

Our Centers

Center for Coastal Environmental Health & Biomolecular Research (CCEHBR)

Charleston, SC | Oxford, MD

CCEHBR directs research on the effects of natural and man-made stressors on the health, functioning, and resilience of coastal ecosystems. Laboratories at Charleston, SC and Oxford, MD conduct innovative chemical, ecological, toxicological, and microbiological research related to stressor influences on coastal, ocean, and Great Lakes habitats and communities to improve both understanding of these dynamic systems and management decisions affecting their use.

Center for Coastal Fisheries & Habitat Research (CCFHR)

Beaufort, NC | Kasitsna Bay, AK

CCFHR conducts laboratory and field research that provides coastal management tools and guidance on coastal habitat change, restoration, and ecological response to climate change. The Beaufort Laboratory provides management tools that help communities adapt to changing sea levels, mitigate the risks of harmful algae to human health, and restore ecosystems. The Kasitsna Bay Laboratory conducts subarctic coastal ecosystem monitoring and research to help communities respond to climate change, shellfish poisoning, ocean acidification and oil spills.

Center for Coastal Monitoring & Assessment (CCMA)

Silver Spring, MD

CCMA assesses and forecasts coastal and marine ecosystem conditions through a diverse program of research and monitoring at national, regional, and local levels. The center's capabilities include environmental and biogeographic assessments, ecological forecasts, physical and biological oceanographic characterizations, and contaminant monitoring through the National Status and Trends Program.

Center for Human Health Risk at the Hollings Marine Laboratory (CHHR)

Charleston, SC

CHHR focuses on the relationship between the coastal ocean and human health by integrating medical and marine expertise through a diverse partnership among federal, state, and academic organizations: NCCOS, the Medical University of South Carolina, the National Institute of Standards and Technology, the College of Charleston, and the South Carolina Department of Natural Resources. The center provides information, analytical models, and diagnostic tools to resource managers and public health officials.

Center for Sponsored Coastal Ocean Research (CSCOR)

Silver Spring, MD

CSCOR supports coastal managers through competitive research funding and partnerships aimed at better understanding and predicting the impacts of natural and man-made influences on coastal ecosystems, communities, and economies. The center targets regional research that can be used to improve our coastal condition and prepare the nation for emerging issues like hypoxia (dead zones), harmful algal blooms, and climate change. In Fiscal Year 2016, CSCOR had 49 active projects totaling \$9.1 million.

NCCOS appropriations are received from the National Ocean Service "Coastal Science, Assessment, Response and Restoration" and "Competitive Research" budget PPAs.



Mary Erickson, Director
National Centers for Coastal Ocean Science
240-533-0192
Mary.Erickson@noaa.gov

Steve Thur, Ph.D., Deputy Director
National Centers for Coastal Ocean Science
240-533-0146
Steven.Thur@noaa.gov

<http://coastalscience.noaa.gov>

NOAA
NATIONAL OCEANIC &
ATMOSPHERIC ADMINISTRATION

NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

The National Oceanic and Atmospheric Administration (NOAA) formed the National Centers for Coastal Ocean Science (NCCOS) in 1999 as the focal point for NOAA's coastal ocean science efforts. We help NOAA meet its coastal stewardship and management responsibilities, and we provide coastal managers with the scientific information necessary to decide how best to protect environmental resources and public health, preserve valued habitats, and improve the way communities interact with coastal ecosystems.

Our work includes:



Addressing Environmental Stressors

NCCOS advances the science of contaminant monitoring, research, and impact assessment in coastal ecosystems. Authorized by the Harmful Algal Bloom and Hypoxia Research and Control Act, we work to better forecast, detect, prevent, control, and mitigate harmful algal blooms and hypoxia.



Resilience and Coastal Climate Vulnerability

With laboratories located in regions vulnerable to the effects of climate change, NCCOS investigates how changes in sea levels, ocean chemistry, and temperature affect coastal ecosystems and the valuable services they sustain.



Coastal and Marine Ecology

Competition among many users of our coasts has been on the rise for decades and will continue to increase. NCCOS researchers develop innovative ecosystem maps, models, and assessments to guide communities in managing ocean space and associated coastal resources.



Monitoring and Detecting Change

We develop methodologies to measure key physical, biological, and social variables and use this information to detect and understand ecosystem change and its impacts. NCCOS is home to the nation's longest running coastal pollution monitoring and assessment enterprise.



Social Science

NCCOS is growing its capacity to identify and map human uses of "NOAA managed" ecosystems, document social and cultural values of and reliance on natural resources, and assess non-market values of ecosystem services.

We deliver
ecosystem
science solutions
to sustain
thriving coastal
communities and
economies

Top Accomplishments in Fiscal Year 2016

Promoting Nature-based Shorelines to Protect the Coast

In 2016, a six-year NCCOS-funded study concluded that shoreline hardening in the Chesapeake Bay is having a negative effect on fish, crabs, and native aquatic plants. This erosion control technique can also facilitate the spread of an invasive reed and sustain nuisance jellyfish. The study is prompting state agencies to consider the cumulative impacts of shoreline armoring. Also in 2016, NCCOS and other NOAA offices partnered with the U.S. Army Corps of Engineers to develop projects that advance natural shoreline practices. The group established a collaboration framework and produced a report that documents key data gaps and work priorities. The partnership is an extension of NOAA's commitment to help coastal communities plan for and mitigate the effects of climate change.



