6TH ANNUAL
CAPE COASTAL CONFERENCE
DECEMBER 4-5, 2018

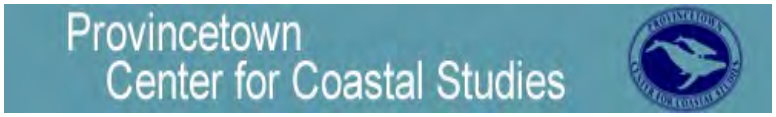


Town of Wellfleet Case Study

Alex Hay
Wellfleet Wastewater Management
Planning Committee

Measuring the impact of Oysters on Water Quality
Town of Wellfleet

Green Harbors Project



Cape Cod Cooperative Extension

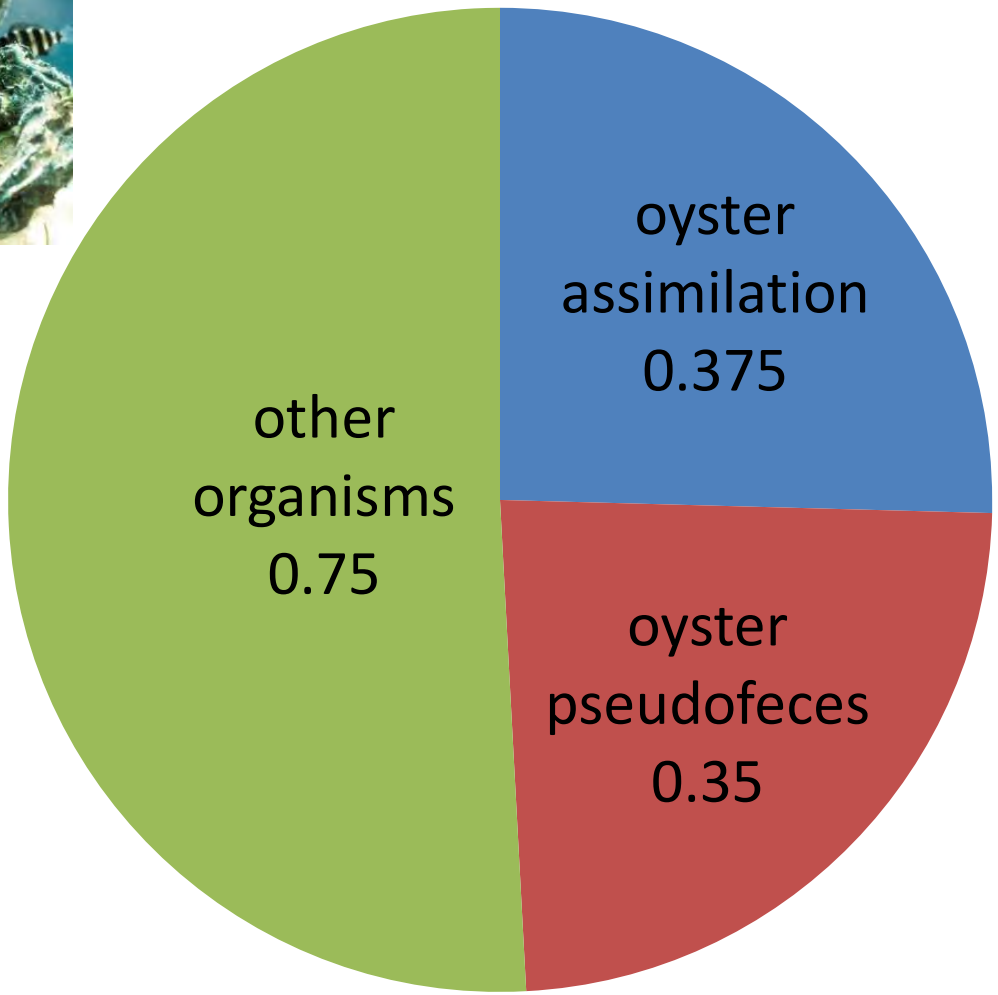
Massachusetts Oyster Project
www.massoyster.com

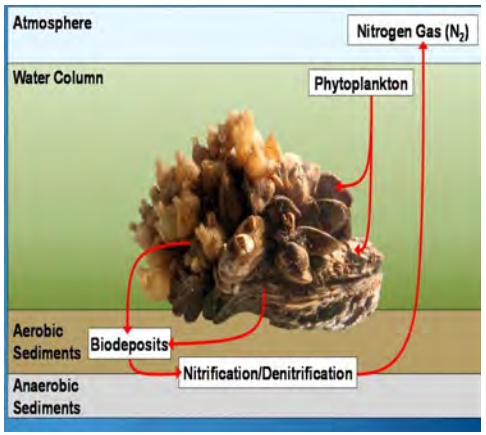
Oyster Eco Services

- Juvenile Fish Habitat
- Storm Surge Protection/Benthic Stabilization
- Water Quality/Clarity
- Genetic Diversity
- Disease Resistance
- Enhanced Shellfish Productivity
- Carbon Sequestration
- Biodiversity

