Developing Delaware's Watershed Implementation Plan for the Chesapeake Bay TMDL

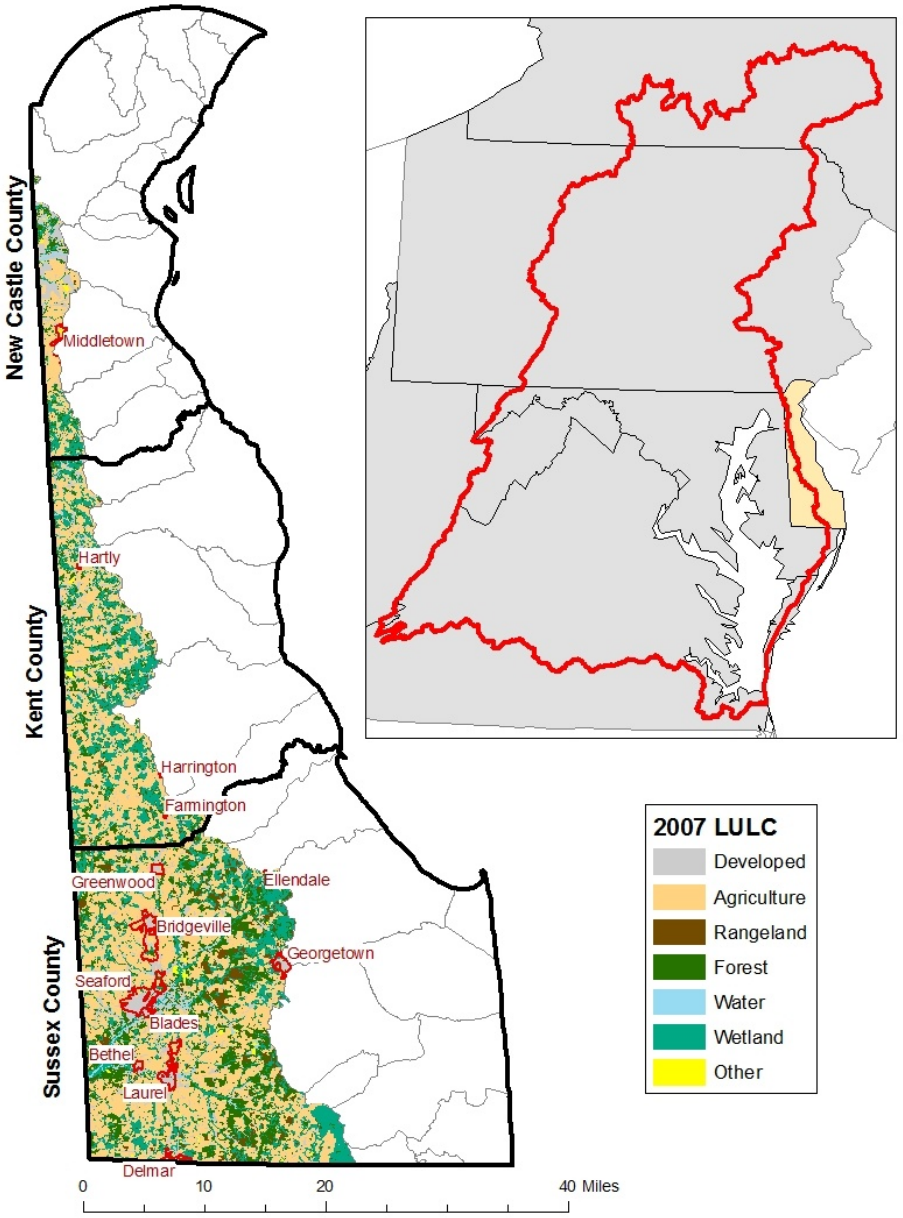
Jennifer Volk, DE DNREC

Nonpoint Source Annual Committee Meeting

March 18, 2010

The Chesapeake Bay Watershed in Delaware

- Within all 3 counties
- Very rural character:
  - Developed 10%
  - Agriculture 48%
  - Rangeland 3%
  - Forest 16%
  - Water 1%
  - Wetland 21%
  - Other 1%
- Small, but growing, towns

