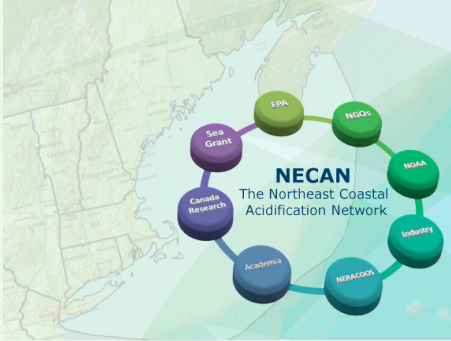




# NOAA in the North Atlantic



## NOAA Examines the Threat of Ocean Acidification in the Region

Some threats to the ocean environment are easy to see. Oil spills, trash on beaches, outfall pipes and coastal erosion are visible reminders that humans can have dramatic impacts on ocean environment, and vice versa. However, some threats are hard to see and may be even harder to characterize. Recently, concern has grown about an invisible change that involves carbon dioxide in the atmosphere dissolving in seawater and undergoing chemical processes to form carbonic acid. This can especially affect species that use calcium carbonate to make shells - including clams, oysters, mussels, lobster, shrimp and cold water coral. This process is exacerbated in coastal waters of the Northeast due to relatively cold water (carbon dioxide dissolves more easily in cold water), inputs of fresh water originating locally and from Canada, and nutrients from sewage and fertilizer use in coastal areas, which can further increase acidity. Collectively, these processes are called coastal Ocean Acidification (OA). While the chemical processes are generally understood, much more remains unknown about the nuances of how all the various pieces fit together to change coastal acidity, and the resulting changes to marine species and ecosystems.

The NOAA North Atlantic Regional Team (NART) has provided initial support to assess regional stakeholder needs for information, data, and communication materials surrounding coastal ocean acidification through the Northeast Coastal Acidification Network, or NECAN. This is a group of scientists, federal and state agency representatives, resource managers, and affected industry partners dedicated to coordinating and guiding regional observing, research, and modeling endeavors. NECAN held a series of webinars on the basics of OA, and convened a State of the Science meeting in April 2014 to develop a synthesis of what is known about OA in the Northeast. The webinars are archived through the website of the Northeast Regional Association of Coastal Observing Systems ([neracoos.org/necan](http://neracoos.org/necan)), and the science synthesis is soon to be published in the scientific journal *Oceanography*. In late 2014, NECAN embarked on the next phase of activity, which involves reaching out to regional stakeholders in a series of state workshops.

The first workshop was held in Maine on December 10, 2014 at the University of Maine Darling Marine Center (see [www.fishermensvoice.com/201501OceanAcidification](http://www.fishermensvoice.com/201501OceanAcidification)). It involved aquaculturists, shellfish harvesters, lobstermen, and state water quality and marine resource managers to provide input on what they have seen in coastal waters, their concerns about coastal OA, and what NECAN could provide through monitoring, data and information products. Maine recently convened a commission to review the science on ocean acidification and make recommendations on how that state could address the threat that changing ocean chemistry poses to the marine ecosystem and economy, and the commission's final report was also reported at the workshop. Workshop participants noted their concerns about impacts to shellfish (both farmed and wild) and interactions with other coastal stresses such as an increase in freshwater and nutrient input. The long list of unknown impacts is troubling, and much more research is needed. However, participants appreciated that (cont. p. 2)



Participants at the state of the science workshop in N.H.

(cont. from p. 1) there were local actions that could make a difference, such as improving water quality and developing new approaches to mitigate or adapt to coastal acidification.

NECAN plans to hold similar stakeholder workshops with other coastal states in the Northeast in 2015. The results of the workshops will be incorporated into NECAN's implementation plan to ensure that monitoring, research and modeling will support stakeholder needs. NART is happy to be able to contribute to developing regional approaches to this emerging issue. Contact [Elizabeth.Turner@noaa.gov](mailto:Elizabeth.Turner@noaa.gov) for more information.

