

Our Centers

Center for Coastal Environmental Health & Biomolecular Research (CCEHBR)

Charleston, SC | Oxford, MD

CCEHBR conducts research on the health and functioning of coastal ecosystems, and the implications for human health. The Charleston Laboratory conducts chemical, biomolecular, microbiological, and histological research related to human influences on marine and estuarine habitats. The Cooperative Oxford Laboratory specializes in the pathology of marine organisms and habitat restoration research.

Center for Coastal Fisheries & Habitat Research (CCFHR)

Beaufort, NC | Kasitsna Bay, AK

CCFHR provides coastal resource managers with information to enhance recreational and commercial fishing and essential fish habitat. The Beaufort Laboratory conducts laboratory and field research on estuarine processes, biological productivity of nearshore and ocean ecosystems, dynamics of coastal and reef fishery resources, and effects of human influences on resource productivity. The Kasitsna Bay Laboratory focuses on the impacts of land and resource use on relatively pristine coastal fjord ecosystems.

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.



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NOAA
NATIONAL OCEANIC &
ATMOSPHERIC ADMINISTRATION

NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

The National Centers for Coastal Ocean Science (NCCOS) conduct applied research, monitoring, and assessments to build the scientific foundation for coastal management and resilient coastal ecosystems. We leverage and enhance our capabilities through partnerships nationwide to 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 the coast.

Our work includes:



Environmental Stressor Response & Restoration

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



Coastal Resilience & Climate Vulnerability

With laboratories located in regions on the frontier of climate change, NCCOS researchers investigate how changes in sea levels, ocean chemistry, and temperature affect coastal ecosystems and the valuable services they sustain.



Coastal & Marine Spatial Ecology

Competition among many users of our coasts has been on the rise for decades and will continue to increase. NCCOS develops innovative ecosystem maps, models, and assessments to guide communities in managing their fragile coastal ecosystems.



Monitoring & 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

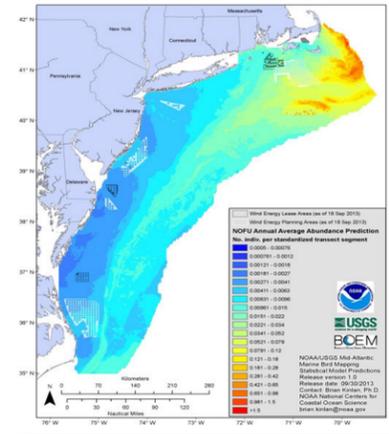
NCCOS is growing its capacity to identify and map human uses of "NOAA managed" ecosystems, document social and cultural values of and reliance on natural resources, and assess non-market values of ecosystem services.

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

Top Accomplishments in Fiscal Year 2014

Biogeographic Maps Inform National Energy Development

NCCOS continues to work closely with other federal agencies to deploy mapping tools that support environmentally informed marine energy development. In 2014, NCCOS developed models of seabird and deep-sea coral distributions on the Atlantic coast and in the Gulf of Mexico to create predictive maps of these living marine resources and disseminate them through a Web service. Also in 2014, a renewable energy company used NCCOS coral distribution maps to help assess routing alternatives for a proposed undersea energy transmission cable in Hawaii. These tools facilitate planning that reduces potential conflicts between human uses and sensitive marine ecosystem components needed for healthy and resilient coastal communities and economies.



NCCOS Forecasts and Responds to Harmful Algal Blooms

In August, NCCOS supported the response to a bloom of toxic blue-green algae in Lake Erie that contaminated drinking water in Toledo, Ohio. NOAA's weekly Lake Erie Harmful Algal Bloom Bulletin—produced by NCCOS and NOAA's Great Lakes Environmental Research Lab—tracks the size and location of blooms and predicts their movement until the bloom season ends in the fall. The August 1 bulletin caught the intensification of this bloom and enabled the region to prepare for the hazard. NOAA currently provides, or is developing, harmful algal bloom and hypoxia (low dissolved oxygen) forecasts for Lake Erie, the Gulf of Maine, the Chesapeake Bay, the Gulf of Mexico, and the Pacific Northwest.