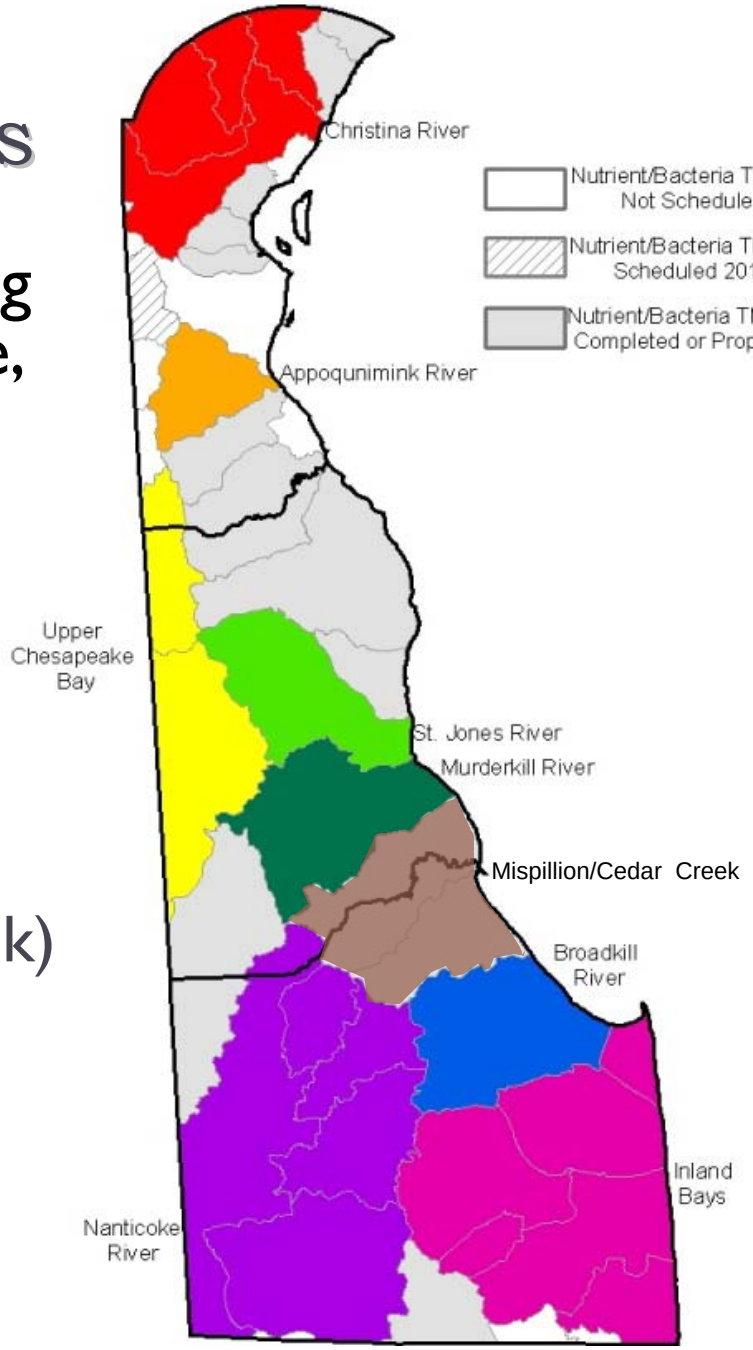


Delaware TMDLs

- 1998 - Nitrogen and Phosphorus TMDLs for Nanticoke
  - Limits on point sources (Bridgeville, Laurel, Seaford, and Invista)
  - Nonpoint reductions of 30% N and 50% P
- 2006 - Nitrogen and Phosphorus TMDLs for Chester, Choptank, Marshyhope, & Pocomoke
  - Nonpoint reductions of 0% to 55% N and P
  - 2006 - Bacteria TMDLs across the Chesapeake Drainage

Tributary Action Teams

- A group of citizens with varying interests, concerns, knowledge, and beliefs
- Meet with the purpose of recommending a Pollution Control Strategy to the Department
  - Began in 1998 in Nanticoke
  - Began in 2007 in Upper Chesapeake (Chester/Choptank)
- Combination of voluntary and required actions
- Set of actions designed to achieve the TMDL



TAT Recommendations and Improvements Over Time

- Onsite Wastewater Treatment and Disposal System
  - Connect failing septics to sewer/focus new development in sewer districts
  - Septic inspection program
  - Performance standards for septics

  - Inland Bays Pollution Control Strategy regulations
  - Onsite regulations currently open for revision
    - Proposing to require performance standards for large systems and inspection requirements state-wide

TAT Recommendations and Improvements Over Time

- Development Patterns/Stormwater Requirements
  - Riparian buffers
  - Limit impervious cover
  - More stormwater management
  - Stormwater retrofits

  - Multi-agency Preliminary Land Use Service (PLUS)
  - State review of municipal Comprehensive Plans
  - Nutrient Budget Protocol
  - 1990 DE Sediment and Stormwater Law and Regulations - quantity and sediment
    - ~2000 - consider green technologies first
    - Currently open for revisions - proposing to address TMDLs and require more infiltration which will further reduce pollutant loads from new development runoff

TAT Recommendations Agriculture

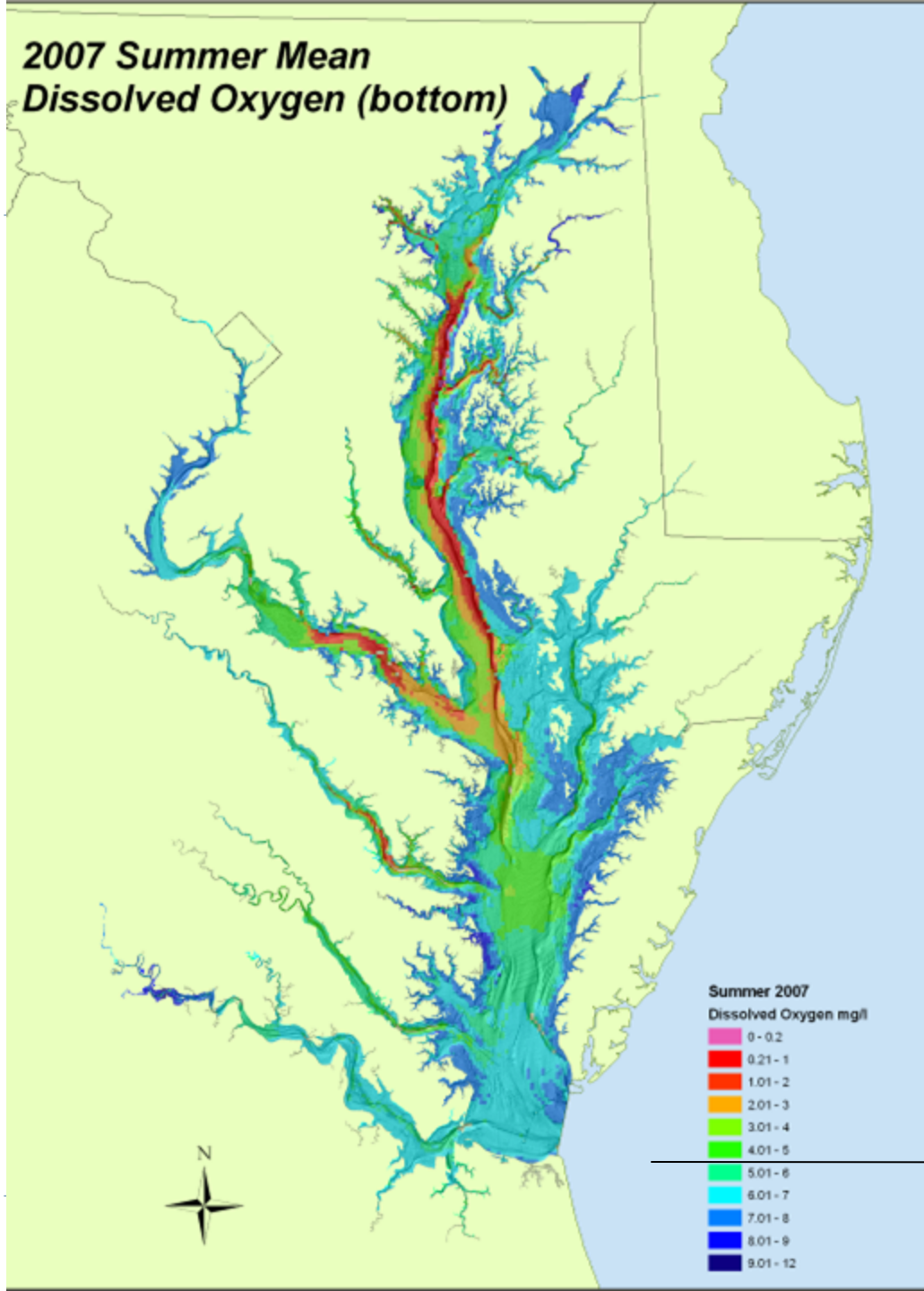
- Preserve working lands
- BMP goals should include a combination of practices that minimize the acreage taken out of production.
- Comprehensive cost-share programs for best management practices (increase funding, rates, caps)
  - Better outreach about availability of programs
- Allow grass filter strips/waterways/buffers to be harvested as energy crops
- Install sediment traps in tax ditches
- Fence animals out of ditch right-of-ways

