

**Chesapeake Bay Observing System,
CBOS**

**MACOORA Annual Meeting
Baltimore, MD
October 30, 2006**

Recent CBOS activities related to MACOORA development

Recent MACOORA activities that CBOS is part of:

- Governance, by-laws, and Board of Directors ...
- Membership Expansion
- Task Committees ...Users, Product Development, Data Sharing/Archiving, and Education/Outreach/Marketing
- Business Plan
- Inundation Workshop

Recent Activities of CBOS:

- Develop a sustainable subregional identity, structure, and organization
- Identify short-term objectives
- Assess local provider capabilities and identify user needs
- Establish local partnerships
- Conduct proof of concept demonstrations of integrated and enhanced observational products related to identified needs



Establish CBOS Subregional Interim Steering Committee to Incorporate Federal Backbone and Diversify User and Provider Organizations

Academic

Bill Boicourt, Professor, Horn Point Laboratory, University of Maryland, Center for Environmental Science, MD
Larry Atkinson, Eminent Professor, Center for Coastal Oceanography, Old Dominion University, VA
William Reay, Director, Chesapeake Bay Virginia National Estuarine Research Reserve (NERRs), VA
Carl Friedrichs, Professor, Virginia Institute of Marine Science, William and Mary College, VA

Federal and State

Douglass Wilson, Oceanographer, NOAA Chesapeake Bay Office, MD
Robert Bassett, Requirements Coordinator, NOAA COOP-PORTS, MD
Anthony Siebers, Meteorologist In Charge, NOAA, NWS, MIC, Wakefield, VA
William Guertal, Supervisory Hydrologist, USGS Science Center, MD
Thomas Gross, Manager, Community Modeling Program, Chesapeake Research Consortium, HPL, MD
Bruce Michaels, Tidewater Ecosystem Assessment, Department of Natural Resources, Annapolis, MD

Industry and Non-Governmental

David White, Chief of Operations, Port of Hampton Roads Maritime Association, Norfolk, VA
Erin Fitzsimmons, Regional Coordinator, Chesapeake Bay Waterkeepers, Annapolis, MD
Hank Lobe, Sales and Marketing, Government Systems, Teledyne-RDI, Washington DC
Susan Shingledecker, Program Manager, Marine Env.&Safety, Boat.US, Oceanographer, Annapolis, MD
Jay Tittlow, Senior Meteorologist, Weatherflow, Inc., Poquoson, VA
David Jasinski, Data Analyst, Chesapeake Bay Program

Interim Co-Directors

Elizabeth Smith, Res. Assist. Professor, Center for Physical Oceanography
Michael Koterba, Hydrologist, NOAA-USGS, MD

Define and develop CBOS as a SubRegional Coastal Ocean Observing System capable of supporting both local and regional observing needs

To establish local support, CBOS needed to develop experience associated with respect to each of the following:

•• Sensor Deployment

- Sentinel monitoring platforms
- Platforms for testing technology

•• Data management

- Distributing QA/QC data real time
- Creating archived **OPeNDAP** access data sets
- Dynamic data sharing (publish to standards)
- Integration of data to form beta products

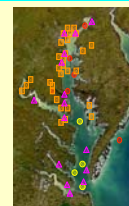
•• Modeling (hydrodynamic, water-quality)

- Validation observational data

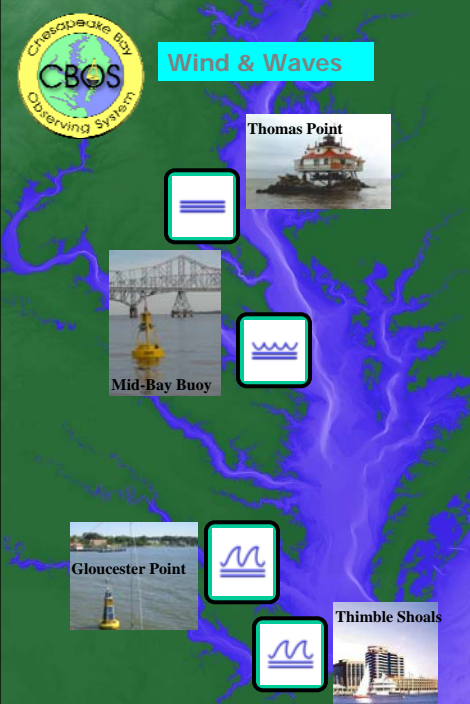
•• Governance: *Engage in joint*

- Setting of objectives for societal needs
- Identification of major gaps/priorities

— *Pooling of funds to fill gaps*



Federal Backbone Members State, Academic, Industry, NGO Enhancers



Wind & Waves


COOPERATIVE EXPANSION AND INTEGRATION DEMONSTRATION (CCEID): Wind, Waves, (Dissolved Oxygen, Water temperature, Salinity, ...)

