

The Chesapeake Bay Program



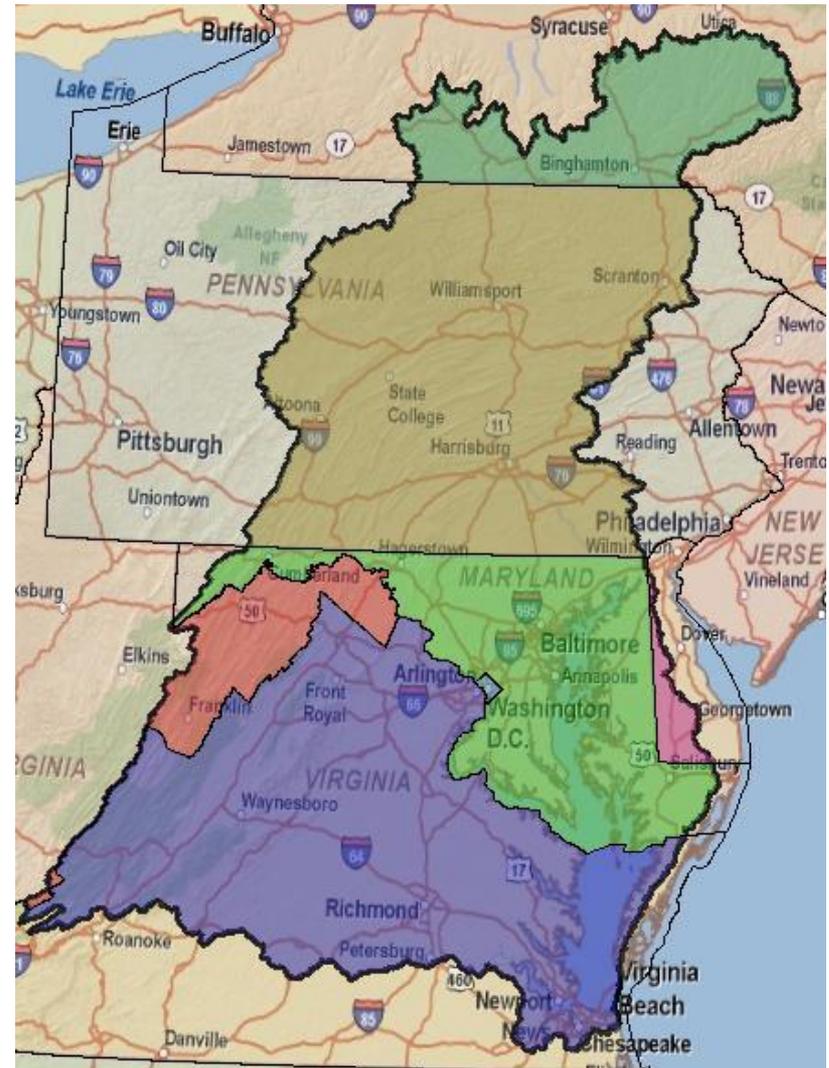
**Partnership to Protect
and Restore the
Chesapeake Bay
Watershed**



