

# A Local Government Guide to the Chesapeake Bay

## Module 2: Foundations of Clean Water





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**\*Please refer to individual slide notes for data references and information sources.**





# Tailored to Local Governments

As a local leader, your decisions set the course for your community. Your actions determine the health and vitality of your jurisdiction, as well as that of your local waterways and the Chesapeake Bay. You can achieve win-win outcomes by prioritizing local economic development, infrastructure resiliency, public health, and education while also protecting your environment.

This module is one in a series created by the Chesapeake Bay Program to support decision making by local officials. We encourage you to examine the full suite of modules:

1. How Your Watershed Works
- 2. Foundations of Clean Water**
3. Clean Water for the Economy
4. Capitalizing on the Benefits of Trees
5. Preserving Local Character and Landscapes
6. Protecting Your Infrastructure Through Stormwater Resiliency
7. Building the Workforce of Today *and* Tomorrow

To help local government representatives better understand how the information in the modules aligns with their priorities, look for these icons:



Economic Development



Public Health & Safety



Infrastructure Maintenance  
& Finance



Education



# Laying Foundations

Your community, like all others, values clean water. From the water you and your neighbors drink to the streams that run through your town, protecting water quality requires a holistic approach across jurisdictions.

This module provides a brief overview of **the laws and agreements relevant to the health of the Chesapeake Bay**. These protections are the foundations of healthy local waterways across the region, which in turn **support local economies, ensure clean water, inform infrastructure planning, and enhance education in your community**.

NOTE: This provides an overview of authorities and regulation, and should not be used as legal guidance



## What You'll Learn



**What is the Chesapeake Bay Program and how did it begin?**



**What governs watershed protection and restoration efforts?**



**How does clean water benefit my community?**



**What is my community's role in watershed protection efforts?**



## Local Connections

Your community, state, and country benefit when local government leadership is knowledgeable about water resources.





## Local Impacts



The tourism industry loses about  
**\$1 billion each year**  
because of nutrient pollution  
and harmful algal blooms.



**46+**

species of a toxic **algae** called cyanobacteria are known to be **lethal to animals**, including people, fish, dogs, and livestock. They grow in fresh and salt water polluted by nutrients.



Many people rely on **groundwater** wells for their drinking water. **Groundwater** that has elevated nitrate concentrations, from chemical fertilizer use and other means, is especially dangerous for pregnant women and infants.

State	% state area with nitrate contamination in groundwater
DE	53%
MD	28%
PA	7%
NY	3%
VA	2%
WV	2%



# Local Connections

Local leaders who know about their local water resources can implement economic and policy incentives that support local conservation actions.

In a survey of 826 Virginia voters, the top three most concerning environmental issues were contamination of tap water, drinking water supplies, and local rivers, streams, and lakes.



## Case study: Greensboro, MD



"For every dollar spent, **there was a real value for the community** in creating a beautiful and welcoming public space." – Leslie Grunden, Assistant Director of Planning, Caroline County Department of Planning and Codes

Greensboro's Choptank River Park was a community gathering place that became derelict due to flooding. After constructing a wetland with native plants, the park now hosts soccer games, picnics, community concerts, and an annual kids' fishing derby.

The community gained a place to gather, relax, and exercise. Local stormwater **runoff** is now filtered by the new wetlands, protecting water quality in the adjacent Choptank River.



# Historical Context

Many existing environmental policies are the result of bipartisan actions taken decades ago—and are still broadly supported today.



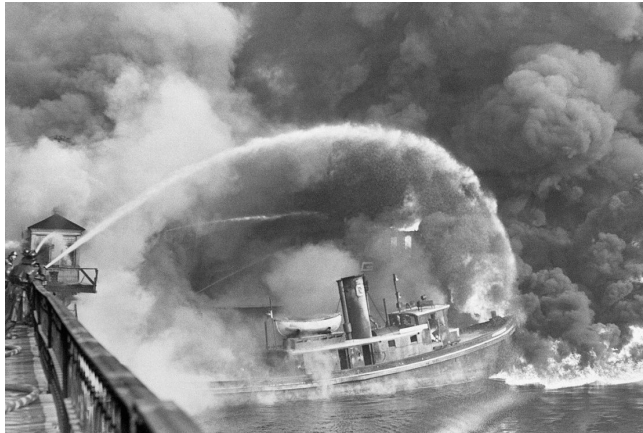


# The US Takes Action

**1960s:** Visible tragedies began conversations on the need to protect the environment for the sake of people and communities.



Rachel Carson, author of *Silent Spring*. In 1962, her book revealed the dangers of pesticides like DDT to wildlife, pets, and humans.



The Cuyahoga River in Ohio was so polluted with industrial waste that it spontaneously caught on fire in 1969.

