Chesapeake Bay Sentinel Site Cooperative

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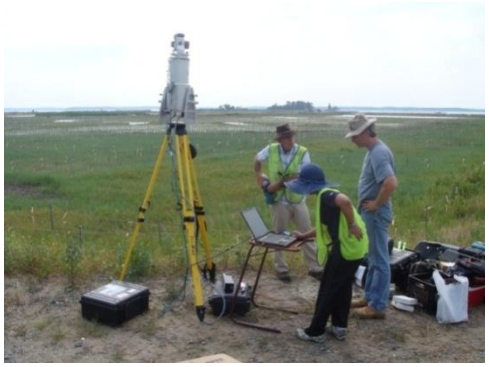


Chesapeake Bay Sentinel Site Cooperative

- NOAA NOS Sentinel Site Program
- Chesapeake Bay Sentinel Site Cooperative: Vision, Who, Why, Where
- Sentinel Sites- locations and networking
- Resources and Assets
- CBSSC Actions and Milestones
- Progress to Date and Where we are Going

Chesapeake Bay Sentinel Site Cooperative

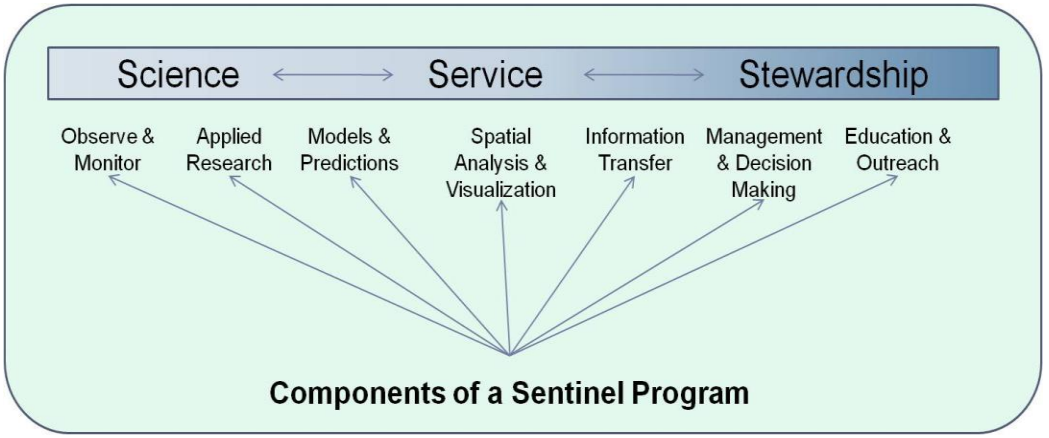
NOAA Sentinel Site Program Framework

• Implements a place-based approach using sentinel sites to downscale science and management.

• Issue-driven with initial emphasis on sea level change & coastal inundation

• New business model: Leverages existing assets, programs and resources; improving communication across federal and state agencies and invested partners

• Integrates monitoring, modeling, and management.



Chesapeake Bay Sentinel Site Cooperative

Why do we need a Sentinel Site Cooperative?

The Chesapeake Bay region is currently experiencing some of the highest relative sea level rise rates, up to 5.8 mm/yr (0.23 in/yr), reported within the United States (Boone et al., 2010).

Natural resources and societal infrastructure are experiencing the direct impacts of rising tidal water levels, including inundation and salt intrusion.

Historic islands in the Chesapeake Bay are sinking and eroding away at rapid rates, with some islands (e.g., Sharp's Island) now completely submerged (Larson 1998). Large marshes, like Blackwater, are being lost as well.

The Chesapeake Bay has numerous advanced and comprehensive monitoring and assessment programs that aren't always talking to each other. The Cooperative will bring invested partners to the same table.

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CBSSC's Vision:

***Coastal communities understand, are resilient to, and able to effectively plan for climate change impacts**, in particular relative sea level change and coastal inundation, within the Chesapeake Bay by means of a dedicated collaborative partnership between federal, state, and local governments, academic institutions, non-governmental organizations, and commercial interest groups.*

CBSSC's Mission:

To provide long term data, information, tools, and educational resources, derived from downscaled observations collected at a network of sentinel sites, to inform decision-makers and coastal communities about the impacts of rising sea levels.

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Who's the Cooperative currently?

