



# **Chesapeake Bay TMDL: Development and Implementation**

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# What is a TMDL?

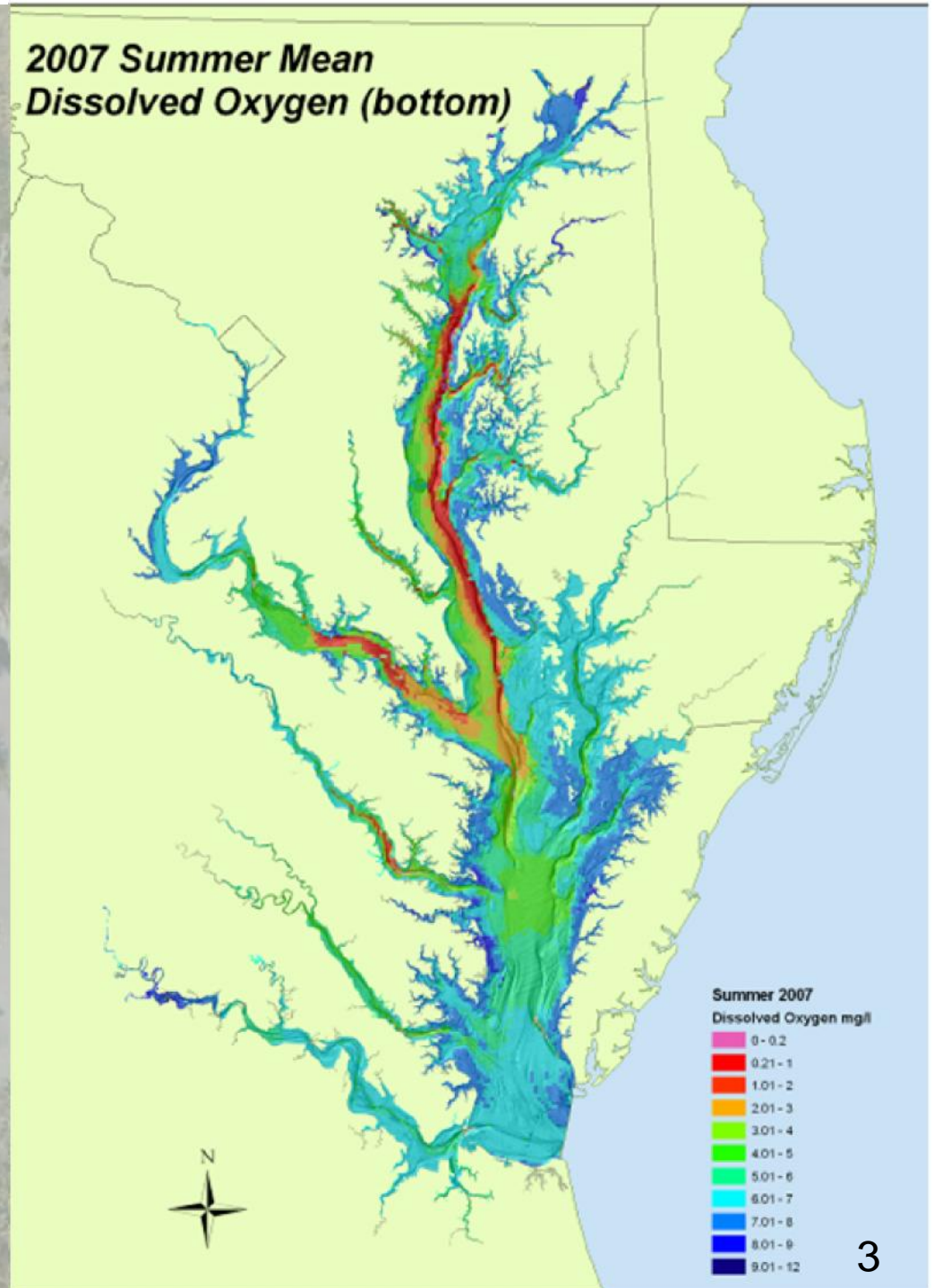
- Pollution 'budget' or 'diet'
- Total Maximum Daily Load=  
allowable point source load  
+  
allowable non-point source load  
+  
allowable air load  
+  
margin of safety