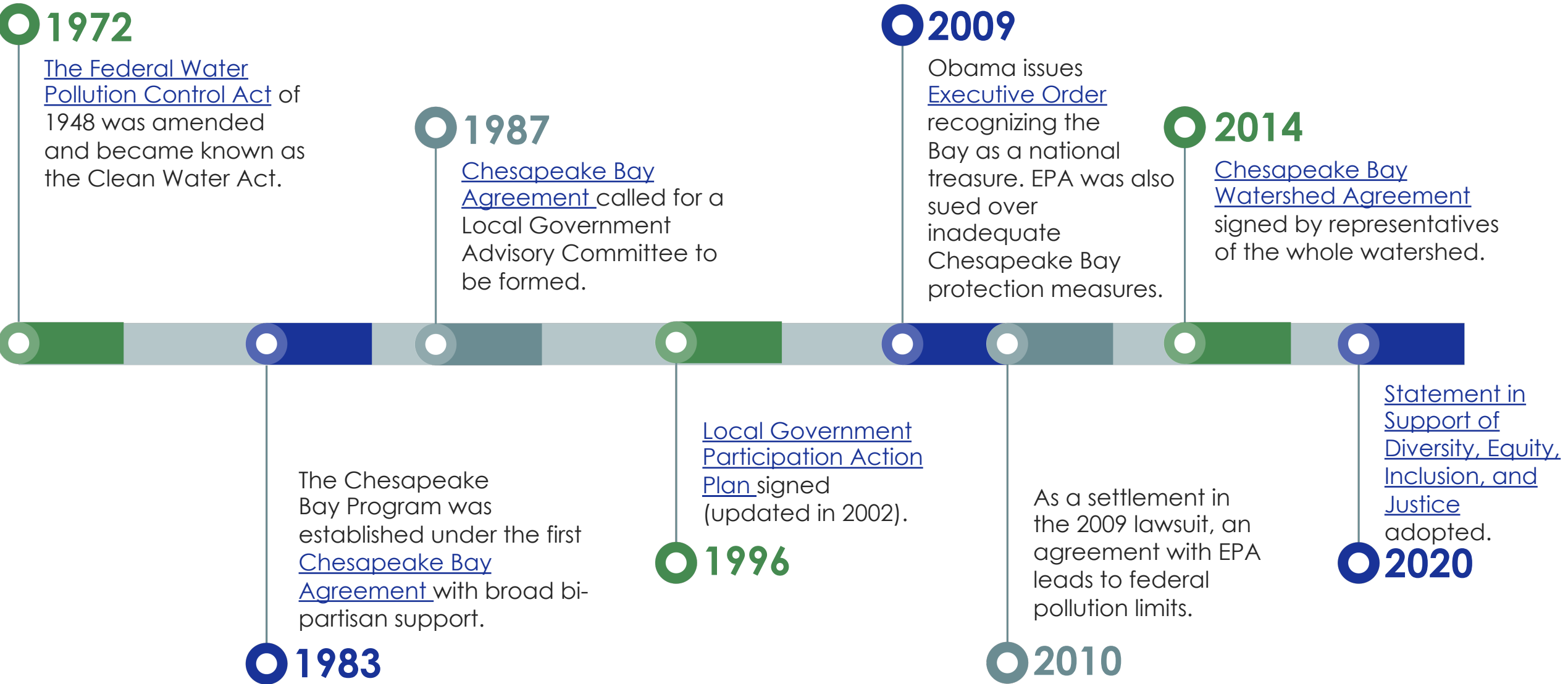
**1970:** Nixon established the Environmental Protection Agency (EPA) and signed the National Environmental Policy Act.



The US EPA was established under President Richard Nixon.

The EPA protects human health; they protect the air we breathe, water we drink, and land on which we work, play, eat, and live. They conduct federal research, monitoring, and enforcement activities.

# History of Chesapeake Bay Protections



Foundations of Clean Water

Historical Context



# Clean Water Act: 1972

## Purpose:

- Prevent pollution
- Assist publicly-owned wastewater treatment facilities
- Maintain the integrity of wetlands
- Secure “fishable, swimmable, drinkable” water for all



## Total Maximum Daily Loads (TMDLs)

TMDLs are federal “pollution diets” that set limits on the amount of particular pollutants that can enter a waterbody. They are the means of meeting water quality standards.



# Birth of the Chesapeake Bay Program: 1983

The original Chesapeake Bay Agreement of was a simple, one-page pledge. Read it [here](#).

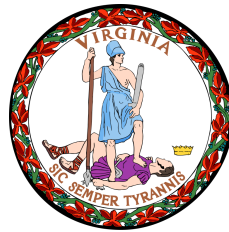
The signatories of the Chesapeake Bay Agreement of 1983 became the Chesapeake Executive Council:



