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Four New Research Centers to Explore Link Between Oceans and Human Health

Arlington, VA and Research Triangle Park, NC — The National Science Foundation (NSF) and the National Institute of Environmental Health Sciences (NIEHS), one of the National Institutes of Health, have announced funding for four joint Centers for Oceans and Human Health (COHH). The centers will be located at the University of Washington, the University of Hawaii, the Woods Hole Oceanographic Institution in Massachusetts, and the University of Miami.

The federal agencies expect to invest a combined total of \$5 million annually for the next five years to support the four centers.

The centers will bring together experts in biomedical and oceanographic sciences for the first time to study the effects of harmful algal blooms, marine pathogens, and the oceans' vast potential for drug discovery. The combined expertise of the participants will accelerate the pace of scientific discovery, ranging from the development of new sensors for early warning systems to enhanced progress in finding novel compounds with pharmaceutical potential.

"The formation of this funding partnership demonstrates that NSF and NIEHS are addressing the current and future needs of a growing human population, one that is increasingly dependent upon the ocean's resources," said Arden Bement, acting director of NSF. "It also demonstrates NSF's commitment to bridging major interdisciplinary gaps in science, and among different parts of the research community."

Added Margaret Leinen, NSF assistant director for geosciences, "The new centers are a wonderful example of how basic research can focus on a topic of great practical significance. We look forward to the discoveries that will come from this program, and to the important new applications that will follow."

This effort, supported by the respective strengths of NSF and NIEHS in physical and biological sciences, said Leinen, highlights the capacity of federal research agencies to work together in a collaborative fashion and to leverage resources to support the highest quality interdisciplinary research.

"The NIEHS and the National Science Foundation support complementary sets of expertise that can be brought together in the study of oceans and human health," said Kenneth Olden, director of the NIEHS. "These federal agencies have joined forces in order to harmonize their corresponding strengths."

"Oceans have become conduits for a number of environmental threats to human health," said Olden. "At the same time, oceans harbour a diverse array of organisms that show great promise for providing new drugs to combat cancer and fight infectious diseases. In order to guard against health threats, and to take advantage of medicinal benefits that oceans might provide, the impact of oceans on human health must be more fully explored."

The four centers, their directors, and programs are:

The center at the University of Washington, directed by Elaine Faustman, will study toxic algae and how toxic domoic acid produced by algae accumulates in Puget Sound shellfish. Researchers will explore the ways in which this toxin affects human health through the consumption of contaminated seafood, especially in sensitive populations such as children.

The center at the University of Hawaii, directed by Ed Laws, will study ciguatoxin-producing organisms and develop improved methods for detecting these toxins in fish and humans. Researchers will also conduct studies of microbial pathogens in tropical coastal waters to learn more about their sources, survival and ecology. A pharmaceutical initiative will focus on extracts from tropical microorganisms, and their potential application in the treatment of cancer and infectious diseases.

The center at the Woods Hole Oceanographic Institution, directed by John Stegeman, will study populations of the toxic plankton *Alexandrium* in the Gulf of Maine and the relationship of its various genotypes to its toxicity, as well as the hydrodynamic and biological controls on these populations and how they affect shellfish toxicity. The center will also study human pathogens in Mt. Hope Bay.


The center at the University of Miami, directed by Lora Fleming, will study hazardous algal blooms in subtropical ecosystems and the development of probes to identify new species and toxins. The genomics of algae will be studied to see if different genotypes are more successful during algal blooms. The center will also investigate microbes in coastal waters and their effects on human health in waters heavily used for recreational purposes.

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