



Applying Observing Data for Coastal Decision Making: Impacting Resources

IOOS, NERRS and Partners: Supporting Coastal Resource Management within the Mid-Atlantic Region

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Chesapeake Bay NERR

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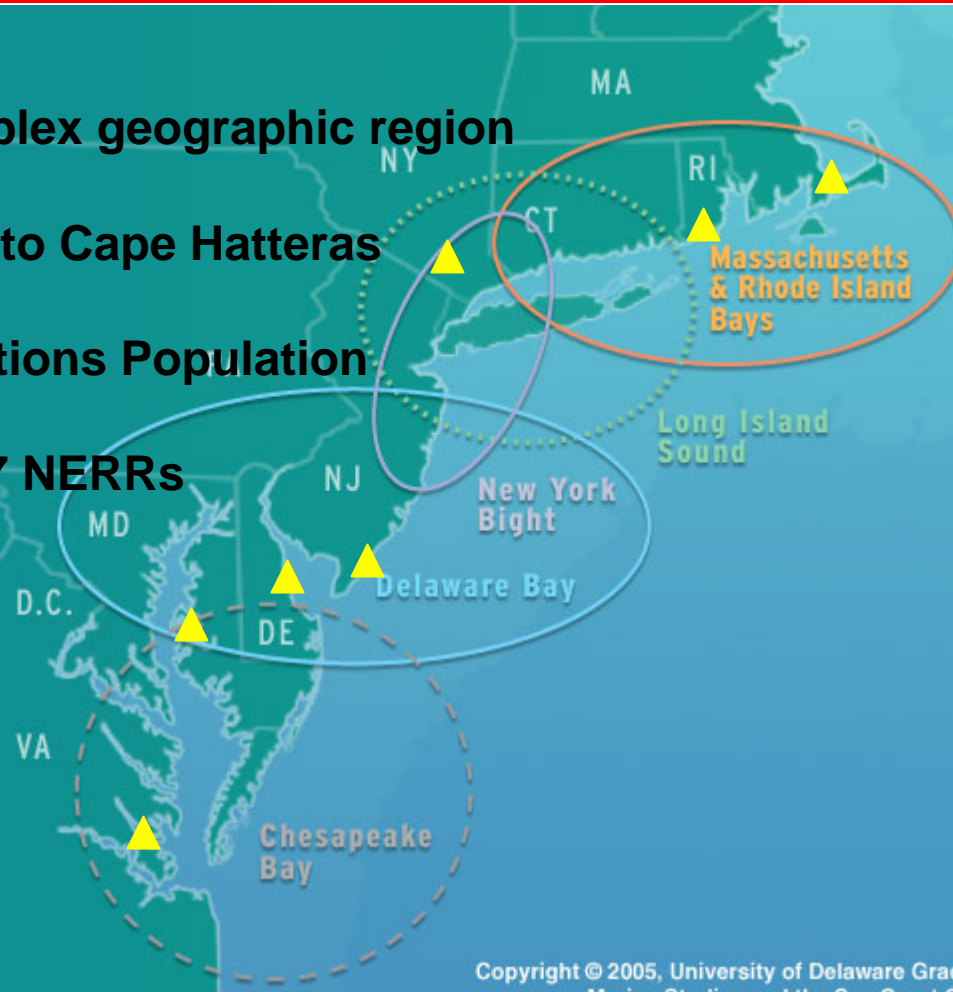
Rutgers University
Jacques Cousteau NERR



MACCOORA

Mid-Atlantic Coastal Ocean Observing Regional Association

- Most complex geographic region
- Cape Cod to Cape Hatteras
- 23% of Nations Population
- Contains 7 NERRs



CSC NERRS IOOS Enhancement Proposal

Mid-Atlantic, Northwest and Northeast



Goals:

- To establish NERRS as a timely provider of environmental information
- Information supports integrated research, education and stewardship applications.
- Key component of the Integrated Ocean Observing System.

Outcomes:

- Near-term: Build capacity; Demonstrate products.
- Mid-term: Decision-makers have the skill sets and capacity to inform resource management with real- and near real-time data streams from the NERRS.
- Long-term: Coastal and ocean decision-makers are applying scientific data and information generated by NERRS.

CSC NERRS IOOS Enhancement Proposal

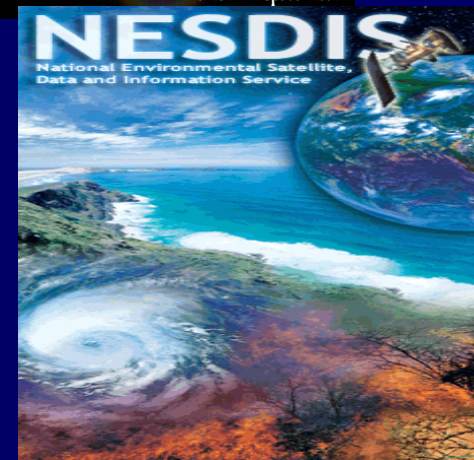
Part I. Telemetry

- Sutron: Water Quality
- Campbell: Weather

Part II. Data Management

- NOAA National Environmental Satellite Data and Information Service
- NERRS Central Data Management Office
- NWS / HADS; Format and Content Compliant Metadata

Allows build-out for over-water weather.



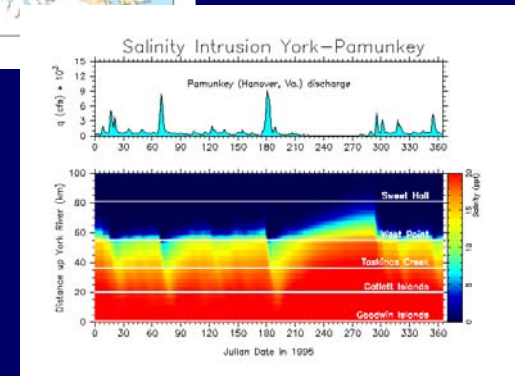
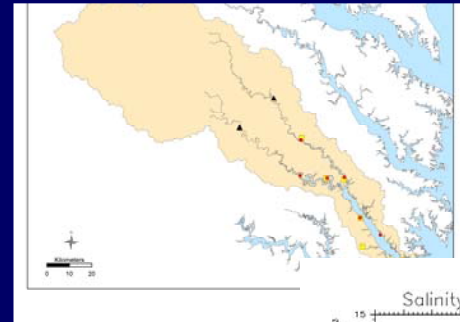
CSC NERRS IOOS Enhancement Proposal