Improvements Over Time Agriculture

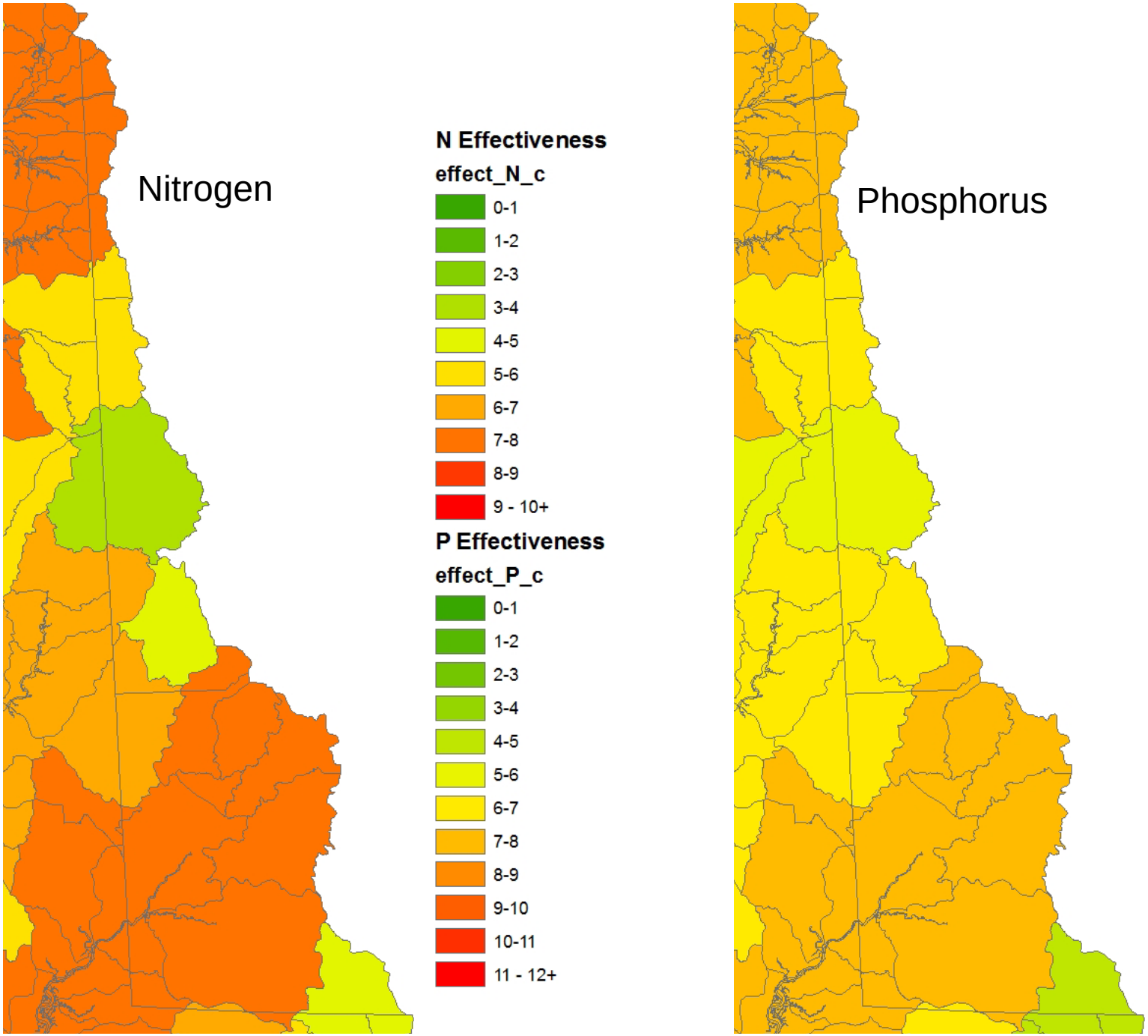
- Agriculture
  - Nutrient Management Law
    - Applies to >10 acres of fertilized land
    - Nutrient Management Plans as of January 1, 2007
    - Education outreach through certification programs
  - Manure relocation program
  - Phytase in poultry feed
  - Increased cover crop cost-share rates have led to record sign-ups
  - Increased participation in other cost-share programs for other BMPs

Big Picture View

- DE TMDLs achieve water quality standards at the state line
- Need to achieve standards in the deep channel of the bay where there is low to no dissolved oxygen every summer

