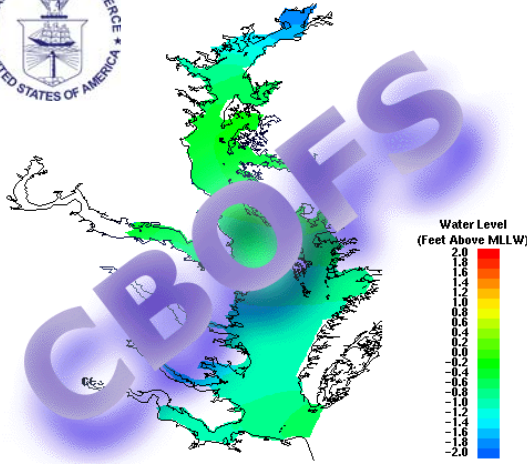




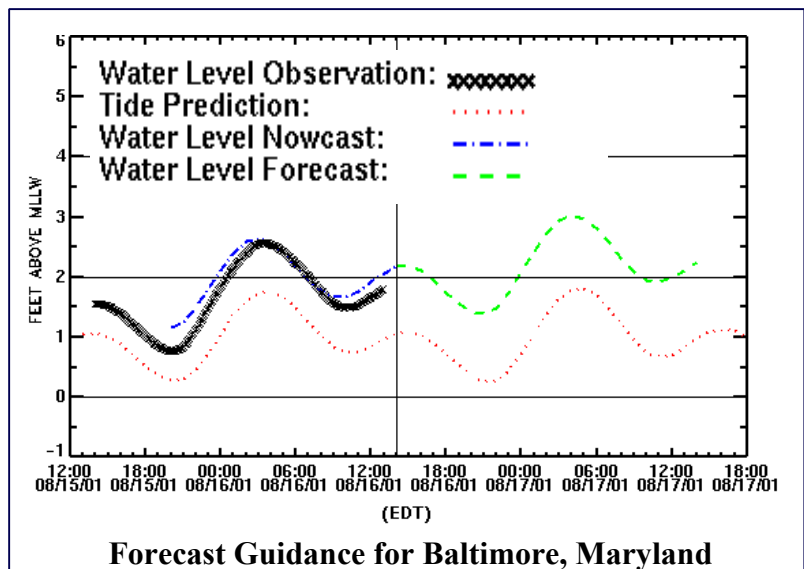
National Ocean Service Chesapeake Bay Operational Forecast System



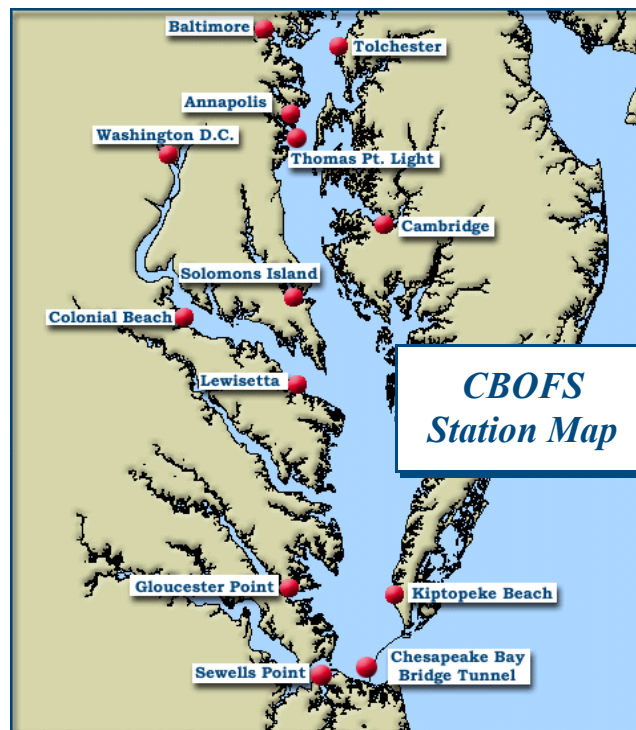
On August 8, 2001, the National Oceanic and Atmospheric Administration's National Ocean Service (NOS) made available to the public its first operational forecast model system to provide short-term water level forecast guidance to marine users in the Chesapeake Bay. The NOS Chesapeake Bay Operational Forecast System (CBOFS) was developed to improve and expand water level information for the maritime community. CBOFS runs four times per day to generate model forecast guidance of water level throughout the bay for 24 hours into the future. The CBOFS model, the result of a multi-year joint project between the NOS Coast Survey Development Laboratory and the Center for Operational Oceanographic Products and Services (CO-OPS), is a welcome addition to NOS' products and services designed to promote safe and efficient navigation within U.S. waters.

For decades, mariners in the United States have depended on NOAA's Tide Tables for the best estimate of expected water levels. These Tables provide accurate predictions of the astronomical tide (i.e., the change in water level due to the gravitational effects of the moon and sun and the rotation of the Earth). However, they cannot predict water level changes due to wind, atmospheric pressure, and river flow, which are often significant.

CBOFS is a high-resolution hydrodynamic numerical estuarine model that simulates, by computer, the flow of water throughout Chesapeake Bay using tidal forcing, wind fields and coastal water levels from National Weather Service weather and ocean forecast models, real-time wind and water level observations from the NOS Physical Oceanographic Real-Time System (PORTS[®]) in Chesapeake Bay, and historical river inputs. Forecast water levels should be especially useful for transit planning, up to 24 hours in advance, by the commercial shipping industry to and from the ports within Baltimore Harbor and Hampton Roads.



CBOFS complements the Chesapeake Bay PORTS which is close to full implementation. PORTS provides accurate real-time oceanographic and meteorological information, tailored to the specific needs of the local users in the Bay. CO-OPS, in partnership with local port authorities, pilot associations, the U.S. Coast Guard, the U.S. Army Corps of Engineers, the U.S. Navy, academia, and others, has implemented PORTS in various bays and harbors in the U.S. to measure and disseminate real-time observations of water levels, currents, salinity, and meteorological variables (e.g., winds, atmospheric pressure). The data are relayed to the maritime user community in a variety of user-friendly formats including the Internet and telephone voice response. In support of PORTS, CO-OPS operates the Continuous Operational Real-Time Monitoring System (CORMS) which is staffed 24 hours a day to quality control PORTS data and, based on set parameters, has the ability to discontinue data dissemination if quality or accuracy are in question.



Depths on NOAA's nautical charts are referenced to Mean Lower Low Water (MLLW); however, it is rare that a ship will be transiting an area at exactly MLLW. Normally, a ship will be traveling at a water level higher than MLLW and will have more water under the keel than shown on the chart. Less frequently, a vessel may be transiting during periods when the water level is below MLLW and have less water than charted. Access to accurate real-time water level data and forecast guidance from CBOFS allows U.S. port authorities and maritime

shippers to make sound decisions regarding maximizing tonnage (based on available bottom clearances), and limiting passage times, without compromising safety.

Forecasts of water level in Chesapeake Bay from CBOFS can be found on the CO-OPS web site at: <http://co-ops.nos.noaa.gov/cbports/cbports.html>. On display are time series and animations of water level height throughout the Bay that are updated four times a day. Real-time data and displays for all PORTS sites can be found at: http://co-ops.nos.noaa.gov/d_ports.html.

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