The Chesapeake Bay and Watershed

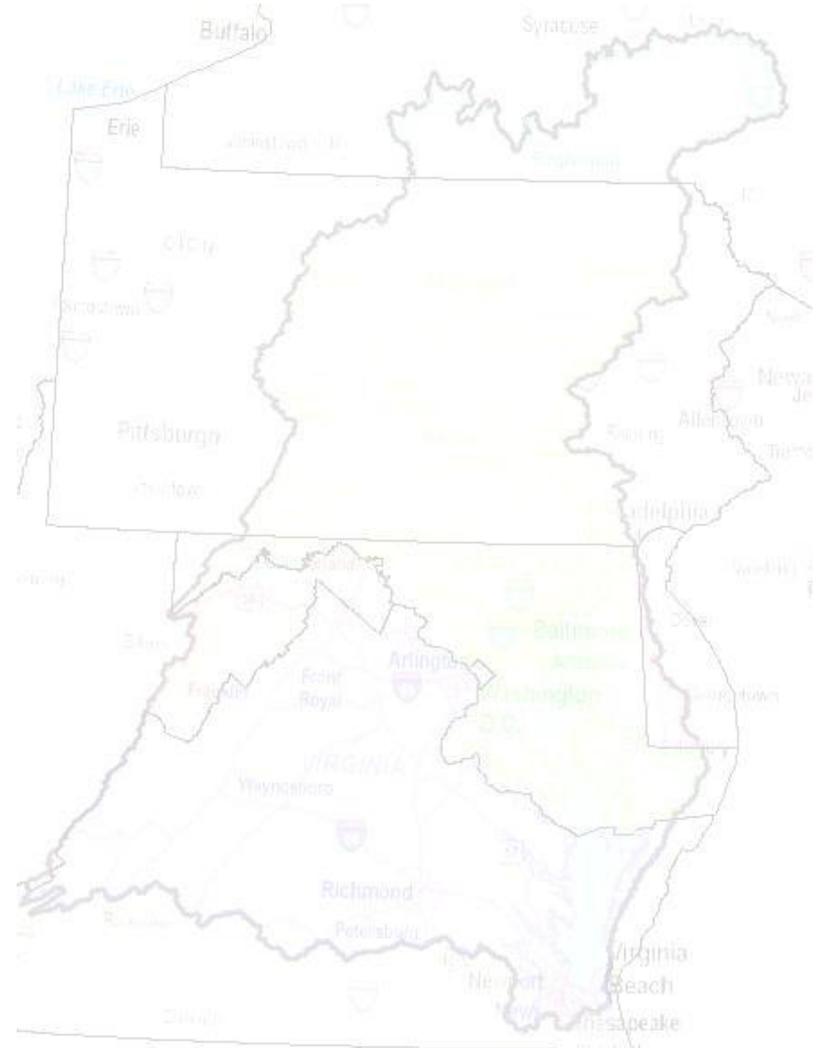
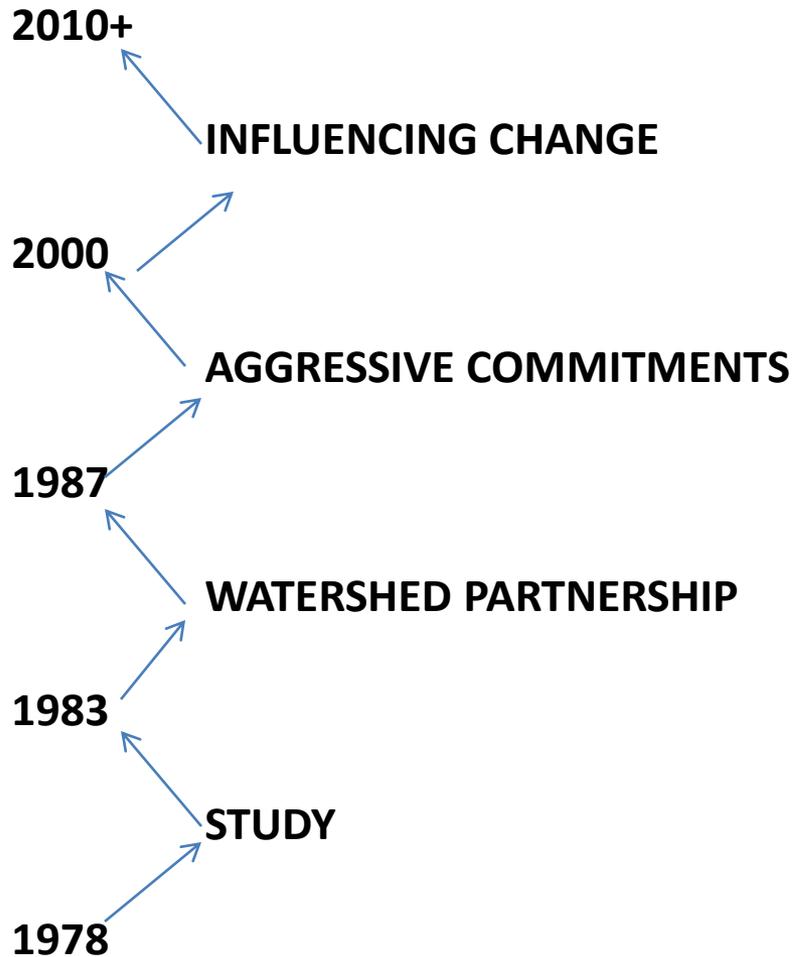
- Largest estuary in North America.
- Home to almost 17 million people; 150,000 new people each year.
- Six states and District of Columbia; about 1,800 local governments.
- Seafood, recreation and tourism industries.
- Two major North Atlantic ports, Baltimore and Hampton Roads.
- Economic value estimated at approximately \$1 trillion.

