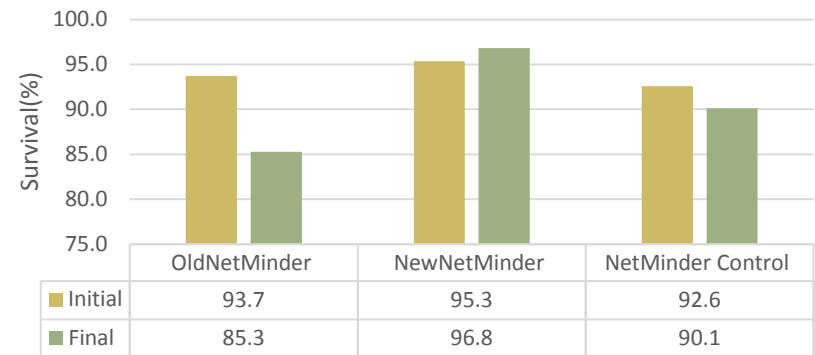
# Research

## Netminder:

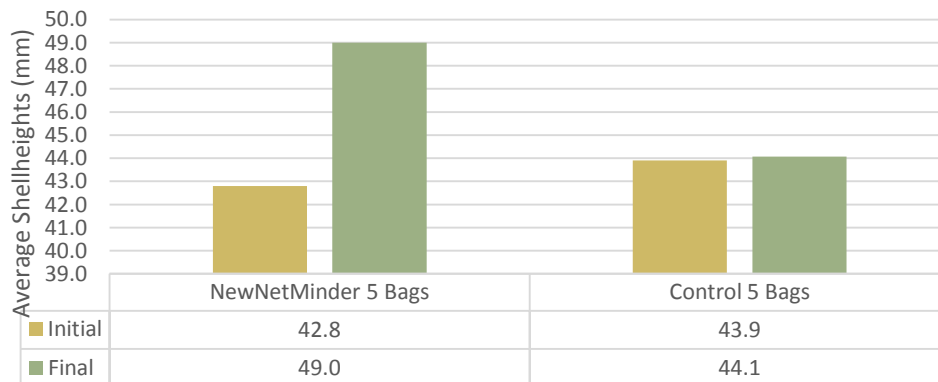
Round 1: Year 2 oysters in Cohasset Narrows and Squeteague Harbor

Round 2: Year 2 oysters in Cohasset Narrows and Squeteague Harbor

Netminder Experiment Survival Cohasset Narrows



Initial-Final Volume Cohasset Narrows NetMinder Experiment





# Research

## Netminder:

Bay scallops: Year 1 growout

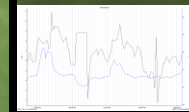
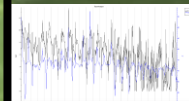
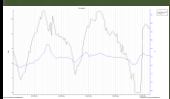
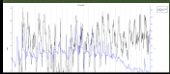
Soft shell clams: calcium carbonate supplementation

Soft shell clam: overwintering and predator netting

*Cochlodinium polykrikoides*



# Research



Environmental sampling



# Odds and ends

- Tyler Vito: Massachusetts Maritime Academy
- Construction of a screen sorter for shellfish grading
- Construction of 400 new bags.
- Rebuilt all bags to be floating for “flip-bag” culture
- Re-rigged all bags with 1 meter ropes with two longline clips at either end for double anchor longline culture for greater stability at all sites.
- Consistent sampling for total volume, average shell height and survival for each size grade.
- Made a new path, and designated a new area for farming in the Pocasset River
- Temperature loggers (Onset Computer Corp., Bourne, MA) were deployed on the new lines at all locations.
- Oysters were sampled for pathology testing and sent to Kennebec River Biosciences
- Mike Corson to the meeting at Cape Cod Cooperative Extension
- Data entry and analysis
- Overwintering: Overwinter oysters, soft shell clams and quahogs in Monument Beach Marina.
- Calculate stocking density, and survival entering the winter, to be able to evaluate success in spring 2018.



# Future directions 2018

- Plant Squeteague Oysters
- Establishment of new sites:
  - 2 nursery sites
  - 3 growout sites
- Facilitation of planting without additional testing or closures
- Overwintering strategies of all species at Monument Beach Marina
- Seed at upwellers (stocking, management strategy)
- Efficacy of Netminder vs. not
- Square cubes in the upweller vs. bags vs. regular upweller (quahogs)
- Bay scallops: stocking/growth/survival
- Overwintering quahogs
- Track grading/ upweller maintenance
- Mortality/growth over the locations
- Quahogs: 500,000
- Oysters: 300,000
- Softshells: 500,000
- Scallops: 100,000







Thank you