The Nature Conservancy

USGS science for a changing world

Old Dominion University 1930

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

ORC

DEQ Virginia Department of Environmental Quality

IOOS Integrated Ocean Observing System

U.S. Fish & Wildlife Service Department of the Interior

William & Mary VIMS Virginia Institute of Marine Science School of Marine Science

VCU Virginia Commonwealth University

University of Maryland

Chesapeake Bay Foundation Saving a National Treasure

National Park Service

Maryland Department of Natural Resources

Chesapeake Bay Program A Watershed Partnership

United States Environmental Protection Agency

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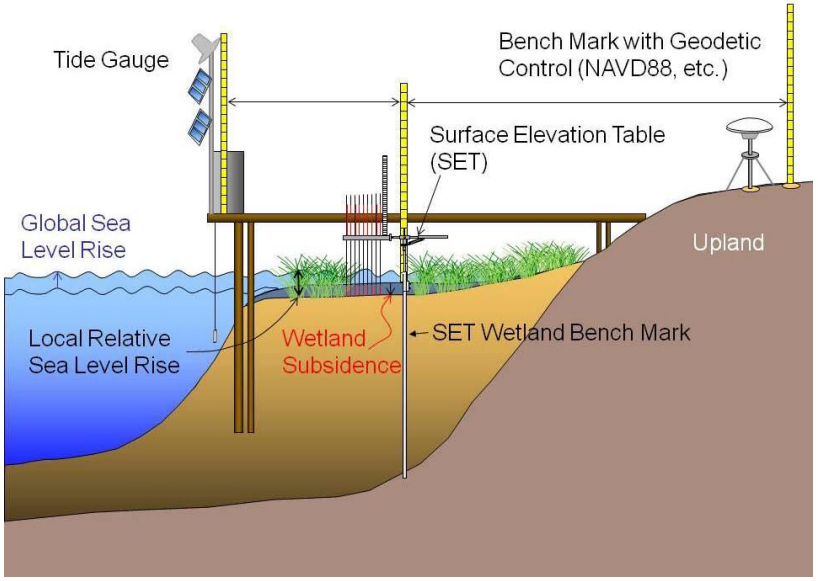
What are Sentinel Sites?

• Areas in coastal and marine environments that have the operational capacity for intensive study and sustained observations to detect and understand physical and biological changes in the ecosystems they represent.

• CBSSC sentinel sites collectively represent the variety of coastal habitats, ecotones (e.g., marsh to shrub zone/maritime forest) elevations, and human uses (e.g., protected, urban) found throughout the Bay.

• Multiple sentinel stations may be located within a sentinel site.

Example Components of a Sentinel Station



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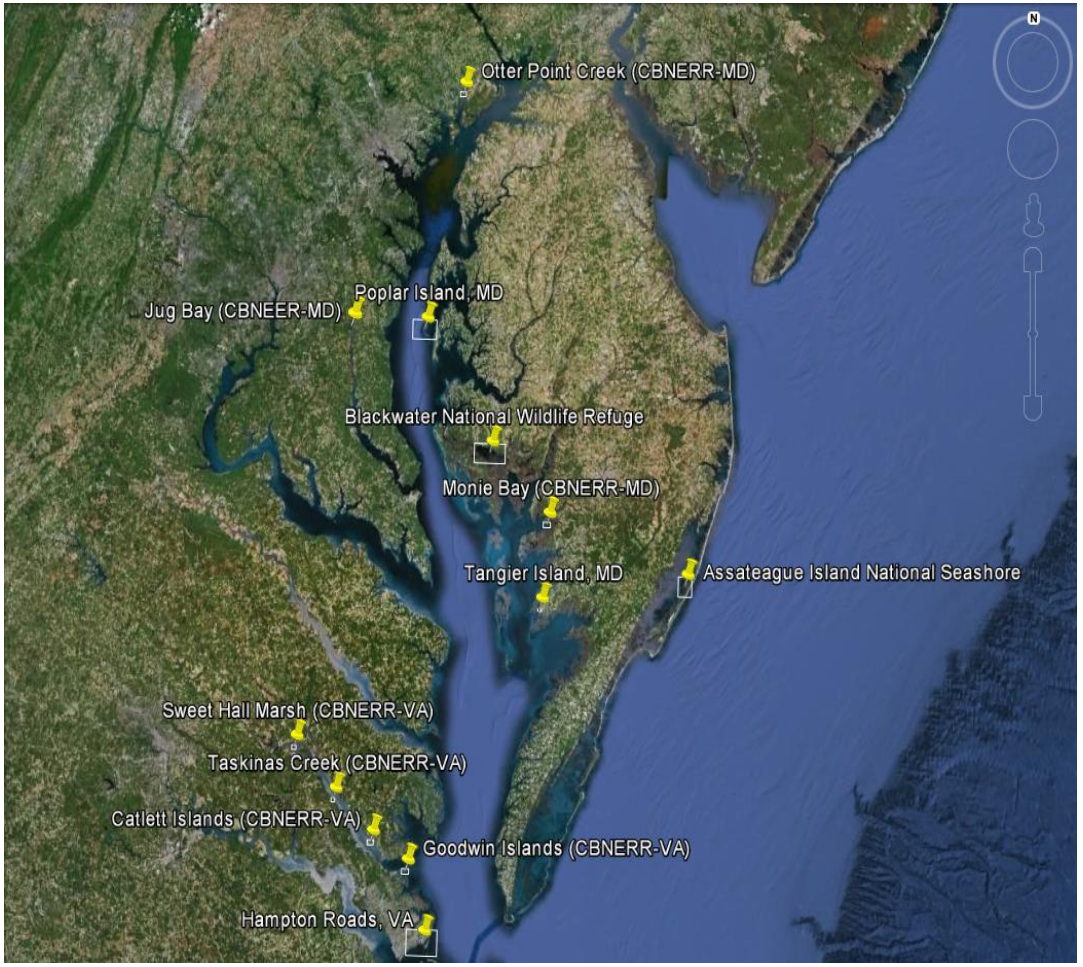
CBSSC Potential Sentinel Sites

