OLD DOMINION UNIVERSITY
Center for Coastal Physical Oceanography

INSTITUTE FOR COASTAL ADAPTATION & RESILIENCE

Fall 2022 Virtual Seminar Series

"MARINE HEATWAVES IN THE CHESAPEAKE BAY: CHARACTERISTICS, TRENDS AND IMPACT ON HYPOXIA"

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Monday, November 21, 2022
3:30 PM EST

https://odu.zoom.us/j/91366789719?pwd=ZFdsTmNRbjUwQU9KdExtL2JBaXJnQT09
Meeting ID: 913 6678 9719
Passcode: 401475

Abstract
Marine Heatwaves (MHWs) are prolonged events of anomalously warm sea water temperature and have major detrimental effects to marine ecosystems and the world's economy. Thanks to satellite remote sensing of sea surface temperature, significant advances have been made regarding the characterization and impact of MHWs on global scales; however, these data are typically inadequate to resolve most estuarine environments with complex shorelines and reduced spatial scales. In our work, we analyzed a novel data set with over three decades of *in situ* temperature records to investigate MHWs in the largest estuary in the US: the Chesapeake Bay. Our major findings will be presented in detail, including MHW characteristics in the Bay, their trends, co-occurrence with MHWs in the Mid-Atlantic Bight, relationship to large-scale (basin- to global-scale) climate indices, and impact on Bay hypoxia. Projections of trends found in our work suggest that, by the end of the century, the Chesapeake Bay will reach a semi-permanent MHW state, when extreme temperatures will be present over half of the year, and thus could have devastating impacts to the Bay ecosystem and regional economy. Improving our basic understanding of MHWs and their trends in the Chesapeake Bay is necessary to guide management decisions in this valuable environment.

Biography
Dr. Piero Mazzini is a coastal physical oceanographer. In 2020, he joined the Virginia Institute of Marine Science at the College of William & Mary in the role of Assistant Professor. The overall goals of his research program are: 1) to advance our understanding of coastal circulation and hydrodynamics, with a special emphasis on questions that are relevant for transport and dispersion of materials and substances in estuaries, embayments, and the broader continental shelf, and 2) to understand the role of climate change and variability affecting dynamics of those environments. His research involves a combination of ocean observing field work, analysis of satellite remote sensing data, and other long-term historical data sets, as well as numerical modeling.