

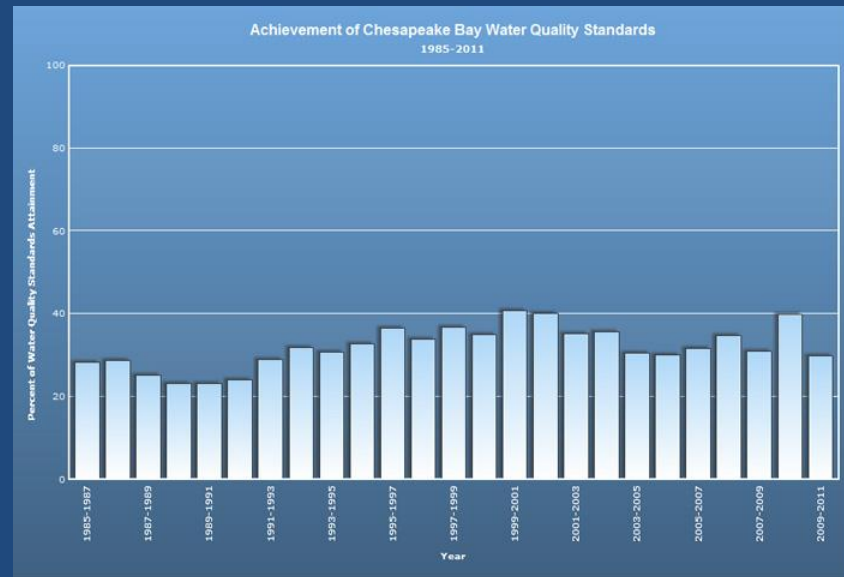
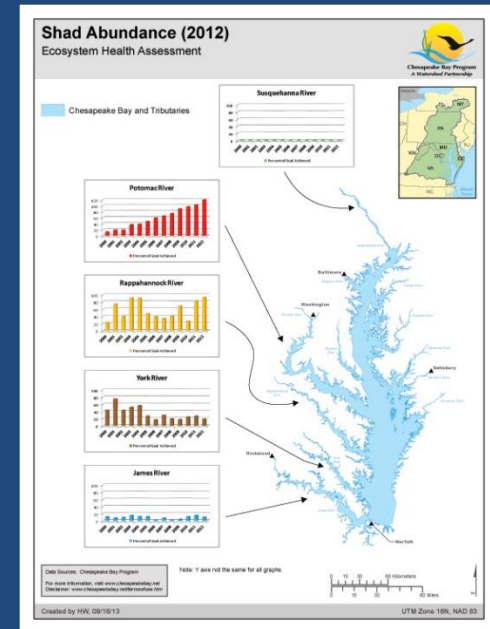
**Being Accountable/Communicating
Assessment Information to the Public in 2013**

**Update to the STAC
December 2013**

Nita Sylvester, EPA CBPO
Chair of STAR's Indicators Workgroup

Purpose of Briefing

- Status of CBP indicators, including
 - changes approved by MB
 - what's pending
- How indicators are
 - developed/revised
 - measured/calculated
- Focus on
 - shad abundance
 - WQS achievement



Background

CBP Indicators:

- Approved by MB
- Available from “Track Our Progress” section of www.ChesapeakeBay.net
- Featured in
 - media releases
 - website news posts
 - Bay Barometers
 - State of the Program Reports
 - Reports to Congress
 - etc.

The screenshot displays the Chesapeake Bay Program website. The header includes the logo, the text "Chesapeake Bay Program Science. Restoration. Partnership.", a search bar, and a "Contact Us" link. The navigation menu contains: Home, Discover THE CHESAPEAKE, Learn THE ISSUES, Track THE PROGRESS, Take ACTION, In The NEWS, Bay Resource LIBRARY, and About The BAY PROGRAM. Below the navigation is a banner with a map of the Chesapeake Bay, a line graph showing trends, and pie charts for "Agriculture 42%", "Urban/Suburban 32%", and "Wastewater 46%". A "Track the Progress" button is overlaid on the banner. The main content area is titled "Track Our Progress" and includes a sidebar with "What Guides Us" (Health, Restoration, Tracking Tools) and a main text area with sections for "What Guides Us", "Tracking Tools", "Indicators A-Z", "American Shad Abundance", "Bay Watershed Forest Cover", and "Blue Crab Abundance (Spawning-Age Females)".

Chesapeake Bay Program

Science. Restoration. Partnership.

Home Discover THE CHESAPEAKE Learn THE ISSUES Track THE PROGRESS Take ACTION In The NEWS Bay Resource LIBRARY About The BAY PROGRAM

Home Track the Progress Text Size: A A A

Track Our Progress

The Chesapeake Bay Program tracks the progress in the restoration of the Chesapeake Bay watershed. We track Bay Health, which provides information about the status of Bay water quality, habitats and lower food web, and fish and shellfish abundance as well as restoration and protection efforts.

What Guides Us

The Chesapeake Bay Program has developed a series of commitments over its history to its Bay restoration and protection efforts. These science-based goals help Bay Program partners track critical health measures and implementation of restoration activities. Goals are updated each year to reflect the previous year's health status and restoration efforts.

Tracking Tools

Chesapeake Bay Program partners use several tools to track progress toward Bay restoration goals. These tools help Bay Program partners and other stakeholders visualize data to help identify priorities and reveal funding gaps. Learn more about these tools and how they help Bay Program partners lead the restoration of the Chesapeake Bay.