Best Available Science

Oyster Nitrogen Removal (gms/oyster/year)






DEERE


Ginny Lu
WELLFLEET, MA

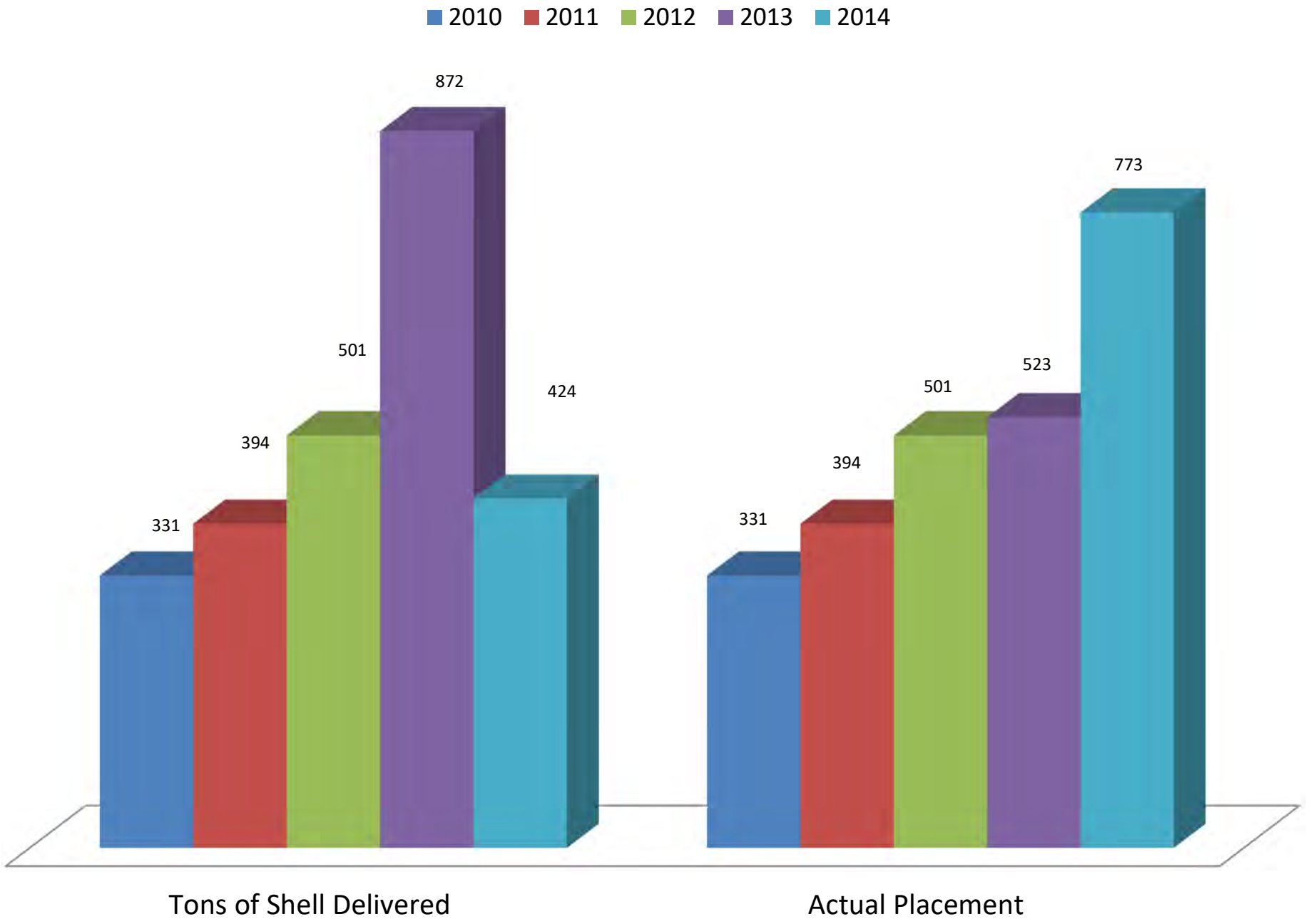

Charter Boats


2 acre project site changes in 3 years,
Establishing ~ 5.8 mil oysters!
2011
2012
2013
2014


1
2
3
4
5
6
7
Proposed Oyster Propagation Sites (blue)
Commercial Cultch Area 2013 (red)


Commercial Cultch Area 2013 (red)
Commercial Cultch Area 2014 (green)