DNR PHOTO BY
ANGEL BOLINGER





The Chesapeake Bay Program Evolution





State of the Bay in 1970's

- Increased municipal wastewater from population growth without advanced treatment.
- Growing sedimentation from port dredging, infrastructure development and suburban sprawl.
- Increased toxic pollution from industrial development, urban stormwater, and agriculture runoff.
- Rising shellfish beds closings and fish consumption advisories due to excessive coliform counts and chemical contaminants.





Research and Study Phase: 1978- 1983

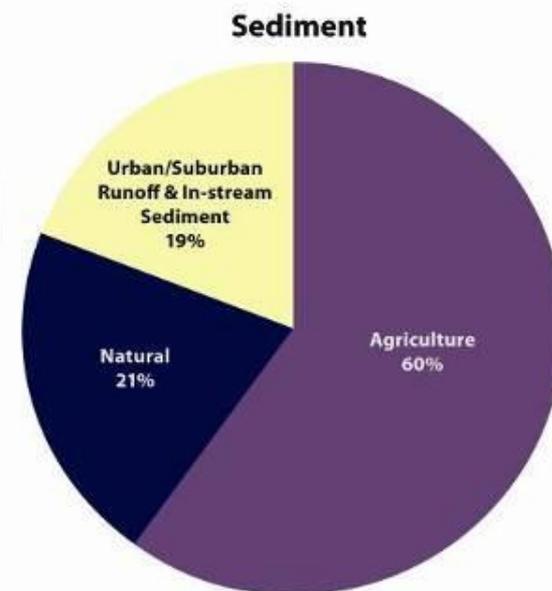
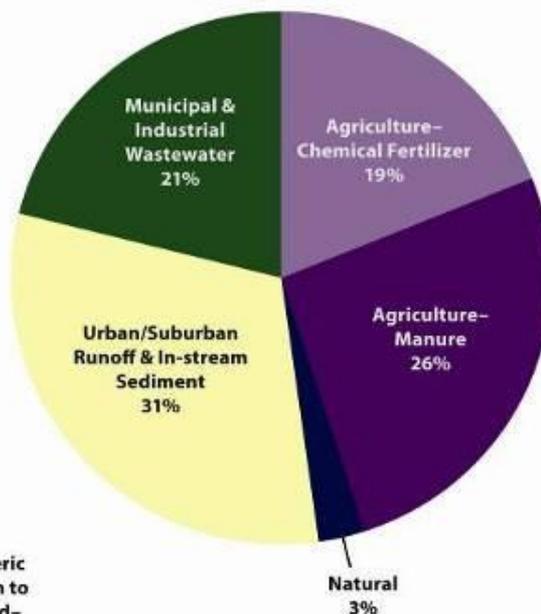
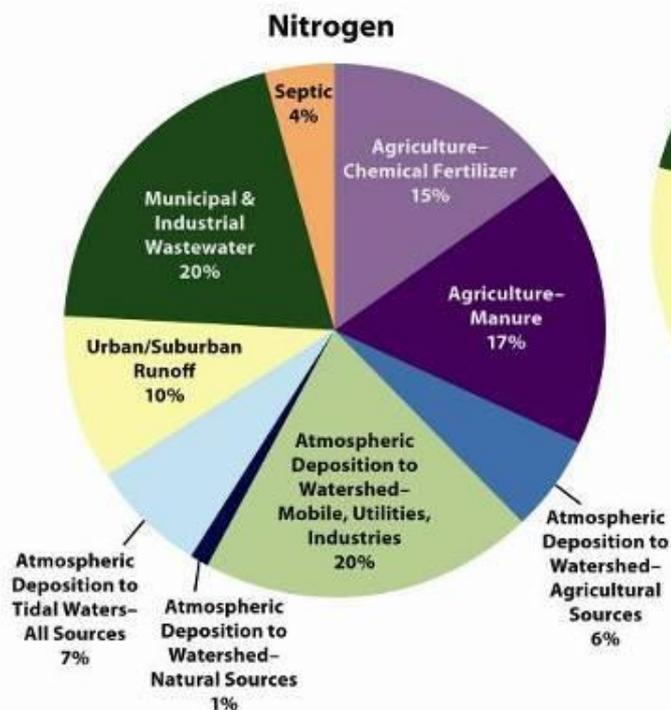
- Study identified 10 primary water quality problems in the Chesapeake Bay.
- 3 of these problems were determined to be critical, requiring more intensive study and attention.
 - Nutrient Enrichment
 - Toxic Substances
 - Decline of Submerged Aquatic Vegetation(SAV)



