

## NOAA's Coastal Ocean Operational Forecast Systems

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The National Ocean Service (NOS) of the National Oceanic and Atmospheric Administration (NOAA) has selected two core ocean models for development of NOS Operational Forecast Systems (OFS). One is the ROMS developed by Rutgers University for curvilinear structured model grid choice, and the other is the Finite Volume Coastal Ocean Model (FVCOM) developed at the University of Massachusetts, Dartmouth (UMASSD) for unstructured model grid choice. All NOS OFSs are implemented and operated within an NOS standardized functional framework called the Coastal Ocean Modeling Framework (COMF), and will be run on NOAA's operational High Performance Computing (HPC) System. COMF is a set of standards and tools for developing and maintaining NOS's hydrodynamic model-based operational forecast systems. The goal of COMF is to provide a standard and comprehensive software infrastructure to enhance ease of use, performance, portability, and interoperability of NOS's OFS. COMF will increase time-and-cost efficiency for OFS development, transition, operations and maintenance, while enabling the community-sharing of validated improvements and minimizing redundant parallel efforts.

Three new ROMS based NOS OFSs are being developed for the Chesapeake Bay (CBOFS), Delaware Bay (DBOFS), and Tampa Bay (TBOFS), and FVCOM based OFS is being developed for the Northern Shelf of Gulf of Mexico (nGOM). These OFS have been developed to provide maritime community users with real-time operational products which include nowcasts and short-term forecast guidance of water levels, currents, water temperature, and salinity for the next 1 to 2 days. These parameters are fundamental physical variables for other applications such as emergency response (e.g. oil spills; search and rescue) and ecological forecasting.