Indicators A-Z

American Shad Abundance

American shad form an important link in the Bay food web. Shad feed on zooplankton and are preyed upon by larger fish, including bluefish, weakfish and striped bass. Historically, local economies flourished from the annual shad run in the spring, when the fishes' upriver migration begins. But shad populations were decimated in the 1970s by overfishing, pollution, and dams and other blockages that prevent the fish from reaching their upstream spawning grounds. [\(Read More\)](#)

Bay Watershed Forest Cover

Forests protect and filter drinking water for 75 percent of the Bay watershed's residents. They also provide valuable services and economic benefits, including carbon sequestration, flood control, wildlife habitat and forest products. Forests are the most beneficial land use for the Bay. They capture, filter and retain water, thereby reducing pollution and improving water quality. Forests also absorb air pollution and retain up to 85 percent of the airborne nitrogen from sources such as automobiles and power plants. Forested areas reduce erosion, control flooding and provide habitat for wildlife. [\(Read More\)](#)

Blue Crab Abundance (Spawning-Age Females)

Perhaps no species is more closely associated with the Chesapeake Bay than the blue crab. Because they reproduce by the millions and eat virtually anything, crabs are one of the Bay's most hardy species. Good water quality and adequate habitat are important for the crab's continued health. [\(Read More\)](#)

Status of CBP Indicators

Chesapeake Bay Program
Science, Restoration, Partnership.

Home | Discover THE CHESAPEAKE | Learn THE ISSUES | Track THE PROGRESS | Take ACTION | In The NEWS | Bay Resource LIBRARY | About The BAY PROGRAM

Track the Progress

Home | Track the Progress | Health | Text Size: A A A

Health

Scientists evaluate Chesapeake Bay health by monitoring important habitats, fish and shellfish, and water quality measures in the Bay and its watershed. They also track pollution, population and other measures that affect the Bay's health.

Bay Health

The Bay's health has slowly improved in some areas. However, the ecosystem remains in poor condition. The Bay continues to have polluted water, degraded habitats, and low populations of many fish and shellfish species.

River Health

The Bay watershed's streams, creeks and rivers eventually flow to the Bay, so their health directly affects the entire Bay. The Bay Program uses the most current monitoring data to assess the health of the rivers and streams that flow to the Bay.

Factors Impacting Bay Health

Everything that happens on the land affects the health of the Bay and its local waterways. Human activities and natural factors have a significant influence on the health of the Bay and its watershed.

Home | Track the Progress | Restoration | Text Size: A A A

Restoration and Protection Efforts

The Bay Program partnership implements and tracks progress toward goals to reduce pollution, restore habitats, manage fisheries, protect watersheds and foster stewardship.

Restoration

Reducing Pollution

In December 2010, the Environmental Protection Agency (EPA) established a "pollution diet" known as the Chesapeake Bay Total Maximum Daily Load (TMDL). This "diet" sets limits on the amount of nitrogen, phosphorus and sediment that will be allowed to flow into the Bay each year. As part of this cleanup process, Bay Program partners are implementing and refining plans to reduce these pollutants over time.

- Reducing Nitrogen Pollution
- Reducing Phosphorus Pollution
- Reducing Sediment Pollution
- Planting Bay Grasses

Restoring Habitats

The restoration of critical wildlife habitats is an important component to a healthy Bay ecosystem.

- Planting Bay Grasses
- Restoring Wetlands
- Recovering Fish Passage
- Restoring Oyster Reefs

Managing Fisheries

The Chesapeake Bay fishing industry holds tremendous commercial, cultural and historic value. Managing the fisheries for blue crabs, cysters, striped bass, shad and menhaden is also critical to restoring and protecting the population of these species and their important place in the ecosystem.

- Blue Crab Fishery Management

Protecting Watersheds

The Bay region consists of thousands of local waterways. The health of these local streams and creeks depends on how the land around them is used, protected or preserved.

- Planting Forest Buffers
- Developing Watershed Management Plans
- Protected Land

Fostering Stewardship

Programs that foster public stewardship include education and interpretation for students (of all ages), increasing public access, and expanding actions by citizens and communities.

- Public Access
- Education and Interpretation (Meaningful Watershed Educational Experiences)

Restoration and Protection Efforts

Reducing Pollution

- Reducing N Pollution
- Reducing P Pollution
- Reducing S Pollution
- Wastewater Treatment Plant Upgrades

Restoring Habitats

- Restoring Wetlands
 - ~~Wetlands Enhance/Rehab.~~
- Reopening Fish Passage
- Planting Bay Grasses
- Restoring Oyster Reefs (R)

Managing Fisheries

- Blue Crab Fishery Management

Protecting Watersheds

- Planting Forest Buffers
- Protected Land
- Developing Watershed Management Plans

Fostering Stewardship

- Public Access Sites
 - *Water Trails*
 - *Bay Gateways*
- K-12 Education (R)

- **Green:** previously reported indicator updated
- ~~Black w/ strikeout:~~ previously reported indicator no longer tracked and removed
- Black w/ "(R)": previously reported indicator to be replaced with new indicator
- Black: previously reported indicator to be updated
- *Black Italicized:* previously reported indicator no longer tracked or updated; commitment met
- **Red:** previously reported indicator no longer tracked or updated; commitment NOT met

Factors Impacting Bay and Watershed Health

Pollutants

- Nitrogen (R)
- Phosphorus (R)
- Sediment (R)

Land Use

- Population
- Forest Cover

Natural Factors

- River Flow

- Green w/ "(R)": previously reported indicator updated and revised
- Green: previously reported indicator updated
- Black: previously reported indicator to be updated

Watershed and River Health

Health of Freshwater Streams

- Health of Freshwater Streams in Watershed (R)

Flow Adjusted Pollution Trends and Yield

- Nitrogen: LT FAC trends
 - ST FAC trends
 - ST Yield
- Phosphorus: LT FAC trends
 - ST FAC trends
 - ST Yield
- Sediment: LT FAC trends
 - ST FAC trends
 - ST Yield

