

**Local Actions in Pennsylvania Are
Making a Difference, But there are Still
Challenges and Opportunities Ahead**

Nick DiPasquale, Director
Chesapeake Bay Program Office
U.S. EPA

Agriculture

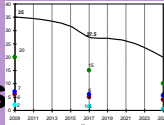
- Conservation District outreach/education to farmers on PA regulations and WIP responsibilities.
- Conservation District technical assistance to farmers (NRCS CBWI = \$3 million)
- PA Efforts to Account for Ag BMPs – PADEP Conservation Tillage Transect Survey

Bay TMDL Accountability Framework

1. Watershed Implementation Plans identify nutrient and sediment targets that meet water quality standards.



2. 2-Year Milestones with programmatic and pollutant reduction commitments



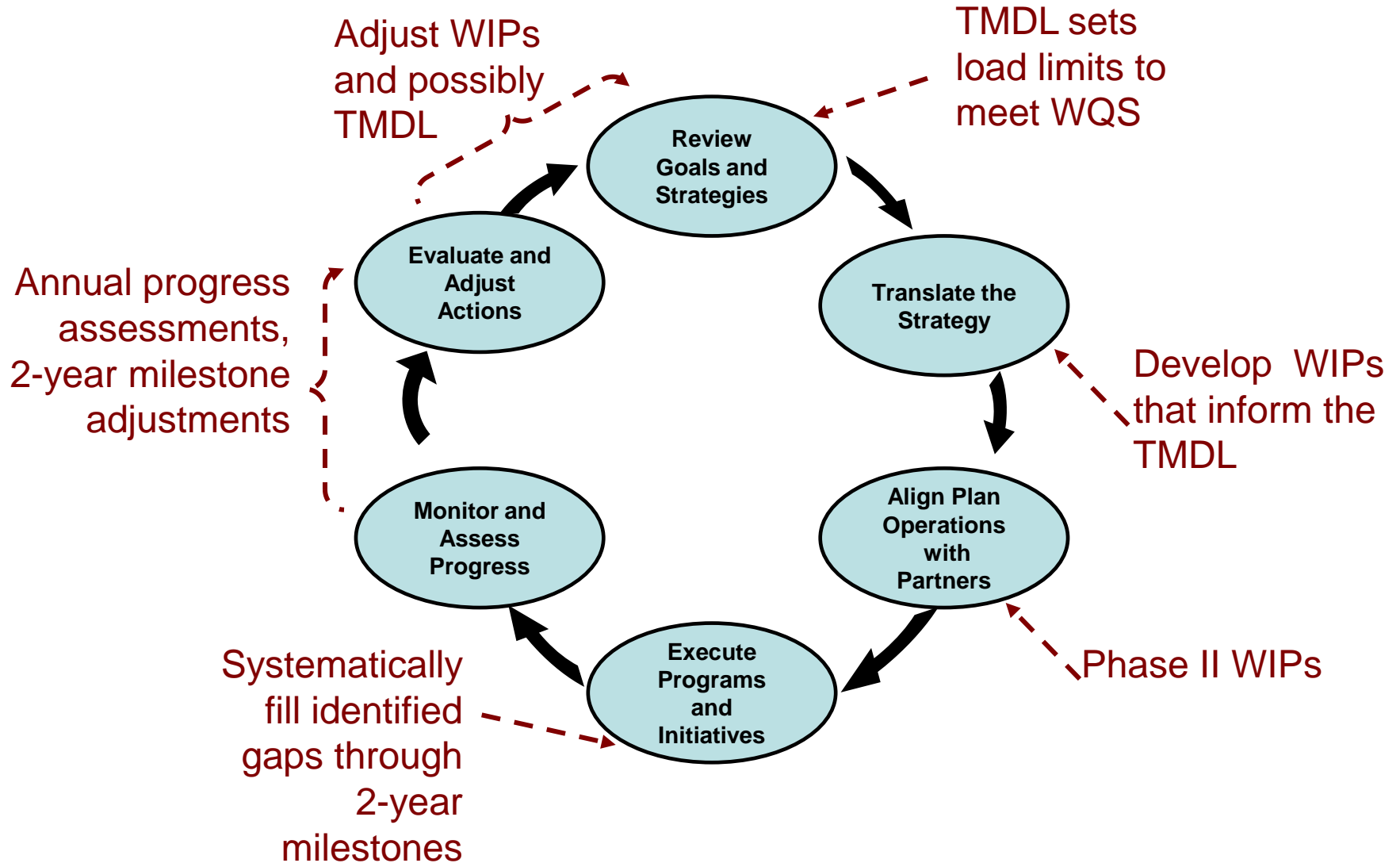
3. Track and Assess Progress implementing WIPs and milestones



