

# UNIVERSITY OF HAWAII NEWS



## NEWS RELEASE

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## NEW SCIENCE AND TECHNOLOGY CENTER AT UH MĀNOA WILL EXPLORE THE FANTASTIC WORLD OF MARINE MICROBES

*Center established with a five-year, \$19-million award from the National Science Foundation*

HONOLULU – The University of Hawai‘i at Mānoa is about to embark on a decade-long mission that will focus attention on the microbial inhabitants of the sea. The School of Ocean and Earth Science and Technology’s (SOEST) Center for Microbial Oceanography: Research and Education (C-MORE) opened its doors for the creation and dissemination of new knowledge today by hosting a virtual science symposium on the challenges and opportunities of this relatively new and important area of scientific research.

C-MORE, which will receive approximately \$19 million from the National Science Foundation (NSF) over the first five years, will serve as a physical and intellectual space to facilitate collaborations and partnerships among the previously separate disciplines of oceanography, microbiology, ecology and genomics.

These new alliances will enable a deeper understanding of the seas, including its potential response to global environmental variability and climate change.

“We are on the verge of a revolution in our understanding of the sea around us, especially the role of microbes in global ecosystem processes,” said David Karl, UH Mānoa professor of oceanography and C-MORE director. “The primary mission of the Center will be to increase understanding of the biology, ecology and biogeochemistry of marine microorganisms, including bacteria, archaea, single-celled plants and viruses.”

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The Center will also integrate its research objectives with a varied and diverse portfolio of education and outreach activities for students of all ages. It will push interdisciplinary collaboration between faculty, students and postdoctoral scientists in an accelerated fashion to train a new breed of microbial oceanographer, and will help to train teachers and develop curricula at the undergraduate and secondary education levels.

Implementation of these activities is also designed to increase the number of students and teachers engaged in quantitative sciences and engineering, focusing on underrepresented groups in science, especially Native Hawaiians and other Pacific Islanders.

To accomplish all this, the new Center will bring together knowledgeable teams of individuals who otherwise have little opportunity to interact. UH Mānoa will serve as the lead institution and the physical location of the Center. The interdisciplinary team assembled for C-MORE also includes scientists, engineers and educators from the Massachusetts Institute of Technology (MIT), Woods Hole Oceanographic Institution, Oregon State University, the Monterey Bay Aquarium Research Institute, and the University of California at Santa Cruz, as well as the UH Mānoa College of Education and the Hawai‘i Department of Education.

“Teamwork, strategic planning and implementation, and synergy are key factors in the success of the new NSF Science and Technology Centers,” said Nathaniel G. Pitts, director of the NSF Office of Integrative Activities. “Each has multiple partners from different science and engineering sectors, including national and international academia, industry, and federal, state and local government. The partners will enable the centers to take advantage of complex agendas that require special modes of operation. The full diversity of the nation’s intellectual talent will be engaged, and the expectation is that new knowledge will be one of the primary products, as will be the development of new instrumentation, new technologies, and future scientists and engineers.”

“Projects like C-MORE don’t just happen—they require the coordinated efforts of many people. We are very fortunate to have such a great team assembled for the important scientific challenges ahead,” said Karl.

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The team's work will also have broader societal benefits, primarily an increased understanding of Earth's climate and ecosystem variability, including anthropogenic impacts, and the education of the next generation and the public at large.

“A central objective of C-MORE will be to increase understanding about how biological diversity detected at the genome level expresses itself at the ecosystem function level, and then to transfer this knowledge to policymakers to assist them in their decision-making process,” said Edward DeLong of MIT and C-MORE associate director for research. “Marine microorganisms are invisible to the naked eye but their presence enables all multi-cellular life to exist, including human populations. Novel methods in molecular biology combined with satellite- and sea-based remote sensing technologies provide an unprecedented opportunity to study microorganisms across broad spatial scales ranging from genes to entire ocean basins.”

In addition to the five-year, \$19-million grant from the NSF's Science and Technology Centers program, the establishment of the Center is made possible by a UH commitment for shared support and generous funding from The Agouron Institute and the Gordon and Betty Moore Foundation through their initiatives in marine microbiology.

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**ABOUT THE NSF SCIENCE AND TECHNOLOGY CENTERS PROGRAM**

The National Science Foundation's (NSF) Science and Technology Centers (STC): Integrative Partnerships program enables innovative research and education projects of national importance that require a Center mode of support to achieve the research, education, and knowledge-transfer goals shared by the partners. STCs conduct world-class research in partnerships among academic institutions, national laboratories, industrial organizations, and/or other public/private entities to create new and meaningful knowledge of significant benefit to society. Centers offer the research and engineering community an effective mechanism to undertake long-term scientific and technological research and education activities; to explore better and more effective ways to educate students, and to develop mechanisms to ensure the timely transition of research and education advances made into service in society. For more information, visit [www.nsf.gov/od/oia/programs/stc](http://www.nsf.gov/od/oia/programs/stc).

**ABOUT THE SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY, UH MĀNOA**

The School of Ocean and Earth Science and Technology (SOEST) was established by the Board of Regents of the University of Hawai'i in 1988. SOEST brings together in a single focused ocean, earth sciences and technology group, some of the nation's highest quality academic departments, research institutes, federal cooperative programs, and support facilities to meet challenges in the ocean and earth sciences. Scientists at SOEST are supported by both state and federal funds as they endeavor to understand the subtle and complex interrelations of the seas, the atmosphere, and the earth. For more information, visit [www.soest.hawaii.edu](http://www.soest.hawaii.edu).

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