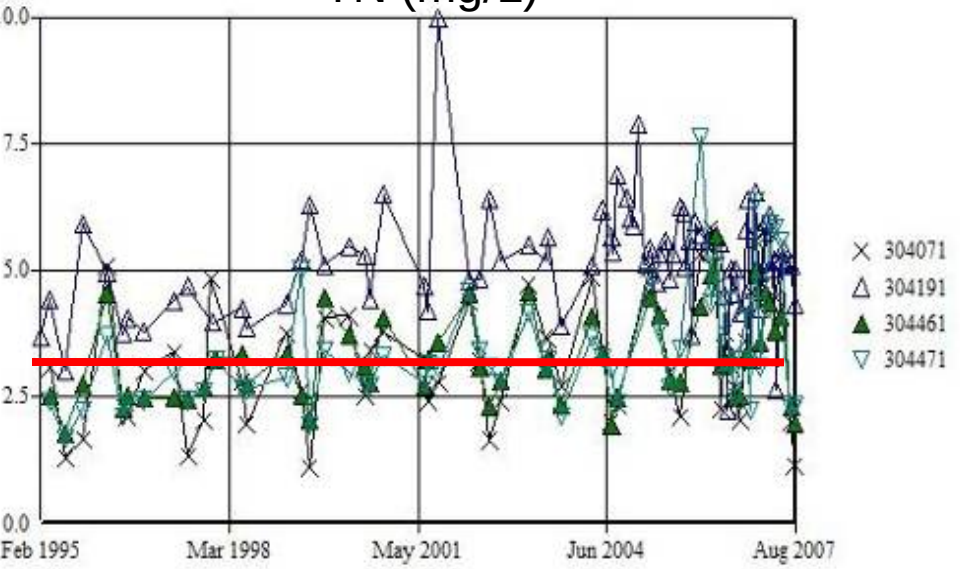


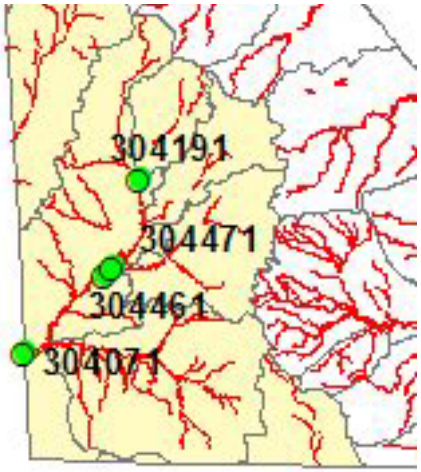
Nutrient Impacts on Bay WQ



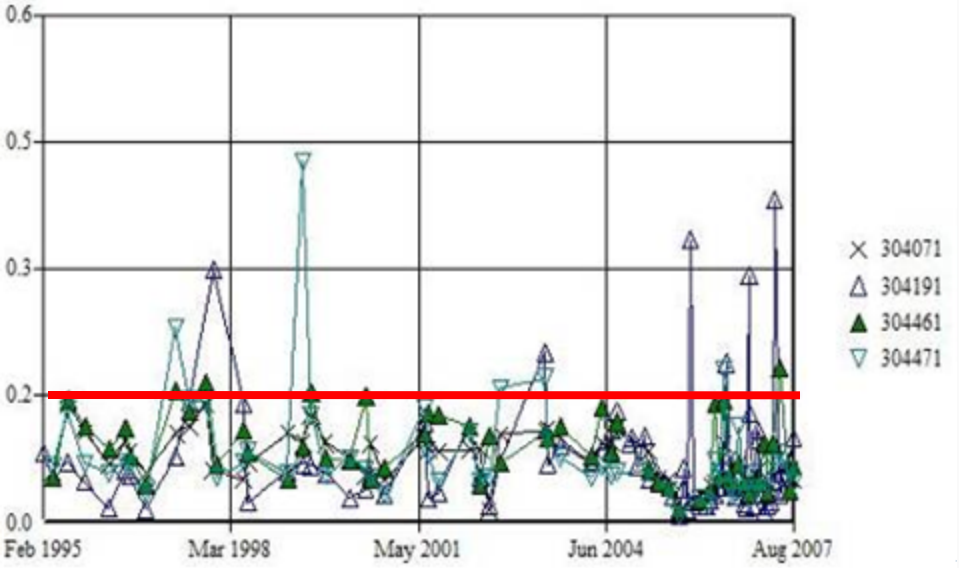
Water Quality Data

TN (mg/L)

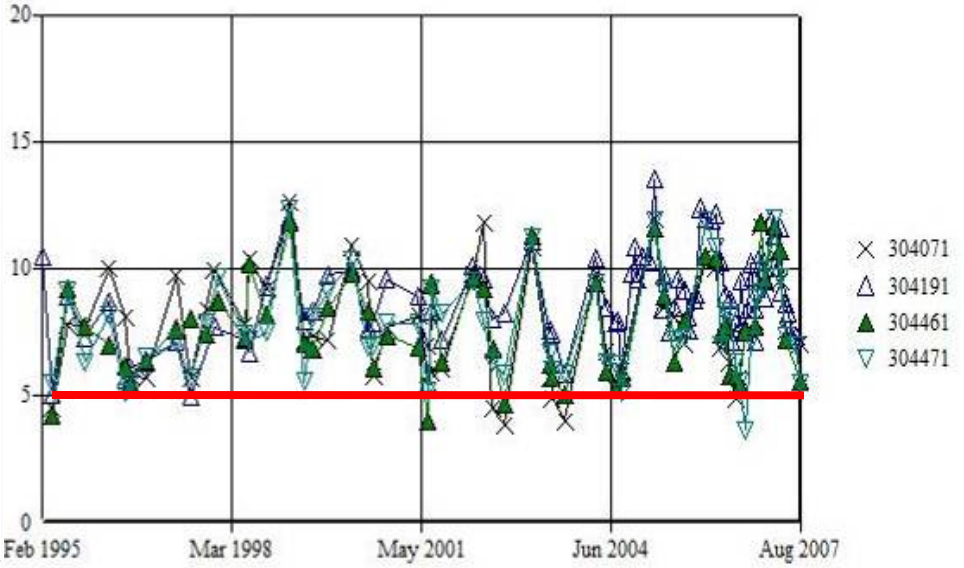




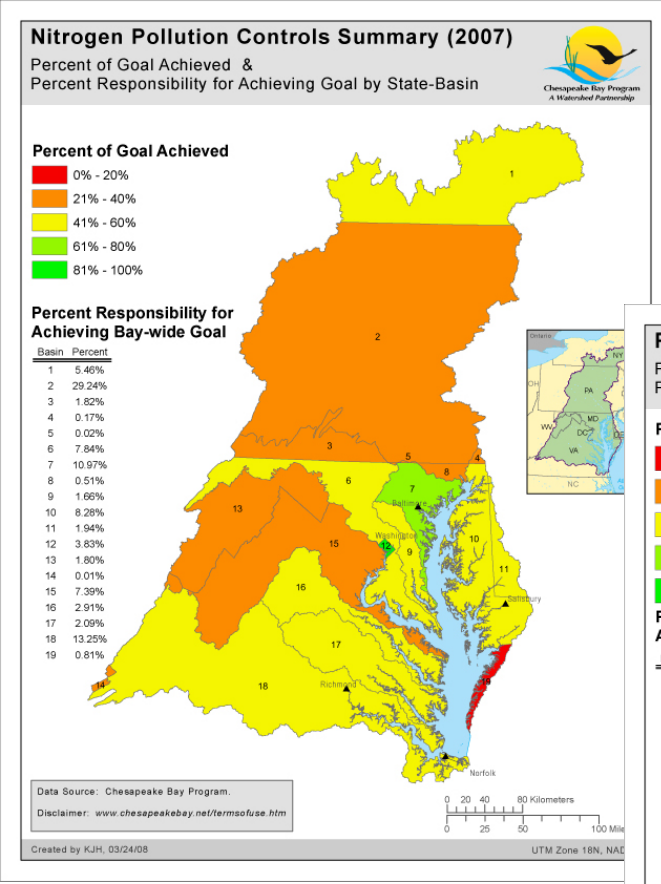
TP (mg/L)