Pennsylvania  
governor  
**Richard Thornburgh**



Maryland  
governor  
**Harry Hughes**



Virginia  
governor  
**Charles S. Robb**



D.C.  
mayor  
**Marion Barry**



EPA  
admin  
**William Ruckelshaus**

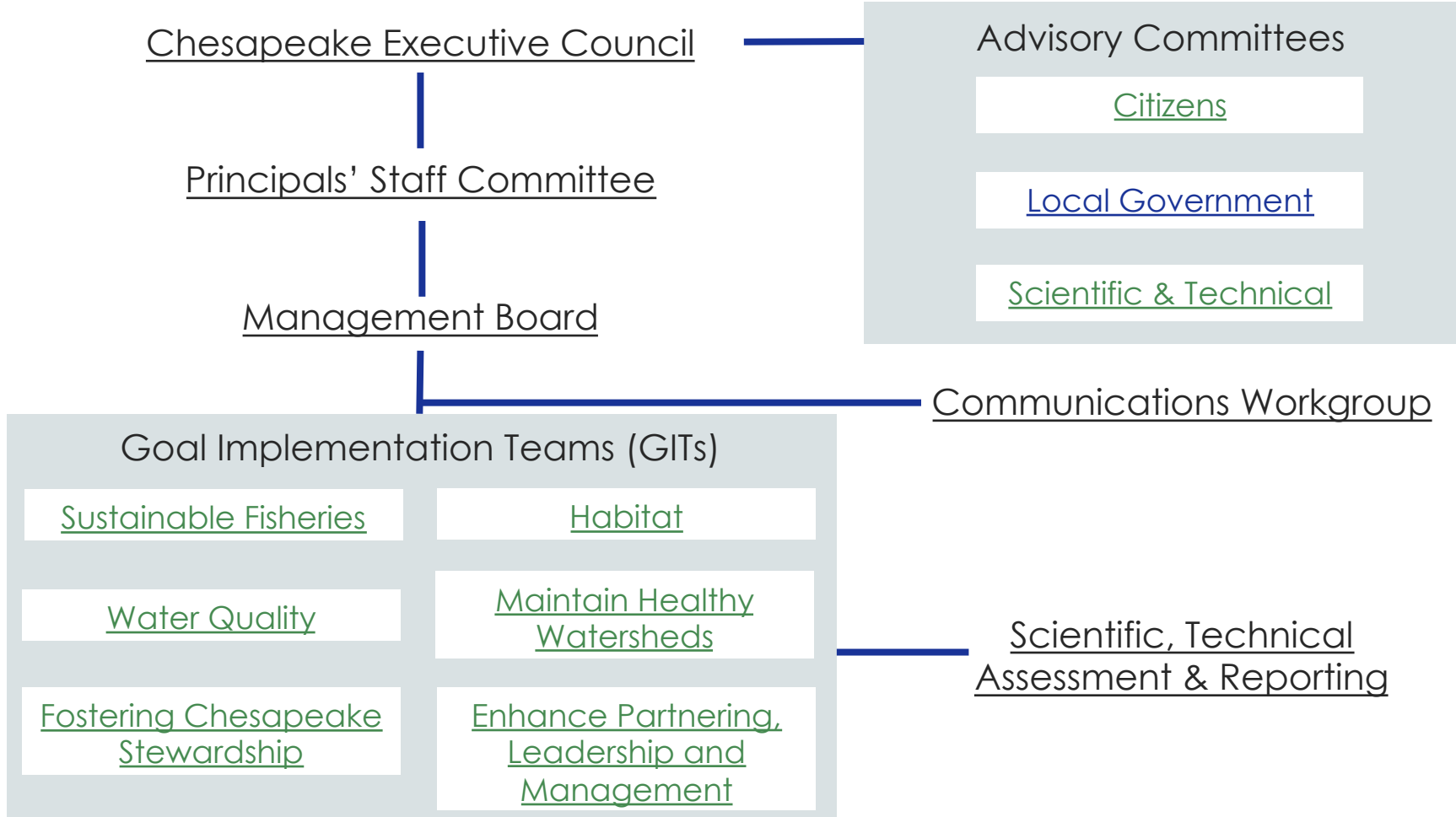


Chesapeake  
Bay Commission  
chair  
**Joseph V. Gartlan**



# Chesapeake Bay Program (CBP)

Since 1983, the Chesapeake Bay Program has led and directed the restoration of the Chesapeake Bay. Bay Program partners include federal and state agencies, local governments, non-profit organizations and academic institutions.



# 1987 Chesapeake Bay Agreement



“The improvement and maintenance of water quality are the single most critical elements in the overall restoration and protection of the Chesapeake Bay.”

– page 3 of the 1987 Chesapeake Bay Agreement

Goal: **40%** reduction in nitrogen and phosphorous entering the Bay's tidal waters by 2000

This agreement established the first set of numeric pollution reduction goals for the Bay watershed *and* included priorities like protecting our living resources. Read the document [here](#).

The Local Government Advisory Committee (LGAC) was formed to share the insights of local officials with state & federal decision-makers and enhance information flow among local governments about the health of the watershed.

In 1992, the Chesapeake Bay Program partners agreed to include a focus on nutrients coming down from the Bay's rivers.