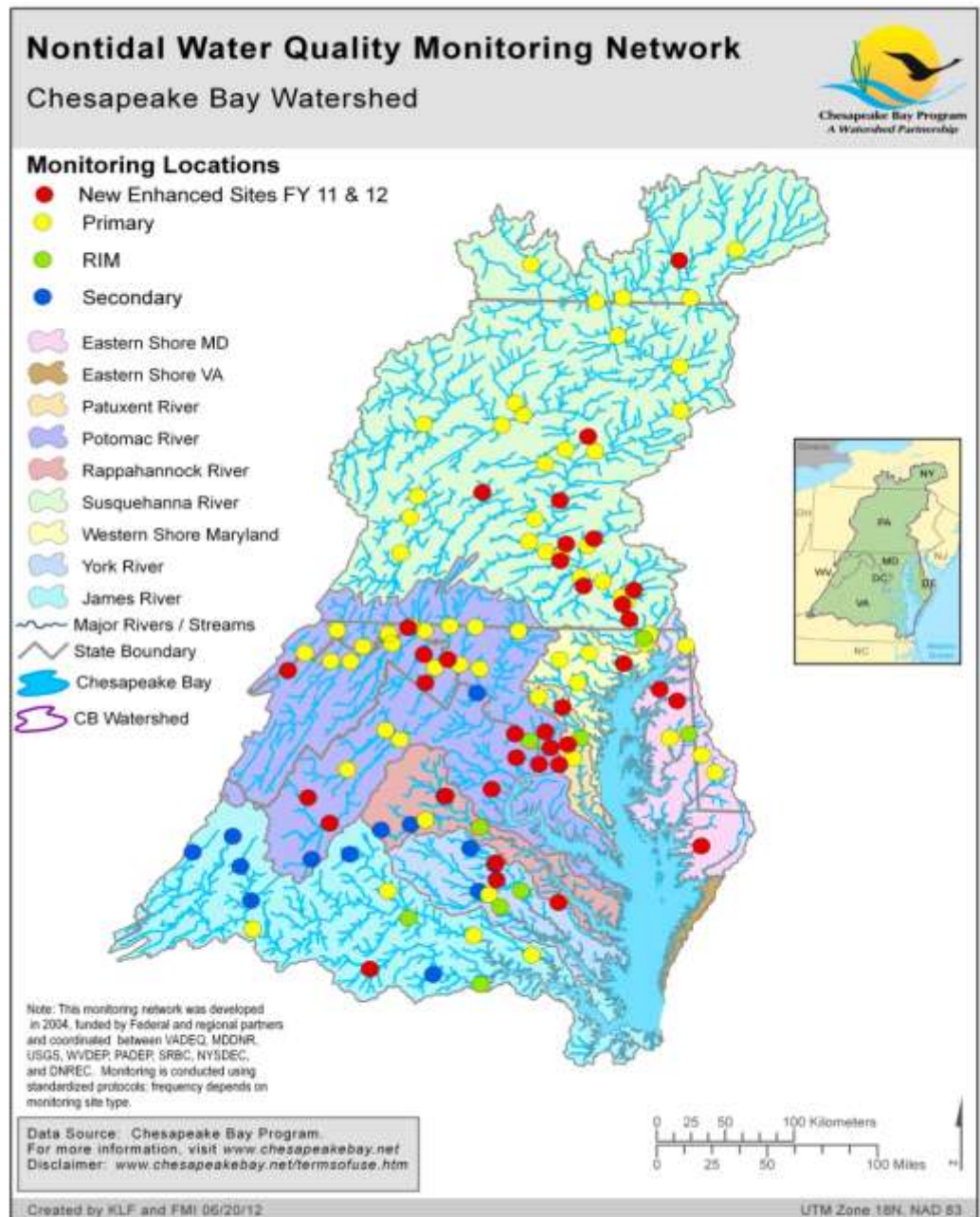
4. Federal Actions if insufficient Watershed Implementation Plans or 2-year milestones



