



NOAA Water Quality Operations in Chesapeake Bay

**Doug Wilson
NOAA Chesapeake Bay Office
Annapolis, MD**

**10 December, 2008
National Water Quality Monitoring Council
USGS, Reston, VA**

A Progressive Overview followed by some Questions

The Chesapeake Bay Interpretive Buoy System

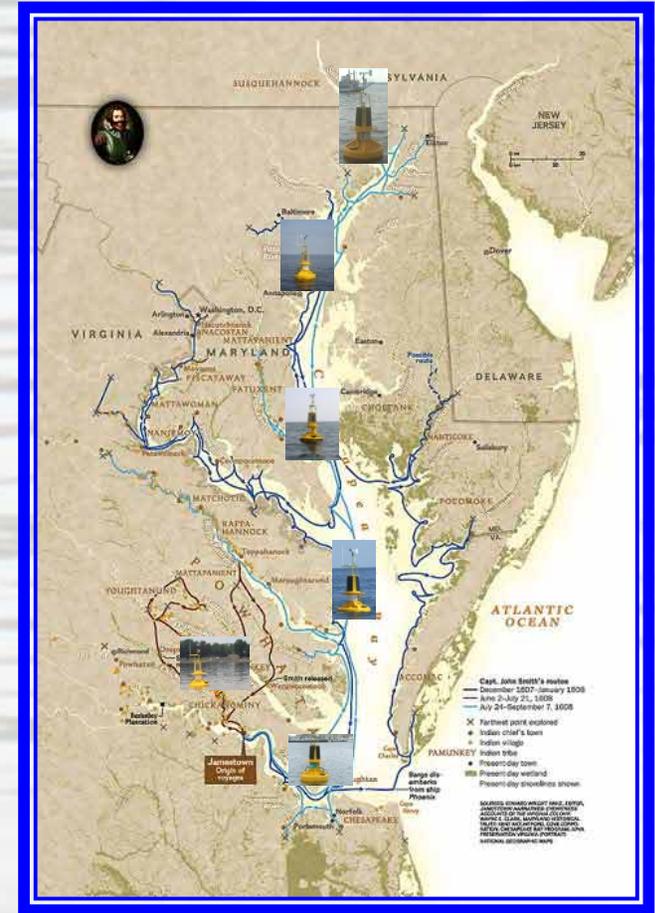
The Chesapeake Bay Interpretive Buoy System (CBIBS) is an innovative system to collect, transmit and interpret real-time environmental data from the Chesapeake Bay to a wide variety of constituents – including scientists, on-the-water users, educators, and natural resource decision-makers – and to fill critical observational gaps in the Chesapeake Bay.

The Buoys collect meteorological, waves, currents, and water quality (T, C, DO, ChlA, Turbidity) and report in real-time via Verizon Broadband Wireless network.

Data management system collects, archives, and delivers to applications using standard XML-based Web Services.

Web Services used by growing number of applications (www.buoybay.org , 877-BUOYBAY, Fieldscope, Estuaries 101/102) as well as delivery to NDBC and CBOS.

Future expansion of CBIBS as well as introduction of “educational quality” BOBs (Basic Observation Buoys) and FLOs (Fixed Local Observations) through NCBO B-WET.



NOAA operates (with States) the **National Estuarine Research Reserve System**.

In Chesapeake Bay WQ monitoring in the NERRS is operated by MD DNR and VA DEQ/VIMS in compliance with Chesapeake Bay Program Shallow Water Monitoring protocols. Near real-time data transfer uses HADS via GOES.

Data are now available via NERRS Centralized Data Management Office via Web Services (<http://cdmo.baruch.sc.edu/webservices/index.cfm>)