# Local Government Participation Action Plan: 1996

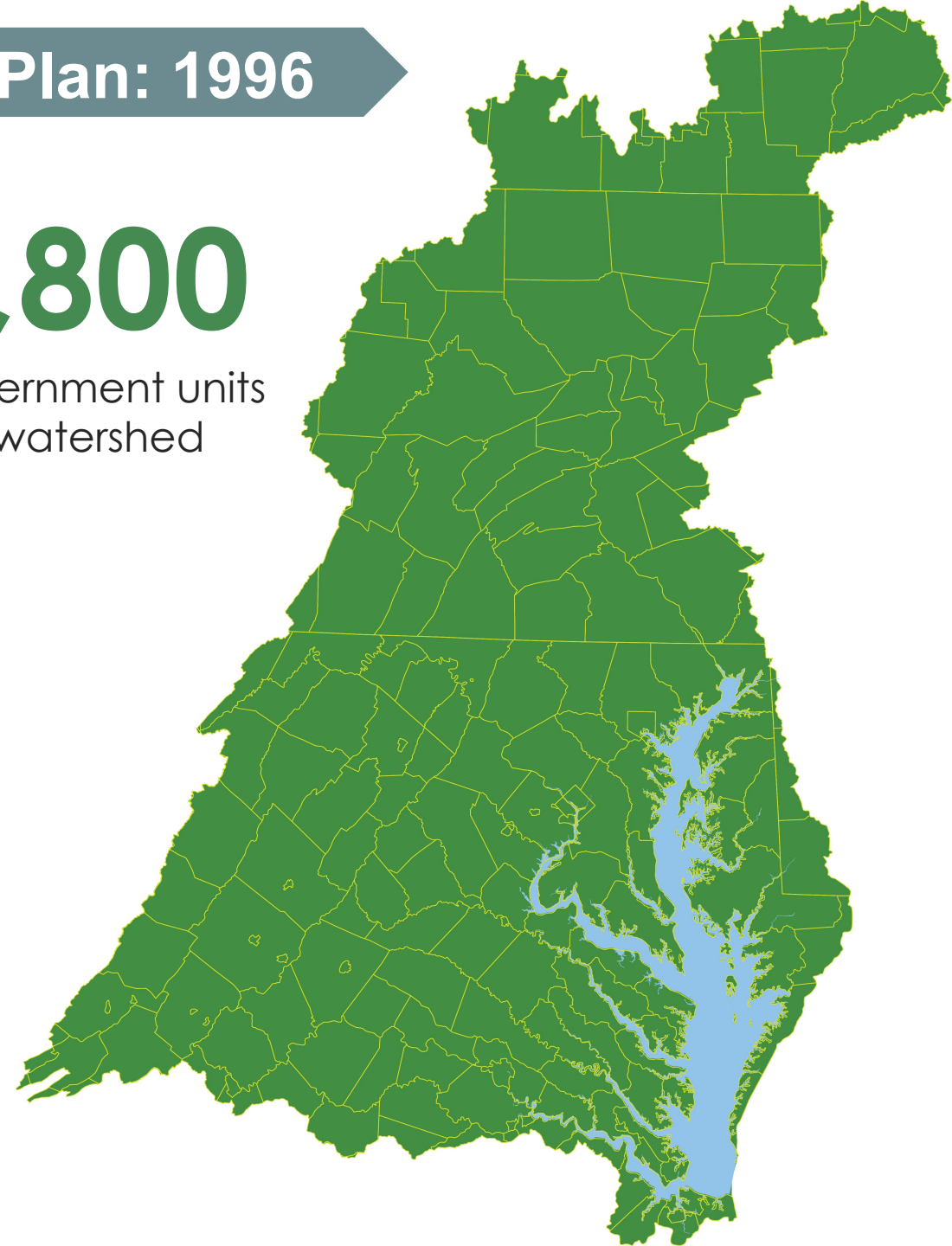
This document recognized the critical role that **you** play in protecting and restoring local waterways and the Bay.

Among other objectives, it aimed to:

- Create infrastructure that would allow local government to have meaningful input in decision-making,
- Provide financial and technical assistance, since the Chesapeake Executive Council acknowledged that much of the burden falls on local government, and
- Create opportunities to recognize local achievements.

~1,800

local government units  
in the watershed



# Federal Pollution Limits: 2010

Each Agreement was entered into voluntarily, but the Bay states and D.C. were not meeting their numeric goals.

In 2010, the pollution limits became legally enforceable through the [Total Maximum Daily Loads \(TMDLs\)](#) for waters identified on the list of impaired waters.

The TMDL numbers for the Chesapeake Bay were calculated based on modeling tools, [monitoring](#) data, peer-reviewed science, and input from jurisdiction to ensure necessary pollution control measures for the Bay and its tidal rivers.

[Why are the Chesapeake Bay TMDLs for nitrogen, phosphorous, and sediment?](#)

In 1975, the Senate asked the EPA to find the cause of the declining health of the Chesapeake Bay and its living resources. A five-year study ensued, pointing to nutrient enrichment as the main cause for the degradation, with nitrogen and phosphorous being two major culprits. Sediment was also found to be clouding the Bay's waters and causing declines in underwater grasses, which provide shelter & food for animals as well as stabilizing against shoreline erosion.





# Chesapeake Bay Watershed Agreement: 2014

This Agreement included outcomes organized under these ten goal areas:



Sustainable  
Fisheries



Toxic  
Contaminants



Land  
Conservation



Vital  
Habitats



Healthy  
Watersheds



Public  
Access



Environmental  
Literacy



Water  
Quality



Stewardship



Climate  
Resiliency

Each goal included between one and five outcomes. While the goals focus on the big picture, the outcomes are specific, measurable targets that contribute to achieving each goal. Read the document [here](#).

# Chesapeake Bay Watershed Agreement: 2014



Three of the goals and outcomes are particularly relevant to local government priorities.



## Local Leadership

The **stewardship** goal included a local leadership outcome; the partners prioritized providing information to and increasing the capacity of local officials on issues related to water resources and local conservation.



