

Evaluation of Hydrodynamic Modeling and Implications for Offshore Wind Development: Nantucket Shoals

Committee

Eileen E. Hofmann

Chair

Eileen Hofmann is a Professor and Eminent Scholar in the Department of Ocean and Earth Sciences and a member of the Center for Coastal Physical Oceanography, both at Old Dominion University. Her research interests are in the areas of physical-biological interactions in marine ecosystems, environmental control and transmission of marine diseases, and descriptive physical oceanography. Her research has focused on a variety of marine environments that include the Ross Sea and the western Antarctic Peninsula, Delaware and Chesapeake Bays, and the Middle Atlantic Bight (MAB) continental shelf. Hofmann's current research is focused on understanding and quantifying interactions between offshore wind energy development in the MAB and commercial shellfish species. She is the co-chair of the Southern Ocean Observing System. Her contributions to modeling physical-biological interactions in marine systems were recognized by her election as a Fellow of the American Geophysical Union. Hofmann received a B.S. in biology from Chestnut Hill College and an M.S. in physical oceanography and Ph.D. in marine sciences and engineering from North Carolina State University. She is a member of the National Academies of Sciences, Engineering and Medicine's Understanding Gulf Ocean Systems Standing Committee and was previously a member of the Ocean Studies Board and Committee on Fisheries Research and Monitoring for Atlantic Offshore Development: A Workshop.

Jeffrey Carpenter

Member

Jeffrey Carpenter is a physical oceanographer who leads the Small-scale Physics and Turbulence Group at the Institute for Coastal Ocean Dynamics at the Helmholtz-Zentrum Hereon in Geesthacht, Germany. His work focuses on the fluid mechanics of physical processes in oceans and lakes, and his research interests include turbulent mixing in stable density stratification, shear flow instability and the transition to turbulence, double-diffusive convection flows, Arctic oceanography, the use of autonomous vehicles in studying ocean processes, and the impacts of offshore wind farms on coastal seas. He is the recipient of the Alexander Graham Bell Canada Graduate Scholarship as well as a European Research Council Consolidator Grant. Carpenter received a Ph.D. in civil engineering from the University of British Columbia, Canada and completed postdoctoral training at Yale University and EAWAG: the Swiss Federal Institute of Aquatic Science and Technology.

Qin Jim Chen

Member

Qin Jim Chen is a Professor of Civil and Environmental Engineering and Marine and Environmental Sciences at Northeastern University. Prior to joining Northeastern University in 2018, he was a Professor of Coastal Engineering at Louisiana State University. He specializes in the development and application of numerical models for coastal dynamics, including ocean waves, storm surges, estuarine circulation, fluid-structure interaction, sediment transport, and deltaic morphodynamics, as well as field observations of nearshore extreme events. Chen's research program is focused on the integration of computer modeling with field observations and application of high-performance computing and machine learning technologies for coastal resilience and sustainability. He is a recipient of the National Science Foundation CAREER award, Best Paper Award of the Louisiana Association of Professional Biologists, and the James M. Todd Technological Accomplishment Medal. Chen received a Ph.D. in civil engineering from Old Dominion University in collaboration with the Danish Hydraulic Institute and completed postdoctoral training in the Center for Applied Coastal Research at the University of Delaware.

Josh T. Kohut

Member

Josh Kohut is a Professor in the Department of Marine and Coastal Sciences at Rutgers University. Using networks of ocean observing technologies, his research and extension programs focus on the ocean processes that structure marine ecosystems. He is involved in many research programs that range in scope from storm intensity, offshore wind, local water quality, regional fisheries, and environmental studies of polar ecosystems in the coastal waters surrounding Antarctica. In the Mid-Atlantic Bight, Kohut is engaged in multiple research efforts to both monitor and understand the dynamic ocean relative to movements of marine mammals and their prey in the context of planned offshore wind development. His research is collaborative, and he works with multiple stakeholder groups to ensure his work is relevant to management of ocean resources. Kohut received a B.S. in physics from the College of Charleston and a Ph.D. in physical oceanography from Rutgers University.

Kohut's research has been partially funded by offshore wind development companies. He also currently serves as a member of the New Jersey Department of Environmental Protection (NJDEP) Science Advisory Board, Water Quality and Quantity Standing Committee; NJDEP has recently made public statements about whale strandings along the New York and New Jersey coasts.