The screenshot shows the NERRS Centralized Data Management Office (CDMO) website. At the top, there is a banner with the text "NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM" and "CENTRALIZED DATA MANAGEMENT OFFICE" alongside a NOAA logo. Below the banner is a navigation menu with links: "CDMO Home", "About CDMO", "About Data", "Get Data", "Links", and "Web Services". The main content area features a large map of the United States with red stars indicating the locations of 26 NERRS reserves. To the right of the map is a list of these reserves, numbered 0 through 26, with their names and state abbreviations. The list includes: 0. ACE Basin, SC; 1. Apalachicola, FL; 2. Chesapeake Bay, MD; 3. Chesapeake Bay, VA; 4. Delaware, DE; 5. Elkhorn Slough, CA; 6. Grand Bay, MS; 7. Great Bay, NH; 8. Guana Tolomato Matanzas, FL; 9. Hudson River, NY; 10. Jacques Cousteau, NJ; 11. Jobos Bay, PR; 12. Kachemak Bay, AK; 13. Mission-Aransas, TX; 14. Narragansett Bay, RI; 15. North Inlet Winyah Bay, SC; 16. North Carolina, NC; 17. Old Woman Creek, OH; 18. Padilla Bay, WA; 19. Rookery Bay, FL; 20. Sapelo Island, GA; 21. San Francisco Bay, CA; 22. South Slough, OR; 23. Tijuana River, CA; 24. Wells, ME; 25. Weeks Bay, AL; 26. Waquoit Bay, MA. The map includes navigation controls (directional arrows, zoom in/out, and a scale bar) and a legend for "Map", "Satellite", and "Hybrid" views. The text "Imagery ©2008 TerraMetrics - Terms of Use" is visible at the bottom of the map area.

NERRS has also integrated Chesapeake Bay NERRS real-time data into the CBIBS system for educational applications.



The Chesapeake Bay Program Water Quality Monitoring Stations Network



Presented By: **Tidewater Ecosystem Assessment**

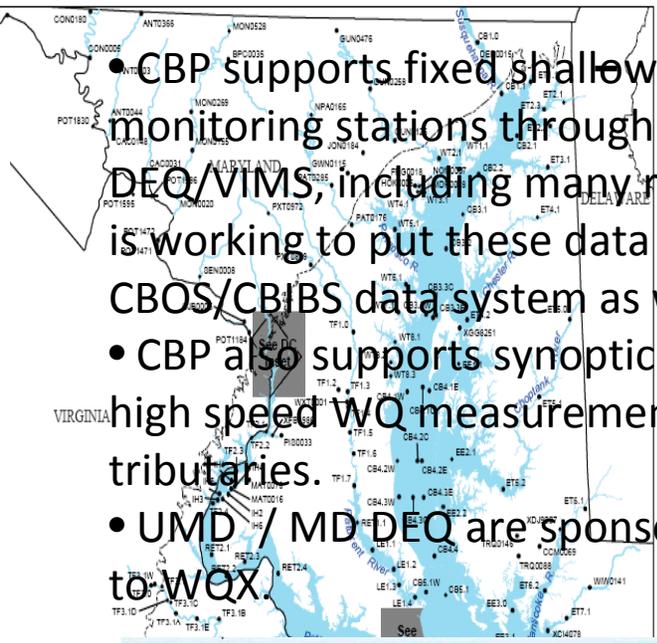
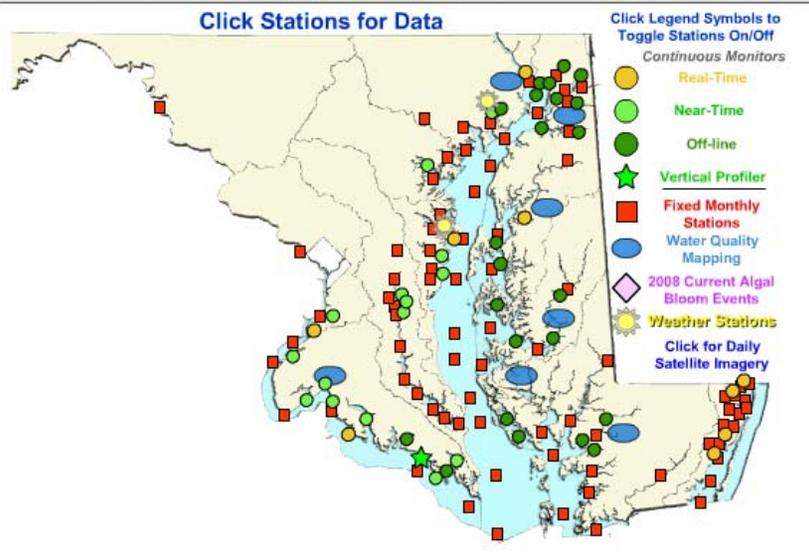
April 2008 - St Marys Water Quality Newsletter Now Available