## Education

The **environmental literacy** goal included outcomes for individual students as well as school-wide and jurisdictional outcomes, like more sustainable schools and a systemic approach to environmental literacy for all students.



## Climate Connection

This is the first Agreement to include **climate resiliency** as a priority, asking the Bay states to carefully monitor and assess impacts and apply this knowledge to policies, programs and projects.



# Statement in Support of Diversity, Equity, Inclusion, and Justice: 2020



Photo from the 2019 Chesapeake Executive Council Meeting (the 2020 meeting was held virtually)

This document commits the Chesapeake Bay Program to strengthen and improve diversity, equity, inclusion and justice in all areas of the partnership, including:

CHESAPEAKE EXECUTIVE COUNCIL

FOR THE CHESAPEAKE BAY COMMISSION

FOR THE STATE OF DELAWARE

FOR THE DISTRICT OF COLUMBIA

FOR THE STATE OF MARYLAND

FOR THE COMMONWEALTH OF PENNSYLVANIA

FOR THE STATE OF NEW YORK

FOR THE COMMONWEALTH OF VIRGINIA

FOR THE STATE OF WEST VIRGINIA

FOR THE UNITED STATES OF AMERICA  
on behalf of the Federal Government and the  
Federal Leadership Committee for the Chesapeake Bay

- Recruit and retain staff and volunteers that reflect the diversity of the Chesapeake Bay watershed,
- Foster a culture of inclusion and respect across all partner organizations, and
- Ensure the benefits of our science restoration and partnership programs are distributed equitably without disproportionate impacts on vulnerable populations.

## Present Day

Now that we have reviewed the history, let's discuss current protection measures.



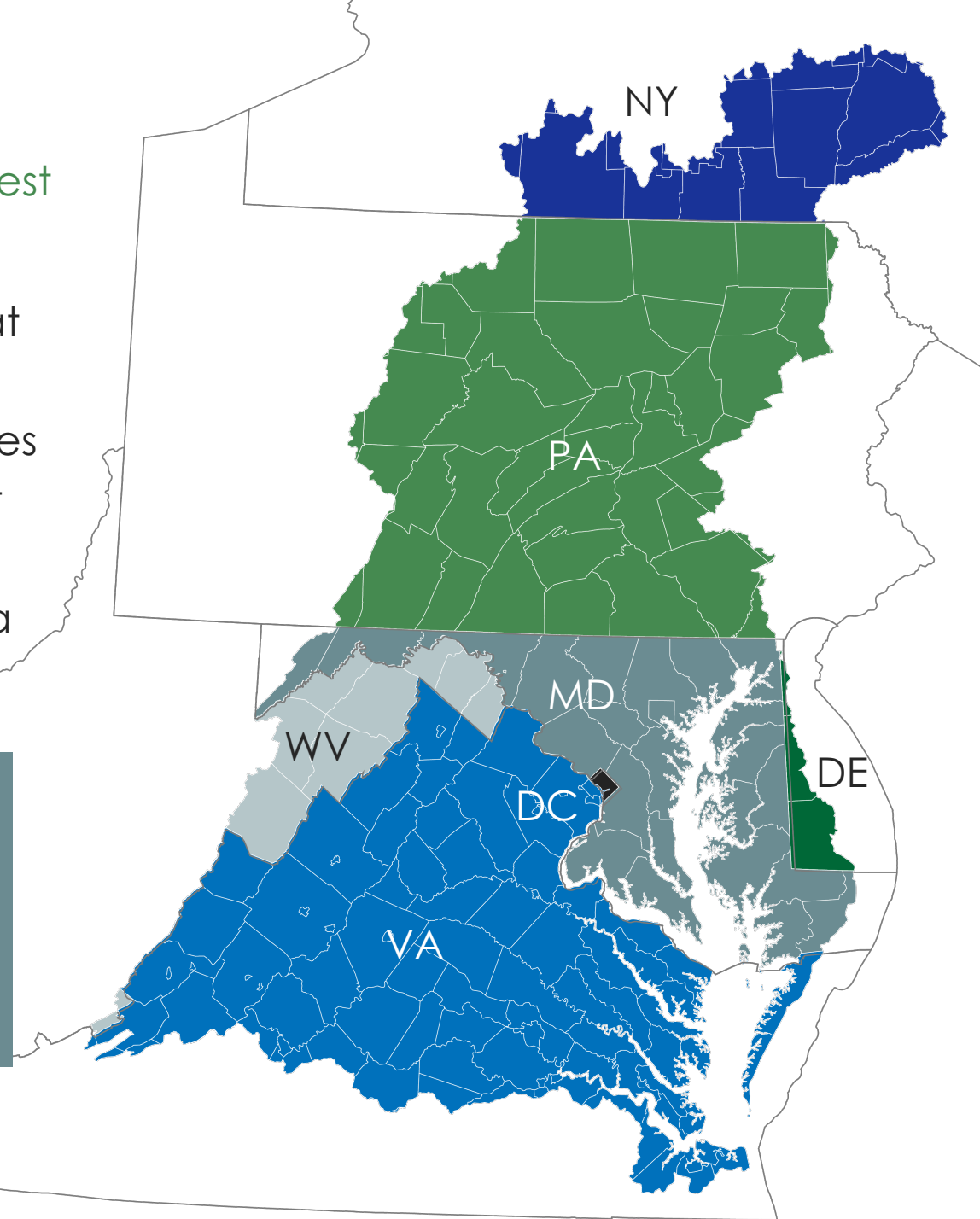


# Present Day: TMDL

The Chesapeake Bay watershed's TMDL program is the largest and most complex program thus far.