Land Cover

- Forest Cover

- Green w/ "(R)": previously reported indicator updated and may be revised
- Green: previously reported indicator updated
- Black: previously reported indicator to be updated

Bay Health

Habitats & Lower Food Web

- SAV- baywide abundance
 - abun by zone
 - density
- Bottom Habitat
- Tidal Wetlands
- ~~Phytoplankton~~

Fish & Shellfish Abundance

- Blue Crabs
- American Shad (R)
- Oyster Biomass (R)
- Striped Bass (R)
- Menhaden (R)

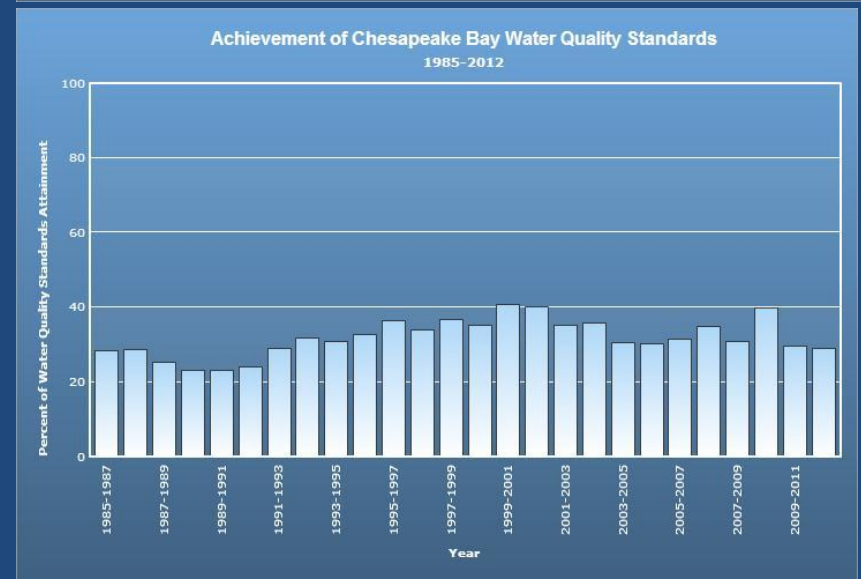
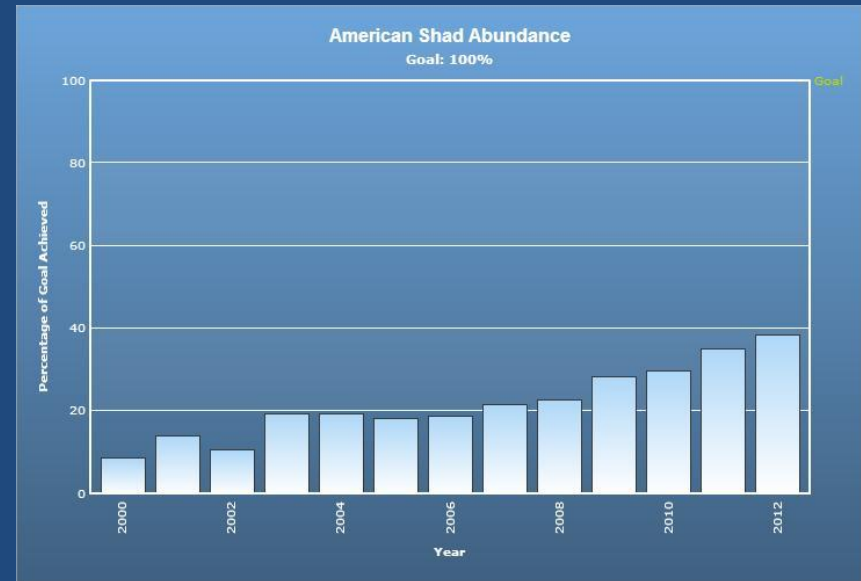
Water Quality

- *WQS Achievement*
 - Dissolved Oxygen (R)
 - Water Clarity (R)
 - Chlorophyll *a* (R)
- Chemical Contaminants

- Green: previously reported indicator updated
- Green w/ "(R)": previously reported indicator updated and revised
- *Green italics*: new indicator
- Black: previously reported indicator to be updated
- Black w/ "(R)": previously reported indicator to be replaced with new indicator
- ~~Black w/ strikeout~~: previously reported indicator no longer tracked or updated and removed

Indicator Processes

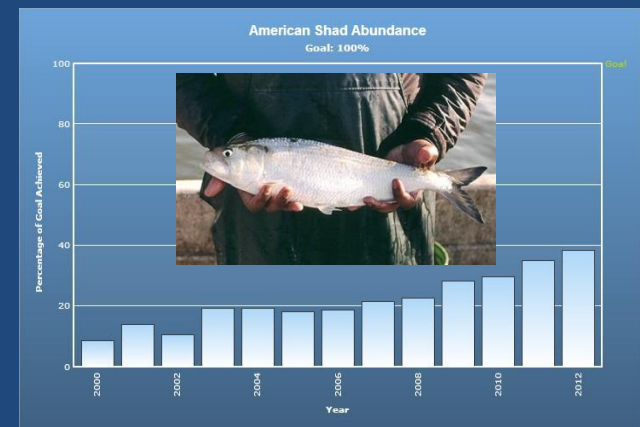
- How CBP indicators are
 - developed/revised
 - measured/calculated
- Using as examples
 - shad abundance
 - WQS achievement