Recent Water and Habitat Conditions in Maryland's Chesapeake Bay and Coastal Bays

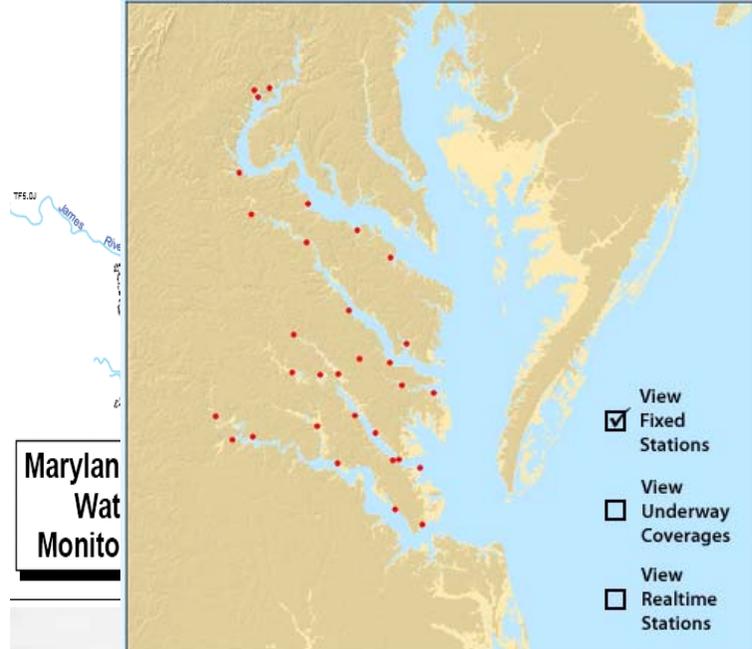
Emerging new monitoring technologies coupled with traditional monitoring programs are allowing natural resource managers and the public to better understand, evaluate, preserve and restore the health of Maryland's water and living resources. The water and habitat quality monitoring data we collect are used to help us characterize existing conditions and long-term trends, detect water quality changes in response to management actions, protect living resources, and develop the most cost-effective solution to restore our Bays and tributaries.

Click the markers on the map below to see the latest [Fixed Station Monthly Monitoring data](#), [Continuous Monitoring data](#), and [Water Quality Mapping data](#) collected by Maryland's [Chesapeake Bay](#) & [Coastal Bays Water Quality Monitoring Programs](#).

Click [Here](#) for Continuous Monitoring data from previous years



- CBP supports fixed shallow water monitoring stations through MD DNR and VA DEQ/VIMS, including many real-time. NCBO is working to put these data into the CBOS/CBIBS data system as well.
- CBP also supports synoptic 'DATAFLOW' high speed WQ measurement cruises in tributaries.
- UMD / MD DEQ are sponsoring conversion to WQX.



Two applications presently utilizing Web Service access are National Geographic's *FIELDSCOPE* and the NCBO/CBIBS *ESTUARIES 102*. Both use GIS based visualization tools and Flex graphics.

FieldScope Chesapeake Bay Version 2.0 - Windows Internet Explorer

http://www.fieldscope.us/fs2/Default.aspx

FieldScope Chesapeake Bay Version...

Map Graphs

Layers

- Student Photos
- Chesapeake 1607
- Chesapeake Now
- CBIBS
- Student Observations
- Watershed Boundaries
- Water Depth
- State Boundaries
- Physiographic Regions
- Land Cover

opacity: 0 0.5 1

Barren
Cropland
Deciduous Forest
Emergent Wetlands
Evergreen Forest
Extractive
High Intensity Urban
Low Intensity Urban

Navigate Query Point Query Polygon Observation Photo Watershed Flow Path Drawing Measure

Done Internet

NORR
CHESAPEAKE BAY

The ESTUARIES 102 curriculum is being developed by NCBO CBIBS and B-WET, and NERRS.

Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://dev.buoybay.org/activity21a/index.html

Google

Messenger Express

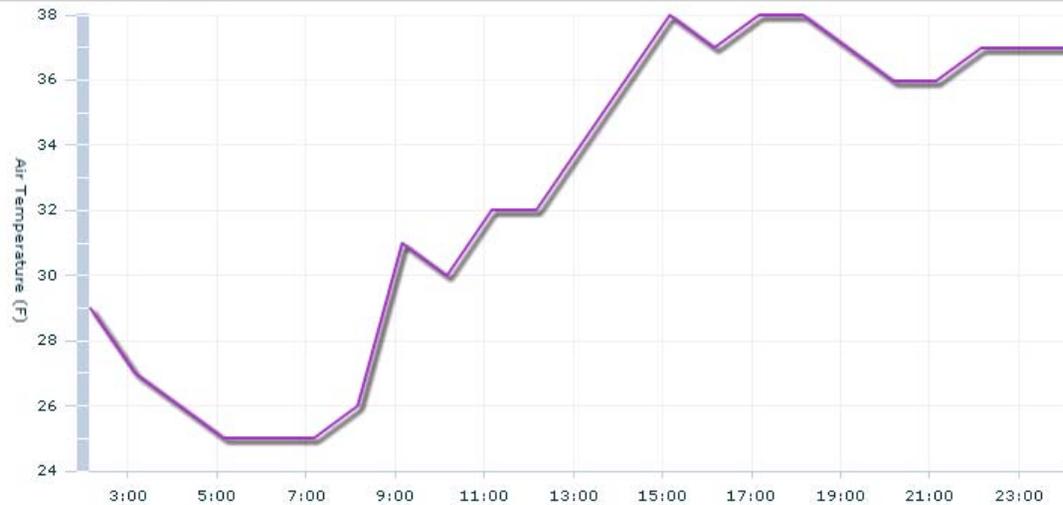
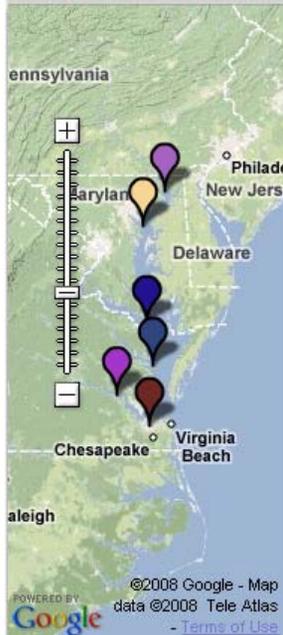
http://dev....index.html

Estuaries Curriculum
Chesapeake Bay Exploration
—Real Science, Real Data, Real Solutions

