An update on ocean and coastal acidification activities in EPA Region 1

GCCN meeting update
January 29, 2020

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The Problem:

Ocean Acidification is caused by increases in CO\textsubscript{2} emissions, 30% of which is absorbed by the ocean, and exacerbated by nutrients that help deliver more CO\textsubscript{2} to coastal waters.
This multiyear RARE funded study with Narragansett tested the impacts on juvenile hard clams to exposure of high levels of CO2 in laboratory upwellers and then transplanted to Narragansett Bay, reflecting aquaculture practices.
We found that hard clams were longer...

but thinner so...

shell density may have been compromised

Submitted for publication to Limnology and Oceanography
EPA is funding continuous monitoring at eight NEPs. In Casco Bay, five years of monitoring demonstrated seasonal patterns of pH and CO2. More “vulnerability” in the fall. We are looking at the drivers behind this pattern.
We are also assisting coastal managers characterize seawater carbon chemistry to assess risks to shellfish.

EPA Region 1, HQ and Narragansett developed and published in 2018 sampling guidelines targeted to state resource managers and citizen science monitoring organizations.

Northeast Coastal Acidification Network (NECAN) set up training for coordinators and organizations.

NECAN documented the universe of organizations collecting relevant water quality information and recruited for ……

Guidelines for Measuring Changes in Seawater pH and Associated Carbonate Chemistry in Coastal Environments of the Eastern United States

GIS StoryMAP

Example Station: Oyster Pond-Chatham

Project: Water Quality Monitoring Program
Group: Center for Coastal Studies
Parameters: Dissolved Oxygen, Phosphates, Silicate, Turbidity, Meteorological Conditions
Equipment: YSI Profilux, YSI ProODO, Secchi SEL15 plus/81
Sampling Frequency: Every 2 weeks
Sampling Period: Mid May – Mid October
Years Sampled: 2014-Present
Contact Email: [Contact Email]
Contact Phone Number: [Contact Phone Number]
Website: [Click Here]
New England Monitoring Blitz
August 22, 2019

500 samples collected
100 unique sampling sites
57 monitoring organizations
8 laboratories analyzing samples
Through funding from the **ORD Innovation Program**, and working with Narragansett, we are:

- assembling a low cost but high tech pH sensor system (called a Durafet) to measure pH when TA samples are collected
- measuring **Total Alkalinity** at the New England Regional Laboratory
- providing systems to organizations in 2020

We will continue our collaborations with National Estuary Programs, EPA-Narragansett, National Coastal Condition Assessment, NECAN and the Integrated Sentinel Monitoring Network