Principal Partners (North to South):

- NOAA Chesapeake Bay Office (Thomas Point, MD)
- University of Maryland Center for Environmental Science—HPL (Mid-Bay Buoy, MD)
- Virginia Institute of Marine Science College of William and Mary (Gloucester Point)
- Old Dominion University (Thimble Shoals near Hampton, VA.)
- Weatherflow, Inc.

Principal User: National Weather Service

Principal Product: Improved wind and wave forecasts...data and atmospheric model also can be used to improve hydrodynamic modeling, of inundation by storm surge, and ecological forecasts of hypoxia, sea nettles, harmful algal blooms, sediment transport ..., and also studies related sediment loads and sources in tidal reaches, which are important



POTOMAC RIVER INUNDATION DEMONSTRATION PROJECT

Principal Partners:

- MITRETEK SYSTEMS, Inc.
- NOAA NWS (CCEID) Atmospheric Wave Mesoscale Model, validated with wind & waves data from CCEID partners...UMCES-HPL, NOAA NCBO, VIMS-NERRS, & ODU-WeatherFlow
- VIMS Hydrodynamic Model
- USGS—nontidal and tidal gages...and NOAA CO-OP PORTS tidal gages for WL data for Model Validation

Principal User(s): City of Alexandria, VA (and Washington DC)

Principal Product: Demonstration of improved inundation modeling for storm surge through Bay and the Potomac River Tidal Zone.

VIMS

Annapolis Harbor Buoy Demonstration Project



<http://noaa.chesapeakebay.net/AnnapolisBuoy.aspx>

Principal Partners:

- NOAA Chesapeake Bay Office coordinated effort, installed and operates and maintains buoy.
- Wet Labs, Inc. provided water-quality instrumentation.
- WeatherFlow, Inc. provided and assisted in installation of meteorological equipment, and
- UMCES Horn Point Laboratory provided buoy.
- City of Annapolis provided mooring.
- Annapolis Wireless provided communications feed from water quality sensors.

Principal User(s): Initially Volvo Ocean Visitors, currently Annapolis Harbor and Chesapeake Bay boating, sailing, and environmental communities.

Principal Product:

Demonstration of wind, waves, and other meteorological and water-quality data in open and deep water. improved inundation modeling for storm surge through Bay and the Potomac River Tidal Zone.

Enhance Visibility

- To promote IOOS-MACOORA-CBOS
- To identify & engage local stakeholders




Banner & Logo

Visibility through

- Posters
- Buoy Cards
- Buoy Logo
- Sign up sheet
- Press releases
- Website

Buoy Card



<http://noaa.chesapeakebay.net/AnnapolisBuoy.aspx>


Info sign-up sheet

NAME	TELEPHONE	EMAIL

Posters and Presentations at

- Scientific Conferences
- Maritime Festivals & Boat Shows
- Committees and Organizations



Next steps...

- MACOORA Inundation Workshop
- Support national pilot efforts by USGS&NOAA CSC and by NOAA CO-OP and PORTS to develop single portals to access data
- Establish CBOS governance and fiduciary structure,
- Release CBOS website to public,
- Present CBOS user needs summary and draft build-out design
- Conduct CBOS workshop to engage additional CB stakeholders and to further develop the Chesapeake Bay Observing System

Anticipating...

- Accelerating MACOORA Partnership and Demonstration Project



Identified Common Open & Deep Water Observational Data Needs

<u>Weather</u>	<u>Hydrodynamic¹</u>	<u>Water-Bio Quality¹</u>
<i>Barometric pressure</i>	<i>Wave height, direction, period, and frequency</i>	<i>Temperature¹</i>
<i>Visibility</i>	<i>Water levels</i>	<i>Salinity (SC)¹</i>
<i>Wind speed and direction (non) navigational</i>	<i>Doppler</i>	<i>Dissolved oxygen¹</i>
<i>Seasonal climate and forecast</i>	<i>Current speed, and direction¹</i>	<i>Turbidity (sediment or algal)¹</i>
	<i>Bathymetry and shoreline elevation</i>	<i>Chlorophyll (fluorescence)^{1,2}</i>
		<i>Nutrients (nitrate or ammonium)¹</i>

¹ To extent possible in depth profile ² Remotely sensed