

# Maryland's Chesapeake Bay Watershed Implementation Plan and Climate Change

Presentation to the  
Maryland Commission on Climate Change  
Adaptation and Response Working Group

March 12, 2018

Presented by Jim George  
Maryland Department of Environment

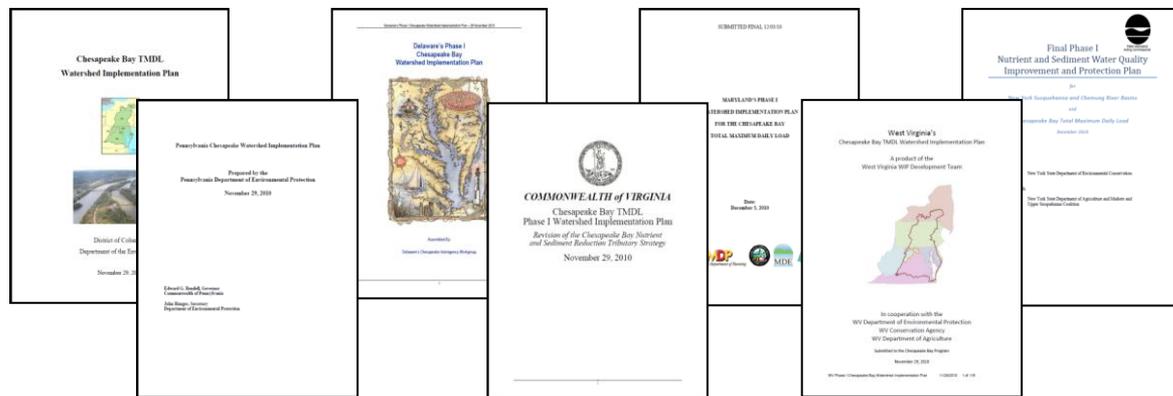
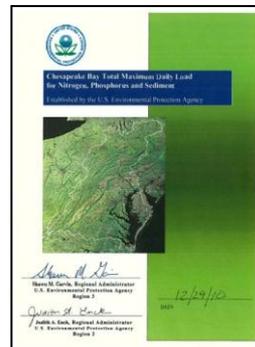
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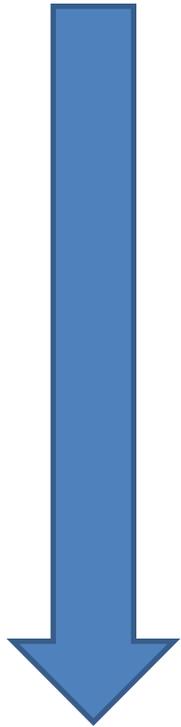
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# The Bay TMDL: Federally mandated regional pollution accountability framework



# Bay TMDL and WIP Timeline



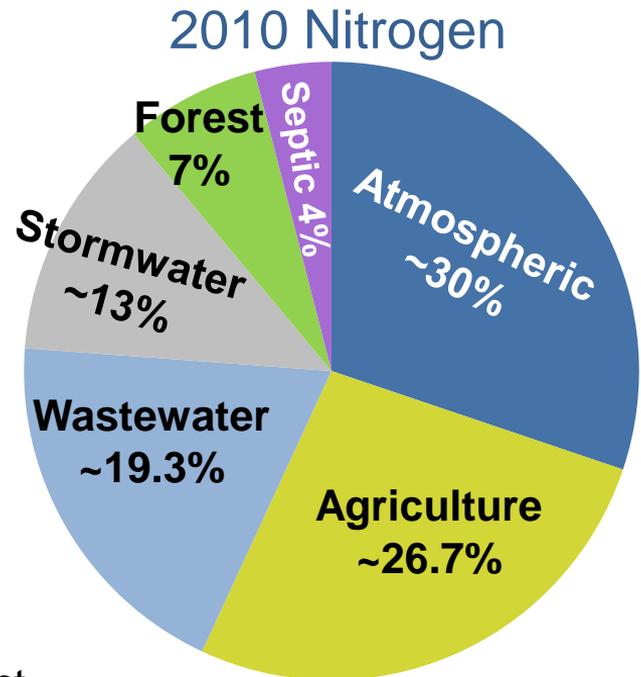
2010:	Bay TMDL = Pollution Cap Phase I WIP = Implementation Plan
2012:	Phase II WIP
2017:	Midpoint Assessment: 60% of Actions in place & Improved Science
2019:	Phase III WIP
2025:	Actions in place to meet Final Target
Beyond:	Continue Making Reductions and Maintain Nutrient Cap



# Accounts for All Pollution Sources

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- Wastewater Treatment Plants (WWTPs)
- Septic Systems
- Urban/Suburban Stormwater
- Agricultural Land & Animals
- Forest Land
- Atmospheric Sources\*
- and More