Part III. Pilot Projects

- Ecosystem Health
- Natural and Anthropogenic Forcings

Part IV. Product Evaluation

- Coastal Training Program Focus Groups



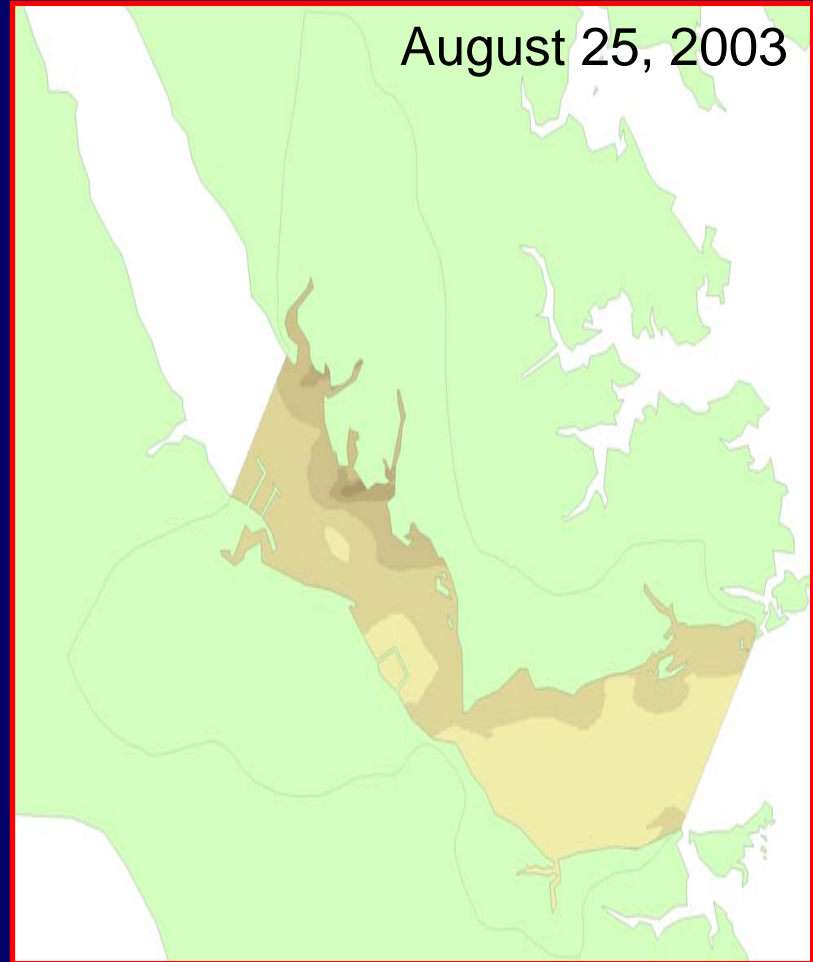
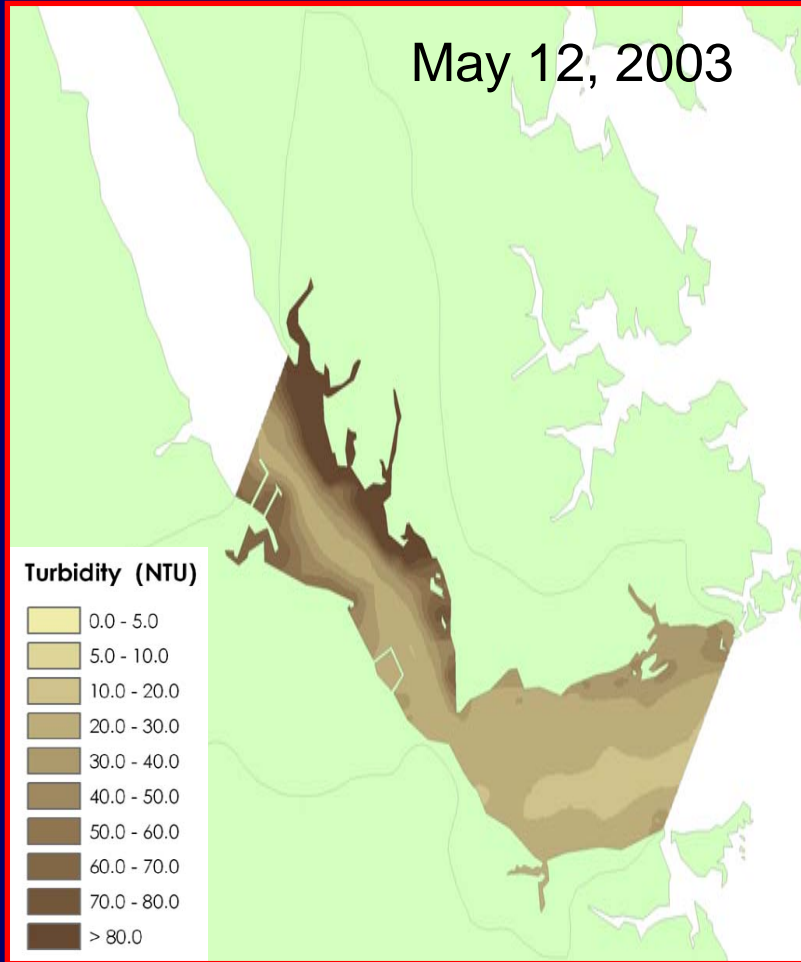
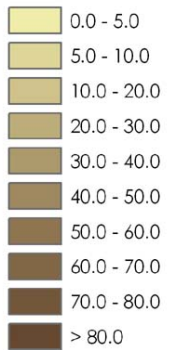
Chesapeake Bay Shallow Water Monitoring Program:

Data Applications to SAV Water Quality Criteria and Restoration

May 12, 2003

August 25, 2003

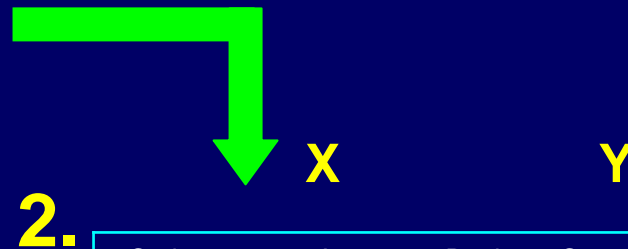
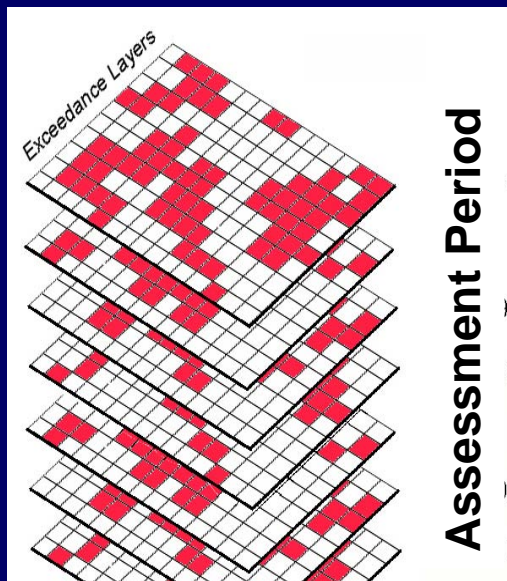
Turbidity (NTU)



DATAFLOW

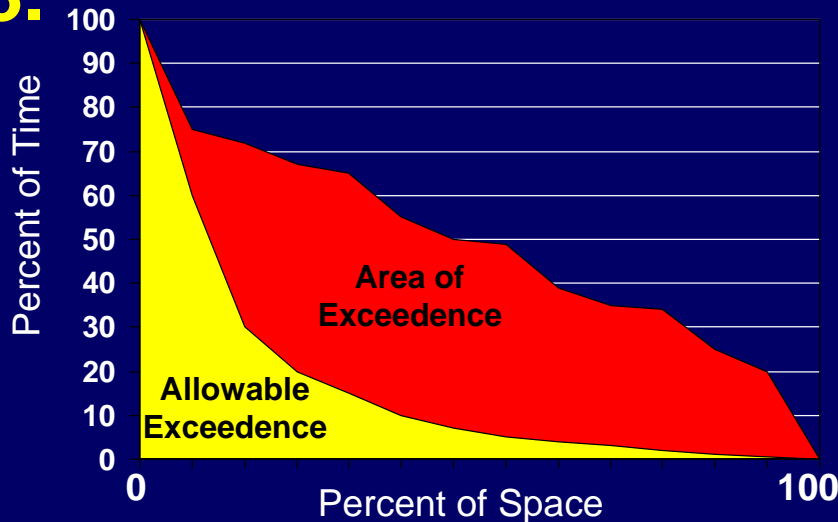
1.