# ***Why do a Bay TMDL now?***

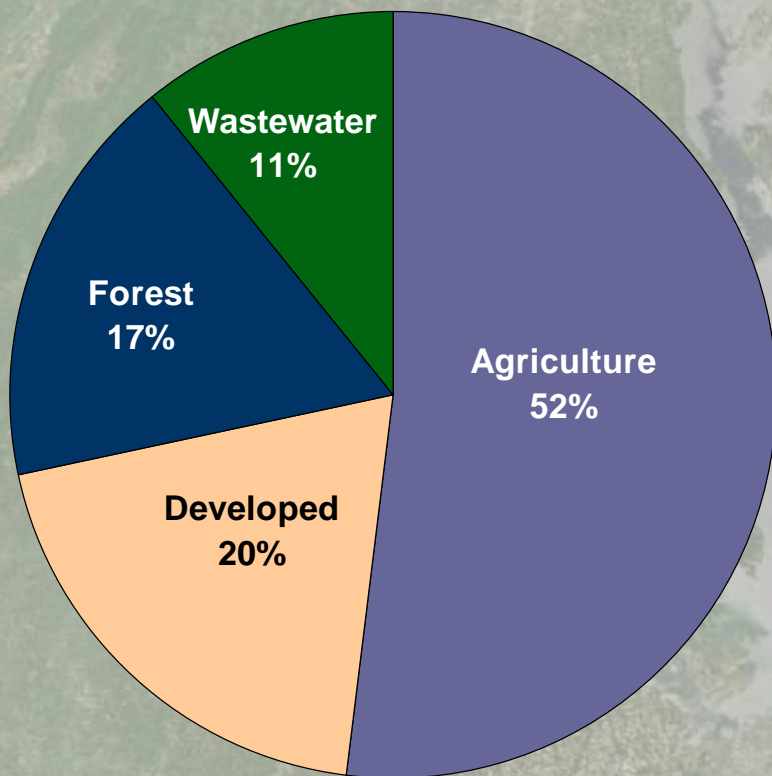
**Low to no  
dissolved  
oxygen in the  
Bay and tidal  
rivers every  
summer**