## Did You Know?

The Northeast Regional Planning Body (RPB) met on Nov 13-14, 2014 in New Castle, N.H., with approximately 72 members of the public attending. The Northeast RPB which includes representatives from the six New England states, ten federally recognized tribes, ten federal agencies (chaired by NOAA), and the New England Fishery Management Council, is mandated by the National Ocean Policy to create an ocean plan for New England and oversee its implementation.

At the meeting, the Northeast RPB agreed to continue ongoing work to create a summary of existing management areas, characterize marine life distribution and abundance, and consider the scientific feasibility of further defining important marine ecological areas. The RPB decided to create interdisciplinary work groups examining ecosystem based approaches to managing healthy ocean and coastal ecosystems, emerging ocean uses, including offshore aquaculture and sand and gravel removal from the ocean floor. Members also agreed to continue exploring the potential for development and use of measures of ocean health.

Contact [Betsy.Nicholson@noaa.gov](mailto:Betsy.Nicholson@noaa.gov) for more information.

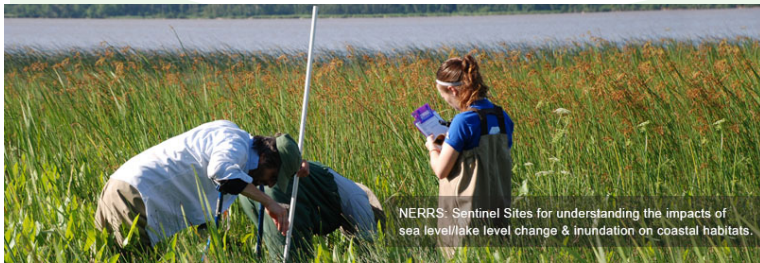


## Chesapeake Bay Sentinel Site Cooperative

The Chesapeake Bay Sentinel Site Cooperative (CBSSC), established by NOAA's National Ocean Service in 2012, is one of five regional sentinel site cooperatives around the United States. The Sentinel Site Program is a partnership among State and Federal agencies, academic institutions, non-government or private environmental organizations, and coastal municipalities. The objective of the CBSSC cooperative is to support resiliency in coastal communities and natural habitats, impacted by recurring inundation due to sea level change and coastal subsidence. CBSSC leverages existing data and programmatic assets among partners, creating a network of experts and information for natural resource and community managers on ways to mitigate flooding and detrimental impacts on our coastal environments.

The CBSSC initially focused on wetland habitat sentinel sites, stemming from the progress made by the National Estuarine Research Reserve System, with well-developed wetland sentinel sites in both Virginia and Maryland. The Cooperative currently includes five primary ecological observing stations: The Chesapeake Bay National Estuarine Research Reserves in Maryland and Virginia, Virginia Coast Long Term Ecological Research Network, Blackwater National Wildlife Refuge (Md.), Smithsonian Environmental Research Center (Md.) and Assateague Island National Seashore (Va.) Each of these sites is representative of a broad natural geography, such as coastal bays, salt marshes, island ecosystems, and riverine environments.

These 5 ecological observing sites each contain a number of observing stations collecting water temperatures and salinity; (cont. on p. 3)



NERRS: Sentinel Sites for understanding the impacts of sea level/lake level change & inundation on coastal habitats.

(cont from p. 2) observations; and biological data related to natural communities. Scientists and coastal resource managers access these data to model and forecast such things as sea level change, marsh elevation and trajectory, duration of storm flooding, geographical extent of coastal inundation, changes in vegetation due to salt intrusion and ground or surface water quality. The data from these sites are further enhanced by a distributed observational network comprised of NOAA buoys, water level stations, as well as fixed monitoring platforms overseen by the State of Maryland and the Commonwealth of Virginia and a number of Federal agencies. Together, the ecologically based sentinel sites and the distributed observational network, provides extensive spatial coverage to characterize and monitor sea level change and its effects on the Bay.

The CBSSC recognizes that urban and coastal communities are in need of reliable, locally specific and scientific based information to supplement data that planners currently use in the decision making process. Many communities already collect and use accurate elevation, water level, and water quality data, but it is unclear if the available data are being used together efficiently and in a correct, consistent manner. There also are areas where data gaps exist.

