Ocean and Costal Acidification (OA) and the MA Shellfish Industry

Prepared by the Northeast Coastal Acidification Network (NECAN)

Key Points:

Shellfish growth and reproduction are threatened by ocean and coastal acidification.

Negative impacts are already observed in both wild and farmed shellfish in MA.

In 2015, commercial landings of wild-caught scallops, clams, oysters and mussels generated over $328 million in landed value and employed thousands of people in MA.

The coastal ocean is becoming more acidic as a result of elevated atmospheric CO_2, nutrient pollution, and other causes. Acidic waters can be harmful to shellfish growth and reproduction with negative impacts on the shellfish industry.

Commercial landings of wild-caught scallops, clams, oysters and mussels generated more than **$328 million in dockside value in 2015** and **thousands of jobs in Massachusetts**.[1] Shellfish are experiencing a variety of challenges and have already shown some alarming trends. OA is only one of a suite of factors affecting coastal waters in the U.S. Northeast.

The Northeast Coastal Acidification Network (NECAN) held workshops in **Gloucester** and **Barnstable** in 2015 with representatives from the shellfishing community, aquaculture industry, and coastal management agencies to inform them about OA and to learn from their experiences. Their input underscores the importance monitoring and understanding coastal acidification and its impacts to Massachusetts.

Some issues raised by the MA shellfishing community during the workshops in Gloucester and Barnstable:

- "There used to be a massive wild mussel set in Duxbury Bay, but they haven't taken".
- "Regionally, there are many fewer steamer clams, and steamer clams have had softer shells at early formation. Hard shell clams are growing a lot more slowly."
- "In Edgartown, there are fewer of all species of shellfish (hard and soft clams, bay scallops, and oysters)".
- "Clam growth has slowed. "You used to be able to take seed and within a year and a half it would come up and have beautiful necks. Starting in 2000, this began to take two years. Now we can't use the seed anymore at all. It doesn't grow."
- "The MA Division of Marine Fisheries has been studying whether there is a correlation between OA and the disappearance of soft shell clam sets, and the answer has been 'yes'."
- Most participants expressed the greatest concern regarding coastal eutrophication, nutrient pollution and the occurrence of anoxic or acidic sediments and their effects on shellfish habitat. There is a dearth of information on key issues, like pH in sediments, and gaps in monitoring, leading to an inability to mitigate the problems that are impacting the shellfishing community.

For additional information on ocean and coastal acidification please see the NECAN website (www.necan.org) or contact NECAN Policy Working Group coordinators, Dr. Todd Capson (capsont@gmail.com) or Dr. Elizabeth Turner (elizabeth.turner@noaa.gov).

1. NOAA Commercial Fisheries Statistics. www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html