**2007 Summer Mean  
Dissolved Oxygen (bottom)**

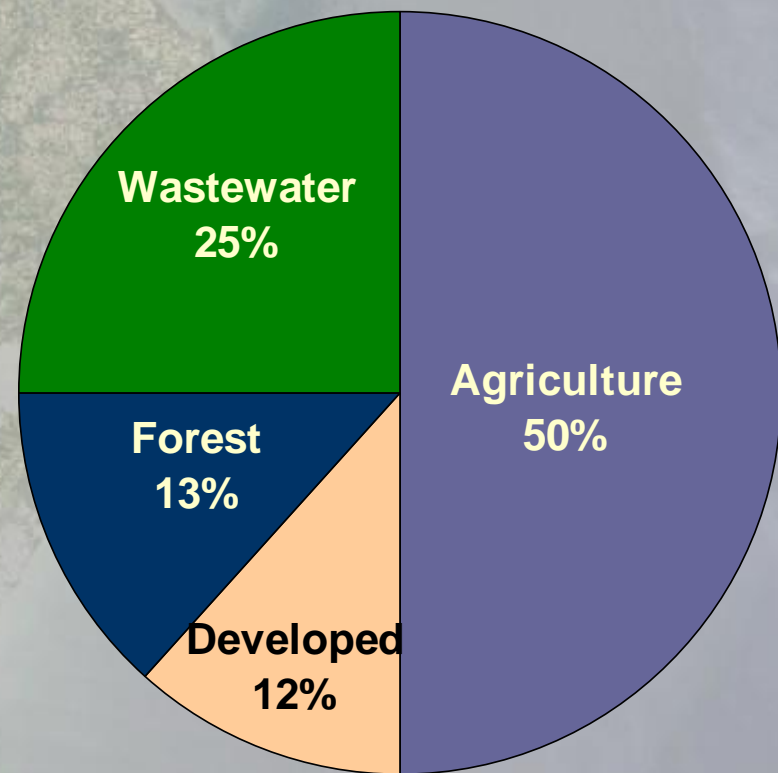


# Nutrient Sources of Pennsylvania

Sources of Nitrogen from PA



Sources of Phosphorus from PA

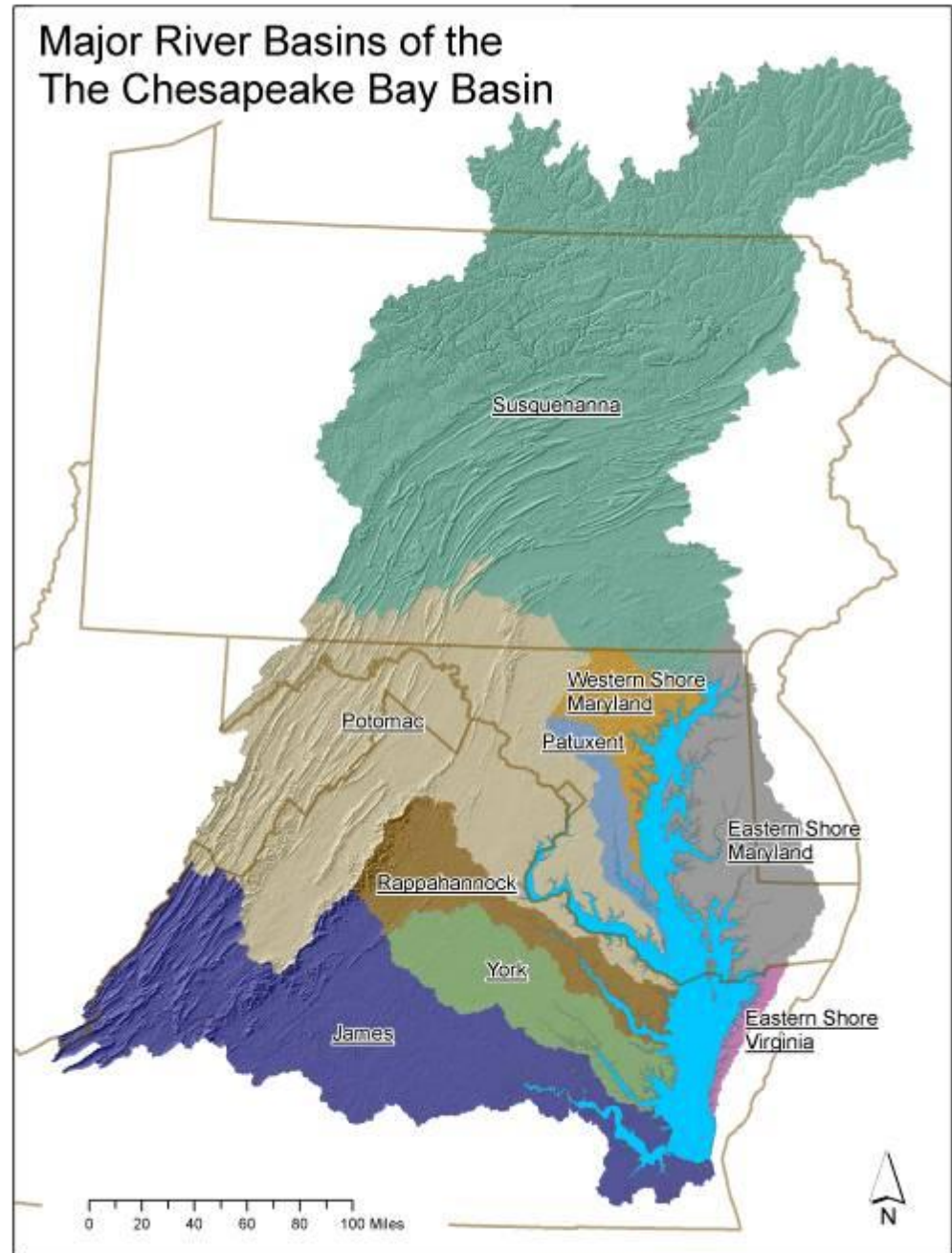


N and P values from 2008 Scenario of Phase 5.2 Watershed Model



# The Chesapeake Bay TMDL

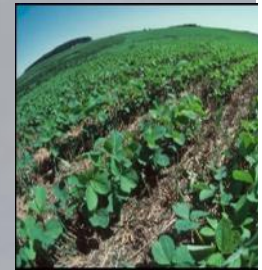
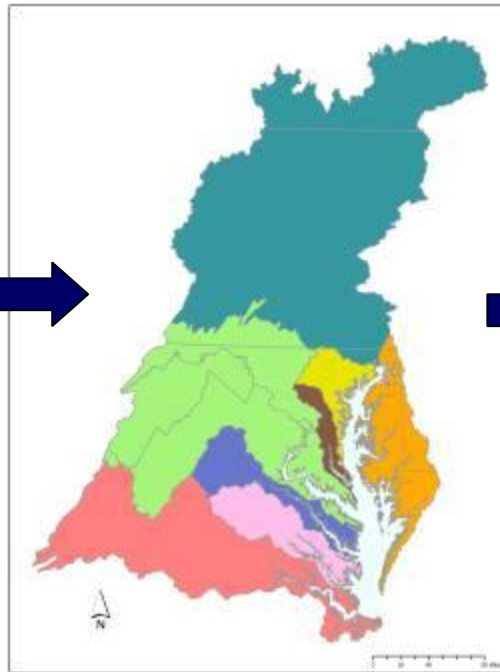
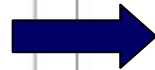
- All 6 states and the District of Columbia are covered.
- Caps on nitrogen, phosphorus, and sediment
- Caps on point sources and non point source sectors
- Draft TMDL August 2010
  - Round 2 of public meetings Aug – October, 2010
- Final TMDL December 2010



# Bay TMDL Development: How are states involved?



WIP



**What total loading for nitrogen, phosphorus, and sediment can the Bay assimilate?**

**What is an equitable distribution of the watershed-wide loadings to the states/basins?**

**How should the state/basin load be sub-allocated to: individual point sources, non-point source sectors, and sub-watersheds or counties?**



# Guidelines for Distributing the Basinwide Target Loads

- Water quality and living resource goals should be achieved.