Sources of Bay Pollution

- Agriculture – animal manure, commercial fertilizer
- Air pollution – tailpipes, power plants
- Urban/suburban runoff– stormwater runoff, sediment erosion
- Wastewater – sewage treatment plants

Phosphorous



Note: Does not include loads from tidal shoreline erosion or the ocean. Urban/suburban runoff loads due to atmospheric deposition are included under atmospheric deposition loads. Wastewater loads based on measured discharges; other loads are based on an average hydrology year using the Chesapeake Bay Program Airshed Model and Watershed Model Phase 4.3 (CBPO, 2009).

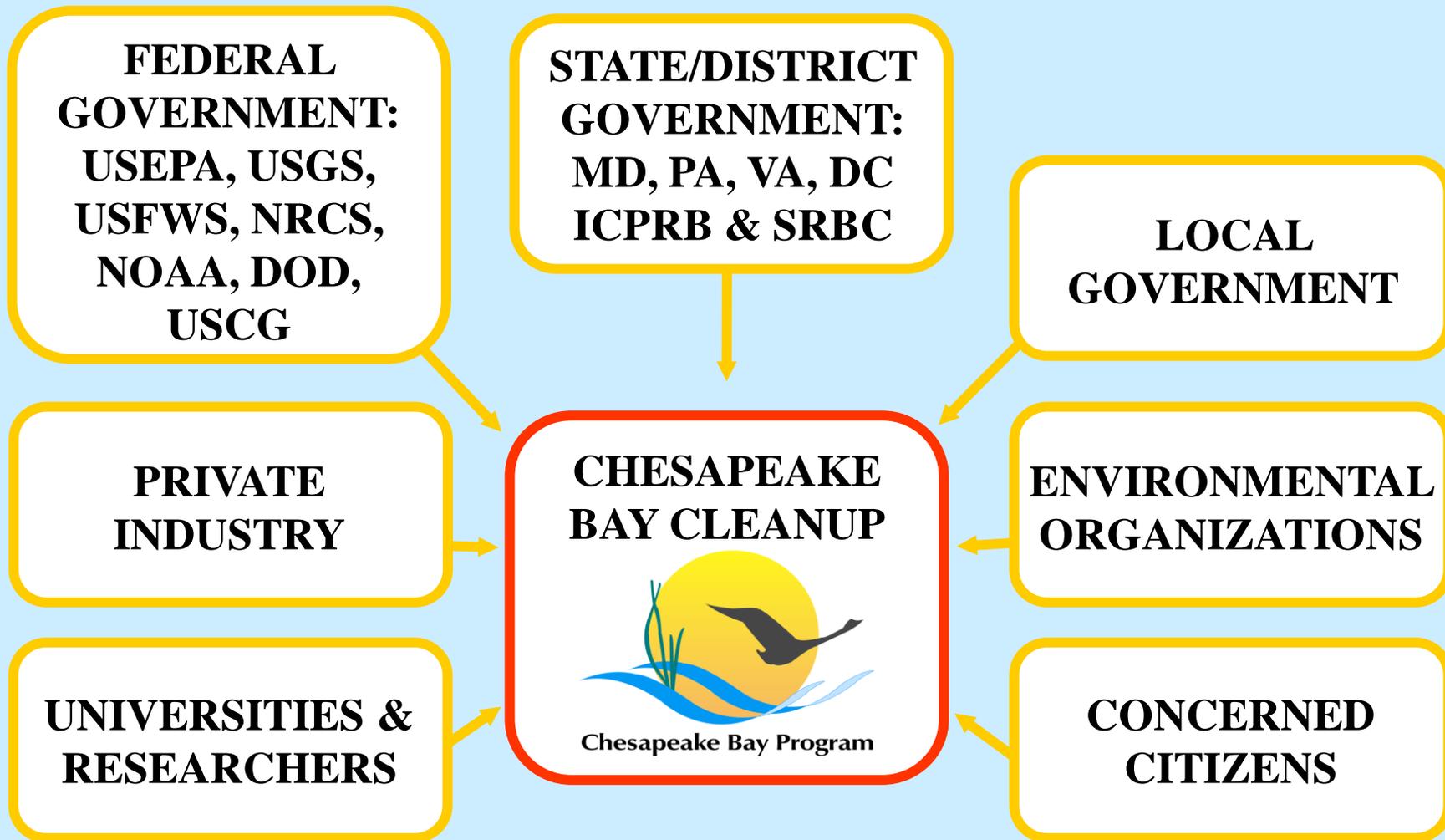


1983 Agreement

- The original [Chesapeake Bay Agreement](#) was a simple, one-page pledge signed in 1983 to establish the governance structure of the Chesapeake Bay Program.
- The signatories of the Chesapeake Bay Agreement of 1983 became the [Chesapeake Bay Executive Council](#):
- The Governors of Maryland, Pennsylvania and Virginia, and Mayor of the District of Columbia
- The Administrator of the U.S. Environmental Protection Agency (EPA).
- The Chair of the Chesapeake Bay Commission.



Chesapeake Bay Program Involves All Stakeholders



- The [1987 Chesapeake Bay Agreement](#) set the first numeric goal to reduce pollution and restore the Bay – reducing nitrogen and phosphorous by 40% by 2000.
- Agreeing to numeric goal with specific deadline was unprecedented in 1987, but the practice has become a hallmark of the Bay Program.
- In 1992, the agreement was amended to also reduce nutrients at the source: upstream in the tributaries of the Bay.

- In 2000, Bay Program partners signed [Chesapeake 2000](#), a comprehensive agreement that set a clear vision and strategy to guide restoration efforts through 2010.
- The agreement established 102 specific goals to reduce pollution, restore habitats, promote land use practices, and engage the public in Bay restoration.
- [Chesapeake 2000](#) marked the first time that the Bay's "headwater states" – Delaware, New York and West Virginia – officially joined the Bay Program's restoration efforts.



