



New Center for Oceans and Human Health Established in Woods Hole

WOODS HOLE, Mass., April 22 (AScribe Newswire) -- Scientists from the Woods Hole Oceanographic Institution (WHOI), Marine Biological Laboratory (MBL) and the Massachusetts Institute of Technology (MIT) have joined together to form the Woods Hole Center for Oceans and Human Health (COHH). The new Center, with administrative offices at WHOI, will serve as a focal point for research on issues at the intersection of oceanographic, biological and environmental health sciences, such as harmful algal blooms and organisms in coastal waters and estuaries that cause human illness and death.

This new Woods Hole Center and three others being established around the country are the first in a new collaboration between the National Institute of Environmental Health Sciences (NIEHS), one of the National Institutes of Health, and the National Science Foundation (NSF). The four joint Centers for Oceans and Human Health (COHH) will be located at the Woods Hole Oceanographic Institution in Massachusetts, the University of Miami, the University of Hawaii, and the University of Washington. More than 20 proposals were submitted from around the country for similar centers, with four selected for funding. 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 are expected to sponsor research by a large number of investigators, students and scholars in the next five years.

The mission of the Woods Hole COHH is to improve public health through understanding how oceanic processes affect the distribution and persistence of human pathogens or products of toxin-producing organisms. The major research focus of COHH projects will be the distribution of biological organisms like bacteria and algae with potential human health consequences in the temperate coastal ocean, including bays, harbors and estuaries.

The two federal agencies are providing about \$6.25 million in support to establish the Woods Hole COHH and fund four research projects for five years. Dr. John Stegeman, a Senior Scientist and Chair of the WHOI Biology Department, will serve as Director of the Woods Hole COHH. Dr. Dennis McGillicuddy, an Associate Scientist in the Applied Ocean Physics and Engineering Department at WHOI, will serve as Deputy Director. Dr. Mitchell Sogin, a Senior Scientist and Director of the Josephine Bay Paul Center for Comparative Molecular Biology and Evolution at the Marine Biological Laboratory, will direct the Genomics Facility Core of COHH, housed in the MBL's W. M. Keck Ecological and Evolutionary Genetics Facility. MIT

Professor Martin Polz, who develops molecular approaches to understanding marine and aquatic ecosystems, will coordinate MIT research for the new center.

Stegeman says COHH is a multi-institutional consortium that will address specific issues related to the distribution of biological agents with potential human health consequences, such as harmful algal blooms (commonly called "red tides"), in the temperate coastal ocean. Many of the major urban areas of North America lie in or border the coastal zone, where an estimated 9 billion gallons of domestic sewage and industrial wastewater enter the coastal ocean each day. Contamination of coastal waters with human pathogens from this waste and the distribution and persistence of these pathogens is a serious threat to public health.

The first two research projects to be funded as part of the Center involve studies of harmful algal blooms or red tide populations in the Gulf of Maine, and how coastal currents and biological processes affect that population. The third project will focus on coastal ecology and physical processes that may influence human health risks from infectious organisms in polluted coastal and estuarine waters of south coastal Massachusetts. The ecology and evolution of two marine pathogens, the closely related bacteria *Vibrio vulnificus* and *V. parahaemolyticus*, and modeling of various coastal ocean processes affecting the populations of these organisms is the fourth research project to be funded by the Center.

Vibrio bacteria are responsible for about 95 percent of seafood related illnesses and deaths and may be the reason for the rise in lethal wound infections acquired during recreational use of coastal waters. The second bacterium, *V. parahaemolyticus*, is believed to be the cause of outbreaks of dysentery after people eat contaminated shellfish harvested from temperate coastal waters.

Research projects will be conducted in each of the Institutions but will also take advantage of the MBL's genomics facility, which will enable COHH researchers to do high volume DNA sequencing and analysis.

COHH Director John Stegeman says a goal of the Center is to expand interaction among investigators in the Woods Hole scientific community and in Cambridge. Although WHOI, MBL and MIT have collaborated in many areas through the years, the new Center will integrate strengths at the three institutions in marine biology, genomics, and physical oceanography and modeling, and encourage new collaborations.

"The observations we make could spark a new appreciation of the risks associated with the potential human health consequences of some coastal organisms," Stegeman said. "We expect the insights generated by these research projects will influence the ways pathogens and harmful algal blooms are viewed by the public."

About the Woods Hole COHH Organizations:

Woods Hole Oceanographic Institution (WHOI) is a private, independent marine research and engineering and higher education organization located in Falmouth,

Mass. Its primary mission is to understand the oceans and their interaction with the Earth as a whole, and to communicate a basic understanding of the ocean's role in the changing global environment. Established in 1930 on a recommendation from the National Academy of Sciences, the Institution operates the US National Deep Submergence Facility that includes the deep-diving submersible ALVIN, a fleet of global ranging ships and smaller coastal vessels, and a variety of other tethered and autonomous underwater vehicles. WHOI is organized into five departments, interdisciplinary institutes and a marine policy center, and conducts a joint graduate education program with the Massachusetts Institute of Technology.

The Marine Biological Laboratory (MBL) is an international, independent, nonprofit institution dedicated to improving the human condition through creative research and education in the biological, biomedical and environmental sciences. Founded in 1888, the MBL is the oldest private marine laboratory in the Western Hemisphere. The Josephine Bay Paul Center for Comparative Molecular Biology and Evolution at the MBL explores the evolution and interaction of genomes of diverse organisms that play significant roles in environmental biology and human health. This dynamic research program integrates the powerful tools of genome science, molecular phylogenetics, and molecular ecology to advance our understanding of how living organisms are related to each other, to provide the tools to quantify and assess biodiversity, and to identify genes and underlying mechanisms of biomedical importance. Projects span all evolutionary time scales, ranging from deep phylogenetic divergence of ancient eukaryotic and prokaryotic lineages, to ecological analyses of how members of diverse communities contribute and respond to environmental change. Three interlocking programs define the scope of research in the Bay Paul Center: the Program in Global Infectious Diseases, the Program in Molecular Evolution, and the Program in Molecular Microbial Diversity.

The Massachusetts Institute of Technology -- a coeducational, privately endowed research university -- is located in Cambridge, Mass. It is dedicated to advancing knowledge and educating students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century. The Institute has more than 900 faculty and 10,000 undergraduate and graduate students. It is organized into five Schools, within which are 27 degree-granting departments, programs, and divisions. In addition, a great deal of research and teaching takes place in interdisciplinary programs, laboratories, and centers whose work extends beyond traditional departmental boundaries.

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