- Waters that contribute the most to the problem should achieve the most reductions (on a per pound basis).
- All previous reductions in nutrient loads are credited toward achieving final cap loads.

# Current State Target Loads

## Nitrogen

State	2008 Load	Tributary Strategy	Target Load
DC	3.54	2.12	2.37
DE	9.91	6.43	5.25
MD	58.00	42.37	41.04
NY	16.71	8.68	10.54
PA	114.40	73.48	73.64
VA	72.82	56.75	59.21
WV	7.77	5.93	5.71
<b>Total</b>	<b>283.15</b>	<b>195.75</b>	<b>197.76</b>

## Phosphorus

State	2008 Load	Tributary Strategy	Target Load
DC	0.14	0.10	0.13
DE	0.34	0.25	0.28
MD	3.10	2.54	3.04
NY	0.83	0.56	0.56
PA	3.99	3.10	3.16
VA	7.18	6.41	7.05
WV	0.70	0.43	0.62
<b>Total</b>	<b>16.28</b>	<b>13.39</b>	<b>14.84</b>

All loads are in millions of pounds per year



# Pa loads in the Bay TMDL

- For Pa (and upland states), only ***aggregate*** loads will be in the TMDL for NPS and PS\*
- Those aggregate loads will be split into the Potomac Drainage and the Susquehanna drainage