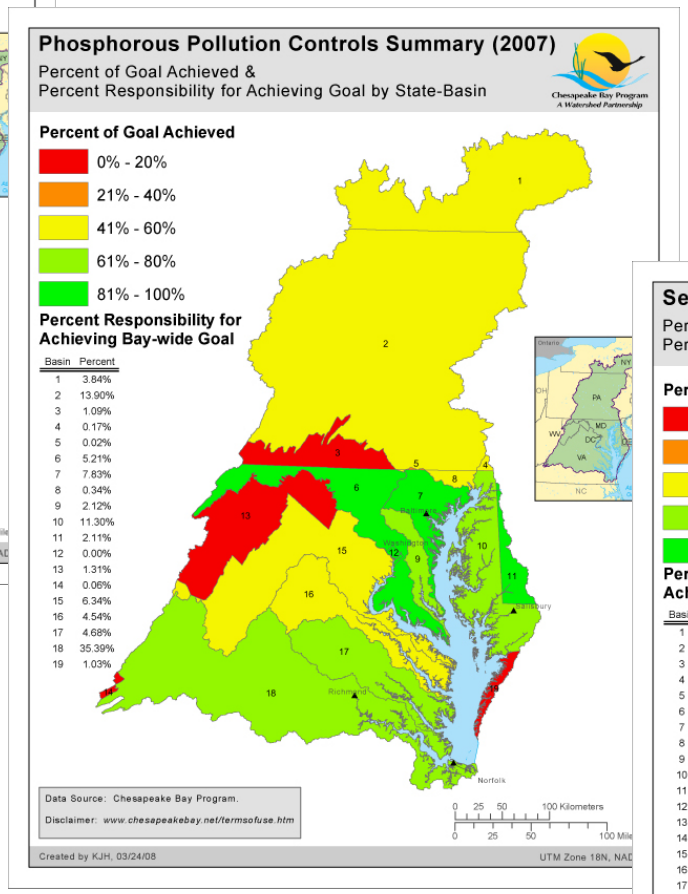


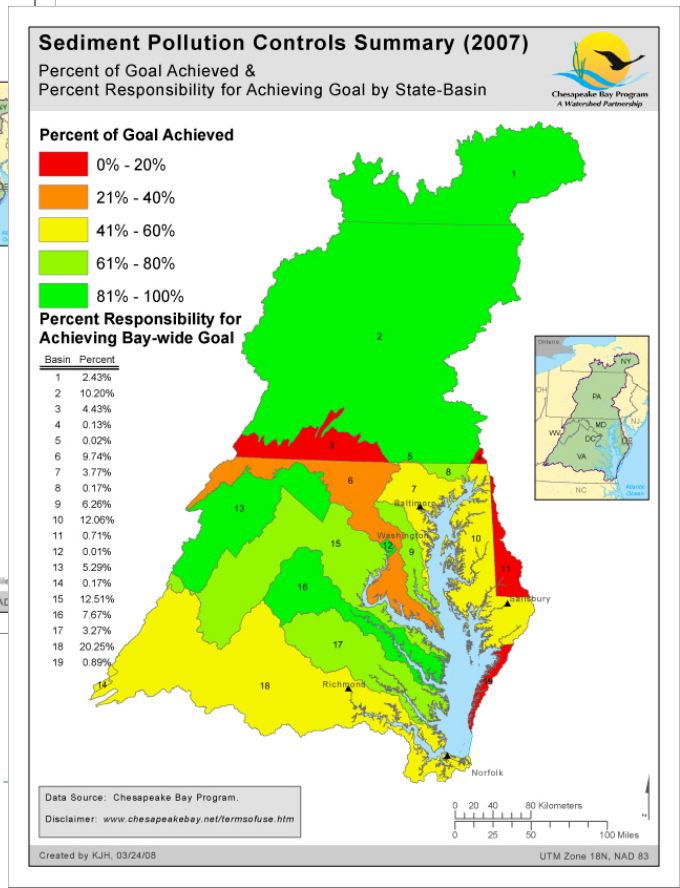
DO (mg/L)



Percent of Goal Achieved







Chesapeake Bay TMDL

- Progress to date has not been enough
- Need to accelerate progress
- Which ever TMDL is more strict will supersede
  - EPA TMDL required reductions for nitrogen exceed DE TMDLs (phosphorus about the same); additionally, DE does not have State TMDLs for sediment (because we don't have sediment standards)
- Will need to develop a Watershed Implementation Plan and solicit public input

Bay-wide Target Loads

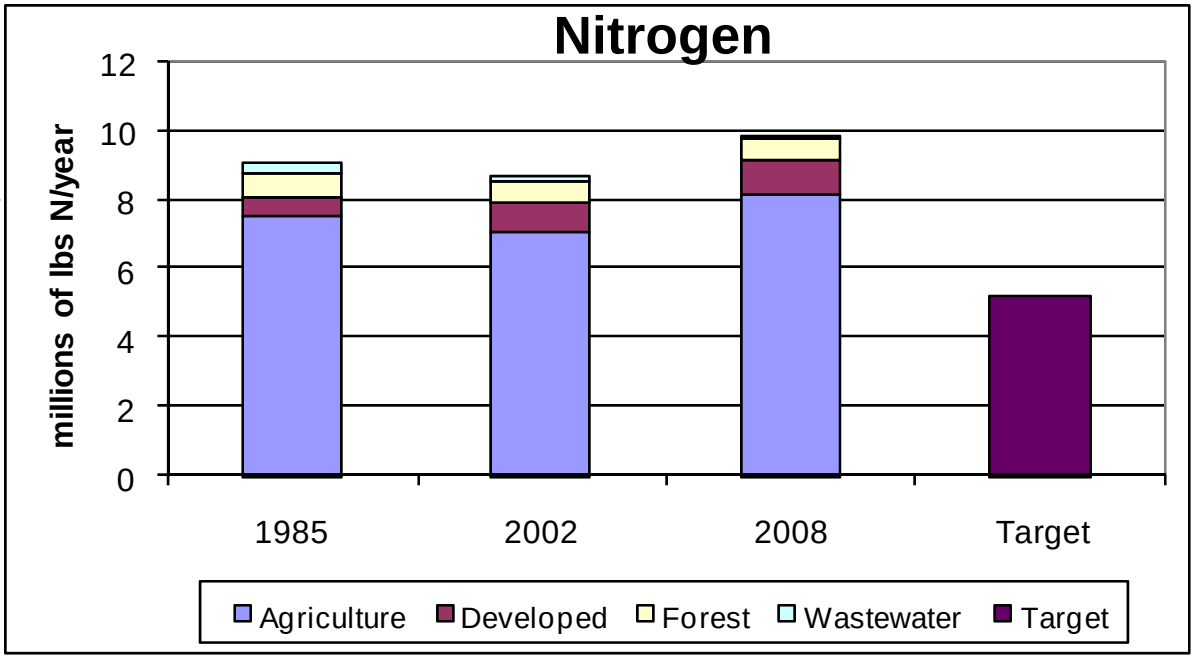
	Nitrogen (million pounds)	Phosphorus (million pounds)
2008	284	16.3
2017 interim goal	232	15.4
2025 final goal	**198**	**14.8**