Richard Merrick

Member

Richard Merrick is retired from the National Oceanic and Atmospheric Administration (NOAA) Fisheries. Post retirement he has become involved with committees and boards related to marine conservation, including the Marine Mammal Protection Act's (MMPA) Atlantic Scientific Review Group, and the New England Fishery Management Council's Scientific and Statistical Committee. During his last five years of service with NOAA Fisheries, he was the Director of Scientific Program where he formulated and directed NOAA's biological and social science research for fish, marine mammal, and turtle species in the United States. In this role, Merrick provided science policy advice to NOAA leadership, Congress, and other stakeholders. Previously, he led Northeast and Alaska regional NOAA Fishery's programs focused on conservation of U.S. living marine resources. He received the Presidential Distinguished Rank Award, NOAA's Distinguished career award, and a variety of others awards during his career. He is a member of Sigma Xi and Phi Kappa Phi, and a charter member of the Society for Marine Mammalogy. Merrick received an M.S. in biological oceanography and marine resource management from Oregon State University and a Ph.D. in fisheries from the University of Washington. He was previously a member of the National Academies of Sciences, Engineering, and Medicine's Committee on Assessment and Advancement of Science in the Bureau of Ocean Energy Management's Environmental Studies Program.

Erin L. Meyer-Gutbrod

Member

Erin Meyer-Gutbrod is an Assistant Professor in the School of the Earth, Ocean, and Environment at the University of South Carolina. She is a quantitative marine ecologist who uses statistical, demographic, and spatial models to understand how marine species respond to environmental processes. Many of Meyer-Gutbrod's research projects focus on human impacts to threatened or economically valuable species. She serves on the Justice, Equity, Diversity & Inclusion (JEDI) committee for The Oceanography Society and edits a quarterly JEDI column in Oceanography magazine. Meyer-Gutbrod received a B.S. in physics from the University of Notre Dame and a Ph.D. in Earth and atmospheric science from Cornell University.

Meyer-Gutbrod submitted public comments on the National Oceanic and Atmospheric Administration's proposed North Atlantic Right Whale Vessel Strike Reduction Rule.

Douglas P. Nowacek

Member

Douglas Nowacek is a Professor at the Nicholas School of the Environment and Pratt School of Engineering at Duke University. His research is focused on the link between acoustic and motor behavior in marine mammals, primarily cetaceans and manatees, specifically, how they use sound in ecological processes. Other research interests include offshore renewable energy and the effect(s) of anthropogenic noise on marine mammals. Nowacek received a B.A. in zoology from Ohio Wesleyan University and a Ph.D. in biological oceanography/engineering from the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program.

He served as a compensated member of a review panel for Orsted's Offshore Wind Research Plan in 2021.

Kaustubha Raghukumar

Member

Kaustubha Raghukumar is a consultant in marine sciences at Integral Consulting Inc., an international environmental sciences and engineering company headquartered in Seattle, WA. Prior to joining Integral, he was a research associate at the Naval Postgraduate School in Monterey, CA, and a postdoctoral scholar at the University of California, Santa Cruz. Raghukumar is an oceanographer with a background in physical oceanography, ocean acoustics, and wave propagation physics. He has 16 years of experience in modeling and at-sea measurements of hydrodynamic processes, and underwater acoustics. He is currently involved in modeling efforts to understand the effects of offshore wind development on coastal circulation and to examine the potential environmental effects of marine renewable energy installations. Raghukumar received a Ph.D. in oceanography from the Scripps Institution of Oceanography.

Integral Consulting's portfolio has been partially funded by offshore wind development companies.

Nicholas Record

Member

Nicholas Record is a Senior Research Scientist at Bigelow Laboratory for Ocean Sciences. He is the director of the Tandy Center for Ocean Forecasting, which works with partners to build forecasting tools for ocean systems. His expertise is in ocean ecosystem modeling, machine learning, and climate adaptation. He works at the intersection of computational oceanography and social sciences, partnering with global stakeholders, to calculate paths forward for the ocean and the communities that depend on it. He also directs the Sea Change Semester Program for undergraduates at Bigelow Laboratory. Record received a B.A. and M.A. in mathematics from the University of Rochester, an M.S. in physical oceanography from the Memorial University of Newfoundland, and a Ph.D. in oceanography from the University of Maine.

Kelly Oskvig

Staff Officer