OLD DOMINION UNIVERSITY
Center for Coastal Physical Oceanography

INSTITUTE FOR COASTAL ADAPTATION & RESILIENCE℠

Fall 2025 Virtual Seminar Series

"THE CHESAPEAKE BAY ENVIRONMENTAL FORECASTING SYSTEM (CBEFS)"

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Monday, September 22, 2025
3:30 PM EST

ZOOM LINK
Meeting ID: 995 5769 8717
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Abstract
The Chesapeake Bay Environmental Forecasting System (CBEFS) is an integrated real-time modeling system that provides 5-day forecasts of environmental estuarine conditions. CBEFS has been developed over the past decade, based on the abundance of monitoring data available in the Bay. By combining hydrodynamic, biogeochemical, and ecological models, CBEFS is able to simulate estuarine temperature, salinity, nutrient dynamics, harmful algal blooms (HABs), hypoxia, pH, and living-resource habitat quality. A hallmark of CBEFS is its collaborative development with stakeholders across federal and state agencies, academic institutions, and user communities. Commercial and recreational anglers, shellfish aquaculture operators, restoration planners, and monitoring networks have been directly engaged through workshops, pilot applications, and focus groups to ensure that forecasts address real-world needs. These partnerships have guided priorities such as HABs prediction, early warning for hypoxia, aquaculture site support, and evaluation of nutrient reduction strategies. As one of the nation's most advanced coastal environmental forecasting platforms, CBEFS demonstrates the value of coupled observation-model systems in supporting science-based decision making for estuarine sustainability and resilience.

Biography
Dr. Marjy Friedrichs is currently the 2024 University Professor for Research Excellence at William & Mary's Virginia Institute of Marine Science. She has a B.A. in Physics from Middlebury College, and an M.S. in Oceanography from M.I.T. She received her Ph.D. in Oceanography from Old Dominion University, where she was advised by Dr. Eileen Hofmann. Marjy's research currently focuses on using coupled hydrodynamic-biogeochemical 3-D models together with long-term monitoring data to better understand how human impacts, such as excess nutrients and global climate change, affect coastal water quality. She has also led the development of the CBEFS forecasting system and an annual hypoxia report card to track progress towards attaining water quality standards. Through her ongoing collaborative work with Chesapeake Bay Program managers, as well as fisheries and aquaculture industry members, she continues to work to make her science relevant for Chesapeake Bay stakeholders.