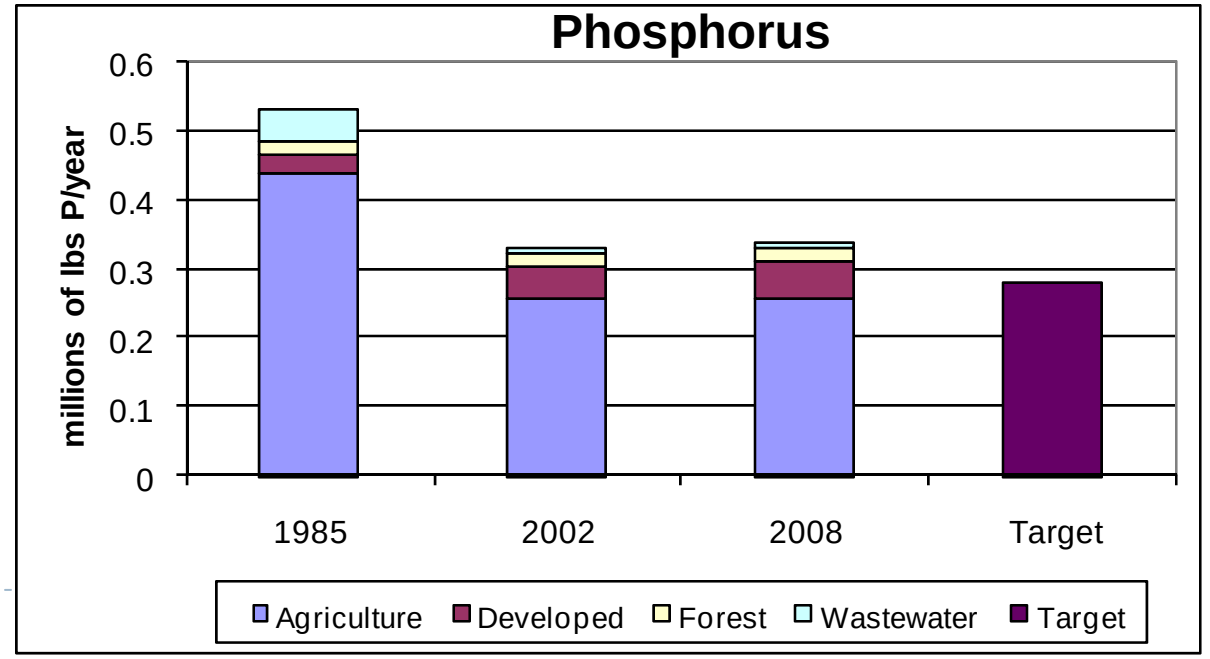
Delaware Target Loads

	Nitrogen (million pounds)	Phosphorus (million pounds)
2008	9.91	0.34
2017 interim goal	7.11	0.30
2025 final goal	**5.25**	**0.28**

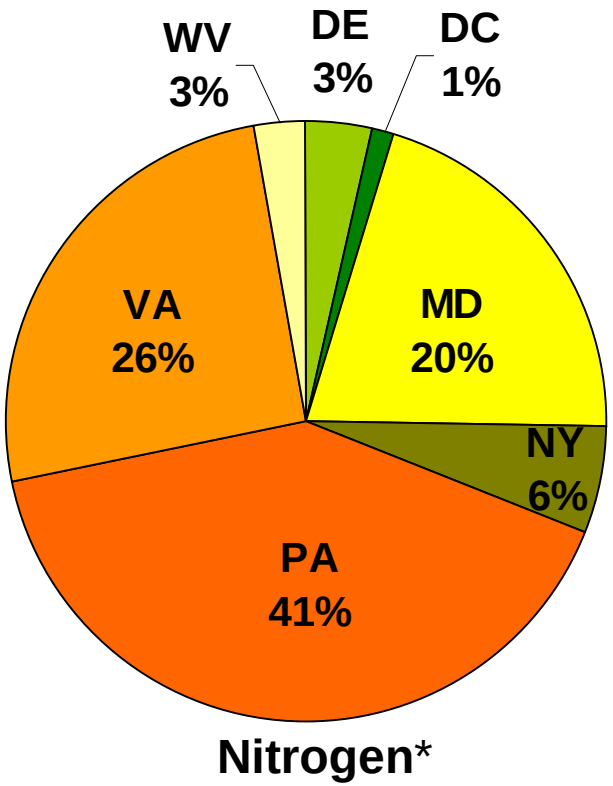
Delaware's Past, Present and Future Estimated Loads

