Automated short-term forecast of Karenia brevis trajectory on the West Florida Shelf

Blooms of the toxic dinoflagellate Karenia brevis, also known as harmful algal blooms (HABs) or red tides, occur almost annually on the west coast of Florida, killing fish and other marine life, threatening public health and adversely impacting local economies. Mitigating such effects requires improved red tide forecast capabilities on the West Florida Shelf. A short-term Lagrangian trajectory forecast tool is developed to help federal, state, and local end users monitor and manage red tides on the west coast of Florida. The automated forecast products are based on the established West Florida Coastal Ocean Model (WFCOM) and Tampa Bay Coastal Ocean Model (TBCOM) nowcast/forecast systems. Observed K. brevis cell count data are uploaded daily into the models to generate 3.5-day forecasts of the bloom trajectories both on the shelf and in the estuaries. The tracking tool displays modeled bloom trajectories at the surface and near-bottom with five categories of cell concentrations (each approximately representing

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