Search

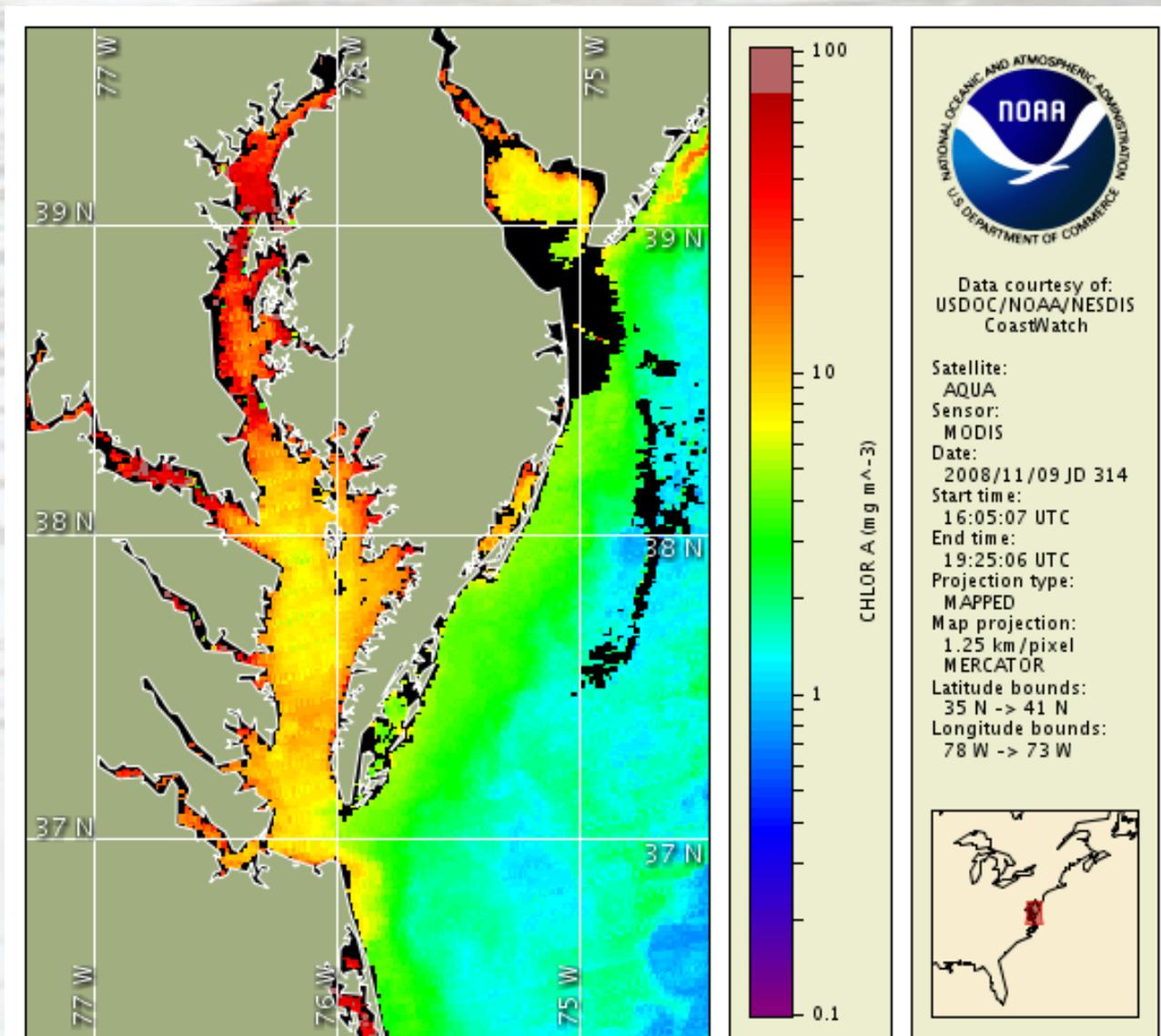
Home About Contact us Our Partners

Activity 2-1A — Daily Air Temperature Cycles at James River



Map Type **Terrain** Stations **CBIBS** From Dec 8, 2008 To Dec 8, 2008 **Reset**

The East Coast COASTWATCH node at NCBO provides remote sensing WQ products specifically for the Chesapeake Bay



Collaborative Ventures like the Chesapeake Bay Observing System and the Chesapeake Community Modeling Project bring partners together.

This includes groups like CBEO the Chesapeake Bay Earth Observatory (NEON /GEON/CUAHSI CyberInfrastructure project) and CIPS, the IOOS-funded Chesapeake Inundation Prediction System.

Chesapeake Bay Map – Chesapeake Bay Observing System - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Messenger Express Chesapeake Bay Map ...

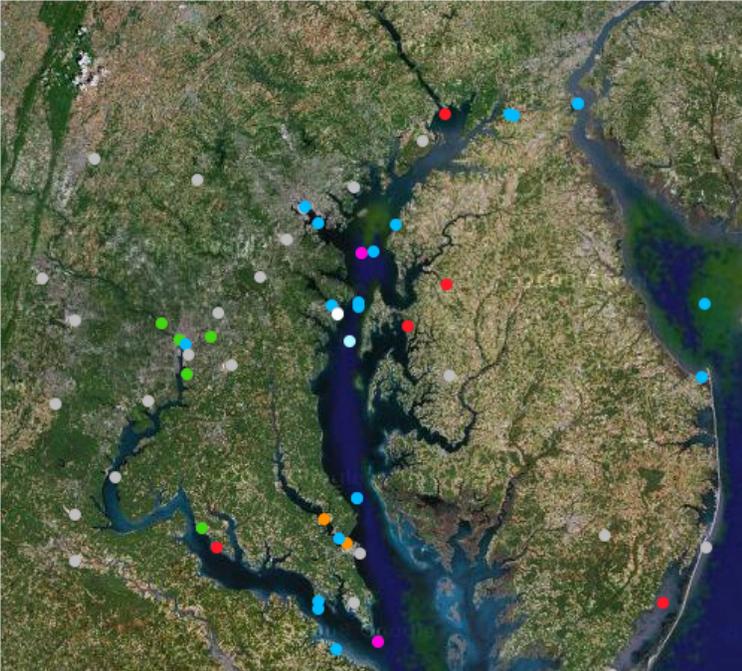
members contributions statistics

search

you are here: home → home

Home

- What is CBOS?
- (New) POSITIONS OPEN
- Headline News
- Events Calendar
- Who to Contact for CBOS Information
- Emergency Numbers
- CBOS User Forum - Dec. 4, 2007
- Coastal Observing Systems
- U.S. Integrated Ocean Observing System
- NOAA CoastWatch East Coast Node
- Chesapeake Bay