The Chesapeake Bay's TMDL is a federal "pollution diet" that sets limits on the **nitrogen, phosphorus** and **sediment** throughout the 64,000-square-mile watershed, which includes Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and DC. TMDLs were instituted because Bay states and DC were not meeting Clean Water Act goals through a voluntary program.

As discussed in Module One: *How Your Watershed Works*, nitrogen, phosphorous, and sediment are pollutants that harm commercially and recreationally valuable species and make recreation unsafe. **In short, that trio of pollutants threatens drinking water, recreational uses, tourism, ecosystems, and more.**



## Present Day: WIPs

To get the desired pollution reductions by 2025, each of the six Bay states and DC has a [Watershed Implementation Plan \(WIP\)](#) that spells out detailed, specific steps that each will take. Federal, state, and local governments coordinate through the Bay Program partnership to develop WIPs.

WIPs have several elements that must be addressed, including:

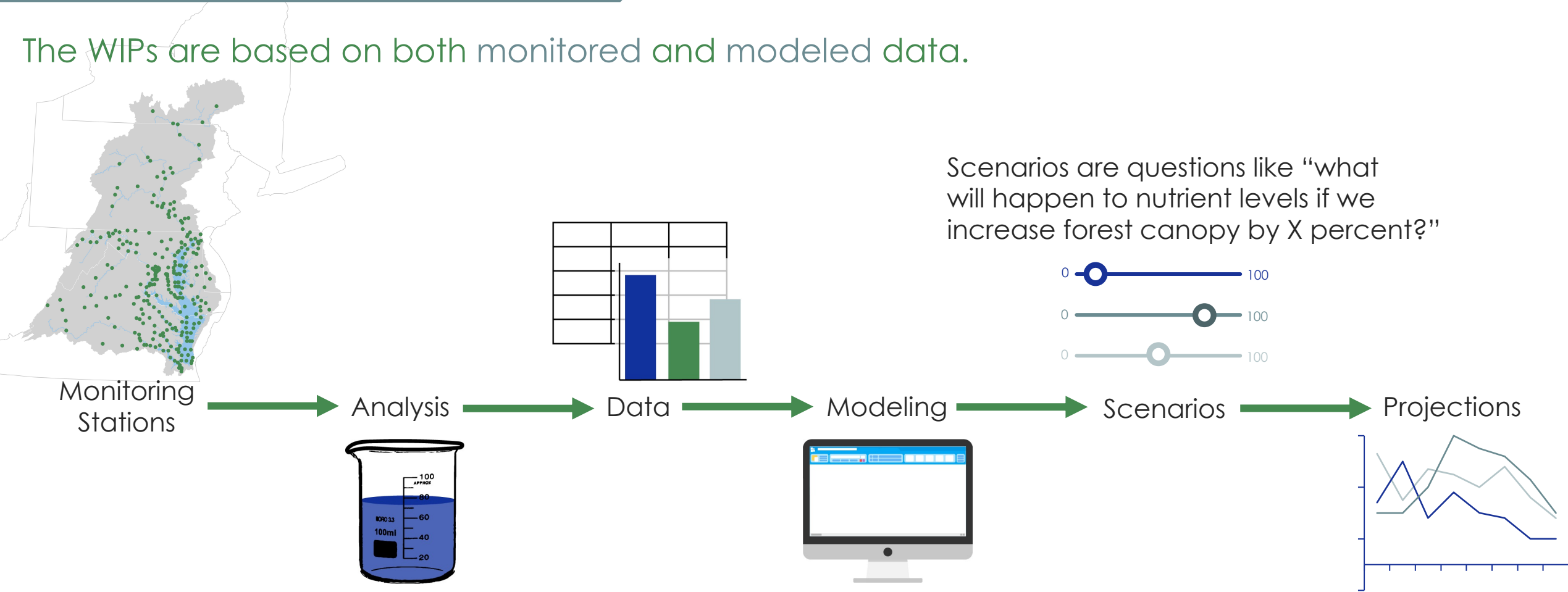
- Interim (every 2 years) and final pollutant reduction goals
- Current capacity (legal, financial, technical, etc.) to achieve targets
- Strategies for increasing capacity to meet needs
- Alternative reduction strategies and contingency plans
- Transparent and consistent tracking and reporting protocols
- Estimates of additional loads due to growth and how to offset them