Habitat
Criteria
Assessment
Method:
Cumulative
Frequency
Diagram

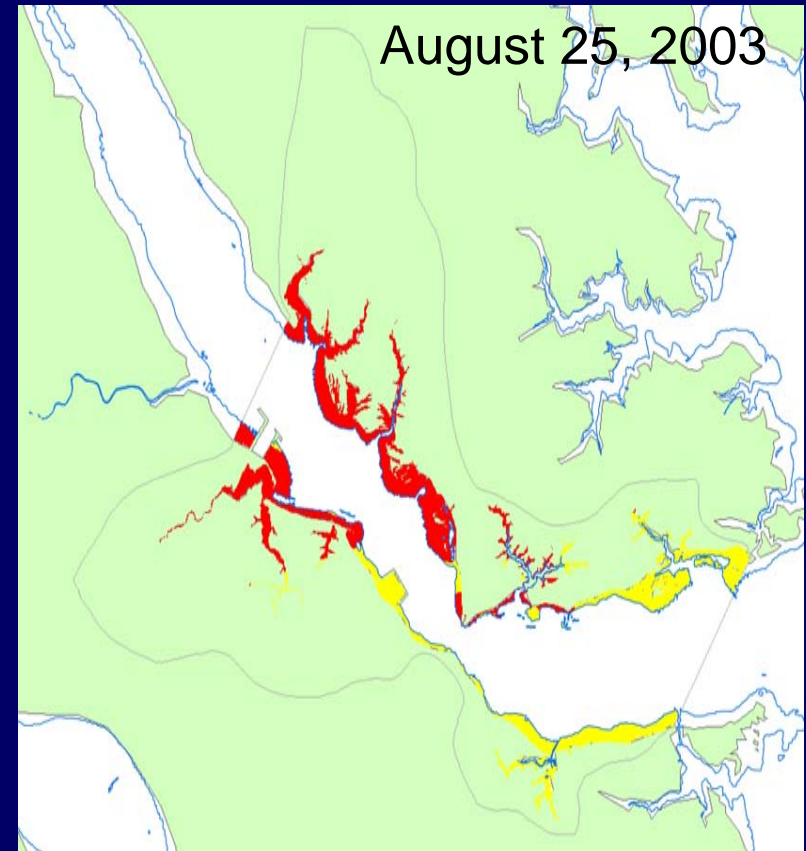
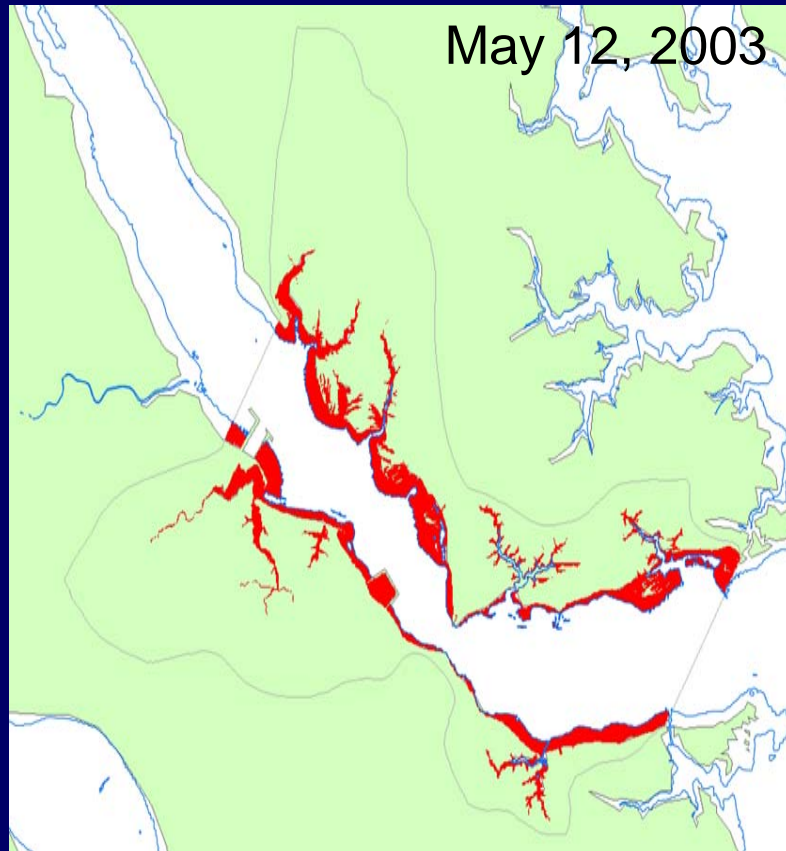


Cruise Date	% Area Exceeding	Rank	Cumulative Probability
	100		0
Jun 02	75	1	4
Mar 02	72	2	13
May 03	67	3	21
May 02	65	4	29
Apr 02	55	5	38
Jun 04	50	6	46
Mar 03	49	7	54
Apr 04	39	8	63
May 04	35	9	71
Apr 03	34	10	79
Jun 03	25	11	88
Mar 04	20	12	96
	0		100

3.



Chesapeake Bay Shallow Water Monitoring Program: Data Applications to SAV Water Quality Criteria and Restoration