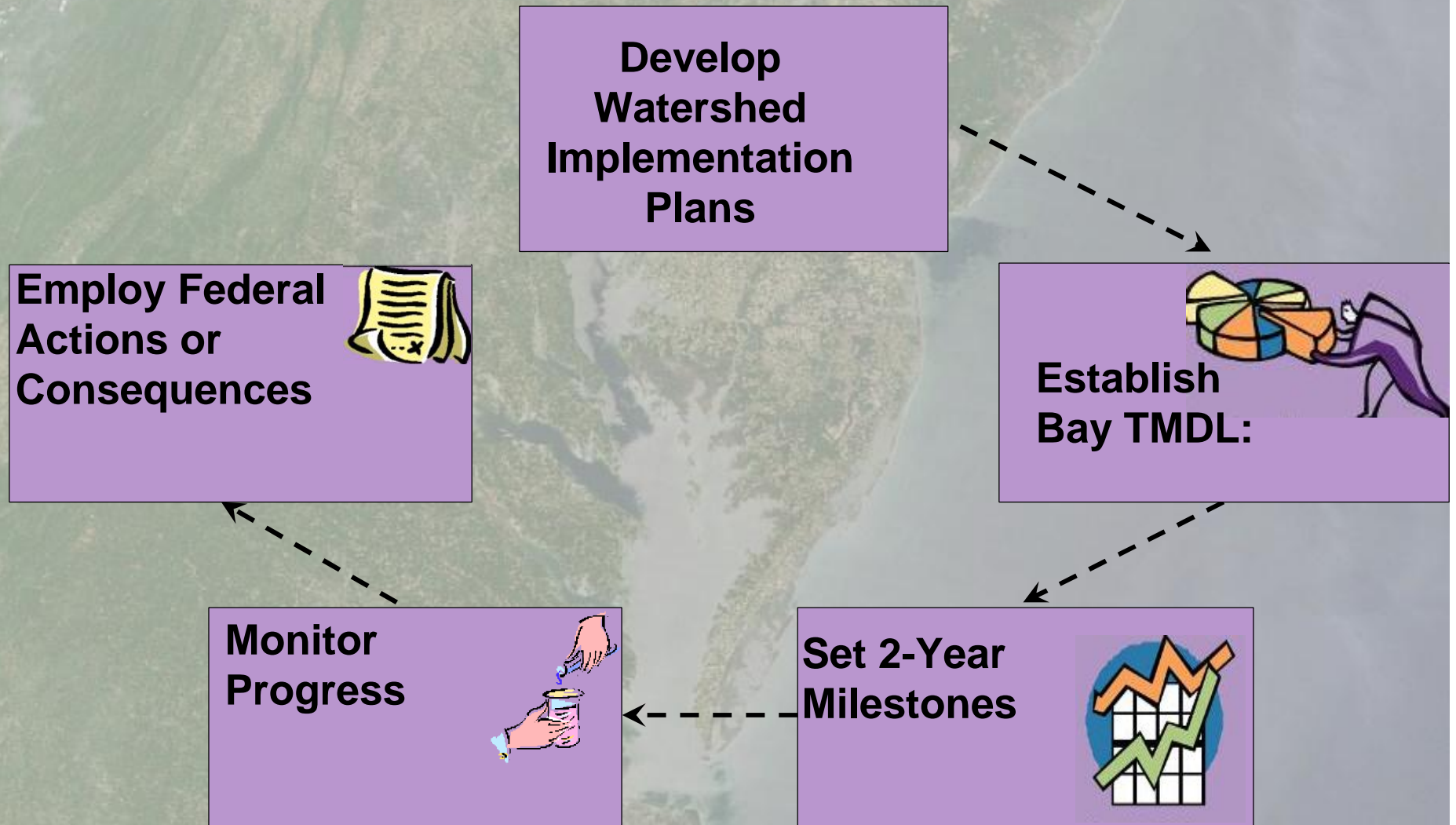
\* Only if the state WIP provides more detail on loadings from individual sources or source sectors

# The Bay TMDL and Performance and Accountability System will..

- ...Learn from lessons of the past
  - Bay Program
    - Long term goals + ***short term goals***
    - Planning and commitment + ***accountability***
  - TMDL Program
    - Point source implementation + ***non-point source implementation***

