

# Mussels and the birds who love them

Chatham Harbor, Cape Cod, Massachusetts



Mass Audubon  
*Protecting the Nature of Massachusetts*

# Background

- Oyster reef restoration in Wellfleet 2009 – 2012
- Unexpectedly caught heavy set of blue mussels in culch bags
- AMOYS began spending every day feeding on the mussels
- Wondered if we could replicate these results in Chatham, where there are many more AMOY, plus REKN and COEI, all sharing the mussels with harvesters
- Blue mussels reportedly an \$800k industry in Chatham
- Town looking to scare eiders off the mussels during winter
- We wanted to get a handle on how birds and people are using the mussels, explore ways of increasing feeding habitat for AMOY and perhaps REKN





Natural set blue mussels growing in culch bag at the Wellfleet oyster restoration site





AMOYs feeding on blue mussels in culch bag at the oyster restoration site

# Pilot Project Research Questions

- Where and when are the peaks in mussel sets in Chatham harbor?
- Which method is best for catching intertidal mussel spat?
- What is the interaction between mussels, shorebirds, and eiders?
- How, when, and where are birds currently using the area?

# Which method is best for catching the mussel set? Can we feed the birds?



Photo courtesy of Mark Faherty

Remote Set Bags

Artificial  
Seaweed



Photo courtesy of Rick Karney

Pot Warp





Burlap strips for assessing weekly mussel set







**The 3 spat collection treatments deployed at Tern Island, Chatham, MA at two sites**









## Chatham Mussel Project



Subtidal Mussel Bed



Intertidal Mussel Bed



Mass Audubon  
*Protecting the Nature of Massachusetts*



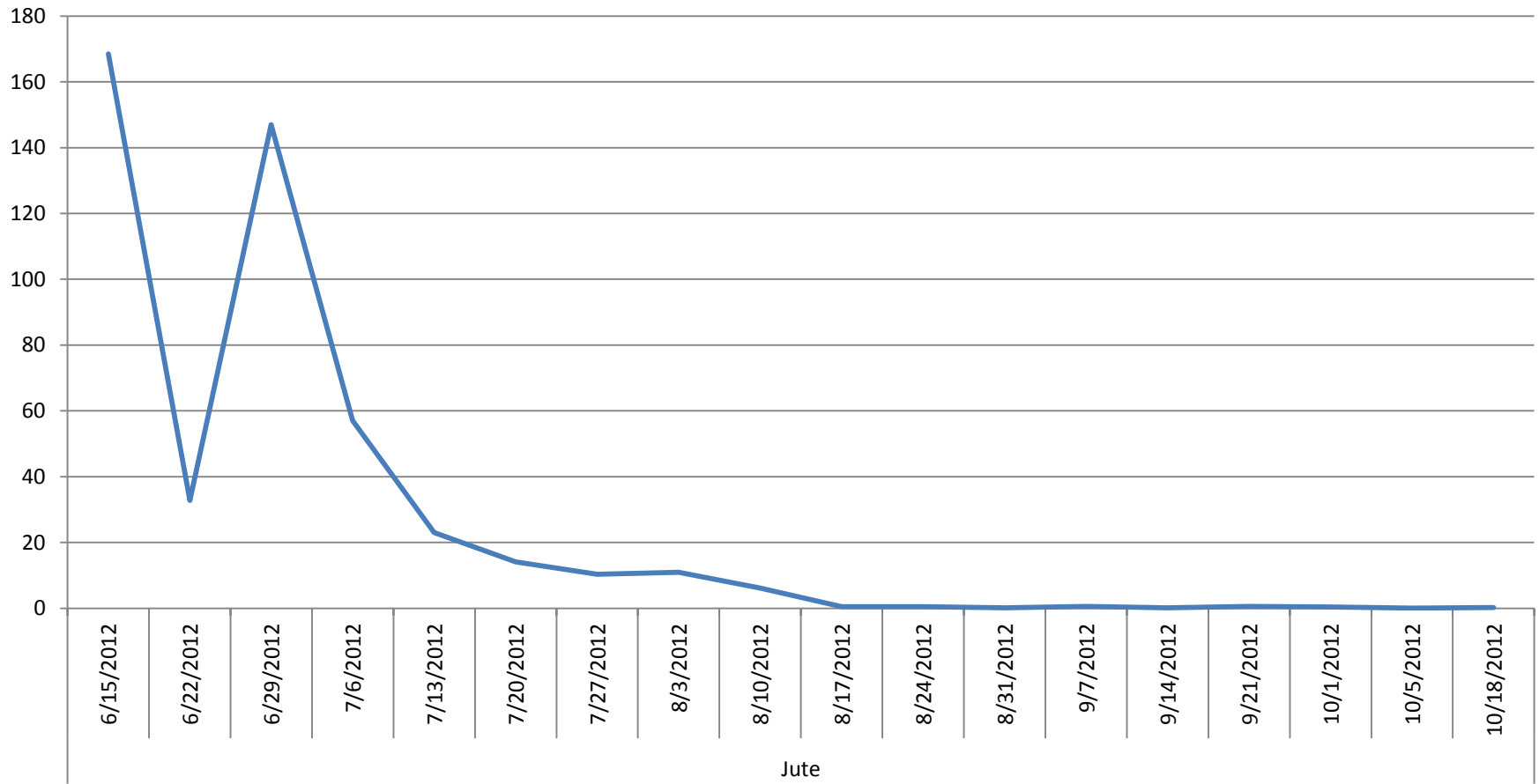
4075 ft



Image © 2012 TerraMetrics  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth




## Mussel Set in Chatham Harbor



**Figure 1. Average number of mussels per 4 cm<sup>2</sup> collected on six jute collection panels, three intertidal and three subtidal.**



## Chatham Mussel Project

-  American Oystercatcher