Shad Indicator Background

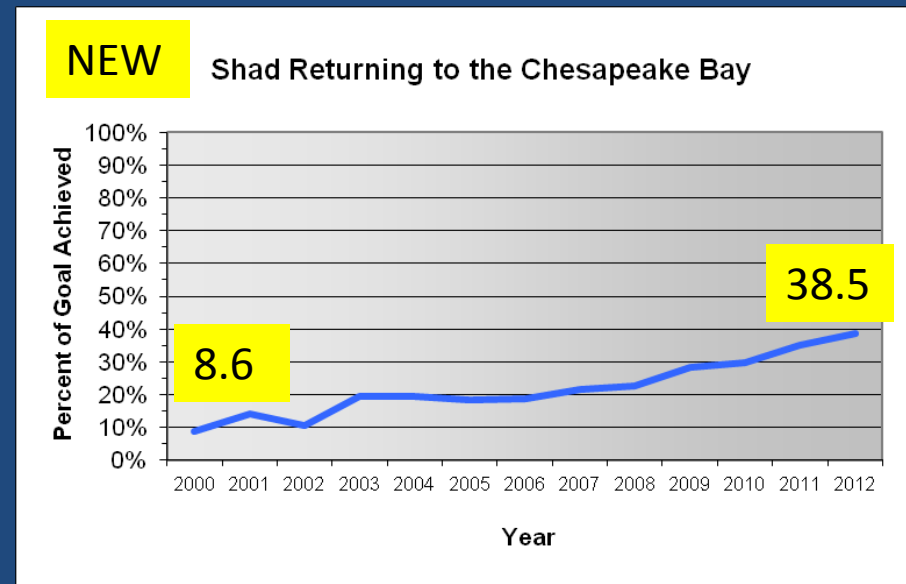
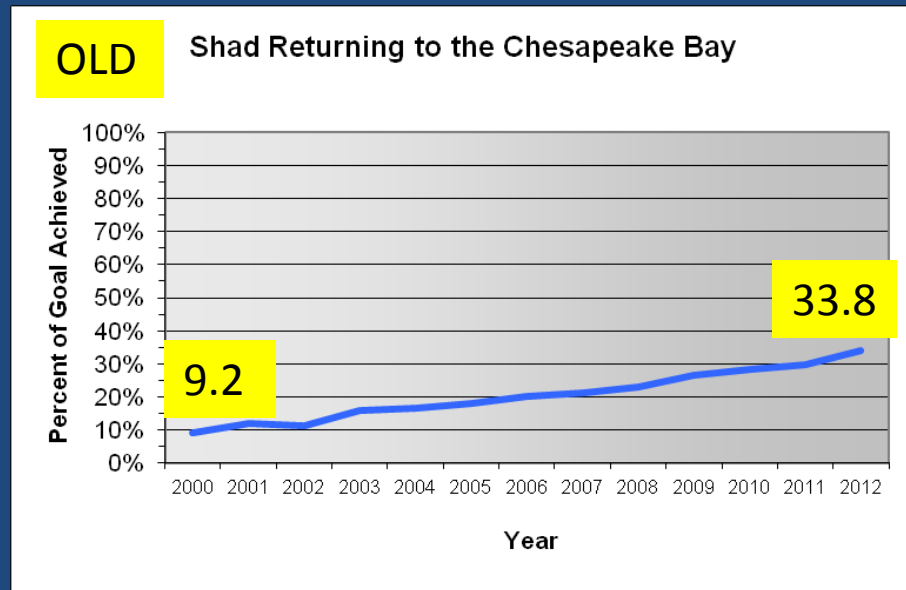
- CBP indicator; developed to track C2K commitment
- Fisheries GIT refocuses priorities
- Recommendation from GIT/STAR to eliminate
- MB requests revision (rather than elimination)
- GIT/STAR convene American Shad Indicator Action Team to revise indicator

- ICPRB
- PRFC
- VA DGIF
- VIMS
- VMRC
- MD DNR
- PA FBC
- ASMFC
- NOAA
- USFWS
- USGS
- EPA
- CRC
- UMCES



Revised American Shad Abundance Indicator

- Old indicator tracked abundance/targets in James, York, Potomac, Susquehanna.
- Revised indicator:
 - Adds Rappahannock data
 - Adds Lower James data
 - Revises York data
 - Revises weight of each river to calculate index
 - Static map on indicator webpage features status/trend charts for each component river
 - New dynamic map incorporates/features additional data



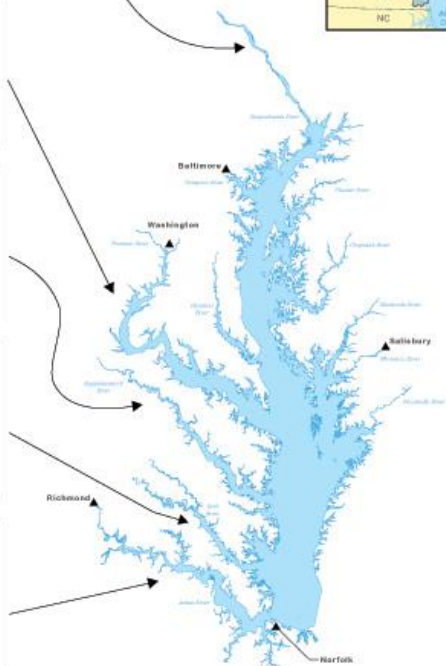
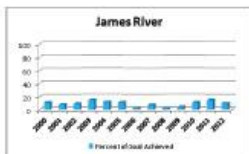
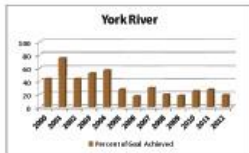
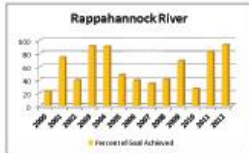
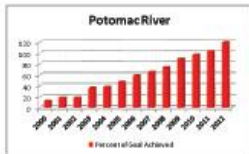
MB Approved Revised Indicator 10/2013

Shad Abundance (2012)