View by state

- DC
- DE
- MD
- NC
- NJ
- VA

View by Provider

- NCBO (1)
- VIMS (4)
- NWS (64)
- NDBC (7)
- PORTS (41)
- MDDNR (5)
- USGS (5)
- CBIBS (3)
- CBL (2)

Show / Hide

Please read the [Terms and Conditions](#) before using data.

[National Weather Service](#)

"To report what you see that we don't in terms of weather or sea conditions, call 1-800-253-7091"

[Northern Bay Forecast](#)
[Southern Bay Forecast](#)

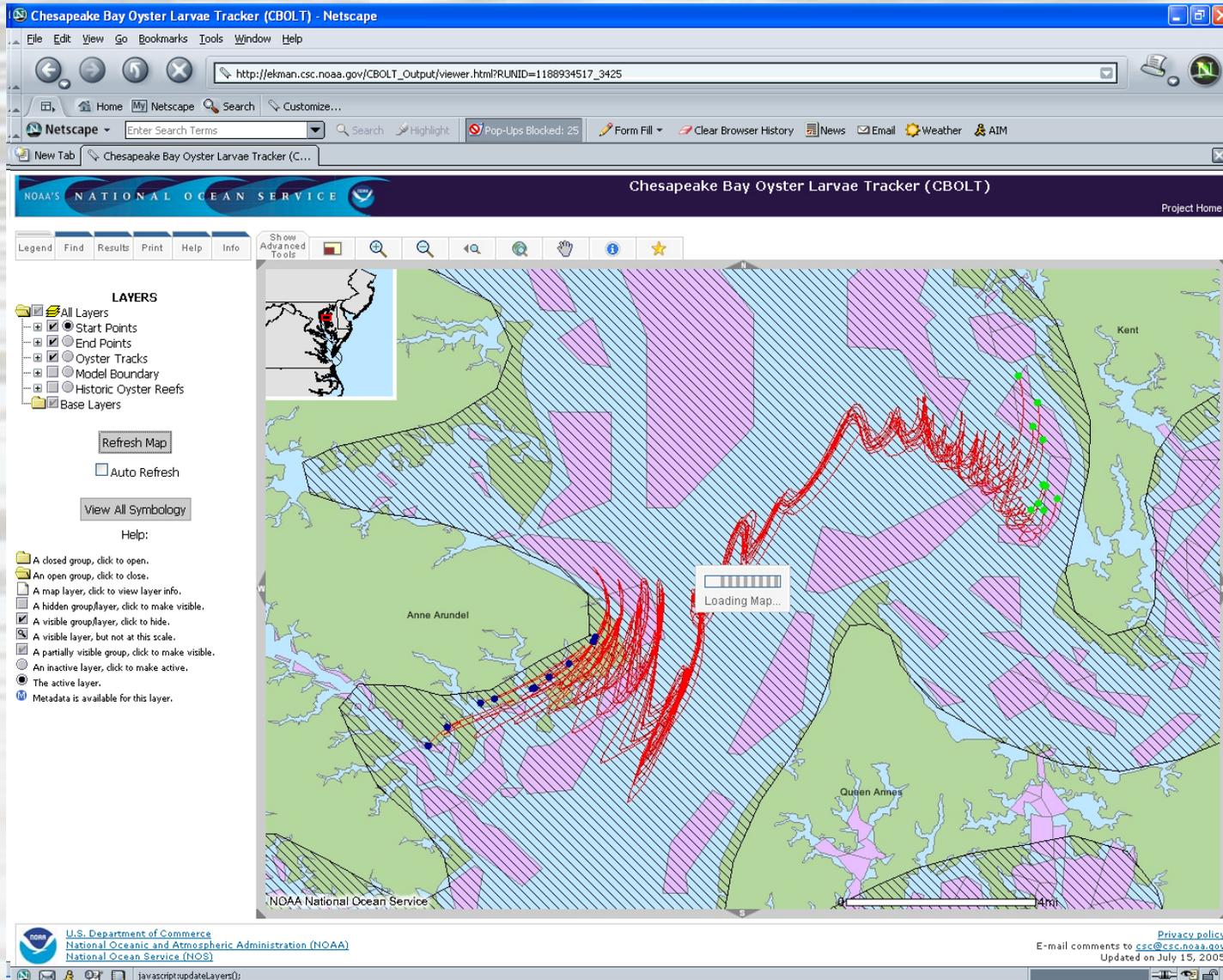
[America's Waterway Watch](#)