-  Red Knot
-  Common Eider
-  Mussel Bed




Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



# American Oystercatcher

- 
- The background image shows two American Oystercatchers on a sandy beach. One bird is in the foreground, facing left, and another is slightly behind it to the right, facing right. Both birds have dark plumage on their heads and backs, with a white patch on the neck and breast. They have long, straight, reddish-orange bills. The ground is covered with sand and numerous small, white, broken oyster shells.
- First observed 4/5/12 (1<sup>st</sup> site visit of the season)
  - 851 total sightings
  - 43 unique bands throughout the season
  - Largest flock of 27 observed on 9/11/12
  - Last Observed: 11/1/12






4198 ft


Image © 2012 TerraMetrics  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



## Chatham Mussel Project

 American Oystercatcher

 Mussel Bed



Mass Audubon  
*Protecting the Nature of Massachusetts*



4198 ft

Image © 2012 TerraMetrics  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



## Chatham Mussel Project

- AMOY Low tide
- AMOY High tide
- Mussel Bed



4198 ft

Image © 2012 TerraMetrics  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth





4198 ft

Image © 2012 TerraMetrics  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



# Chatham Mussel Project

American Oystercatcher

- Feeding
- Resting
- Standing
- Preening



Mass Audubon  
*Protecting the Nature of Massachusetts*



Area not well surveyed

4198 ft

Image © 2012 TerraMetrics  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



# Banded AMOYs

Of 25 unique bands, 10 were known to be nesting in the area:

- South Beach Chatham

- YE(60) & YE(70)
- YE(56)
- YE(59)
- YE(52) & YE(53)

- Menauhant Beach/Bourne's Pond

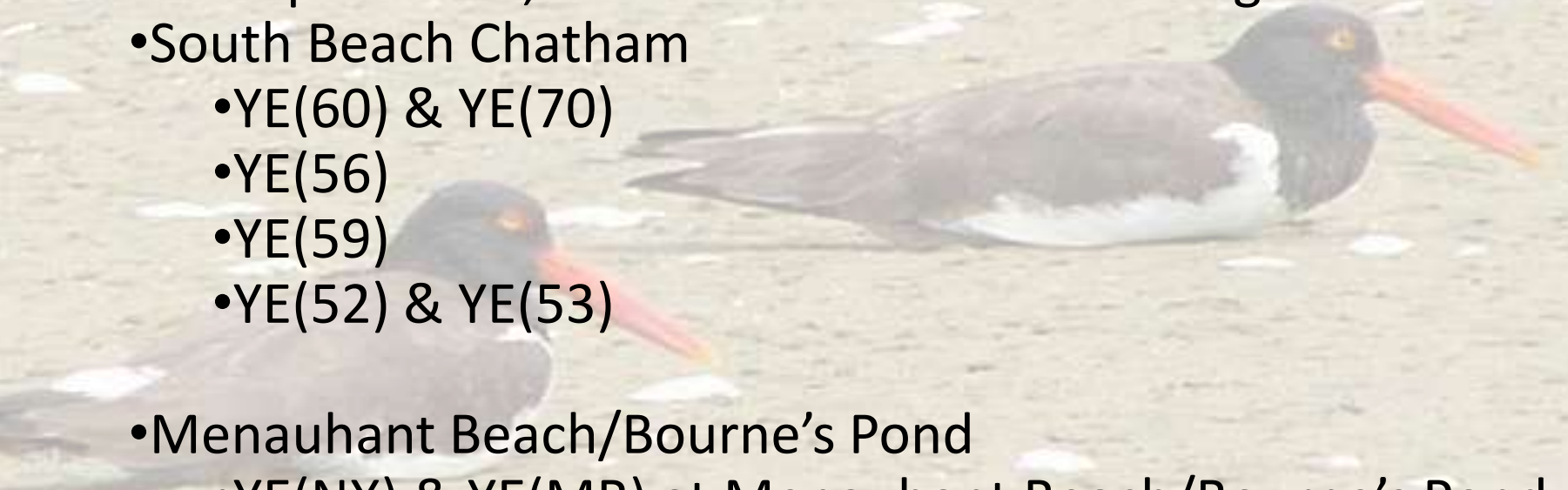
- YE(NX) & YE(MR) at Menauhant Beach/Bourne's Pond