- Blackwater National Wildlife Refuge
- Assateague Island National Seashore
- Chesapeake Bay NERR(MD)
  - Otter Point Creek
  - Jug Bay
  - Monie Bay
- Chesapeake Bay NERR (VA)
  - Sweet Hall Marsh
  - Taskinas Creek
  - Catlett Islands
  - Goodwin Islands



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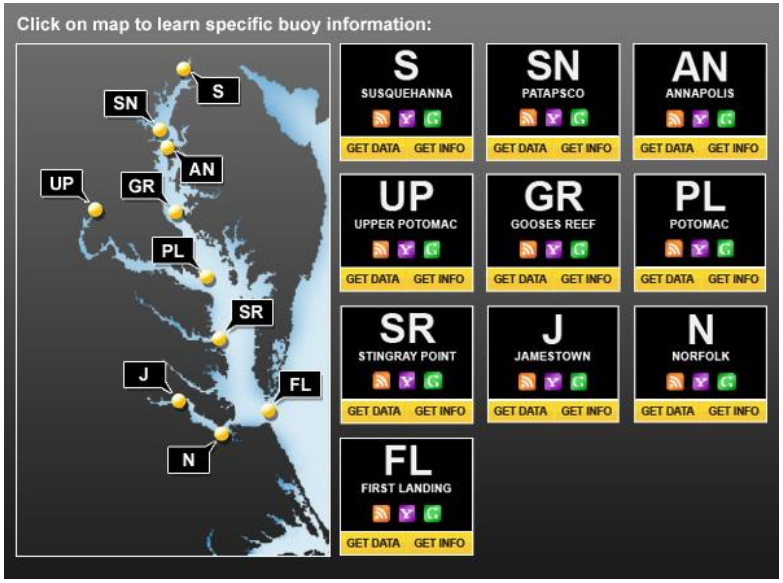
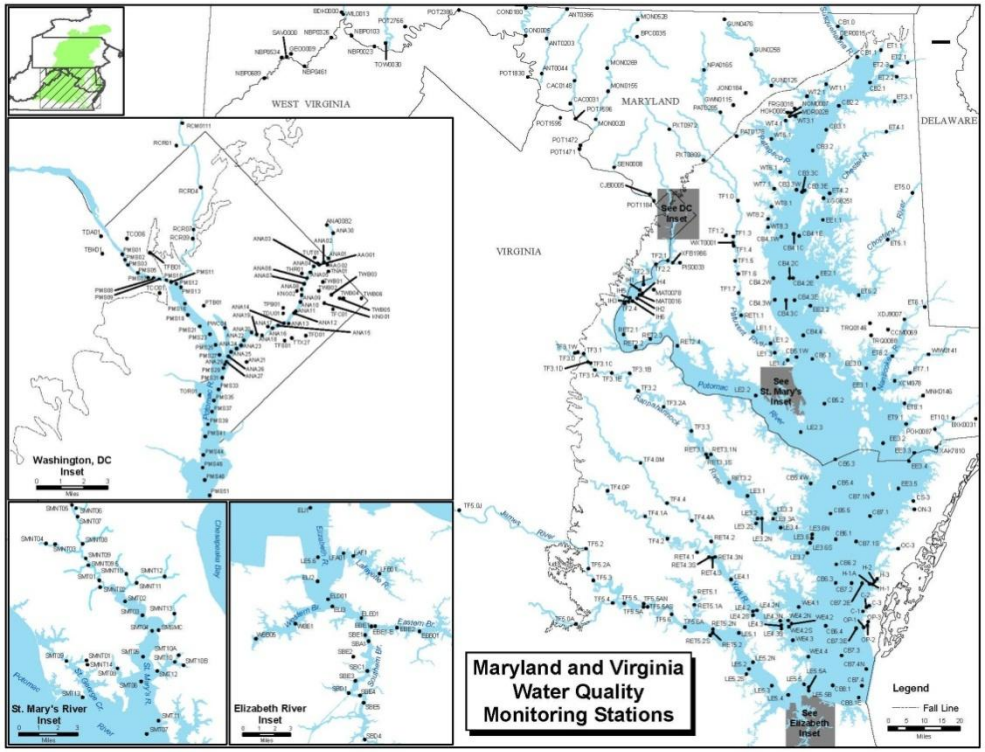
CBSSC Monitoring Networks