Rapid Test Kits Developed to Detect Paralytic Shellfish Poisoning

Paralytic shellfish poisoning (PSP) is an algal-based, public health threat that affects Alaska's residents more frequently than any other location in the U.S. The remoteness of coastal communities in Alaska makes monitoring this threat challenging. In 2014, NCCOS worked with the Food and Drug Administration and the biotechnology company Mercury Science to develop rapid laboratory and field test kits capable of detecting PSP-causing saxitoxins in shellfish, which accumulate in shellfish as they feed on the microalgae *Alexandrium*. The saxitoxin field test is affordable, easy to use, and is now commercially available.



Sea Level Rise Research Supports Climate Change Planning

NCCOS-supported scientists have found that projected changes in coastal Gulf of Mexico land use, such as increased urbanization, could increase the extent of storm surge flooding by up to 70 percent above flooding from projected sea level rise alone. The study is the focal point of the Northern Gulf of Mexico Sentinel Site Cooperative, a federal-state partnership established to advance sea level rise prediction and assessment capabilities. Also in 2014, NCCOS scientists analyzed national surface elevation trends to help coastal resource managers determine which areas are most vulnerable to sea level rise.



Monitoring and Assessments Support U.S. Coral Reef Conservation

NCCOS co-leads major components of NOAA's National Coral Reef Monitoring Plan (NCRMP)—a framework for conducting sustained observations at 10 priority coral reefs across the U.S. and its territories. In 2014, NCCOS conducted the first NCRMP fish and invertebrate monitoring missions in the U.S. Virgin Islands and the Flower Garden Banks National Marine Sanctuary in the Gulf of Mexico. Officials will use data from these missions to update management plans and ensure continued protection of coral resources at these locations. Also in 2014, NCCOS conducted a biological assessment of the Florida coral reef tract and an investigation of deep reefs on Pulley Ridge (off the southwest coast of Florida) to develop management recommendations for the Florida Keys National Marine Sanctuary.



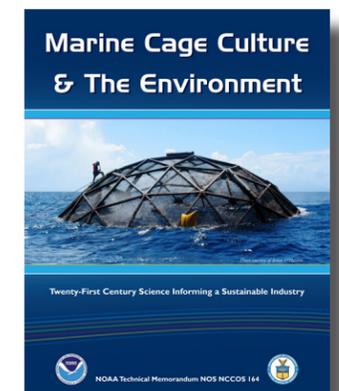
Social Science Research Guides Coastal Resource Management

NCCOS is studying the social and economic conditions of communities that depend on coastal resources. In 2014, NCCOS collected and shared such social science data with coastal resource managers in American Samoa and South Florida to help improve a range of coral conservation efforts. Also in 2014, NCCOS collected social science data for the Mission-Aransas National Estuarine Research Reserve in Texas. These data are helping officials better serve the communities that use the reserve, while still protecting the reserve's natural resources.



Marine Aquaculture Report Addresses Environmental Concerns

Over 50 percent of seafood production globally comes from aquaculture. Our report, *Marine Cage Culture and the Environment*, analyzed environmental concerns related to marine cage culture practices around the world. The report provides coastal managers and fish farmers alike a global perspective on the range and intensity of potential environmental effects from cage aquaculture. This research shows that, with proper coastal planning tools and environmental oversight, sustainable growth of aquaculture in the coastal ocean can occur—allowing higher seafood production, growing coastal economies, providing healthier American diets, and increasing food security in the U.S.



Some Dolphins Gravely Ill Following Deepwater Horizon Oil Spill

Bottlenose dolphins in Louisiana's Barataria Bay have lung damage and adrenal hormone abnormalities not previously seen in other dolphin populations, according to an NCCOS-led study published in the Dec. 18, 2013 issue of *Environmental Science & Technology*. The study was conducted in August 2011 as part of the Natural Resource Damage Assessment of the 2010 *Deepwater Horizon* oil spill, which heavily oiled Barataria Bay. The findings are in contrast to dolphins sampled in Sarasota Bay, Fla., an area not oiled by the *Deepwater Horizon* spill.