Tons of Cultch



Oyster Restoration Awards

- Mass Recycle – Municipal Innovation

  November 2012

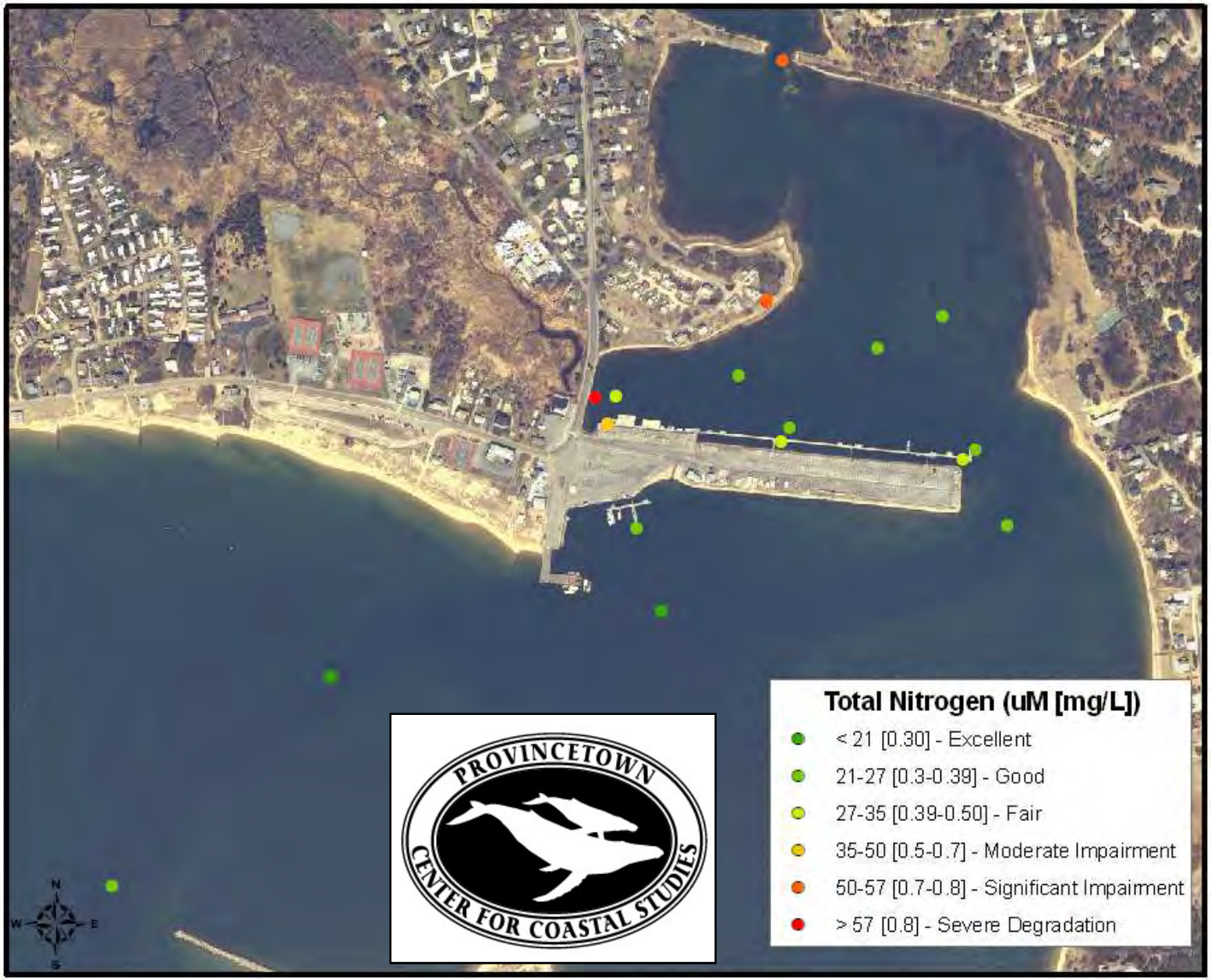
- American Council of Engineering Companies – Engineering Excellence Award

  March 2013

- American Public Works Association – Project of the Year

  April 2014

Fall 2013


Total Nitrogen (uM [mg/L])
< 21 [0.30] - Excellent
21-27 [0.3-0.39] - Good
27-35 [0.39-0.50] - Fair
35-50 [0.5-0.7] - Moderate Impairment
50-57 [0.7-0.8] - Significant Impairment
> 57 [0.8] - Severe Degradation
PROVINCETOWN
CENTER FOR COASTAL STUDIES
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S


Existing Wellfleet Harbor aquaculture and harvest represent 20% of suitable areas landing approximately 6 million oysters annually.
Aquaculture grant area (2014) (128 acres)
Aquaculture grant area (1995) (115 acres)
Public shellfishing areas (82 acres)
Oyster suitable sites (MORIS-DMF)
Saltmarsh (MORIS)
Aquaculture grant data provided by Anne Reynolds, Cape Cod Commission
0 0.2 0.4 0.8 1.2 1.6 Miles
Created by Martina McPherson
Data source: MORIS, MA CZM
2/4/15
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


The existing shellfish suitability area is 1,700 acres (Division of Marine Fisheries Shellfish Suitability Area). Assuming 4,900 oysters per square meter (Luntz, 1960) the potential total oyster population would be 34 billion.
Oyster suitable sites
Saltmarsh
Created by Martina McPherson
Data source: MORIS, MA CZM
2/4/15
0 0.2 0.4 0.8 1.2 1.6
Miles
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Thank you

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