Adaptive Management

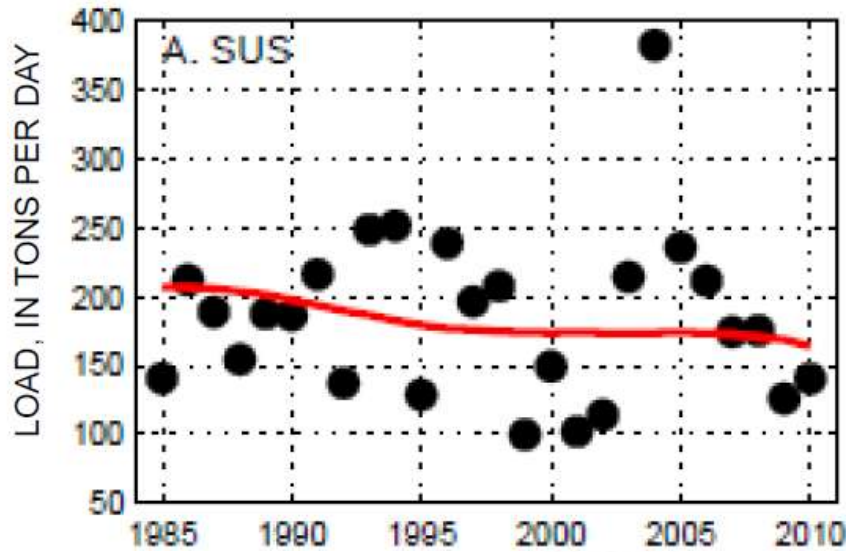


- Integrated Partnership Network
- 2004: 85 stations
- 2012: 130 stations
- Informs our progress assessment and modeling tools

