Microbial Life in the Cold

Jody Deming

CURRENT RESEARCH

How the smallest of microbes tolerate extreme marine conditions

Climate warming has the Arctic Sea ice cover receding and thinning, signaling changes in the environment for the marine megafauna at the top of the food chain and the microscopic algae and bacteria at the bottom of it. Living in sea ice and the waters and sediments below it, these microbes are responsible for fueling everything else in the ecosystem. Studying how changes to the sea ice cover will affect the base of the food chain is thus essential to predicting the future of ice-dependent ecosystems. Dr. Jody Deming, Walters Endowed Professor of Biological Oceanography at University of Washington, works to understand how the smallest of microbes, particularly the naturally occurring cold-adapted bacteria, have evolved to tolerate if not thrive under extreme marine conditions, including subzero temperature and high salt concentration as encountered inside sea ice but also high pressure experiences deeper into the ocean. Because bacteria adapted to live in the cold can also be expected to be "on the front line" of defense against an oil spill in the Arctic, Dr. Deming's fundamental studies on the bacterial capacity to produce antifreeze agents and other compounds that function as natural oil dispersants can lead to real-world applications in the future.

The first group to determine how to use microscopy to peer into sea ice without melting it, Dr. Deming and her colleagues continue to incorporate novel microscopic techniques to observe microbial behavior under extreme conditions in the lab and to probe inside the unmelted ice in the field. Current projects involve the use of digital holographic microscopy to observe microbes swimming in the subzero brines that form a liquid network inside the ice cover: an...

Read More at benefunder.com/

AFFILIATION

University of Washington

EDUCATION

- Ph.D. in Microbiology (Marine) 1981, University of Maryland
- B.A. cum laude in 1974,Biological Sciences, Smith College

AWARDS

- Walters Endowed Professorship, 2009-present
- Honorary Doctorate, Science and Engineering, 2006
- Elected, US National Academy of Sciences, 2003
- Elected, American Academy of Microbiology, 1999
- NSF Presidential Young Investigator Award, 1989-1997

RESEARCH AREAS

Environment, Atmospheric / Space, Oceanic, Remediation

FUNDING REQUEST

Your contributions will support Dr. Jody Deming and her lab at the University of Washington as they probe extreme environments for the fascinating microbes that live there. Donations will help fund talented personnel, equipment, fieldwork, and projects, providing unique opportunities for students seeking higher degrees. Thanks to Dr. Deming's proven ability to accomplish much with little, even small sums will help yield productive results in studying the microbiology of the Arctic's ice cover. Partner with her in expanding our understanding of our cold and deep ocean!