

NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

Center for Coastal Environmental Health and Biomolecular Research

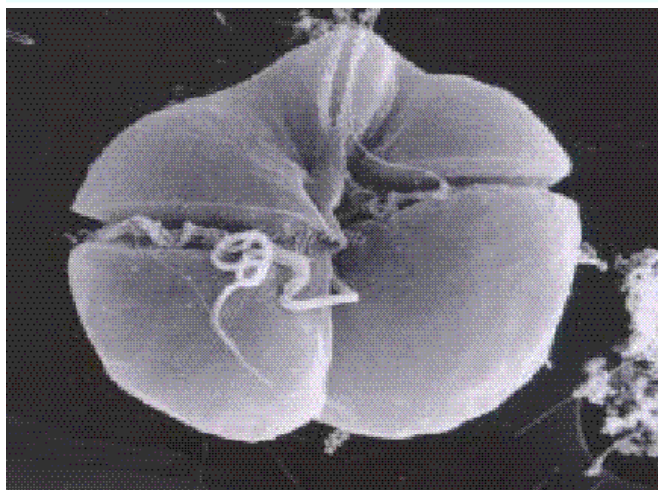


NOAA
Ocean Service

The Center for Coastal Environmental Health and Biomolecular Research (CCEHBR) at Charleston, South Carolina includes the Cooperative Oxford Laboratory located in Oxford, Maryland. The Center conducts interdisciplinary research to resolve issues related to coastal ecosystems health, environmental quality, and related public health impacts. Chemical, biomolecular, microbiological, and histological methods are used in both laboratory and field studies to describe, evaluate, and predict the controlling factors and outcomes of natural and anthropogenic influences in marine and estuarine habitats. High priority issues addressed by CCEHBR include:

Marine Biotoxins

The Marine Biotoxin Program conducts research and provides scientific guidance to promote the effective management of fisheries, public health, and ecosystem health on issues related to marine biotoxins and harmful algae. Researchers help to develop toxin tests to insure that seafood products are safe for consumers. Research on public health issues is conducted by identifying biomarkers of toxin exposure and assessing the exposure risks on human health. Ecosystem health is addressed by studying the role of bacterial-algal interactions and identifying genetic markers for harmful algal species.



Gymnodinium breve (above) causes red tides along the Gulf and southeast Atlantic coasts. It produces a toxin that can cause respiratory irritation in humans, kill fish, and may be the cause of dolphin and sea turtle mortalities.

Environmental Risk Analysis



Scientists employ a suite of biomolecular and chemical techniques, and use the latest technology to investigate coastal environmental quality issues.

The Risk Analysis Program seeks to lower the risk and severity of harm to resources and human health by identifying hazards and conducting risk assessments on issues related to shellfish harvesting, aquaculture development, and environmental characterization. Researchers engage in scientific studies to synthesize, analyze, and disseminate information on natural and human-induced processes that may influence coastal environmental conditions. The overall program goal is to develop enhanced predictive capabilities and risk management options for use by natural resource managers, public health agencies, and the private sector to improve coastal resource management.

“Science Serving Coastal Communities.”

Marine Ecotoxicology

Marine ecotoxicology research focuses on establishing linkages between land use and the presence of chemical contaminants in the marine environment. Interdisciplinary research is focused on identifying chemical and bacterial contaminants associated with anthropogenic inputs from agriculture, urbanization, dredging operations and industrial discharges and their resulting toxicological and ecological impacts on marine and estuaries ecosystems.



Pathobiology

Scientists investigate the role of marine disease in the distribution, abundance, edibility, and consumer demand for seafood products. In addition, scientists are also studying the role of natural and human-induced factors on disease occurrence and persistence, and exploring the utility of animal health as an environmental health indicator. Current research is focusing on developing and applying clinical and biochemical techniques to study shellfish, marine mammal, and sea turtle diseases.

Living Marine Resources

The Marine Mammal and Protected Resources Program seeks to improve the management and conservation of

protected species such as marine mammals and sea turtles by determining the effects of environmental impacts on animal health and long-term population viability. A multi-disciplinary approach is used that includes studies of bottlenose dolphin communities, biopsy and live-capture sampling, biomolecular sampling using genetic and health indicators, and risk assessment modeling. In addition, stranded animals are studied to determine causes of mortality and improve our understanding of animal health.

Marine Biotechnology & Genetics

The Biotechnology Program provides a genetic context for critical management and enforcement decisions for the long-term conservation and use of living marine resources. Scientists apply molecular and cellular biology methodology and tools to address issues pertaining to biodiversity, environmental health, marine and fisheries biology, and developing new marine products. Specific research is currently focusing on rapid assay development, discovery of biomarkers to assess resources and ecosystem health and using molecular genetics to identify marine species.

Marine Forensics

The Marine Forensics Center interacts with various law enforcement agencies, providing an extensive array of forensic analyses for cases involving protected marine species. The Center provides technical support for law enforcement agencies in violations relating to threatened and endangered species, consumer fraud, fisheries management plans, and game fish. Species identification analyses are used to successfully prosecute illegal activities such as importation and sale of sea turtle eggs and meat, illegal sale of gamefish, and taking of managed fish during periods of closure, as well as determination of wild versus cultured marine animals.

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