\* Addressed largely via implementation of the Clean Air Act

# Wastewater Plants

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- 76 Major Municipal Upgrades
- Minor Municipal Upgrades
- Industrial Upgrades



## Climate Connections

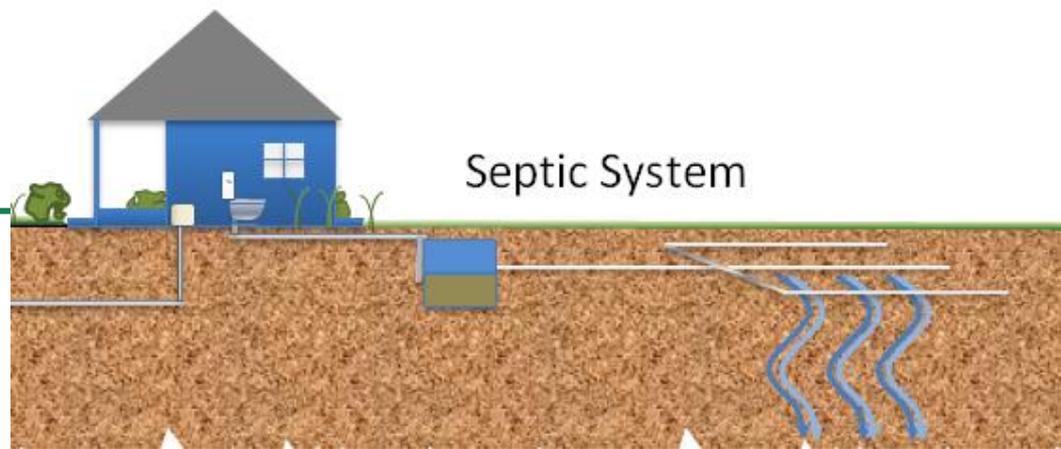
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- Bio-solids, Methane, Energy, Healthy Soils
- Food-waste Energy
- Facility & Collection System Resilience



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# Septic Systems



- Connection to WWTPs
- Shared Systems with Treatment
- Upgrades

## Climate Connections

- Sea Level Rise
- Floods & Saturated Soil
- Soil Temperature & Oxygen Changes



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# Urban Stormwater

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## Climate Connections

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- NPDES MS4 Permits
- Industrial Permits
- Nutrient Trading
- Combined Sewer Overflow (CSO) LTCP\*

- CSO LTCPs manage extreme flow events
- Rainwater Harvesting
- SW BMP Resilience
- Dam Safety



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# Agriculture

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- Cover Crops
- Low Till
- Animal Waste Mgmt
  - Nutrient Management
  - Manure Transport
  - Manure Treatment Tech
- Stream Buffers
- Conservation Plans



## Climate Connections

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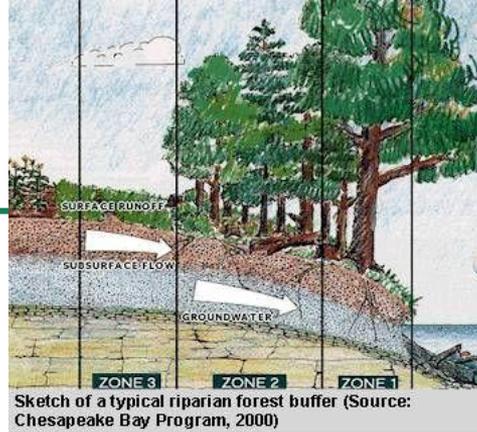
- Carbon Sequestration
- Weeds, disease, pests
- Extreme Precipitation
- Heat & Drought
- Saltwater Intrusion



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# Trees/Forestland

- Riparian Buffers
- Urban Tree Planting
- Reforestation
- Nutrient Trading Role
- Forest Management (Emerging)



## Climate Connections

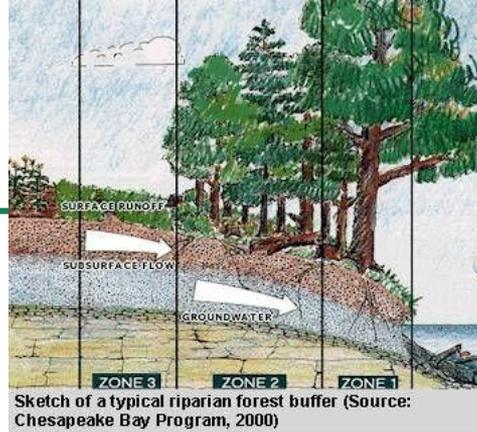
- Carbon Reservoirs
- Windbreaks
- Extreme Precipitation
- Stream shading
- Urban Micro-Climates



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# Addressing Atmospheric Sources

- Mobile Emissions
- Clean Air Interstate Rule
- State Implementation Plans
- MD Healthy Air Act
- EmPOWER Maryland
- MD Renewable Energy Portfolio



## Climate Connections

- GHG Reductions
- Wastewater management
- Forestland, Urban trees
- Agriculture
- Energy Alternatives



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# Guiding Principles: WIP & Climate

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- WIP Development Vs Implementation
- Align w/ MCCC Four Workgroup Framework
- Memorialize Key Policy Commitments
- Align w/ Bay Agreement Climate Outcomes
- Align w/ PSC Direction on WIP & Climate



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# PSC Direction on WIP & Climate

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- Describe nutrient & sediment pollution loads projected at 2025 climate conditions.
- Provide a strategy that describes current action plans and strategies to address climate change.
- Incorporate local priorities and actions to address anticipated climate change impacts.