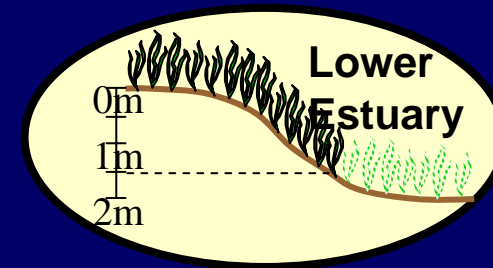
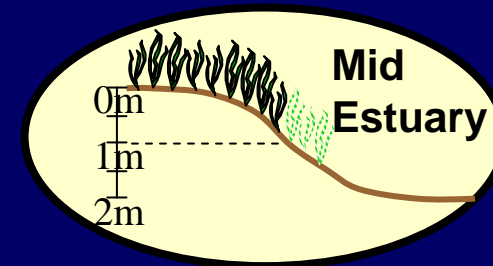
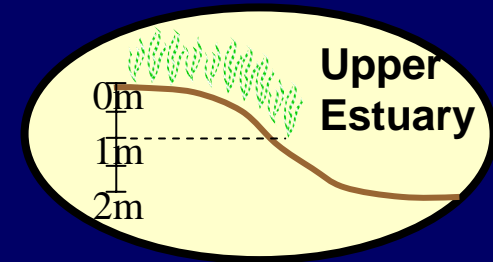
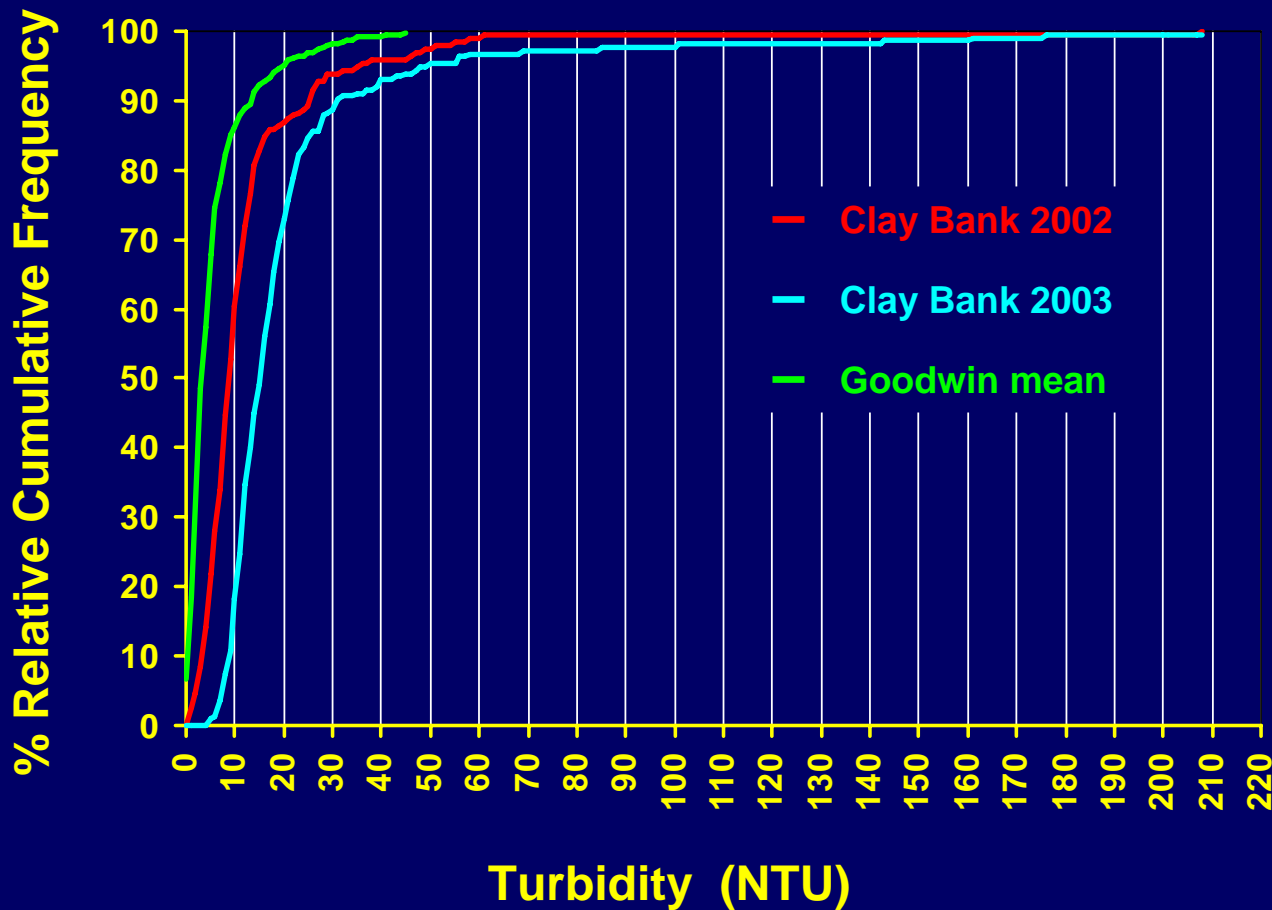


- 1 m MLW Contour
- Water Clarity Non-attainment
- Water Clarity Attainment

Continuous Fixed Stations

Habitat Criteria Assessment Method:

Cumulative Frequency Diagram



Eyes On The Bay - Virginia - Microsoft Internet Explorer

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Address

VIMS **DEQ**
Chesapeake Bay National Estuarine Research Reserve in Virginia

VECOS

Resources

- Home
- Dataflow
- Continuous Monitoring
- Materials & Methods
- About The Research Teams
- Admin
For Program Administrators Only

"Eyes On The Bay: Virginia is a multi-disciplinary monitoring effort to keep our fingers on the pulse of the Chesapeake Bay systems."

... Van Moore, PhD and Chief Scientist of Eyes On The Bay, Virginia

Monitored Location
Click on map to view data

View Fixed Stations
 View Underway Coverage

The Big Picture

The newest Bay agreement, Chesapeake 2000: A Watershed Partnership, states that "improving water quality is the most critical element in the overall protection and restoration of the Chesapeake Bay and its tributaries" and further, it commits to "By 2010, correct the nutrient- and sediment-related problems in the Chesapeake Bay and its tidal tributaries sufficiently to remove the Bay and the tidal portions of its tributaries from the list of impaired waters under the Clean Water Act." In pursuit of this goal, the Bay partners agreed to "By 2003, the jurisdictions with tidal waters will use their best efforts to adopt new or revised water quality standards consistent with the defined water quality conditions."

EPA guidance on new water quality criteria for the Chesapeake Bay was published in April 2003. The development of these new water quality standards for turbidity (i.e. light attenuation), chlorophyll, and dissolved oxygen, have placed new requirements

Local Intranet

Virginia Estuarine and Coastal Observing System

Eyes On The Bay - Virginia - Microsoft Internet Explorer

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Underway : YRKPH

Data
Date Selected: 11/15/2004
View Selected Date

Availability:
11/10/2004
10/12/2004
9/13/2004
8/16/2004
Download Data for 11/10/2004

Lower York River
Regional View

Temperature

4.0 - 4.9	5.0 - 12.0	15.0 - 19.0	21.0 - 24.0	27.0 - 34.0
4.0 - 9.4	12.0 - 15.0	19.0 - 21.0	24.0 - 27.0	> 30.0

YRKPH (+18 ppt) Lower York River
Polyhaline The YRKPH segment extends across the mouth of the York River from

Local Intranet

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Lower York River
Regional View

YRKPH (+18 ppt) Lower York River
Polyhaline The YRKPH segment extends across the mouth of the York River from approximately west of Hog Island on the north shore and to west of Thorefare by Goodwin Island on the south shore. The segment extends up river just above Chestnut Annie at a boundary extending from Blundering Point, north of the mouth of Carter's Creek on the north

Segment : YRKPH

Lower York River

The following are data collection events for this entire segment.

Station	Project	Description	Metadata
Lower York River	DFLO	YRKPH (Lower York River) - Initial cruise in May 2003. Cruise completed monthly from May to November 2003, March through November 2004, and cruises are scheduled monthly from March to November 2005 and will be available online as they occur.	Download
YRK005.40	OCAN	YRK005.40 - This VACEQ funded station was established May 20, 2003. Data is available at 15 minute intervals from May 20 through December 14, 2003 and from February 23 through November 30, 2004. The station was deployed on February 28, 2005 and data will be posted as it becomes available for 2005.	Download
YRK005.77	OCAN	YRK005.77 - This VACEQ funded station was established on July 2, 2003. Data is available at 15 minute intervals from July 2 through December 14, 2003 and from February 23 to November 30, 2004. There is a gap in the data from September 9 to October 16, 2003 as the station was destroyed by Hurricane Isabel. The station was deployed on February 28, 2005 and data will be posted as it becomes available for 2005.	Download

Local Intranet

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Lower York River
Regional View

Return to Segmented View

Station : YRK005.40

Start Date: January 2003
End Date: January 2003

Displaying 1/1/2003 to 2/1/2003
View Selected Date(s) Download This Data

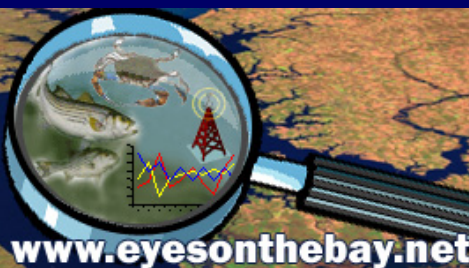
Water Temperature

Salinity

DO

Local Intranet

Eyes on the Bay



Click Stations for Data

Monitoring Type:

Weather Stations

Data Variables:

Wind Speed, Wind Direction, Relative Humidity, Air Temperature, Precipitation Rate and Accumulation, PAR, and Barometric Pressure

Data Frequency:

Data Collected Every 15 Minutes

Data Geographical Distribution:

Data Collected at Otter Point Creek Site, Bush River

Data Updates:

Telemetered Hourly

Data Online Format:

Charts and Data Tables Selectable in Various Increments or by Full Year.