Harmful Algal Bloom Forecasts & Seafood Monitoring Tools

NCCOS and its partners deliver harmful algal bloom (HAB) forecasts for Lake Erie, the Gulf of Maine, and the Gulf of Mexico. In 2016, we improved the early season projections for Lake Erie, and established an initial operating capability at NOAA's Center for Operational Oceanographic Products and Services for production of the twice-weekly Lake Erie HAB bulletin. In Alaska, we trained staff at the Sitka Tribe of Alaska Environmental Regulatory Lab in the detection of paralytic shellfish toxins. The assay taught (developed by NCCOS) is a method recently accepted by the Interstate Shellfish Sanitation Conference that can help secure the food supply against these potent algal-based toxins.



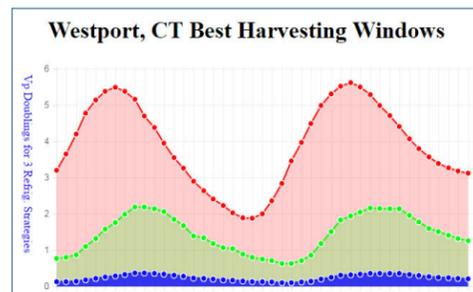
Community Climate Vulnerability Assessment in Chesapeake Bay

Social science researchers at NCCOS completed a vulnerability assessment for Talbot County and the Town of Oxford, MD in the Chesapeake Bay region. The team examined both environmental and social vulnerability using data on population demographics, economic characteristics, distribution of natural resources, and features of commercial and residential structures. These vulnerabilities were investigated alongside various flood hazard risks, including stormwater flooding, storm surge, and sea level rise. The results of the study will be used by the community to inform climate change adaptation planning. The methodology used on this pilot project is available to other jurisdictions.



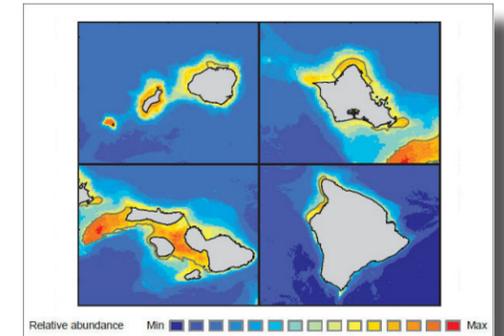
Tools to Reduce Risk of *Vibrio* Bacteria in Shellfish

NCCOS and its partners made major strides in modeling and forecasting *Vibrio* bacteria. *Vibrio* occur naturally in U.S. coastal waters, but have some species that can be harmful to human health, most commonly through consumption of raw seafood carrying the bacteria. In 2016, in collaboration with the National Weather Service, we developed optimal harvest tools for Massachusetts, New Hampshire, Long Island Sound, and Puget Sound intended to help oyster growers choose the best time to harvest and the best cooling strategy to reduce *Vibrio* growth in oysters already harvested.



Ecological Maps for Development of Offshore Renewable Energy

NOAA works with the Bureau of Ocean Energy Management (BOEM) to develop maps that support environmentally responsible ocean energy development. In 2016, NCCOS published an assessment of the distribution of marine animals and benthic habitats around the main Hawaiian Islands, with a focus on species likely to interact with renewable energy infrastructure. These data will serve as foundational material for BOEM's renewable energy leasing process in Hawaii. In North Carolina, NCCOS and BOEM published a study of the seafloor in a proposed wind energy area off the coast. BOEM used these findings to modify the size and boundaries of the proposed area to minimize possible impacts to sensitive reef and fishery habitats.



Environmental Assessments for Alaska Oil, Gas, & Mining Sectors

In 2016, NCCOS completed an analysis of marine environmental conditions in Kachemak Bay and Cook Inlet, AK for use by the Bureau of Ocean Energy Management in oil and gas leasing and development decisions. In Bristol Bay, AK, NCCOS produced an assessment of chemical contamination in fish and sediments for the North Pacific Research Board. Bristol Bay hosts the largest sockeye salmon fishery in the world, as well as other important fisheries. The results of the study provide important baseline information on fish and habitat health prior to proposed mining operations in the watershed.



NCCOS Tools & Expertise Help U.S. Aquaculture Industry Expand

Shellfish aquaculture can enhance growth of submerged aquatic vegetation (SAV), which provides habitat for fish and shellfish, absorbs wave energy, and improves water clarity. We produced a national assessment of the interactions of shellfish aquaculture and SAV that the U.S. Army Corp of Engineers is using to revise their shellfish aquaculture permitting process. Also in 2016, NCCOS and NOAA's Office of Coastal Management developed a visualization tool that simulates changes that result from offshore aquaculture development, which has been hindered in the U.S. by concerns about visual impacts of proposed operations. The tool is being used in Hawaii, California, and Washington.



Science to Manage Marine Sanctuaries & Coral Reefs

In 2016, NCCOS and its partners published a characterization of the deep-water habitats and species in newly expanded areas of the Cordell Banks and the Greater Farallones National Marine Sanctuaries. The report provides a baseline understanding of new habitats—and the groundfish, sponges, and deep-sea corals they support—now under sanctuary jurisdiction. Also in 2016, at the request of Guam officials, NCCOS assessed chemical contaminants in the fish and sediments of Cocos Lagoon, an atoll-like coral lagoon off the coast of Guam. Study results are informing a fish consumption advisory implemented by local resource managers.