Ecosystem Health Assessment



Chesapeake Bay and Tributaries



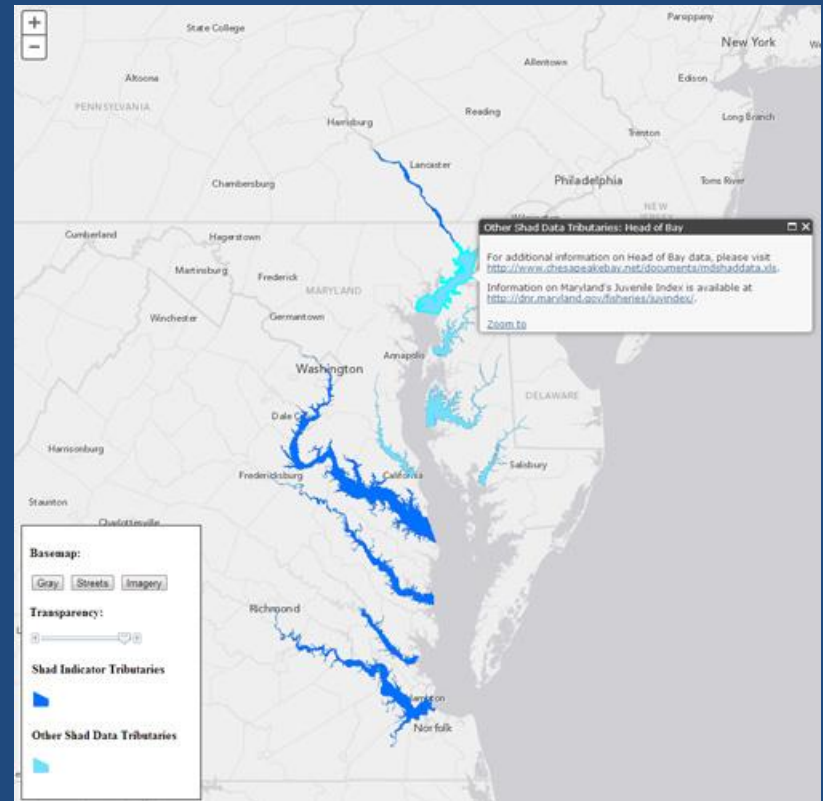
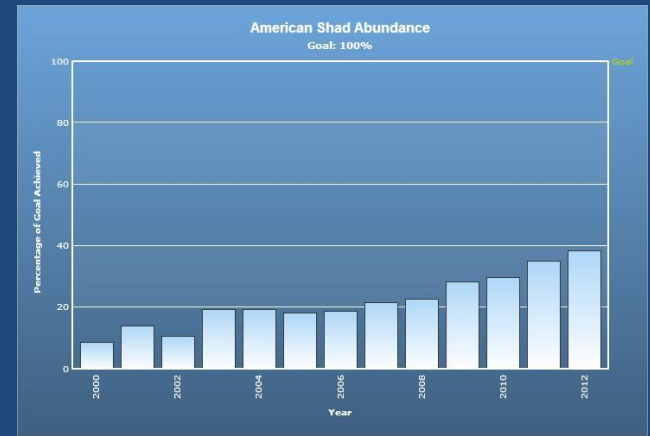
Data Sources: Chesapeake Bay Program
For more information, visit www.chesapeakebay.net
Disclaimer: www.chesapeakebay.net/pressroom/ATM

Note: Y axis not the same for all graphs.