Click Legend Symbols to Toggle Stations On/Off

 **Fixed Monthly Stations - Current & Historical Data**

 **16 Real-Time Continuous Monitors**

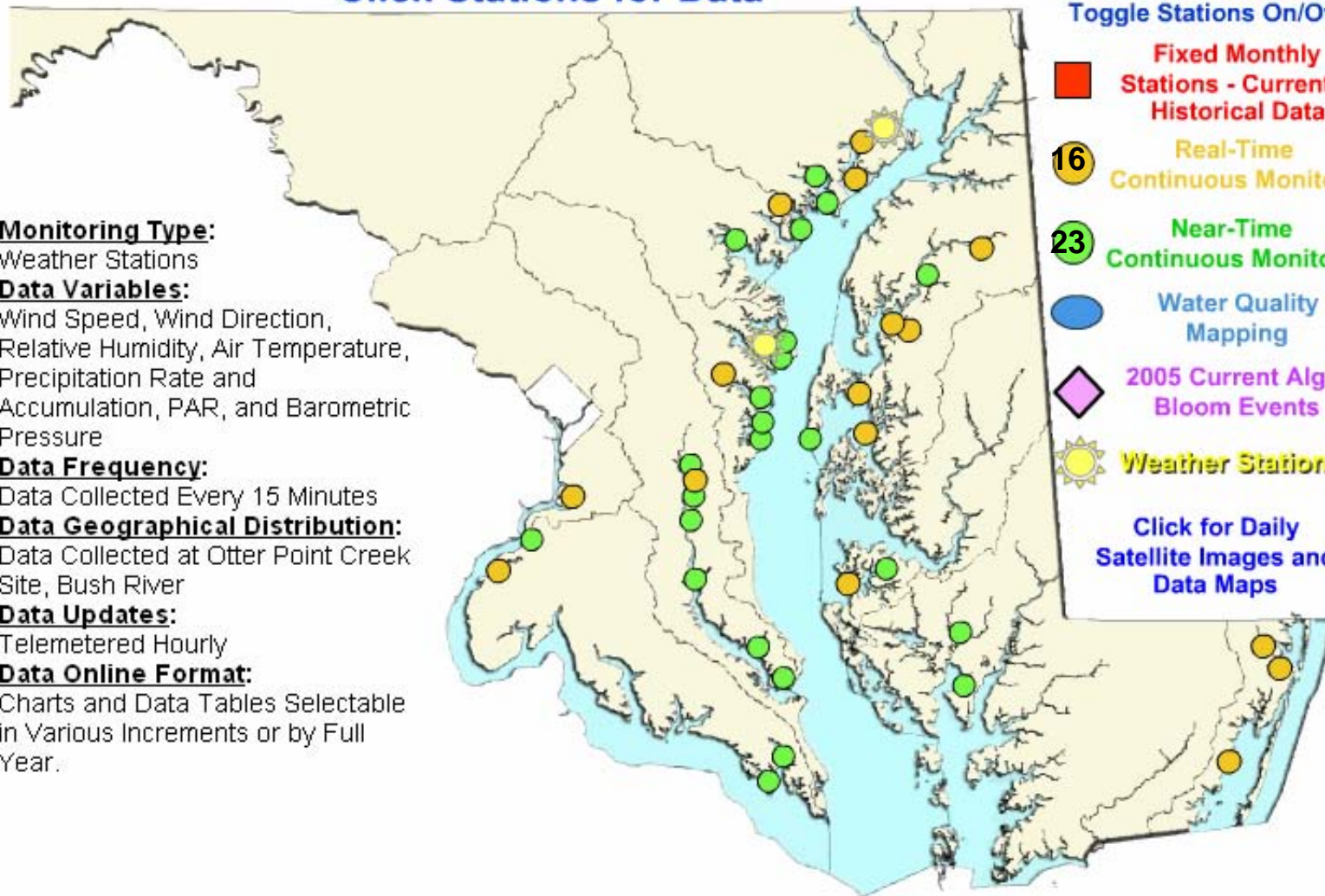
 **23 Near-Time Continuous Monitors**

 **Water Quality Mapping**

 **2005 Current Algal Bloom Events**

 **Weather Stations**

Click for Daily Satellite Images and Data Maps



StriperTracker

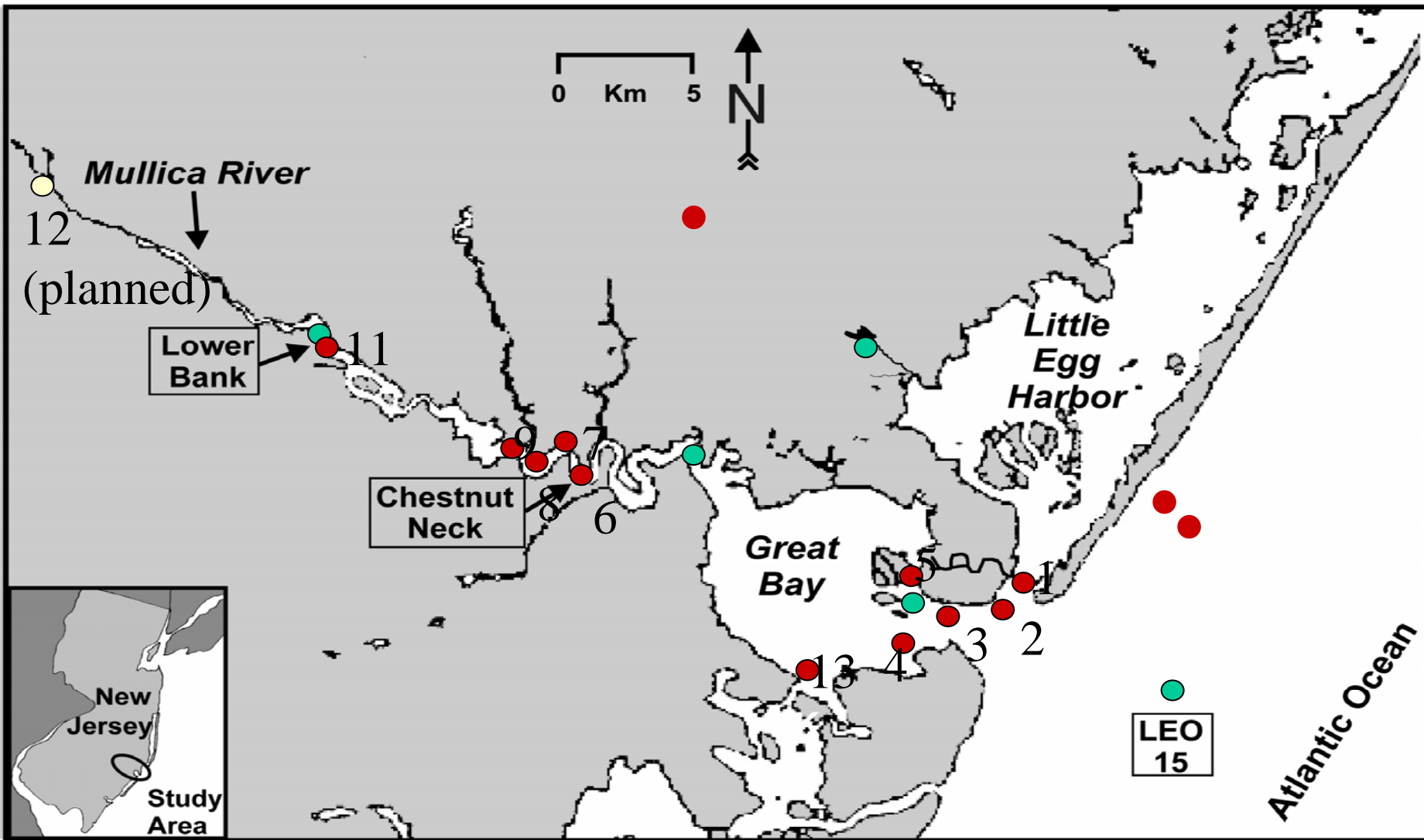
*an estuarine observatory to
monitor transmitter-tagged fish*