Reducing Nutrients in Wastewater

- In 2005, the Bay partners established a new permitting process that set limits for nitrogen and phosphorus that wastewater treatment plants could discharge into the Bay.
- To meet these limits, wastewater facilities installed biological nutrient removal (BNR) technology, which uses micro-organisms to remove nutrients during treatment.
- The Bay partners also passed legislation which banned laundry detergents containing phosphates, which reduced the amount of phosphorous in the wastewater by 25-30%.





Addressing Social Inclusion Issues

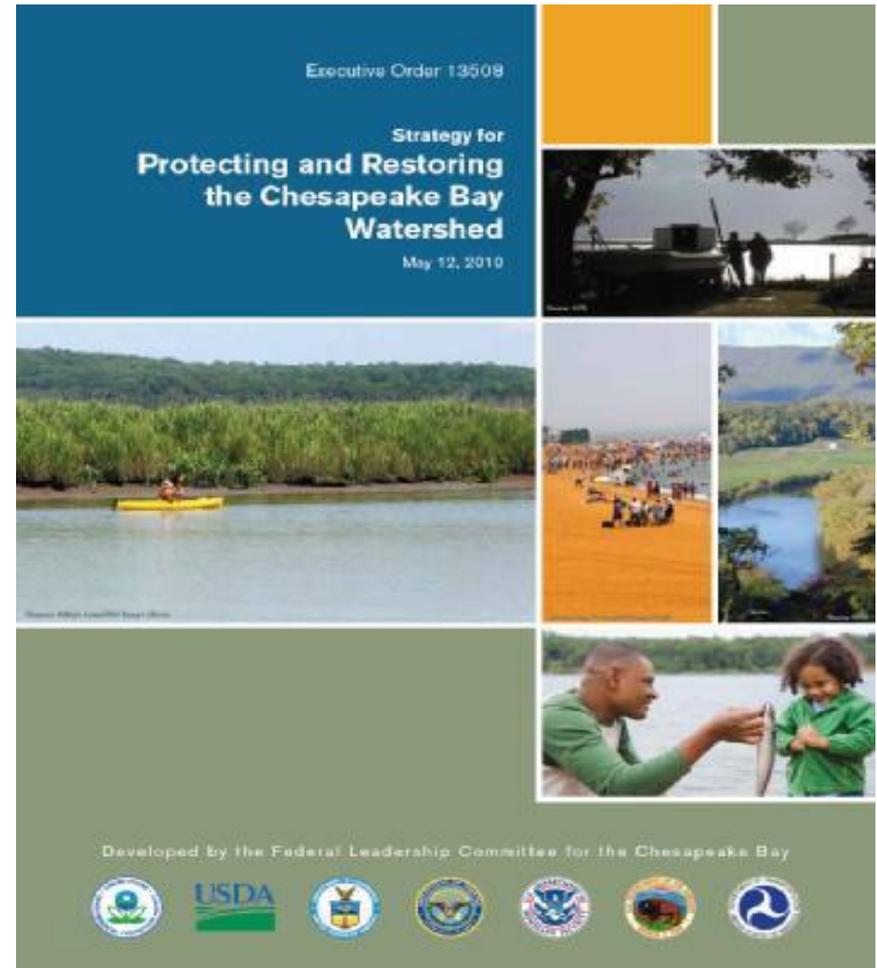
- In 2003 and 2004, the Bay partners convened focus groups around the region to identify water quality concerns for underserved and disadvantaged communities.
- Social concerns identified included health implications of fish consumed by urban communities, incentives to encourage urban revitalization projects, landfill permitting and monitoring, and better public education and notification.
- Maryland established a Commission on Environmental Justice and Sustainable Communities to address social inclusion issues.