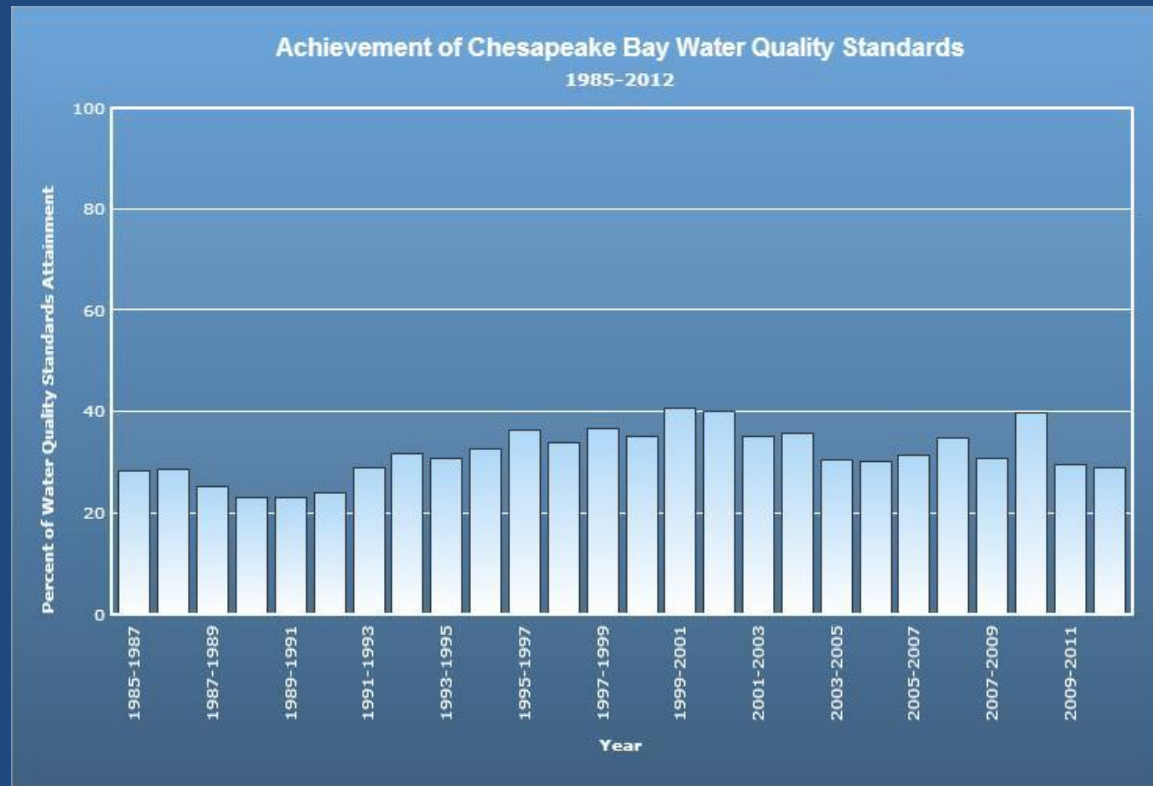
Created by HW, 09/16/13

UTM Zone 18N, NAD 83



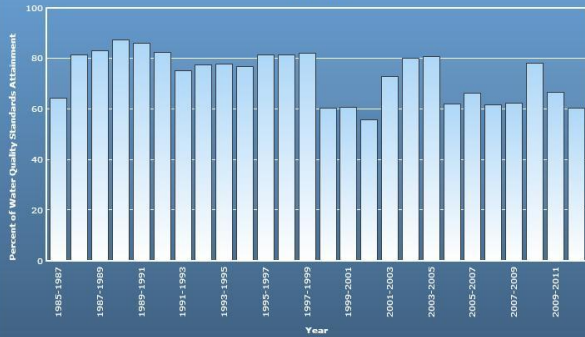
Bay WQS Achievement Indicator Background

- Overarching index
- Component indicators
 - dissolved oxygen
 - clarity/underwater bay grasses
 - chlorophyll *a*
- Developed to track EO outcome.
- MB approved for use by CBP (per request from WQGIT/STAR)
 - as long as does not include EO target of 60% by 2025
 - Completed and uploaded 9/2013
 - Presented to MB 10/2013

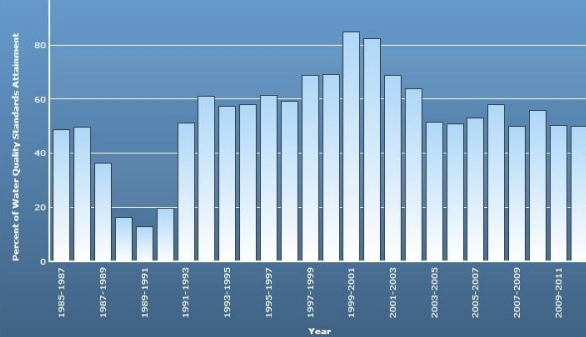


Bay WQS Achievement Component Indicator: Dissolved Oxygen

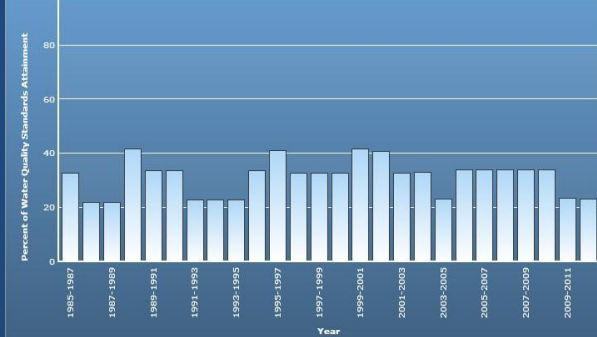
Water Quality Standards Achievement for Dissolved Oxygen: Migratory Spawning and Nursery Habitat
1985-2012



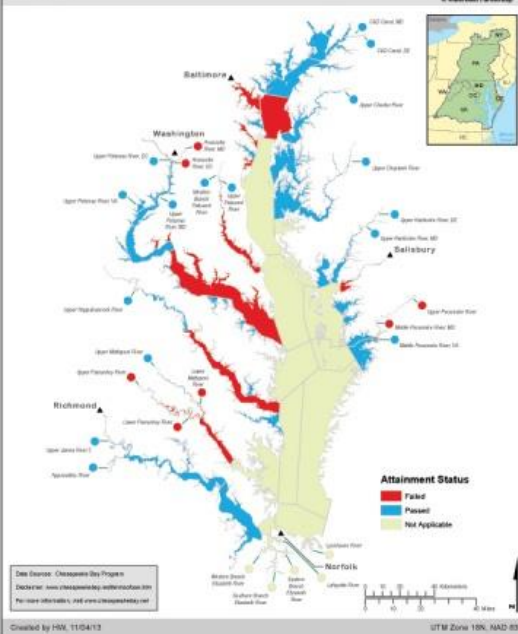
Water Quality Standards Achievement for Dissolved Oxygen: Open-Water Habitat
1985-2012



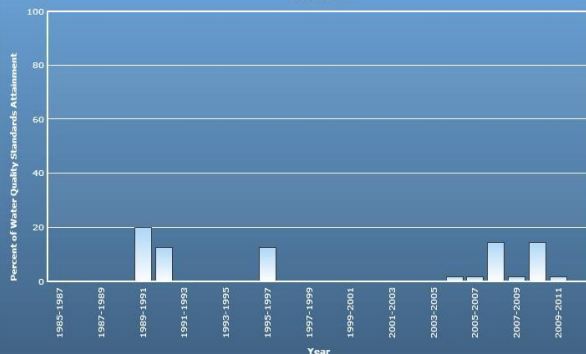
Water Quality Standards Achievement for Dissolved Oxygen: Deep-Water Habitat
1985-2012