Impetus

- Contribute to a calculation of fish population size through an understanding of stock structure, habitat use, migratory pathways
- Examine structure of estuarine habitat from the fish-eye view
- SWMP data application
- Census Of Marine Life





- – existing hydrophones
- – planned hydrophone
- – Physical/chemical data logger



[Home](#)[About the Project](#)[Tagging](#)[Habitat](#)[Fishes of Great Bay](#)[Teachers](#)[Kids](#)[Adopt A Fish](#)[Glossary](#)[Related Links](#)

StriperTracker.org

Scientists from the Rutgers University Marine Field Station are trying to better understand the coastal migration of striped bass. The study area includes the Mullica River/Great Bay estuary, the southern end of Barneget Bay, and the coastal ocean outside of Little Egg Inlet off Tuckerton, New Jersey.

Check out the [Scientist's Log Book](#).

[Click here](#) to see all of the adopted fish so far!

VIEW PAST AND PRESENT MOVEMENTS:



Select a buoy:

Buoy 1. Little Egg Harbor Inlet

Go



Click here to tag and track your own virtual striped bass!

FISH: One or more of the same species
FISHES: More than one of varied species



ADOPT-A-FISH
 Click here to find out how your fishing club or K-12 class can adopt a striped bass and monitor it over the web!

This project is funded by NOAA



StriperTracker Website

- Provides movement data to public
- Includes lesson plans for teachers
- Scientist's Log updates
- Information on biology and links to more
- Adopt-a-fish program for community participation

StriperTracker



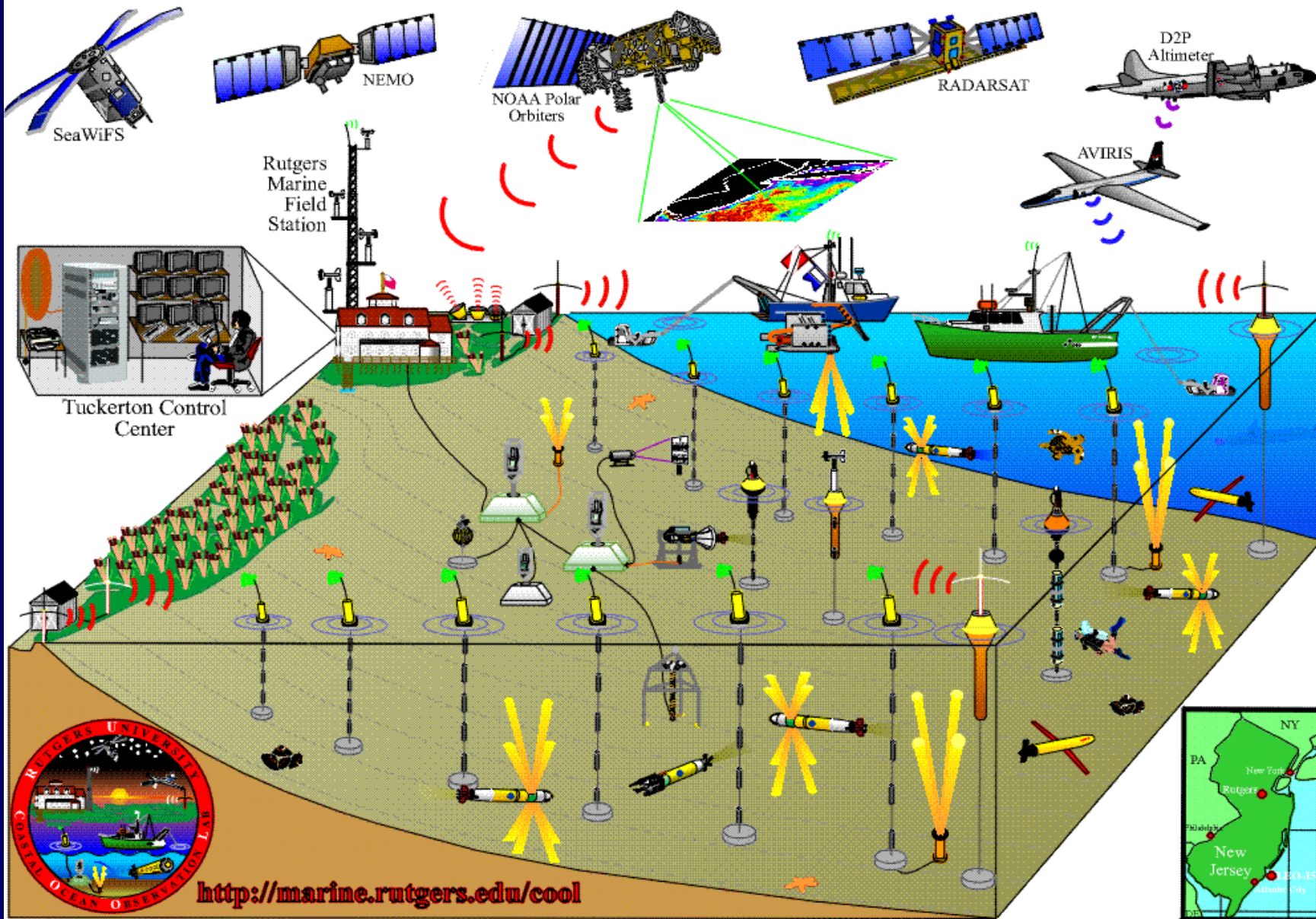
Next Steps:

- Pilot at other NERRS
- Engage Fishery Scientist Coastwide



Striped Bass migration routes from the principal spawning grounds of the Chesapeake Bay, Delaware River, and Hudson River