- Chesapeake Bay Interpretative Buoy System (CBIBS- NOAA)
- Eyes on the Bay (MD DNR)
- Virginia Estuarine and Coastal Observing System (VECOS-VIMS)
- Bay Program Monitoring Stations (EPA)



NOAA CBIBS Buoy Locations



EPA Bay Program Tidal Monitoring Stations

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Identified Resources

- Twenty NOAA tide stations
- Over 30 active Continuously Operating Reference Stations (CORS)
- Over 200 surface elevation table (SET) datasets
- Chesapeake Bay Operational Forecast System
- Hydrodynamic and sea level rise modeling at Poplar Island
- NOAA Vertical Datum sea surface topography model (VDATUM)
- Seven National Estuarine Research Reserve sites
- NOAA Chesapeake Bay Interpretive Buoy System
- Chesapeake Bay Observing System
- Wetland elevation monitoring along fire management regimes at Blackwater National Wildlife Refuge
- Chesapeake Bay Shallow Water Quality Monitoring Program
- Virginia Estuarine and Coastal Observing System (VECOS)
- NOAA Coast Watch (East Coast Node)
- York River sea level rise and salt intrusion hydrodynamic model
- National Park Service Vital Signs Monitoring Program
- Maryland's Coastal Atlas
- Chesapeake Bay Program Monitoring Program
- Virginia Coast Reserve Long Term Ecological Research Program

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Select Action Items from FY13-17 Implementation Plan

- Inventory all recent stakeholder “needs” polls, sea level rise-related datasets, and models
- Inventory existing sea level rise-related assets and datasets
- Create Outreach & Education and Science & Data working groups
- Develop a criteria and prioritization framework for establishing and monitoring sentinel sites
- Complete a comprehensive report that compiles and analyzes data collected at sentinel sites to identify potential future landscape scenarios and identifying the degrees of certainty of sea level change impacts
- Develop a sea-level change “decision support tree” to foster local planning and management decisions
- Produce report that describes the vulnerability of and characterizes the threats to at least 2 protected and 2 urban/suburban sentinel sites from sea level change and coastal inundation

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Progress to Date

- September 2011: NOAA initiates the NOAA Sentinel Site Program

- August 2012: The CBSSC hosts two (2) webinars designed to develop partnerships between multiple state, federal, local, NGO, and academic partners

- September 2012: The CBSSC holds workshop at the Smithsonian Environmental Research Center to further engage partners and develop a draft 5-year Implementation Plan

- September 2012: CBSSC Steering Committee submits its Draft Implementation Plan to the NOAA Sentinel Site Program Coordinating Committee

- November 2012: CBSSC Steering Committee meeting

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Next Steps

- Increase partner engagement
- Finalize FY13-FY17 Implementation Plan (due December 31)
- Host partner workshops
- Execute action items in IP
- Support decision-makers
- Expand program beyond sea level change impacts
- Share model with other parts of country

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