- Monomoy

- YE(12) & YE(68)

- Squaw Island

- Unbanded adults hatched YE(2F) & YE(4F)







Chatham Harbor  
(Project Location)

Squaw Island

South Beach

Monomoy

Menauhant Beach/Bourne's Pond

16.8 mi

Data SIO, NOAA, U.S. Navy, NGA, GEBCO  
Image © 2012 TerraMetrics

Google earth

# Red Knot

*Calidris canutus*

- **First seen: 5/28/12**
- **20 sightings**
- **Total 551 birds**
- **5 unique banded**
- **Last observed 8/3/12**



This was an off year for intertidal mussel set in Chatham Harbor and Pleasant Bay, so REKN numbers were low. (B. Harrington, pers comm.)





6136 ft

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



# Chatham Mussel Project

Red Knot

Mussel Bed



6136 ft

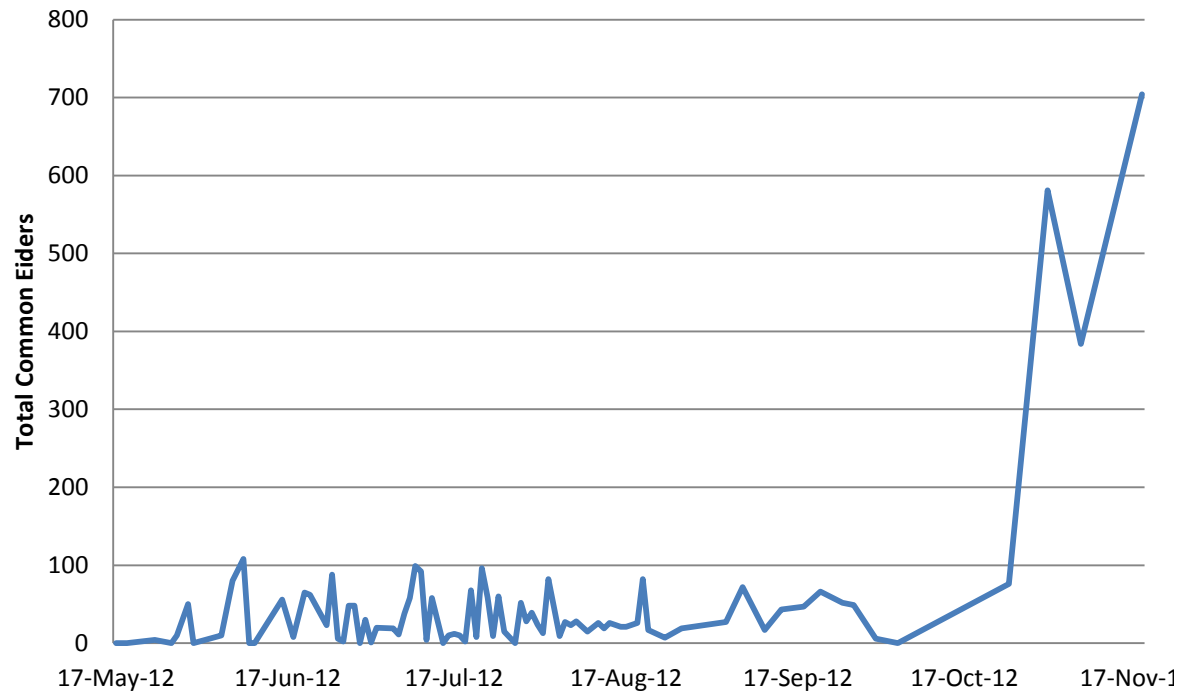
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



# Common Eider

- 80% of diet is mussels
- Hundreds of thousands winter off Chatham
- Observed throughout the season in small numbers
- Large increase at the end of October
- Total of 4220 seen during 73 site visits










6136 ft


Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth



# Chatham Mussel Project

 Common Eider

 Mussel Bed



6136 ft

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google earth