Rutgers University Long-term Ecosystem Observatory

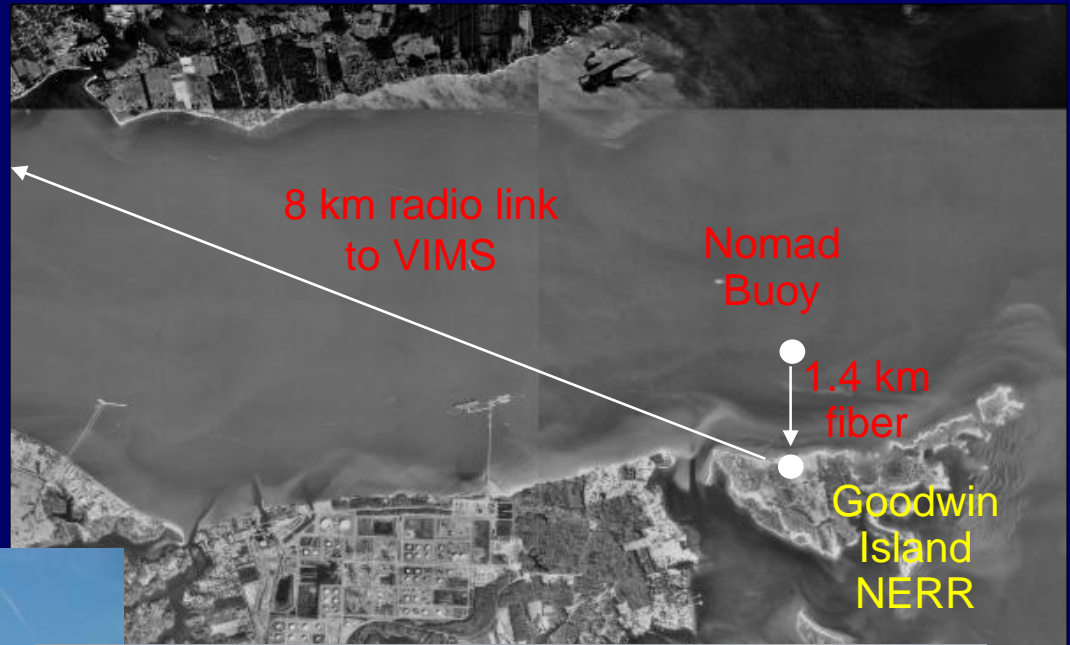


SAIC From Science to Solutions™

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VIMS
VIRGINIA INSTITUTE OF MARINE SCIENCE
SCHOOL OF MARINE SCIENCE



Chesapeake Bay
National Estuarine
Research Reserve



USGS





MAP
of
YU



CBOOS

Chesapeake Bay Observing System



Wind and Waves Stations



COOPERATIVE EXPANSION AND INTEGRATION DEMONSTRATION (CCIED): Wind, Waves, Dissolved Oxygen

Principal Providers (North to South):

- *NOAA Chesapeake Bay Office*
- *University of Maryland Center for Environmental Science*
- *Virginia Institute of Marine Science College of William and Mary*
- *Old Dominion University*

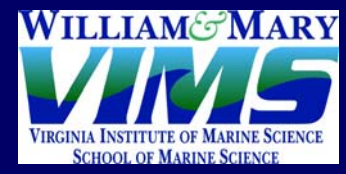
Principal User: National Weather Service

Principal Product

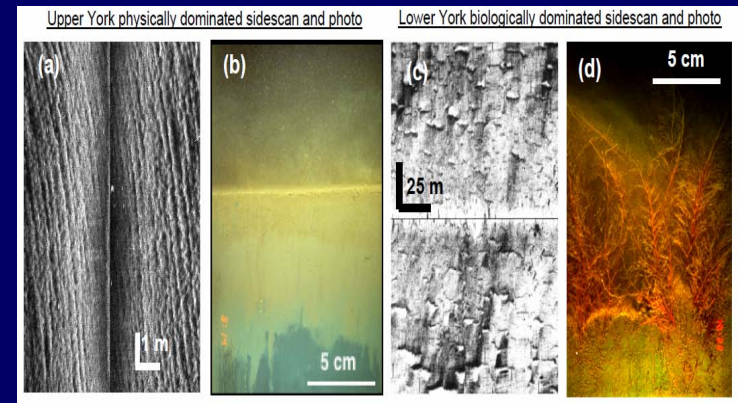
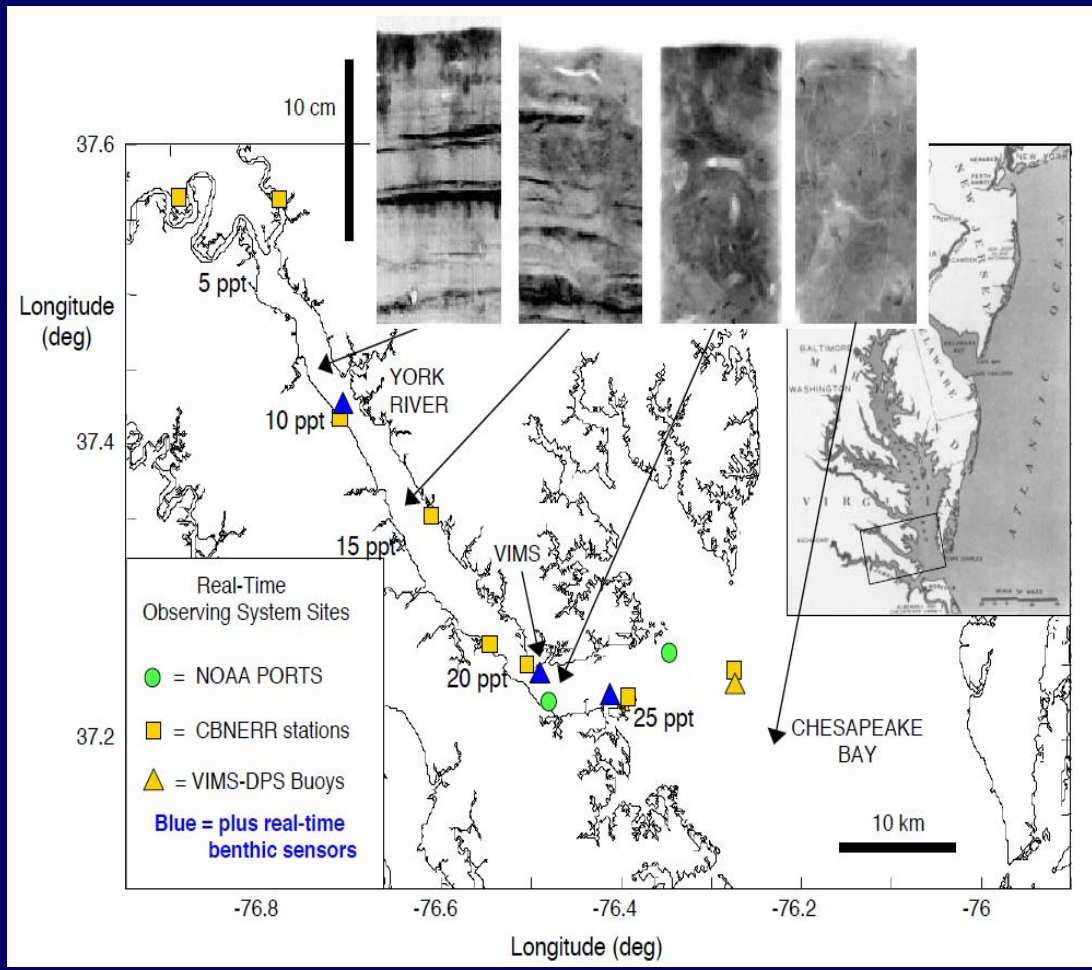
Improved wind and wave forecasts, but data also will improve hydrodynamic modeling, and ecological forecasts of hypoxia, sea nettles, harmful algal blooms, ..., which are important for coastal managers.