# Monitoring and Modeling

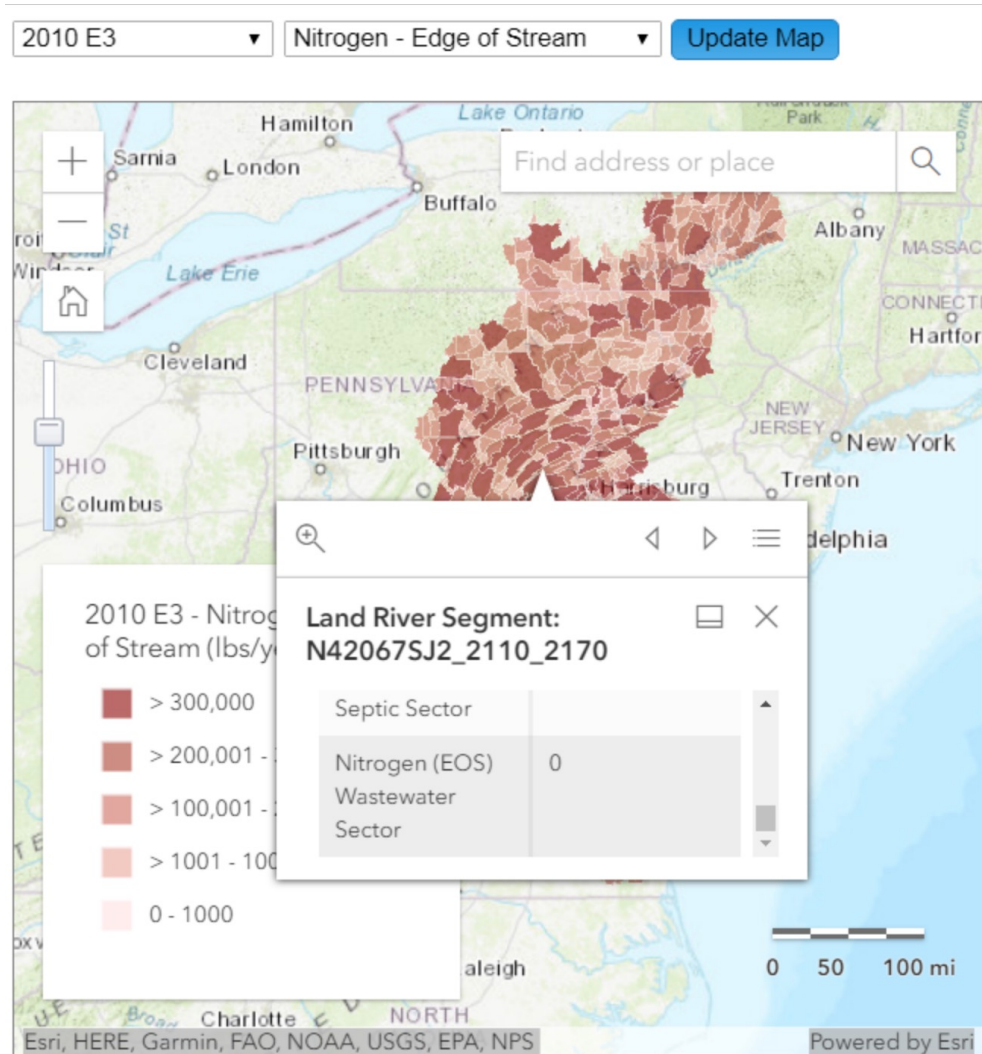
The WIPs are based on both monitored and modeled data.



Projections help you make informed decisions based on the available data.

# Chesapeake Assessment Scenario Tool (CAST)

[Chesapeake Assessment Scenario Tool \(CAST\)](#) is a web-based nitrogen, phosphorus and sediment load estimator tool that streamlines environmental planning for local governments.



Specify a geographical area and select Best Management Practices (BMPs) you want to apply.



CAST builds the scenario and provides estimates of nitrogen, phosphorus, and sediment load reductions.



The cost of a scenario is also provided so that users may select the most cost-effective practices to reduce pollutant loads.



# Local Resources

Pennsylvania Department  
of Conservation & Natural  
Resources (DCNR)

West Virginia Department  
of Environmental Protection  
(DEP)

