

# SENTINEL SITE PROGRAM

## Chesapeake Bay Sentinel Site Cooperative Website:

<http://oceanservice.noaa.gov/sentinelsites/welcome.html>

**NOAA Sentinel Site Program:** The NOAA Sentinel Site Program (SSP) utilizes existing assets, programs, and resources in a place-based, issue-driven approach to ask and answer questions of local, regional, and national significance that affect both NOAA Trust Resources and the surrounding communities.

### Abstract

The Chesapeake Bay area, located in NOAA's Northeast Region, showcases the benefit of integrating existing environmental observation systems, managed by multiple agencies and organizations into a consistent, geographically-coherent sentinel framework to support a continuum of services from scientific data and analysis to



tools and information that guide decision-making. The Chesapeake Bay Sentinel Site Cooperative (CBSSC) provides this information to Chesapeake Bay communities and managers who need to address challenges such as storm flooding, long-term and local sea level rise, barrier island movement, degraded water quality, and wetland loss. The information is also used by federal and state restoration planners as well as living resource managers who are addressing similar challenges.

### Available Assets

The Cooperative benefits from a **broadly distributed network of observing stations** collecting many parameters including water level, temperature, and salinity data across the Bay, which ultimately help generate models and tools to aid habitat restoration and coastal development. For example:

- Virginia Estuarine and Coastal Observing System (VECOS) and Maryland's Eyes-on-the-Bay distribute main-stem and tributary water quality data and information from Virginia and Maryland
- Chesapeake Bay Observing System is a federal, state, university, bay-wide data center collaboration effort.
- NOAA Chesapeake Bay Interpretive Buoy System (CBIBS) is a network of Integrated Ocean Observing System (IOOS) based observing platforms.
- Chesapeake Bay Operational Forecast System II (CBOFS II) is a 3D coastal hydrodynamic model for tides, currents, and storm surge developed by NOAA.
- NOAA Coast Watch (East Coast Node) which disseminates satellite imagery data, including models of chlorophyll, turbidity, and water temperature.



**Five core ecological sentinel sites** currently form the foundation of the CBSSC. These sites contain many representative habitat systems including coastal bays, salt marshes, island ecosystems, and riverine environments. These sites also host extensive monitoring and data collection platforms providing information regarding marsh elevation and trajectory, historic sea level trends, vegetation composition, marsh productivity, and water quality. Together, these datasets can help tell the story of sea level rise and inundation in the Chesapeake Bay region. The core sites are:

- Chesapeake Bay National Estuarine Research Reserves (CBNERRS) in Maryland and Virginia,
- Virginia Coast Long Term Ecological Research Network (VCR-LTER),
- Blackwater National Wildlife Refuge (NWR), and
- Assateague Island National Seashore.

The Cooperative also recognizes that **urban and coastal communities** need additional information to supplement the data from our ecological sites. While there is already accurate elevation, water level, and water quality information available to these communities, the CBSSC hopes to assist communities gain access to clear information and visualization tools to inform their planning and decision-making.

#### **Internal and External Partners Currently Involved**

- NOAA: National Centers for Coastal Ocean Science (NCCOS), National Geodetic Survey (NGS), Office of Coast Survey (OCS), Coastal Services Center (CSC), Office of Ocean and Coastal Resource Management (OCRM), National Estuarine Research Reserve (NERRS), NOAA Chesapeake Bay Office (NCBO), National Environmental Satellite, Data, and Information Services (NESDIS; CoastWatch), Center for Operational Oceanographic Products and Services (CO-OPS), and Sea Grant Programs in Maryland and Virginia.
- Other Agencies: U.S. Fish and Wildlife Service, U.S. National Park Service, U.S. Geological Survey, State of Maryland, Commonwealth of Virginia, and Smithsonian Environmental Research Center.
- Academia: Chesapeake Research Consortium, University of Maryland, Virginia Institute of Marine Science, Old Dominion University, University of Virginia, and Virginia Commonwealth University.

#### **Management Goals Addressed**

The CBSSC aims to provide long term data, information, tools, and educational resources, derived from local observations collected at rural and urban sentinel sites, to improve management decisions regarding rising sea levels and coastal inundation. These efforts will improve resilience of coastal communities, protect property and infrastructure investments, prepare for storm impacts, monitor water quality, and better understand habitat suitability.

#### **Point of Contact**

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