"For immediate danger to life or property call 911 or US Coast Guard on marine channel 16 VHF-FM"

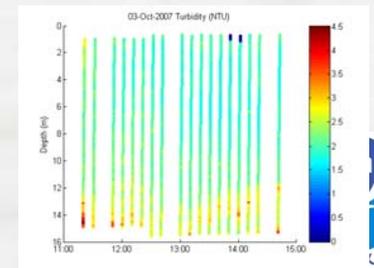
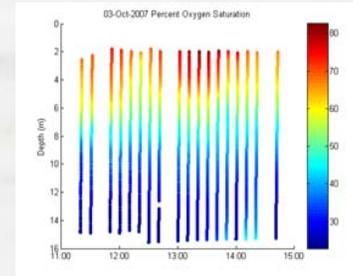
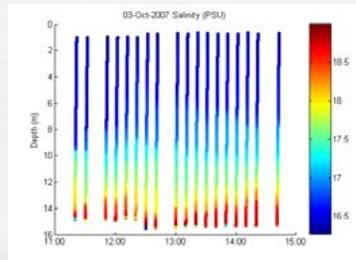
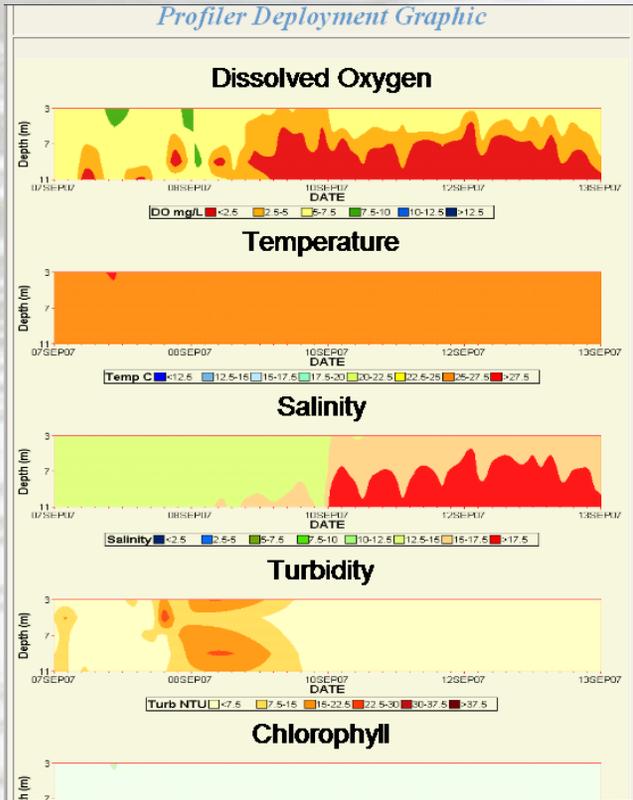
[Data Access](#)

Some Other Applications: CBOLT, EcoForecasting, Habitat Suitability

CBOLT links Hydrodynamic and WQ modeling and data



EPA ORD will fund autonomous WQ profiling field experiment in 2009



Summary & Questions

NOAA activities focused on INTEGRATION, INNOVATION, and APPLICATIONS in collection and use of WQ data in Chesapeake Bay

How are ongoing NWQMC and related Agencies activities – especially regarding methods, standards, access – being reported to “Field Level” data collectors and users?

How good a job are ‘we’ doing at identifying and resolving overlapping and duplicate efforts?