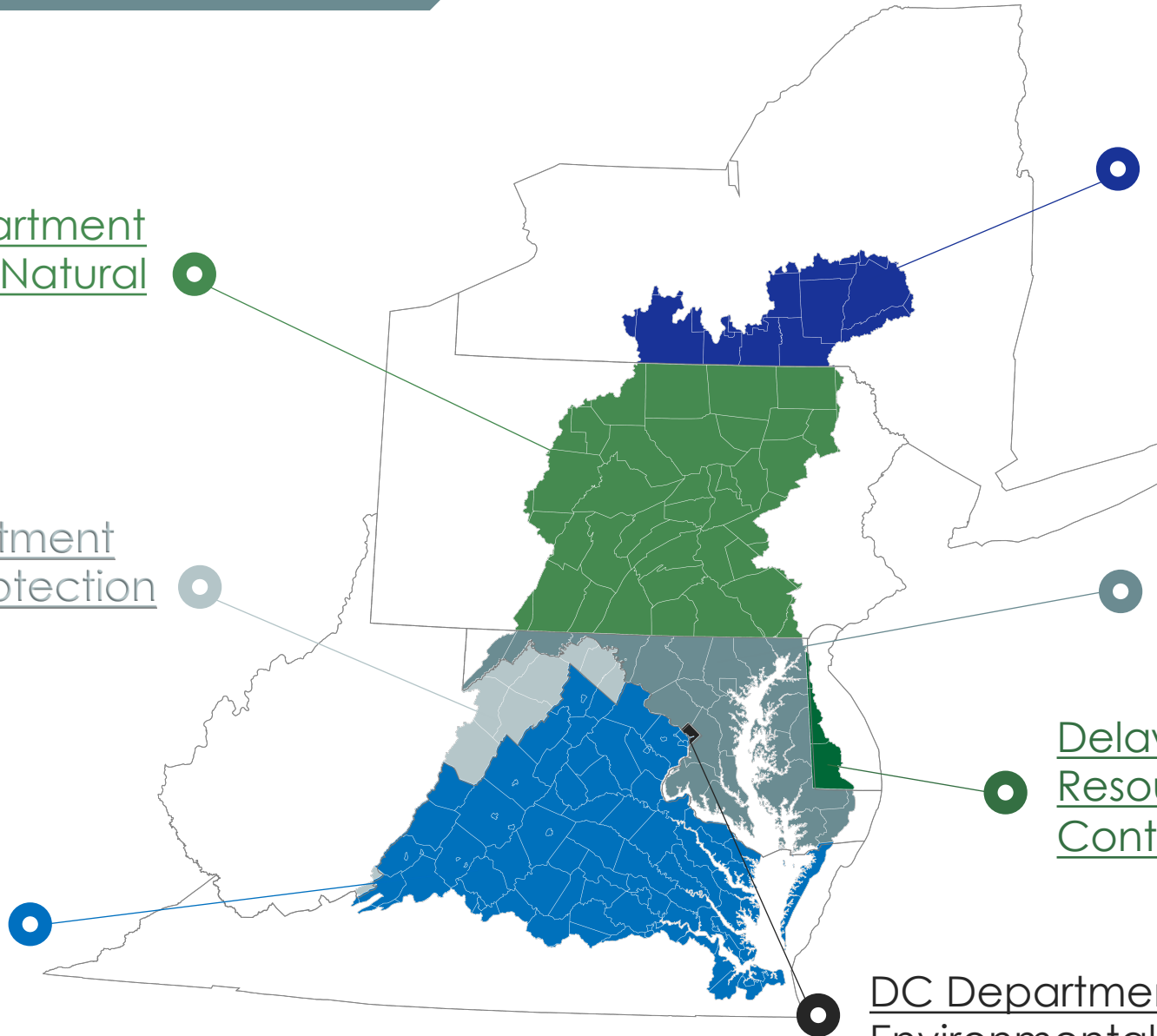
Virginia Department  
of Environmental  
Quality (DEQ)

New York Department  
of Environmental  
Conservation (DEC)

Maryland Department of  
Natural Resources (DNR)

Delaware Department of Natural  
Resources and Environmental  
Control (DNREC)

DC Department of Energy &  
Environmental (DOEE)



# What You Can Do



**Understand what your jurisdiction is doing** to meet your TMDL requirements:

- [Chesapeake Bay milestones and two-year programmatic milestone goals](#)
- [Information on each jurisdiction's Phase III WIPs](#)
- [WIPs Jurisdiction Contacts](#)



**Explore collaborative partnerships** to help meet TMDLs.

- For an example, read about [Turtle Creek in PA](#)



**Support environmental protections** that are essential for a healthy and resilient community.



## To Learn More

- Chesapeake Bay Commission's [40th Anniversary Webinar recording and presentation](#)
  - Learn about the history of the Chesapeake Bay watershed protections
- Chesapeake Bay Program's [Restoring the Chesapeake Watershed](#)
  - Hear a brief overview of the formation and progress in this five-minute video
- Chesapeake Bay Program's [Understanding Chesapeake Bay Modeling Tools: A history of updates, governance, policy and procedures](#)
  - Explore TMDLs, the Chesapeake Bay Watershed Model, and more in this short document
- [The EPA Administrators: Looking back at 50 years of environmental protection](#)
  - Hear EPA administrators throughout history talk about their time at the EPA in a 7-minute video

# Glossary

- TMDL: Total Maximum Daily Load

The federal “pollution diet” that sets limits on how much pollution can enter a waterbody to meet water quality standards for that specific pollutant

- Climate Resiliency

The ability of living resources, habitats, public infrastructure and communities to withstand adverse impacts from changing environmental and climate conditions, like flooding and increased temperatures

- WIP: Watershed Implementation Plan

The outline and steps on how individual jurisdictions will work with federal and local governments to achieve reductions in pollution outlined by the TMDL

- MS4: Municipal Separate Storm Sewer System

A collection of structures designed to gather stormwater and discharge it into local streams and rivers

- NPDES: National Pollutant Discharge Elimination System

A permit program that addresses water pollution by regulating point sources that discharge pollutants to waters of the United States

- Algae

Simple plants that can be single-celled or grow in clumps or slimy mats

- Groundwater

Water stored under the earth’s surface in the cracks and spaces between particles of soil, sand and rock (also called aquifers)

- Runoff

Precipitation that does not evaporate or soak into the ground but instead runs across the land and into the nearest waterway

- Monitoring

Water collection and analysis providing snapshots of qualities like nutrient content, temperature, and chemical contaminants over time

- Modeling

Computer-based mathematical representations of the real world that estimate environmental conditions, and can be used to simulate ecosystems that are large or complex to aid in the management decision-making process