Recent Bay Program “Drivers”

- In 2009, President Obama signed a Executive Order recognizing Chesapeake Bay as a national treasure and calling for new Chesapeake Bay strategy
- In 2010, EPA established landmark [Chesapeake Bay Total Maximum Daily Load \(TMDL\)](#) that set limits on the amount of nutrients entering the Bay.
- Required the seven Bay jurisdictions to create [Watershed Implementation Plan \(WIP\)](#) that establish specific steps and milestones every two years that the jurisdiction will take to meet pollution reductions by 2025.





EO Strategy Goals and Outcomes

RESTORE CLEAN WATER GOAL:

Reduce nitrogen, phosphorus, sediment and other pollutants to meet Bay water quality goals for dissolved oxygen, clarity and chlorophyll-a and toxic contaminants.

WATER QUALITY OUTCOME: Meet water quality standards for dissolved oxygen, clarity/underwater grasses and chlorophyll-a in the Bay and tidal tributaries by implementing 100 percent of pollution reduction actions for nitrogen, phosphorus and sediment no later than 2025, with 60 percent of segments attaining standards by 2025.

STREAM RESTORATION OUTCOME: Improve the health of streams so that 70 percent of sampled streams throughout the Chesapeake watershed rate three, four, or five (corresponding to fair, good or excellent) as measured by the Index of Biotic Integrity, by 2025.

AGRICULTURAL CONSERVATION OUTCOME: Work with producers to apply new conservation practices on 4 million acres of agricultural working lands in high-priority watersheds by 2025 to improve water quality in the Chesapeake Bay and its tributaries.

RECOVER HABITAT GOAL:

Restore a network of land and water habitats to support priority species and to afford other public benefits, including water quality, recreational uses and scenic value across the watershed.

WETLAND RESTORATION OUTCOME: Restore 30,000 acres of tidal and non-tidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025.

FOREST BUFFER OUTCOME: Restore riparian forest buffers to 63 percent, or 181,440 miles, of the total riparian miles (stream bank and shoreline miles) in the Bay watershed by 2025.

FISH PASSAGE OUTCOME: Restore historical fish migratory routes by opening 1,000 additional stream miles by 2025, with restoration success indicated by the presence of river herring, American shad and/or American eel.

SUSTAIN FISH & WILDLIFE GOAL:

Sustain healthy populations of fish and wildlife, which contribute to a resilient ecosystem and vibrant economy.

OYSTER OUTCOME: Restore native oyster habitat and populations in 20 tributaries out of 35 to 40 candidate tributaries by 2025.

BLUE CRAB OUTCOME: Maintain sustainable blue crab interim population target of 200 million adults (1+ years old) in 2011 and develop a new population rebuilding target for 2012-2025.

BROOK TROUT OUTCOME: Restore naturally reproducing brook trout populations in headwater streams by improving 58 sub-watersheds from 'reduced' classification (10-50 percent of habitat lost) to 'healthy' (less than 10 percent of habitat lost) by 2025.

BLACK DUCK OUTCOME: Restore a three-year average wintering black duck population in the Chesapeake Bay watershed of 100,000 birds by 2025.

CONSERVE LAND AND INCREASE PUBLIC ACCESS

Conserve landscapes to maintain water quality, habitat, sustainable working forests, farms and maritime communities; and cultural, community and indigenous values. It will also expand public access to the Bay and its tributaries through existing and new federal, state, and local parks, refuges, reserves, trails and partner sites.

LAND CONSERVATION OUTCOME: Protect an additional 2 million acres of lands throughout the watershed currently identified as high conservation priorities at the federal, state or local level by 2025, including 695,000 acres of forest land of highest value for maintaining water quality.

PUBLIC ACCESS OUTCOME: Increase public access to the Bay and its tributaries by adding 300 new public access sites by 2025.



