12. HYPOXIA FORECASTS AS A TOOL FOR CHESAPEAKE BAY FISHERIES

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The Estuarine Hypoxia component of the U.S. Integrated Ocean Observing System Coastal and Ocean Modeling Testbed (COMT) is evaluating existing hydrodynamic and water quality models used, or likely to be used, for operations in the Chesapeake Bay. As a proof-of-concept, an implementation of the Regional Ocean Modeling System in the Chesapeake Bay (ChesROMS) is linked to a simple respiration model for hypoxia (Hypoxia_SRM). The modeling system is presently being used to produce real-time nowcasts and short-term (3-day) hypoxia forecasts for the Chesapeake Bay, which are currently available on the Virginia Institute of Marine Science (VIMS) website. Workshops with citizen stakeholders have explored potential applications of the estuarine hypoxia nowcast/forecast products in support of recreational and commercial fishing. Interest in this product is high, particularly by recreational fishermen and charter boat captains, since reduced catch per unit effort in the Bay is clearly associated with regions where dissolved oxygen is low. In order to further improve the hypoxia nowcast/forecast products, additional calibration will be performed using new continuous, high frequency (10 min) long-term (6-9 months) bottom dissolved oxygen measurements to be collected at ~10 sites in the Bay. Moored instruments will be deployed at sites carefully chosen to represent locations that do not otherwise have historical observational data available. This fusion of new observations with our environmental forecast models directly addresses the goals of NOAA's Ecological Forecasting Roadmap. Our presentation reviews the insights gained at our stakeholder workshops, our success in transporting the hypoxia forecast tool to the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) online portal, and our progress towards linking the hypoxia forecast product with NOAA's Chesapeake Bay Operational Forecasting System (CBOFS). In addition, model improvement resulting from the fusion of our new high temporal resolution observational data with our hypoxia model will be assessed.