MUDBED: MULTI-DISCIPLINARE BENTHIC EXCHANGE DYNAMICS



PIs: Diaz, Friedrichs, Kuehl, Harris, McNinch, Sanford, Schaffner



WILLIAM & MARY VIRGINIA INSTITUTE OF MARINE SCIENCE

Observing System and Real-time Data

WELCOME Research Education Advisory Service Administration Resources News & Media

Quick Links and Search

Overview

- Buoy Status
- CIBOS
- Real-Time Data
- Graph
- DODS Server
- Search & Rescue
- Tides
- Weather
- Links

VIMS Real-Time Data Buoy

The VIMS data buoy is the first step in a long-term project to provide real-time data for accurate predictions of ecosystem processes in Lower Chesapeake Bay. Such predictions can help guide the management of natural resources, enable planning for extreme events, facilitate maritime operations, support military security, and advance science and education.

The current buoy is the first in a planned network to extend the Chesapeake Bay Observing System (CBOS) into the lower Bay. This comprehensive network will provide simultaneous measurements of winds, waves, currents, water density, nutrients, water quality, biological indices and fish stocks under all conditions. Basic and analyzed data and linked numerical models will be accessible in real-time and at high-speed through a web portal. Funding has been provided by the Commonwealth of Virginia and the U.S. Coast Guard.

Gloucester Point

Time of observations
 Wind 10/19/05 15:00 EDT
 Water 10/19/05 15:01 EDT
 Air Temp 62.1 °F
 Water Temp 69.7 °F Sal 27

Velocity Scales
 5 m/s = 9.7 kt
 0.25 m/s = 0.5 kt

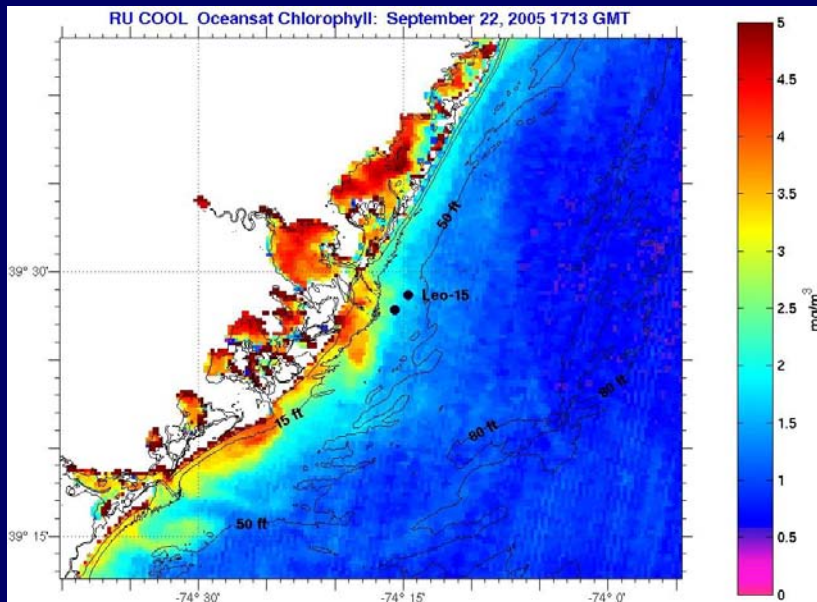
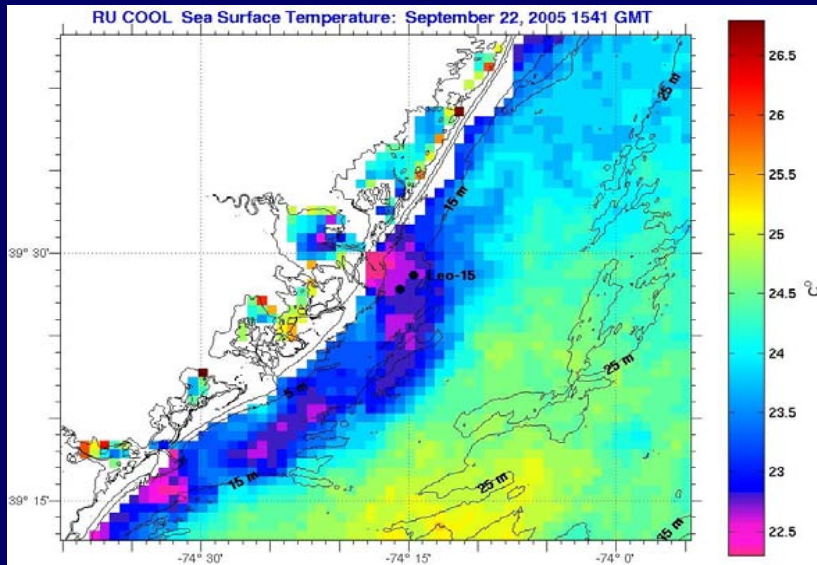
Wind, Surf. Mid. Bot.

Data updated every 15 minutes

More Data Weather
 DODS Other Sites
 Tides Graph Week

Verification of "Relative Chlorophyll" values based on satellite imagery

- Oceansat and FYI-D (PRC) Satellites
- 360 m resolution
- SeaWifs OC4 algorithm/Blue-green ratio



Real-time Satellite Data Webpage

www.marine.rutgers.edu/cool/sat_data

Chlorophyll Concentration - IMCS Marine Remote Sensing - Microsoft Internet Explorer

Address: http://marine.rutgers.edu/cool/sat_data/productchlorine0thumb0

SATELLITE IMAGES
CHLOROPHYLL CONCENTRATION

Check our [FEATURED SATELLITE IMAGERY](#) page for images of Hurricanes Katrina and Rita!

Real Time / Archived Satellite Imagery
Click here for a tutorial on these Images (clouds & navigation).

Images of Accessible Regions:
Mid-Atlantic Bight
Gulf of Mexico
JCHFRBS
Latts
New York Bight

A few notes on the Chlorophyll Concentration Image Archive

There are currently 2 different Ocean Color products posted on this website from 2 different satellite sensors. The first of which is Chlorophyll concentration calculated from Ocean Color Monitor (OCM) data collected via India's Oceansat satellite. This data is the highest resolution satellite measured chlorophyll data available and is at a 360m resolution. The chlorophyll algorithm used is based on the SeaWiFS OC4 algorithm. The second product we call "ocean color". These images are created using data collected by China's FYI-D satellite. We record approximately 2 of these passes per day with our L-Band satellite dish. The FYI-D satellite has 10 channels in the visible and infrared spectrum and provides us with 1km resolution data.

The product generated is what we call "relative chlorophyll concentration". The Chinese space agency has yet to release the calibration data for this satellite, therefore it is not possible for us to compute actual chlorophyll concentration values. We can, however, through a simple ratio of blue and green channels, compute a very rough, relative estimate of chlorophyll that allows us to see spatial patterns. Red areas are indicative of murky green water, while blue areas represent clearer, bluer water.

The raw satellite data is processed to our "relative chlorophyll" product by ratioing channel 9/channel 7 (green/blue) with SeaSpace-1eracomm software. Our Data is stored in an HDF-file format and is plotted