The CBSSC has identified potential monitoring sites for several coastal communities and urban centers (2 in Maryland and 2 in Virginia). These additional stations are important for monitoring human built areas and to guide coastal community managers as they make decisions on developing new, and protecting existing, urban infrastructure. The CBSSC aims to more fully integrate their existing sea level change and subsidence data while exploring options of enhancing data resources and developing tools to inform the public.

To learn more or join the Sentinel Site community go to <http://oceanservice.noaa.gov/sentinelsites/> or contact [Andrew.W.Larkin@noaa.gov](mailto:Andrew.W.Larkin@noaa.gov).

## NOAA Place in the North Atlantic Profile

### NOAA National Geodetic Survey Corbin Training Center & Laboratory

NOAA's National Geodetic Survey (NGS) supports the National Spatial Reference System from which all official surveys are made. NGS maintains a laboratory in Corbin, Va. (near Fredericksburg) for their Instrumentation and Methodology Branch where staff implement GPS antenna and electronic distance measurement instrument calibration programs. The facility also houses a training center to improve geodetic positioning capacity of partners (such as state geodetic programs) and to increase the knowledge and skills of NGS employees.

This site has a classroom equipped with workstations for computer-based training, or can be arranged for lectures, discussion, and break-out groups. NGS uses the center to train stakeholders and contractors, but other NOAA programs are welcome to reserve the facility for training or retreat purposes. Typical training classes include topics such as project management, geodetic leveling, tidal/geodetic datums, and height modernization.

The site is adjacent to the Fredericksburg GeoMagnetic Observatory that is managed by the U.S. Geological Survey,

NOAA's Kendall Fancher is the chief of the Center. For more information about the Center, go to [www.ngs.noaa.gov/corbin/](http://www.ngs.noaa.gov/corbin/)



## NOAA People in the North Atlantic Region

**Kevin Schabow**

**NOAA Chesapeake Bay Office**

### What are your duties and areas of responsibility?

My primary role at NCBO is managing partnerships with universities, non-profits, and others who are conducting research or education programs about the Chesapeake Bay watershed. These partner organizations are integral to increasing scientific understanding and stewardship for the Chesapeake. I also coordinate a summer internship program that brings amazing young people from throughout the country to Annapolis to work with NOAA staff.

### What do you consider your most significant achievements as a NOAA employee?

As the coordinator of the Chesapeake Bay Program's education workgroup, I worked with others to ensure environmental literacy was featured prominently in the 2014 Bay Agreement, which was signed by six Bay watershed governors, the mayor of Washington, DC, and the EPA administrator. This puts rigorous environmental science education high on the priority list of state departments of education.

### How does what you do impact the public and why is it important?

The Chesapeake is an economic engine and cultural icon, so making it healthier and more ecologically productive has huge public benefits. The research we sponsor is increasing our understanding of this complex ecosystem

to guide sound management of its resources. Just as importantly, the education work we support is fostering the next generation of environmental stewards so they can make informed decisions about the protection and restoration of the Chesapeake and its watershed.



### Do you have any achievements outside of NOAA that you would like to mention?

In 2004, I was named the youngest director in the history of Pathfinder Ranch, a non-profit organization in the mountains of southern California that works with underserved youth and surrounding schools.

### What is your favorite part of your job that makes you feel most fulfilled?

What makes my job enjoyable is interacting with a broad group of diverse and creative stakeholders on a daily basis. Whether it's conducting a site visit, reviewing a technical report, or just fielding a call about a project, it's rewarding to be part of a community that shares the same interests as NOAA.

#### NART Background

The NART is one of eight regional teams created by NOAA's Regional Collaboration effort. It is composed of 17 members from five line offices and is currently led by Jason Tuell. Nicole Bartlett is the NART Regional Coordinator. For more information on team members and activities visit: [http://www.regions.noaa.gov/north\\_atlantic](http://www.regions.noaa.gov/north_atlantic)