

11TH U.S. SYMPOSIUM ON HARMFUL ALGAE

EXPLORING THE HUMAN DIMENSIONS OF HARMFUL ALGAL BLOOMS THROUGH A WELL-BEING FRAMEWORK TO INCREASE RESILIENCE IN A CHANGING WORLD

Climate change is expected to alter harmful algal bloom (HAB) dynamics in marine and freshwater systems around the world, with some regions already experiencing significant increases in HAB events. There has been considerable investment of effort to identify, characterize, track, and predict the direction and magnitude of HAB response to climate variability and change. In comparison, far less effort has been devoted to understanding how human communities might respond to HABs in a changing world. HABs alter social-ecological interactions and can have negative consequences for human well-being. This is especially true for fishing communities because their resource-based economies operate at the interface of the natural environment and society. Identifying the components of human well-being that are most affected by HABs can advance ecosystem assessment and inform choices about climate-ready management strategies in and across complex systems. Using the US West Coast as a case study, we explore the effects of HABs of *Pseudo-nitzschia* spp. on fishing communities using a structured framework for considering human well-being in management contexts. By identifying well-being components that are most sensitive to HABs and current HAB management strategies, as well as components that may not currently be considered by federal disaster response and recovery policies, our analysis reveals attributes of social-ecological systems that may render individuals and communities more or less vulnerable to HABs depending on how local communities prioritize these attributes.

STEPHANIE MOORE, RESEARCH OCEANOGRAPHER | NOAA FISHERIES, NORTHWEST FISHERIES SCIENCE CENTER

Steph is fascinated by the secret lives of phytoplankton and how they interact with their watery surroundings. She uses ocean robots to track changes in phytoplankton communities and develop a mechanistic understanding of HAB formation. Steph's mission is to understand the causes and consequences of HABs for fisheries and the people who depend on them for their livelihoods. Her work informs the development of adaptive management actions to optimize the mutual well-being of people and ecosystems in a changing world. Steph joined NOAA Fisheries in 2017 as a Research Oceanographer. Previously, she studied climate effects on harmful algal blooms at the University Corporation for Atmospheric Research and the University of Washington. She holds a B.Sc. with honors in Advanced Environmental Science and a Ph.D. in Biological Science from the University of New South Wales, and is an alumni of the JPB Environmental Health Fellowship Program with the Harvard T.H. Chan School of Public Health. She is a mum to an infinitely-wise daughter. She loves being outside in nature, but hates the cold. She sometimes gets seasick.

STEPHANIE.MOORE@NOAA.GOV

Co-Authors:

Margaret Broadwater, NOAA Ocean Service, National Centers for Coastal Ocean Science

Curtis Cha, Duke University

Quay Dortch, NOAA Ocean Service, National Centers for Coastal Ocean Science

Michael Downs, Wislow Research Associates LLC

Chris Harvey, NOAA Fisheries, Northwest Fisheries Science Center

Karma C. Norman, NOAA Fisheries, Northwest Fisheries Science Center

Carrie Pomeroy, UC Santa Cruz, Institute of Marine Sciences

Jameal F. Samhouri, NOAA Fisheries, Northwest Fisheries Science Center