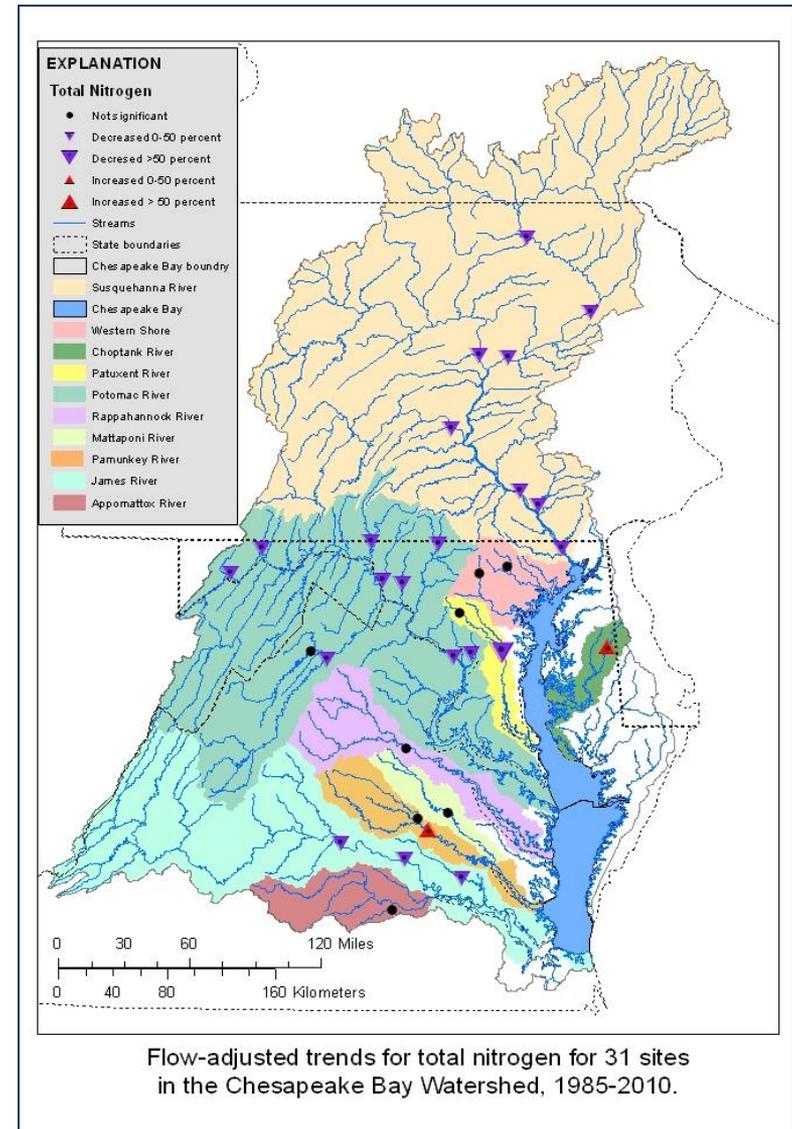
Measuring Progress in Maryland

- To ensure accountability and transparency for these milestones, the Bay Program established performance measures.
- Maryland developed BayStat, an interactive website on current health, problem sources, and solutions to restore the Bay.
- Governor of Maryland meets regularly with the Secretaries of Natural Resources, Environment, Planning, Agriculture, University of Maryland to review BayStat progress.
- Report annually to the public on health of Bay, effectiveness of state solutions, and estimated nutrient reductions into the Bay.



Chesapeake Bay Trends and Conclusions

- Johns Hopkins-UMCES study: 60 years of water quality data conclude decrease in frequency and severity of dead zones in the Bay is direct result of implementing measures to reduce nitrogen and phosphorus pollution
- Long-term (1985-2010): water quality improving in many areas as a result of pollution controls (e.g. controls at wastewater treatment plants, suburban lands and farms)
- Short term (2001-11): more sites show 'no trend' which reinforces need for additional pollution reduction measures





Key Elements to a Successful Bay Program

- Top Level Political Involvement.
- Aggressive Science-Based Goal Setting.
- Measurable Commitments and Deadlines.
- Strong Citizen and Local Government Participation.





QUESTIONS?

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