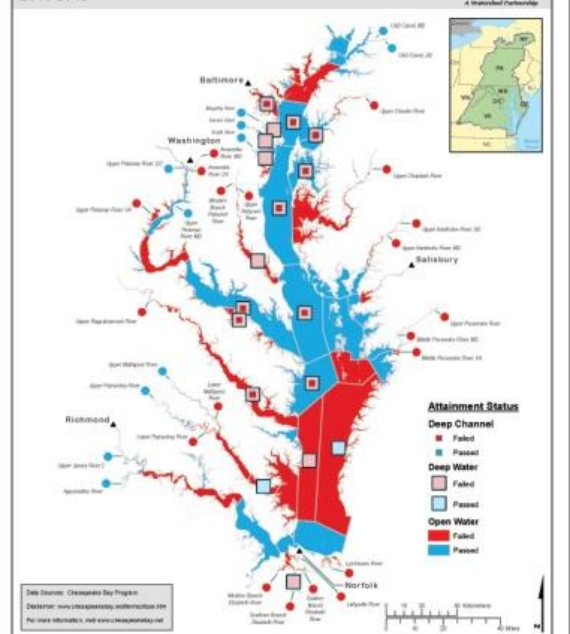
Chesapeake Bay Waters Meeting Water Quality Goals for the Migratory, Spawning and Nursery Habitat Use
2010-2012



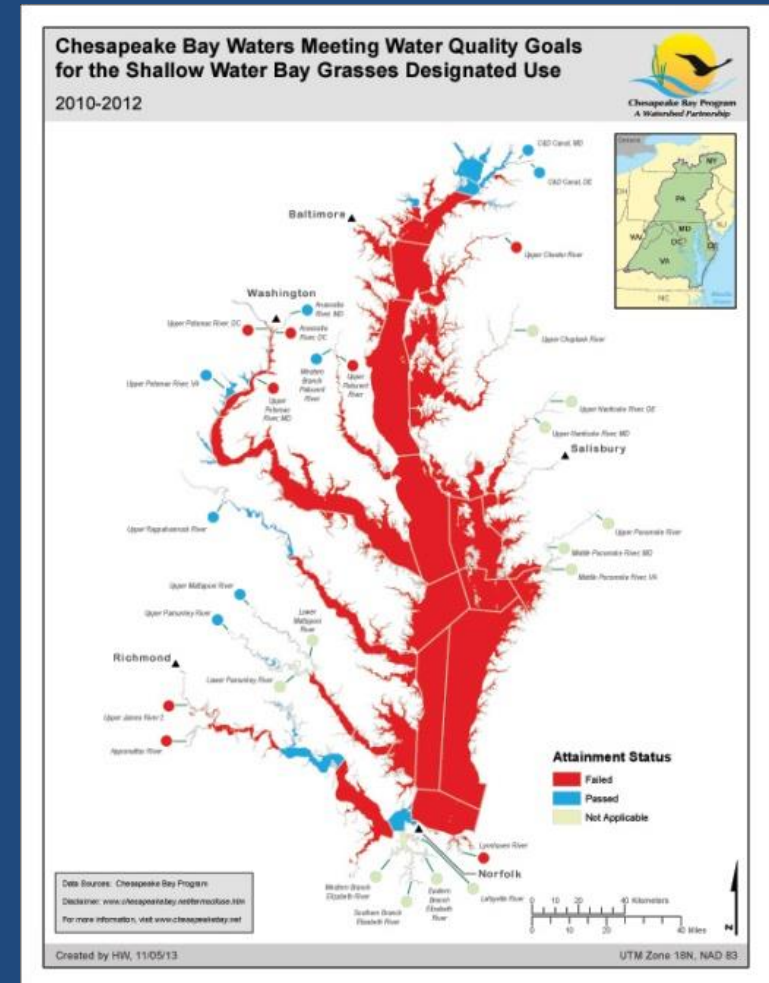
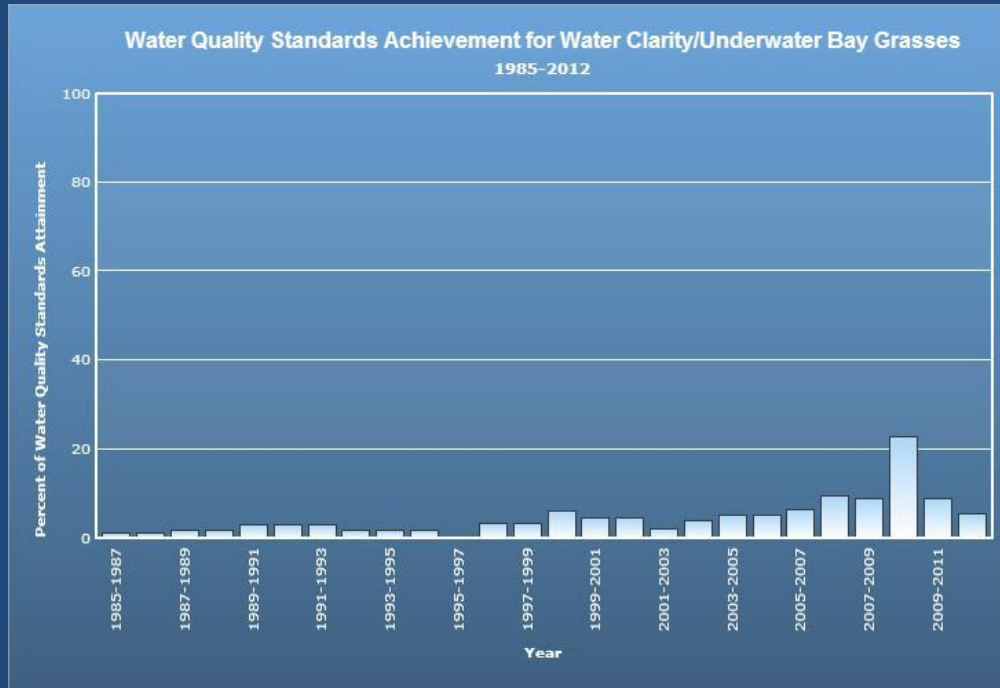
Water Quality Standards Achievement for Dissolved Oxygen: Deep-Channel Habitat
1985-2012