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# CRWG Proposed WIP Climate Section Template

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- I. Scientific Assessment & Conclusions
- II. Programmatic and Numeric Commitments
- III. WIP Development (Description)
- IV. WIP Implementation
- V. Documentation, Reporting and Adaptive Management



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# WIP & Climate Change: 4-Step Strategy

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- Stakeholder Engagement in WIP Development
  - E.g., Regional WIP Workshops May-June 2018
- Programmatic Actions Documented in WIP
  - In MD, Align with Climate Change Commission
- Improve Science
  - Chesapeake Bay Program
- Incorporate into the 2-year Milestone Accountability Framework



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# Questions? Suggestions?

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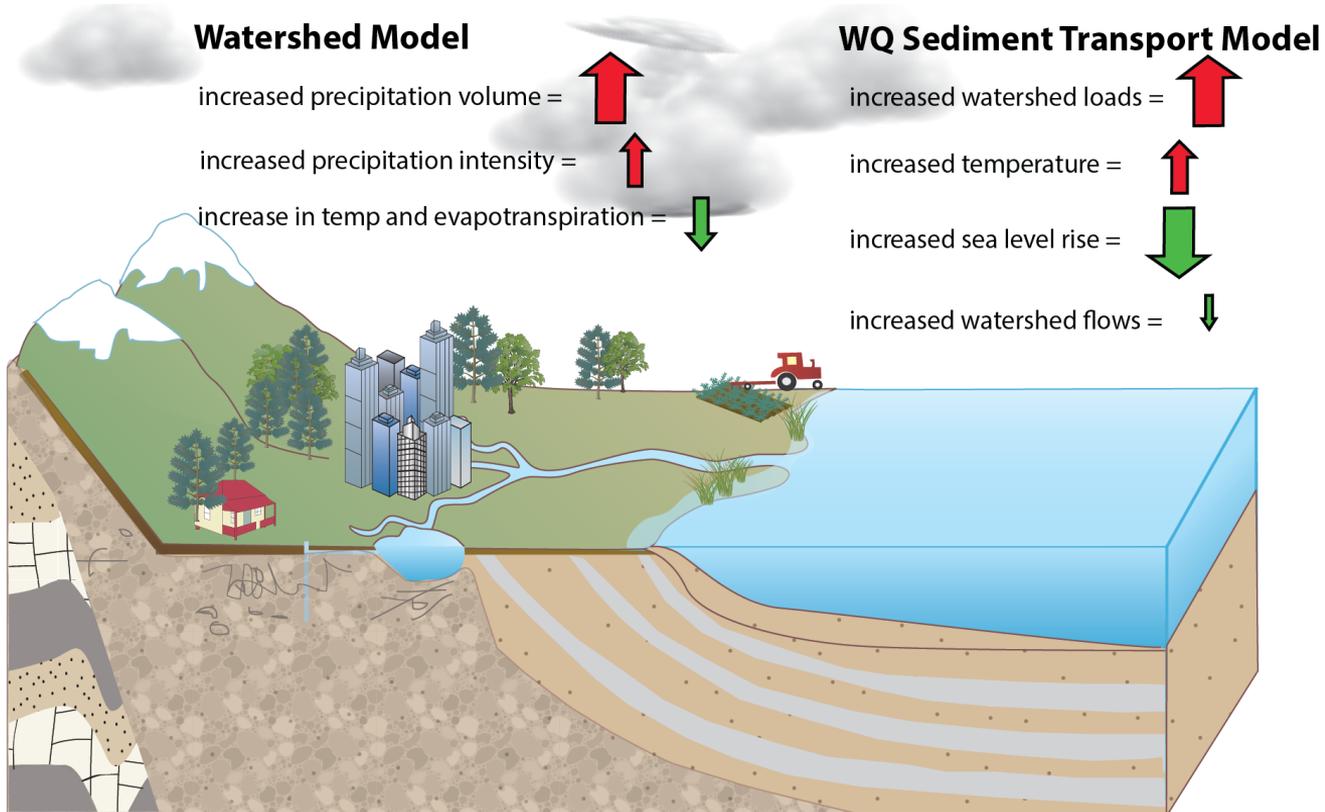
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