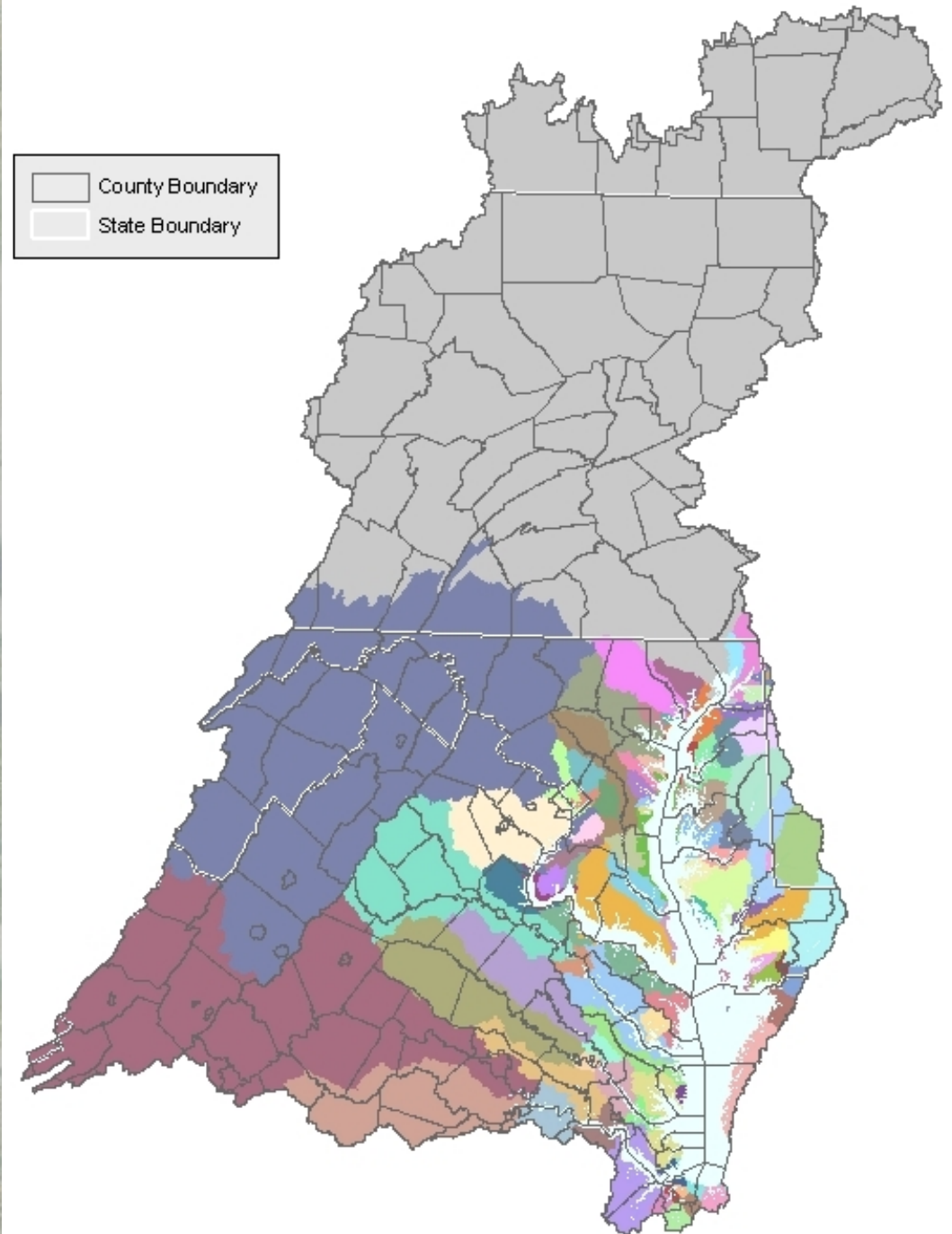


# Mandatory Pollution Diet at Work



# Scale of Bay WIP Target Loads

- Bay TMDL: WLAs and LAs for 92 303(d) segments
- Bay WIPs: Subdivide by source sector, NPDES, segment drainage, and, by Nov. 2011, local area
- Local area based on:
  - Engaging local partners
  - Scale that programs are administered
- Progress first assessed at jurisdiction scale