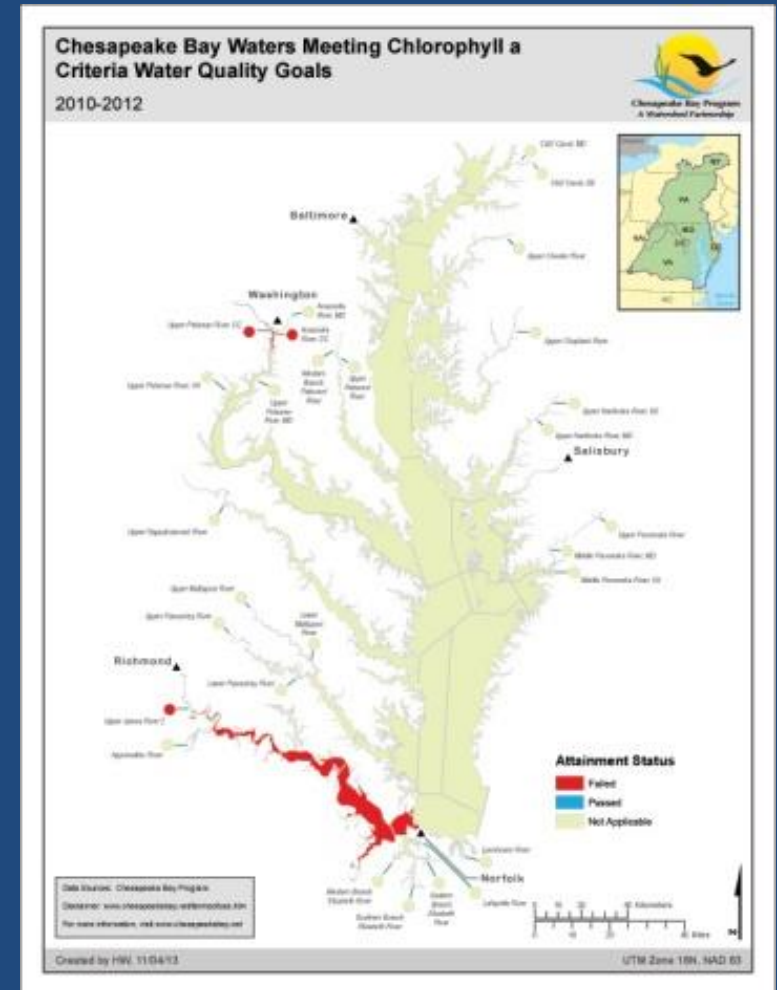
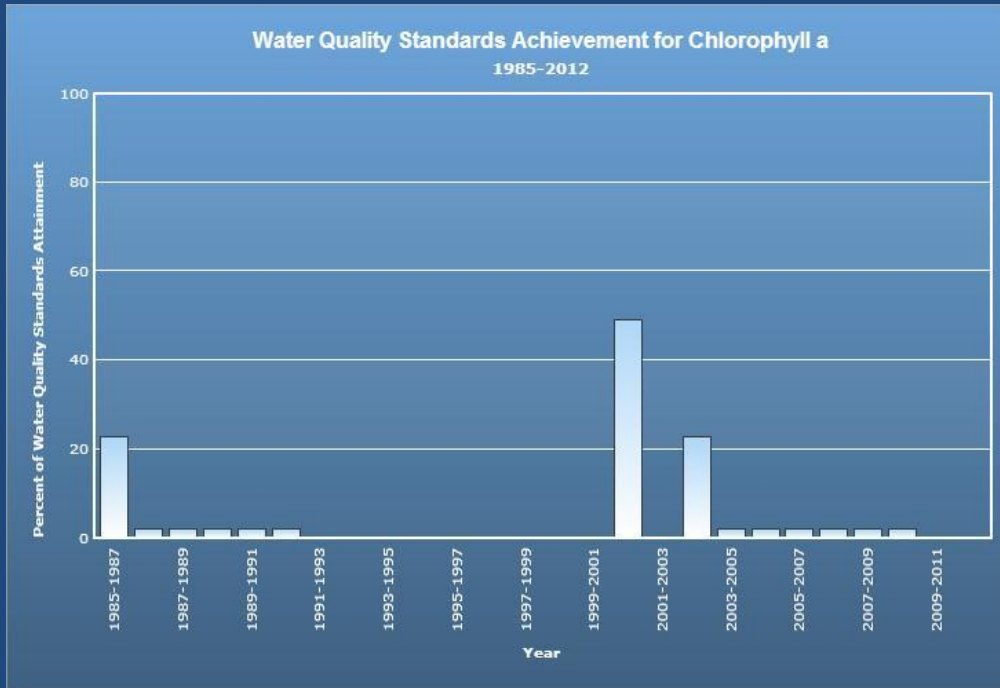
Chesapeake Bay Waters Meeting Water Quality Goals for the Open Water, Deep Water, and Deep Channel Uses
2010-2012



Bay WQS Achievement Component Indicator: Water Clarity/Underwater Bay Grasses



Bay WQS Achievement Component Indicator: Chlorophyll *a*



Next Steps for the WQS Achievement Indicator in 2014

- Request made to measure segment-by-segment incremental progress toward attainment of WQS.
- CBPO has since completed criteria assessments for DO, water clarity/SAV, and chlorophyll a from 1985-2011 and calculated percent attainment of WQS for each segment and DU.
- Plan to share above findings at the late-winter/early-spring STAC meeting regarding factors affecting trends
- Continue work with CBP Com Office and the ChesapeakeStat Team to determine how to communicate this information to:
 - CBP partners
 - internal oversight groups
 - external oversight groups

What Will Be Developed?

- New Indicators to track new Agreement outcomes, e.g:
 - oyster
 - brook trout
 - black duck
 - environmental literacy
 - etc.