All scenarios run through Phase 5.2 Watershed Model

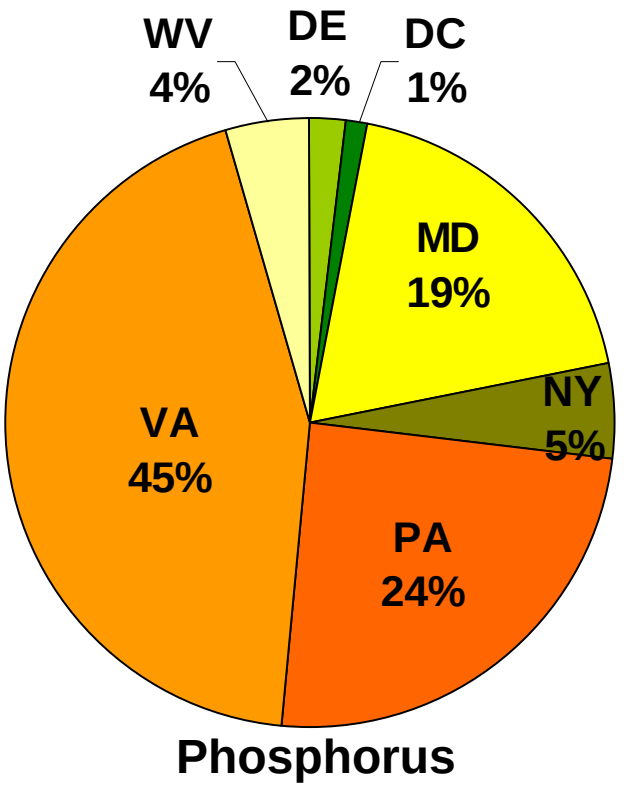




Nutrient Loads by State



Nitrogen*

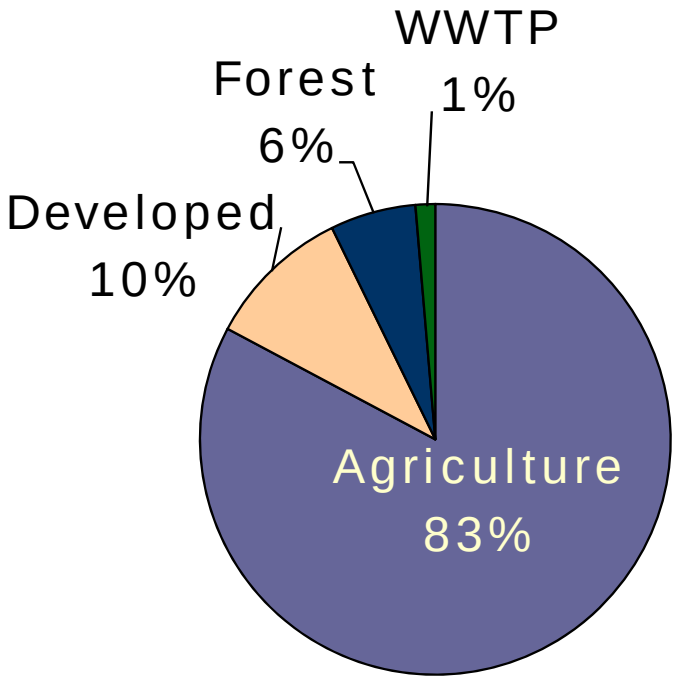


Phosphorus

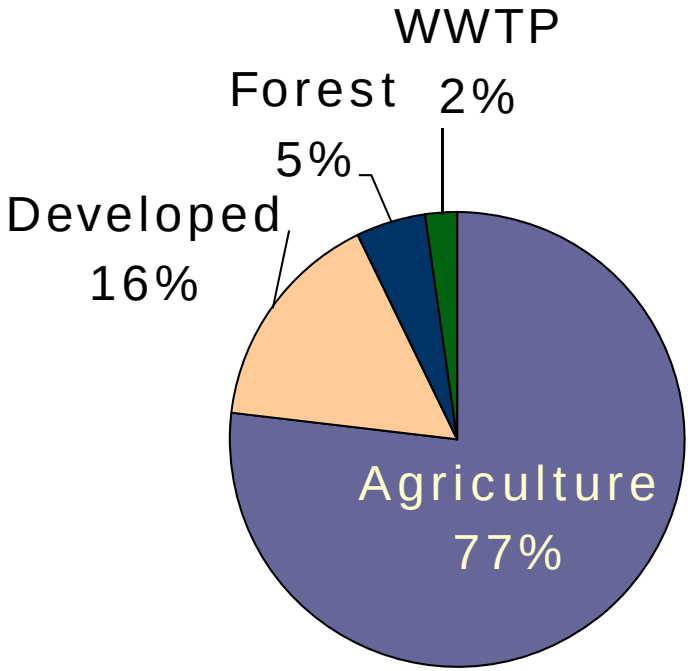
***EPA estimates a nitrogen load of 284 million lbs in 2008. EPA assumes a reduction of 7 million lbs due to the Clean Air Act. This leaves 77 millions lbs to be addressed through the TMDL process.**

Nutrient Sources of DE

Sources of Nitrogen from Delaware



Sources of Phosphorus from Delaware



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

Watershed Implementation Plans

- How we will achieve and maintain allocations
- Identify a schedule for accomplishing reductions with specific dates for implementing key actions (new regulations, improved compliance, additional resources for cost-sharing, etc.)
  - As soon as possible
  - 2-Year Milestones
  - No later than 2025
- Signatory states expected to base all control actions identified in their Plans on regulations, permits, or enforceable agreements
  - Headwater states not expected to do this, but strongly encouraged to do so

WIP Elements

1. Interim and final nutrient and sedime
2. Current loading baseline and
3. Account for growth loads from populatio bated in the co
4. G
5. Co new/enhanced poli and/or regulations
6. Track protocols
7. Contin slow or incomplete implementation
8. Appendix with detailed targets and schedule

EPA is developing more specific evaluation criteria for the different components of the WIPs and will share with the states when it's available.