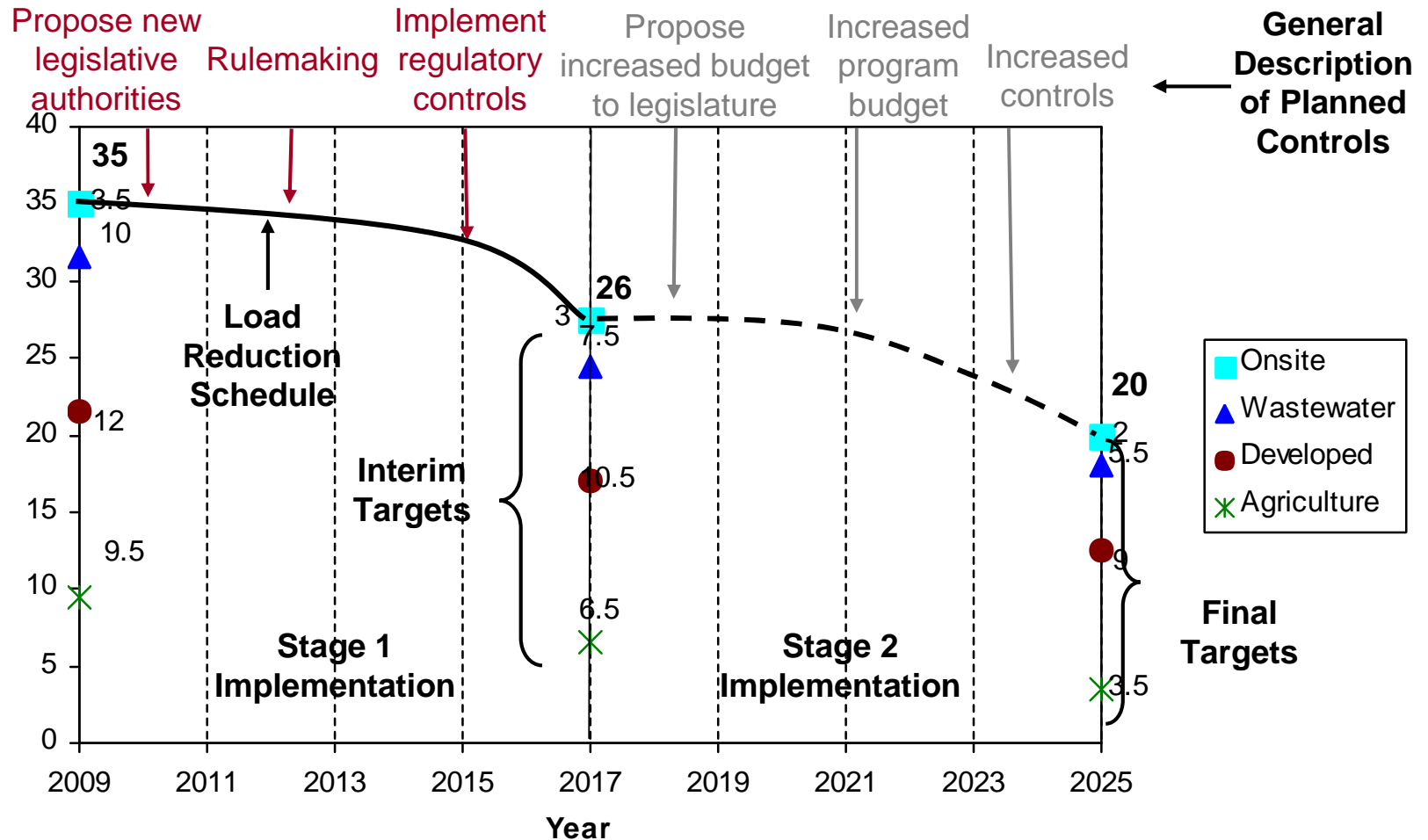


An aerial photograph of a watershed area, showing a river flowing through a landscape of green fields and brown patches, likely representing different land uses or vegetation. The river is the central focus, with its banks and surrounding terrain visible. The overall tone is somewhat muted, with a greyish-blue overlay on the right side.

# Watershed Implementation Plans (WIPs)

- Stage 1: 60% reductions achieved by 2017
- Stage 2: All controls in place no later than 2025

# Example: Projected N Delivery by Source Sector for Major Basin/Jurisdiction



- Attaining specific load reductions by the interim target would be required
- Jurisdiction would determine desired reduction schedule to meet load reduction
- EPA would first evaluate milestones based on whether consistent with major basin/jurisdiction load target. EPA accepts shifts among source sectors, segment drainages, and local targets as long as major basin/jurisdiction target is met and local and Bay water quality goals are achieved



# Bay TMDL Watershed Implementation Plans Will Include 8 Elements:

1. **Interim and Final Target Loads**
2. **Current Program Capacity**
3. **Mechanisms to Account for Growth**
4. **Gap Analysis**
5. **Commitment to Fill Gaps: Policies, Rules, Dates for Key Actions**
6. **Tracking and Reporting Protocols**
7. **Contingencies for Failed, Delayed or Incomplete Implementation**
8. **Appendix with:**
  - a. Loads divided by 303(d) segment drainage and source sector
  - b. 2-year milestone loads by jurisdiction – EPA will use to assess milestones
  - c. No later than November 2011: Update to include loads divided by local area and controls to meet 2017 interim target load