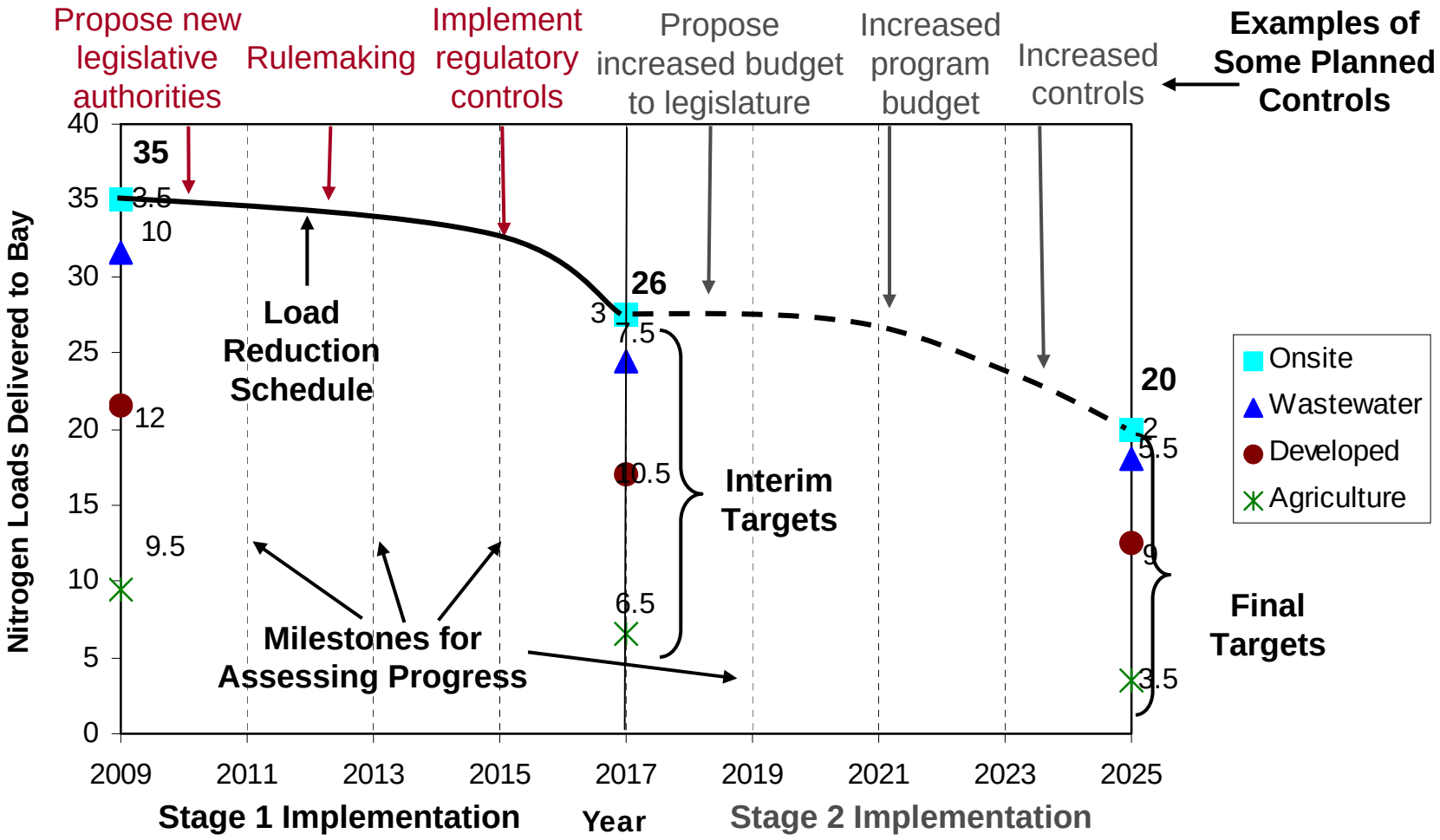
WIP Development Process

- Phase 1: Jurisdictions divide target loads among point and nonpoint sources; provide description of authorities, actions, and control measures that will be implemented
- EPA will consider this when establishing TMDL wasteload allocations for point sources and load allocations for nonpoint sources
- Preliminary Phase 1 WIP due June 1, 2010
- Draft Phase 1 WIP due August 1, 2010
- Final Phase 1 WIP due November 1, 2010

WIP Development Process

- Phase 2: Further divide allocations among smaller geographic areas or facilities
  - Finer scale allocations to help local governments, conservation districts, and watershed associations, etc. to better understand their contribution and responsibilities
  - Must identify interim water quality goals (60% of the controls in place by 2017)
  - Draft Phase 2 WIP due June 1, 2011
  - Final Phase 2 WIP due November 1, 2011

Example: Projected Nitrogen Delivery from Major Basin in Each Jurisdiction by Source Sector



- Also divide jurisdiction load by 303(d) segment drainage area and, by November 2011, local area
- Attain jurisdiction-wide load reductions by the interim target, or justify why can still meet final target
- Jurisdiction would determine desired 2-year schedule to meet interim and final target loads
- EPA first evaluates milestones based on consistency with jurisdiction target load. EPA accepts shifts among source sectors, basins, segment drainages, and local areas if jurisdiction target load is met and local and Bay water quality goals are achieved

WIP Development Process

- Phase 3: refined actions and controls that will be implemented between 2018 and 2025
  - Phase 3 WIP due 2017

WIP Accountability

- States will identify and commit to implement specific pollutant reduction controls and actions in successive 2-year milestones
  - First set of milestones: May 2009 - December 2011
- EPA will evaluate if past milestone commitments have been fulfilled and if future commitments are sufficient
- Imperative that we improve data tracking and reporting systems!
- National Academy of Sciences is serving as an independent evaluator to review current system

Delaware

2011 Milestones to Reduce Nitrogen and Phosphorus

Chesapeake Bay Program
A Watershed Partnership

Pollution Reduction Actions by End of 2011

Agriculture

Cover Crops Late Planting	18,600 acres/year
Cover Crops Early Planting	18,600 acres/year
Forest Buffers	2,700 acres
Wetland Restoration	420 acres
Tree Planting	200 acres
Poultry Litter Transport	55,100 tons/year
Nutrient Management	177,000 acres

Urban/Suburban

On-Site Pumpouts	8,800 systems/year

Wastewater

Reduction of Invista's Permitted Load	215,350 lbs. nitrogen

Additional Reduction Options

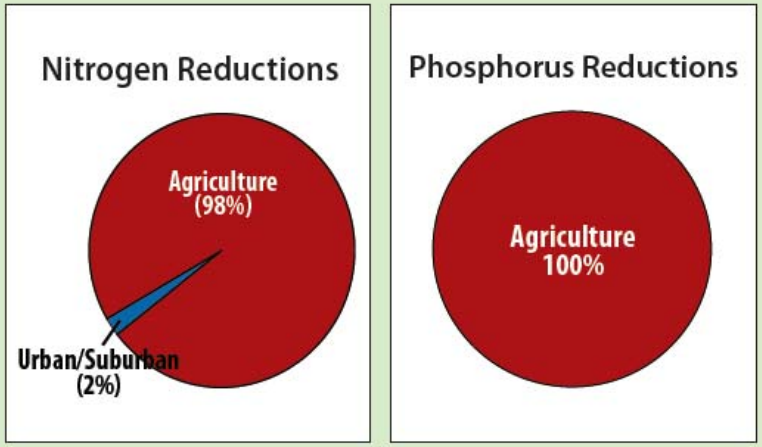
Agriculture

Maintain/increase acres of grass buffers

Use Farm Bill to fund five priority BMPs through EQIP in the Nanticoke and Choptank watersheds

- Cover Crops
- Heavy Use Area Protection
- Irrigation Water Management
- Nutrient Management
- Manure Transfer

Pollution Reductions by Source



Consequences

- Expand NPDES permit coverage to currently unregulated sources (Residual Delegation Authority);
- Object to NPDES permits and increase oversight;
- Require net improvement offsets (new/increased PSs);
- Establish finer scale allocations in the Bay TMDL;
- Require additional load reductions from point sources;
- Increase and target federal enforcement and compliance;
- Condition or redirect EPA grants;
- Federally local nutrient water quality standards

Chesapeake Interagency Workgroup

- First met on January 8, 2010
- Representatives from
  - Each DRNEC Division
  - Department of Agriculture
  - Department of Transportation
  - Office of State Planning Coordination
  - County Conservation Districts
  - Natural Resource Conservation District
  - Other stakeholders

Chesapeake Interagency Workgroup

- Recommend and review sub-allocation methodologies and resulting TMDL loads for point and nonpoint sources within the basins
  - Consider future growth
- Assess current capacity and how to fill gaps
- Assess current data tracking and reporting systems and assist with plans for improvement
- Determining maximum implementation goals and methods to fill program and funding gaps
  - Revisit and expand upon TAT recommendations
- Provide text to address 8 WIP Elements

Chesapeake Interagency Workgroup

- Eight Subcommittees
  1. Agriculture
  2. Stormwater
  3. Wastewater
  4. Land Use & Comprehensive Plans
  5. Public Lands
  6. Restoration
  7. Funding
  8. Information Technology
- Currently meeting
- Another full Workgroup meeting in April/May
- Public stakeholder meetings this spring and summer

Questions?

Contact Information:

Jennifer Volk, DNREC

Watershed Assessment Section

Jennifer.Volk@state.de.us

302-739-9939