<b>WIP Phase Comparison</b> Taken from Table B1 of the 11/4/09 letter	<b>Phase I</b> 11/2010	<b>Phase II</b> 11/2011	<b>Phase III</b> 2017
Loads for individual point sources, or aggregate point sources	✓	✓	✓
Loads for nonpoint source (NPS) sectors	✓	✓	✓
Actions and specific controls to achieve point source and NPS target loads	✓	✓	✓
Point source and NPS loads by local area		✓	✓
Specific controls/practices to be implemented by 2017	To extent possible	✓	✓
Refined point source and NPS loads			✓
Specific controls/practices to be implemented by 2025			✓



An aerial photograph of a coastal region, likely a large bay or estuary, with surrounding land and water. The text is overlaid on the image.

## 2 year milestones

- Commitment on what will be accomplished for the next 2 years
  - source controls
  - loading reductions
  - program enhancements

# Federal Actions\*

- For state failure to:
  - submit WIPs consistent with EPA expectations
  - submit 2-year milestones consistent with EPA expectations
  - achieve 2 year milestone target loads

**\*From EPA letter to states of December 29,2009**



# Federal Actions Include...\*

- Expand NPDES permit coverage to unregulated sources
- Require net improvement offsets
- Require additional reductions from PS's
- Increased federal enforcement
- Condition or redirect federal grants
- Promulgation of local nutrient standards

**\*From EPA letter to states of December 29,2009**



## All sources are important!

- States will decide where to seek reductions
- Relevant factors
  - **Wastewater**: currently undergoing \$ billions in treatment technology upgrades
  - **Agriculture**: low cost controls, significant source
  - **Turf grass**: no/low cost controls, important source
  - **Urban runoff**: costly controls, growing source
  - **Air**: EPA lead, opportunity for more controls?
  - Funding, regulations, cost of controls, reduction potential



# TMDL & WIP Schedule

## TMDL Development

- 11/2009 Nutrient targets released
- 4/2010 Revised nutrient and sediment targets
- 6-7/2010 EPA Plan Review
- 8-10/2010 Draft TMDL for Public Comment
- 10/2010 TMDL Revisions
- 12/2010 Final TMDL
- 1/2012 and on: 2-year milestones

## Watershed Implementation Plan

- 11/2009 Expectations released
- 6/2010 Initial Plan
- 8/2010 Draft Phase I Plan
- 10/2010 Phase I Plan Revisions
- 11/2010 Final Phase I Plan
- ...
- 11/2011 Final Phase II Plan
- ...
- By 2017 Phase III Plan



# EPA Support to States WIPs

- Doubling of the Chesapeake Bay funding
- Contractor support to each state
- Contractor support for local pilots
- Identified extensive WIP expectations
- Modeling and other technical support
- Regulatory actions to further support the control of stormwater and animal runoff.



# Tetra Tech WIP Support

- Watershed Implementation Plan Assistance
  - Data analysis to assist with loading calculations
  - Support translating reduction strategies into model scenarios
  - Support for model set up on state computers
  - Effectiveness of management activities and controls
  - Programmatic research and support
  - Programmatic and data analysis support for Local Implementation Pilot Projects

# Tetra Tech WIP Support cont'd

- Develop a methodology to establish current loads
  - CAFO/Non-CAFO
  - Significant/Non-significant wastewater
  - MS4/non MS4 urban runoff
  - Industrial and Construction
- Permit identification/confirmation
- Permit based vs. Land Use based determinations



# Further Information

- **Chesapeake Bay TMDL web site**  
**[www.epa.gov/chesapeakebaytmdl](http://www.epa.gov/chesapeakebaytmdl)**
- **U.S. EPA Region 3 Contacts**
  - **Water Protection Division**
    - **Bob Koroncai**
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    - **Suzanne Hall ([hall.suzanne@epa.gov](mailto:hall.suzanne@epa.gov))**
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# Questions & Comments