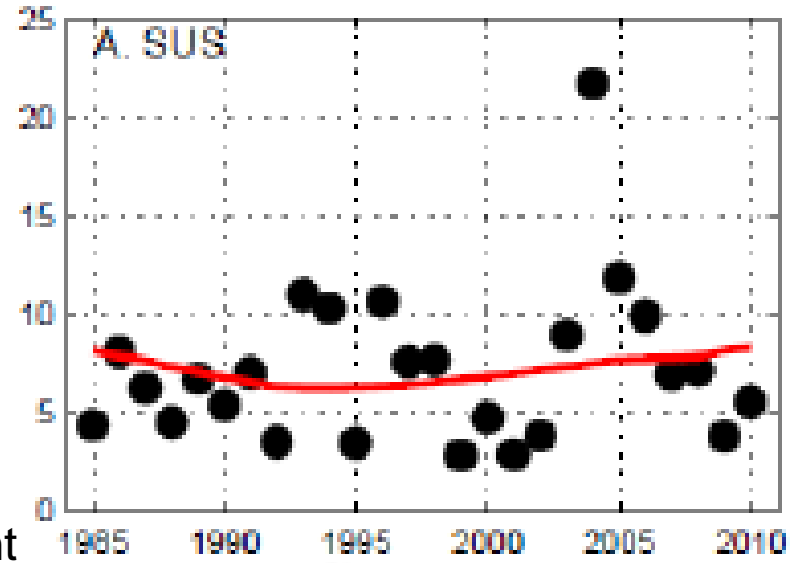


Long-Term Trends in Pollution Loads

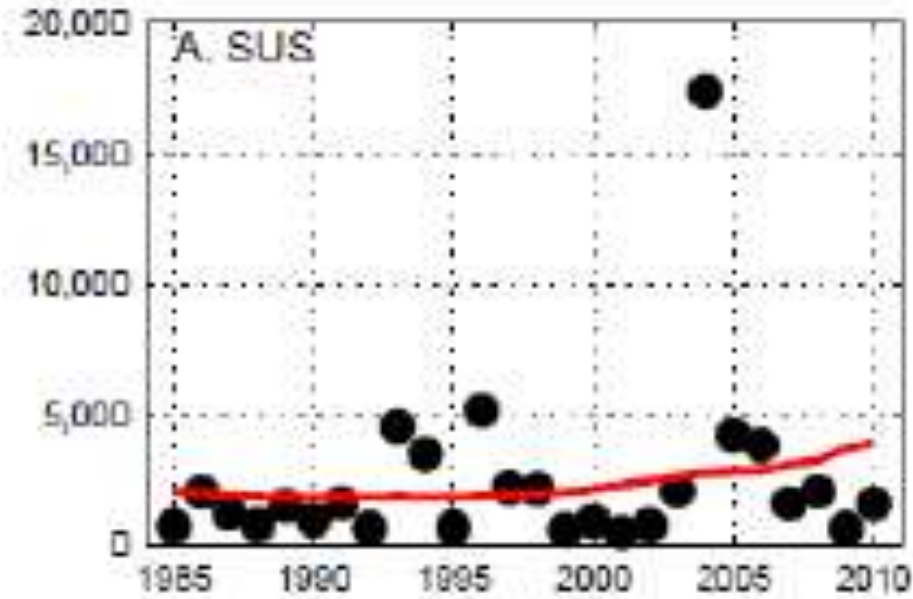
Nitrogen



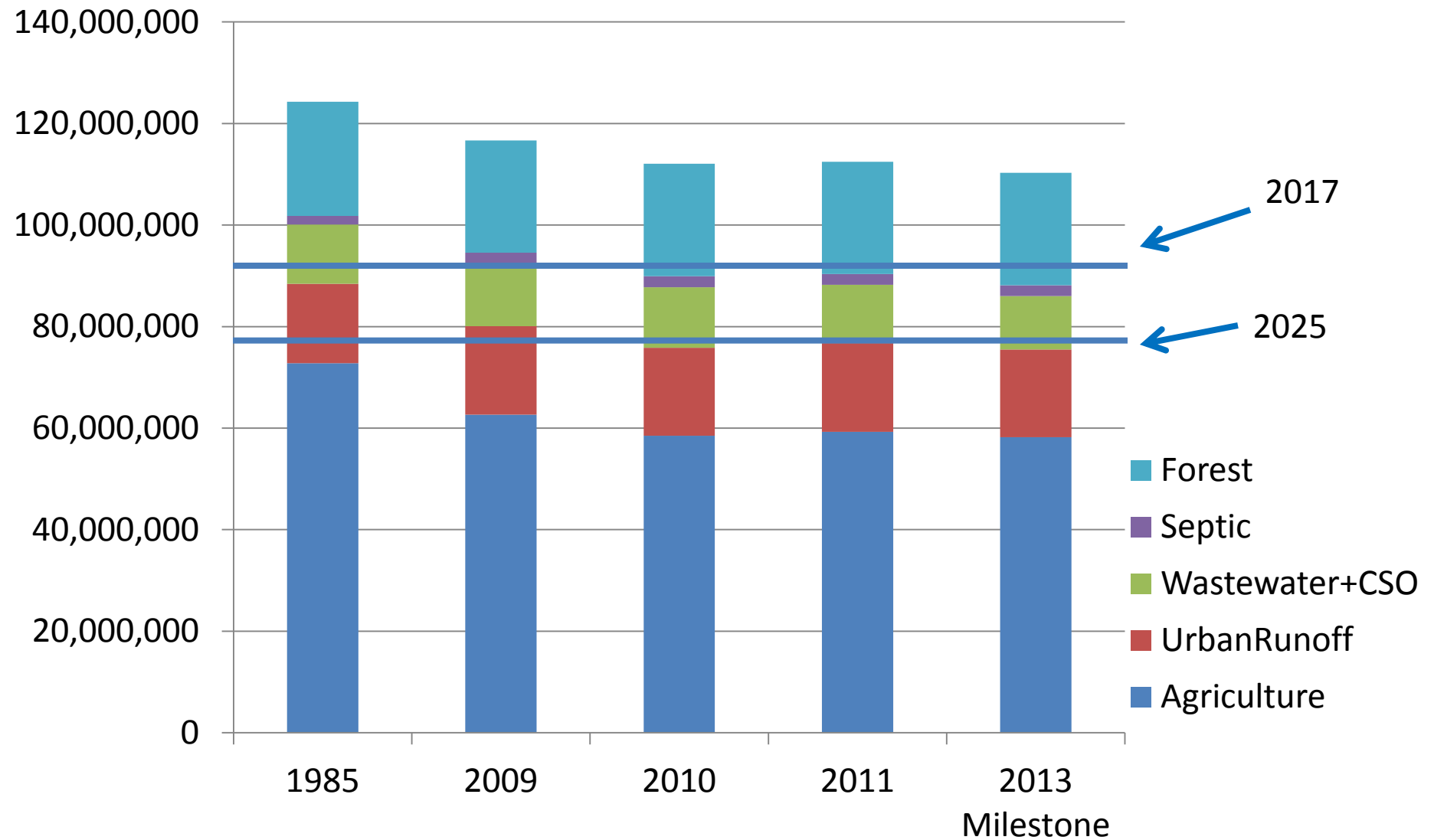
Phosphorus



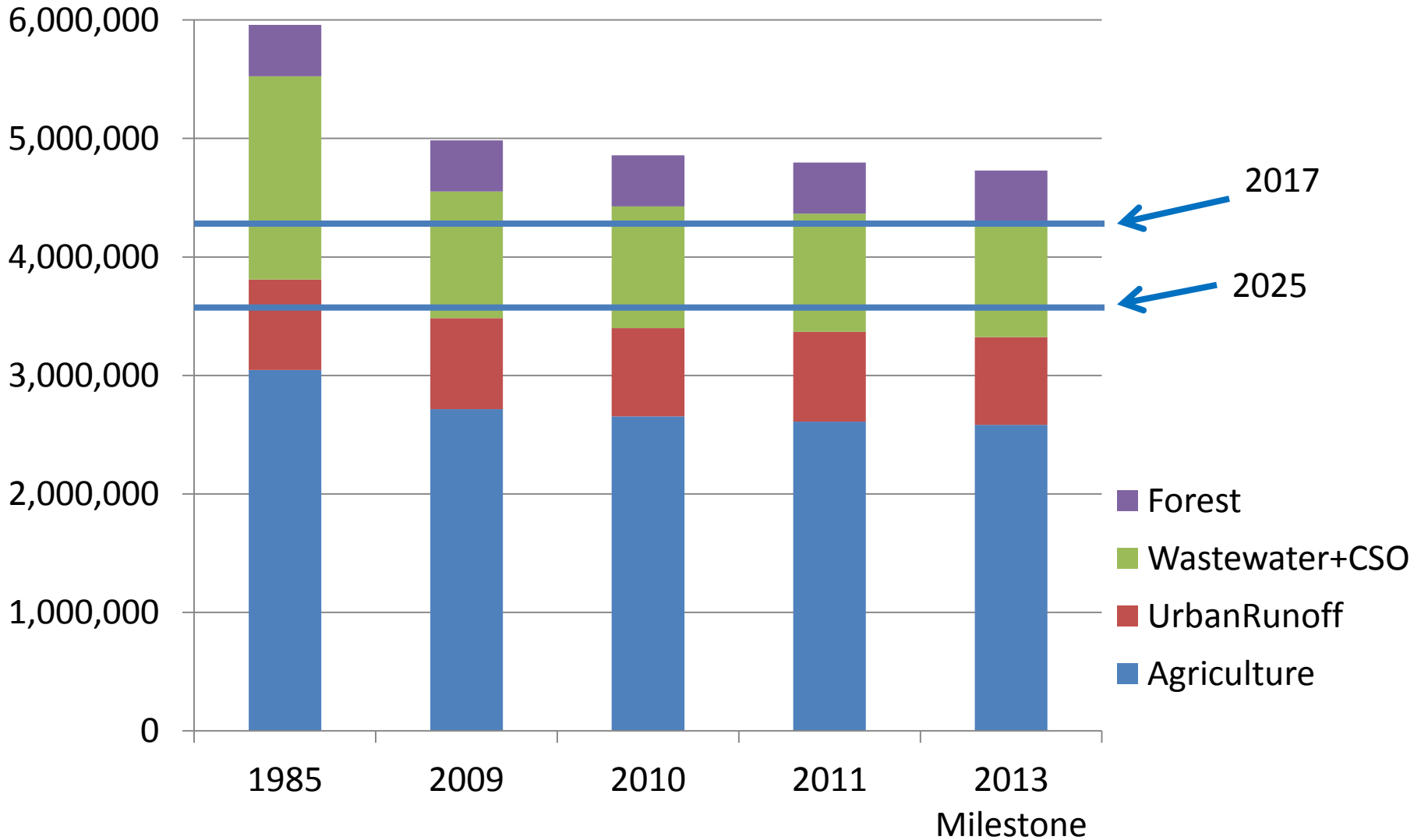
Sediment



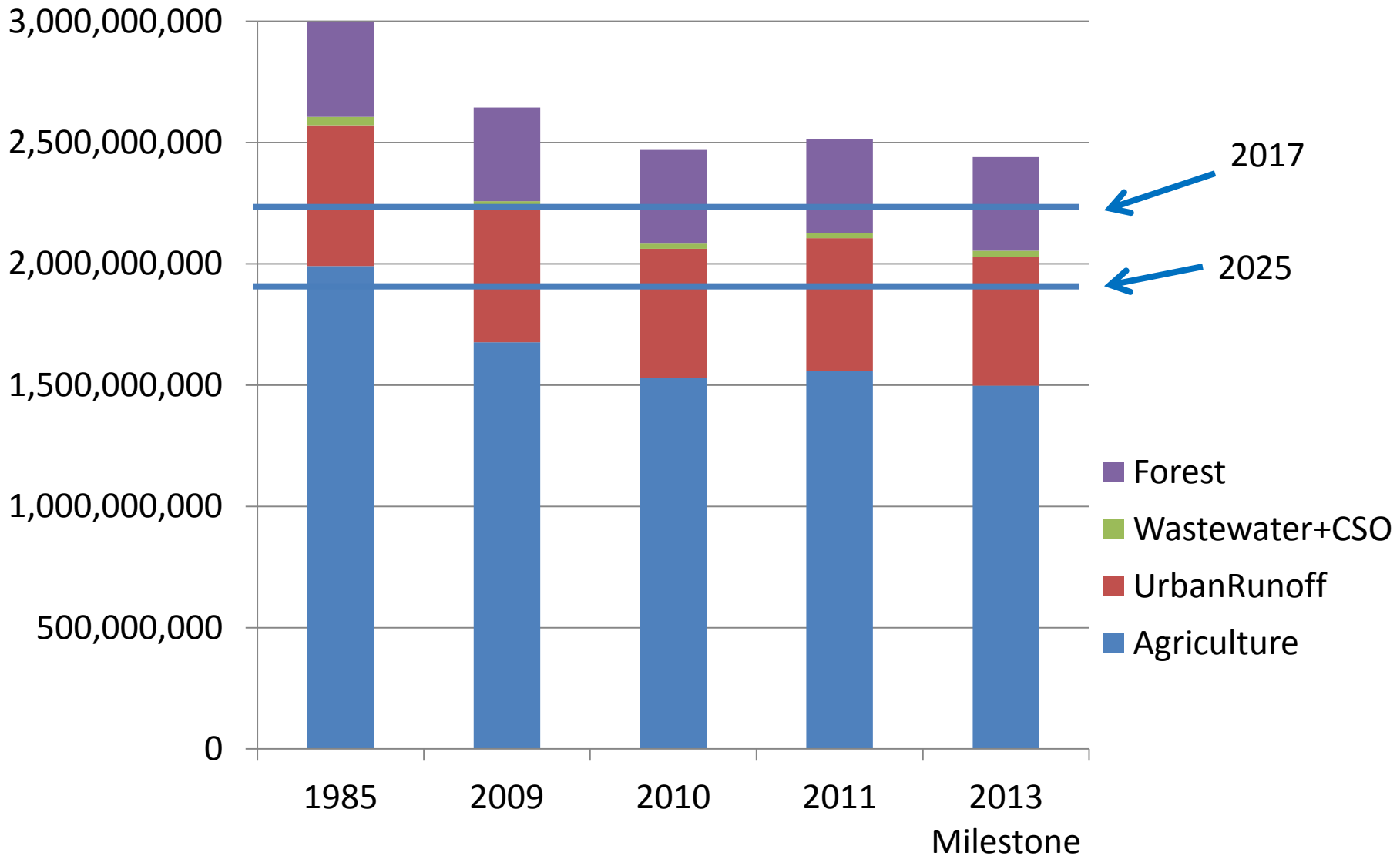
PA Total Nitrogen (lbs) Delivered to Chesapeake Bay by Sector, Estimated by Watershed Model



PA Total Phosphorus (lbs) Delivered to Chesapeake Bay by Sector, Estimated by Watershed Model



PA Total Sediment (lbs) Delivered to Chesapeake Bay by Sector, Estimated by Watershed Model



BMP Implementation Acres for Select Agricultural Practices in PA's Chesapeake Bay Watershed

Agricultural BMPs	1985 Progress	2009 Progress	2010 Progress	2011 Progress
Soil and Water Quality Conservation Plans	7,026	1,336,350	1,226,534	1,562,980
Nutrient Management (all forms)	5,242	1,202,385	1,341,876	1,384,659
Conservation and No-Tillage	684,922	604,206	644,392	633,610
Land Retirement	0	147,376	271,785	288,155
Forest Buffers	0	43,096	66,332	69,180
Cover Crops (all forms)	0	197,279	113,798	65,535

Commitments to Meet Urban Runoff Goals

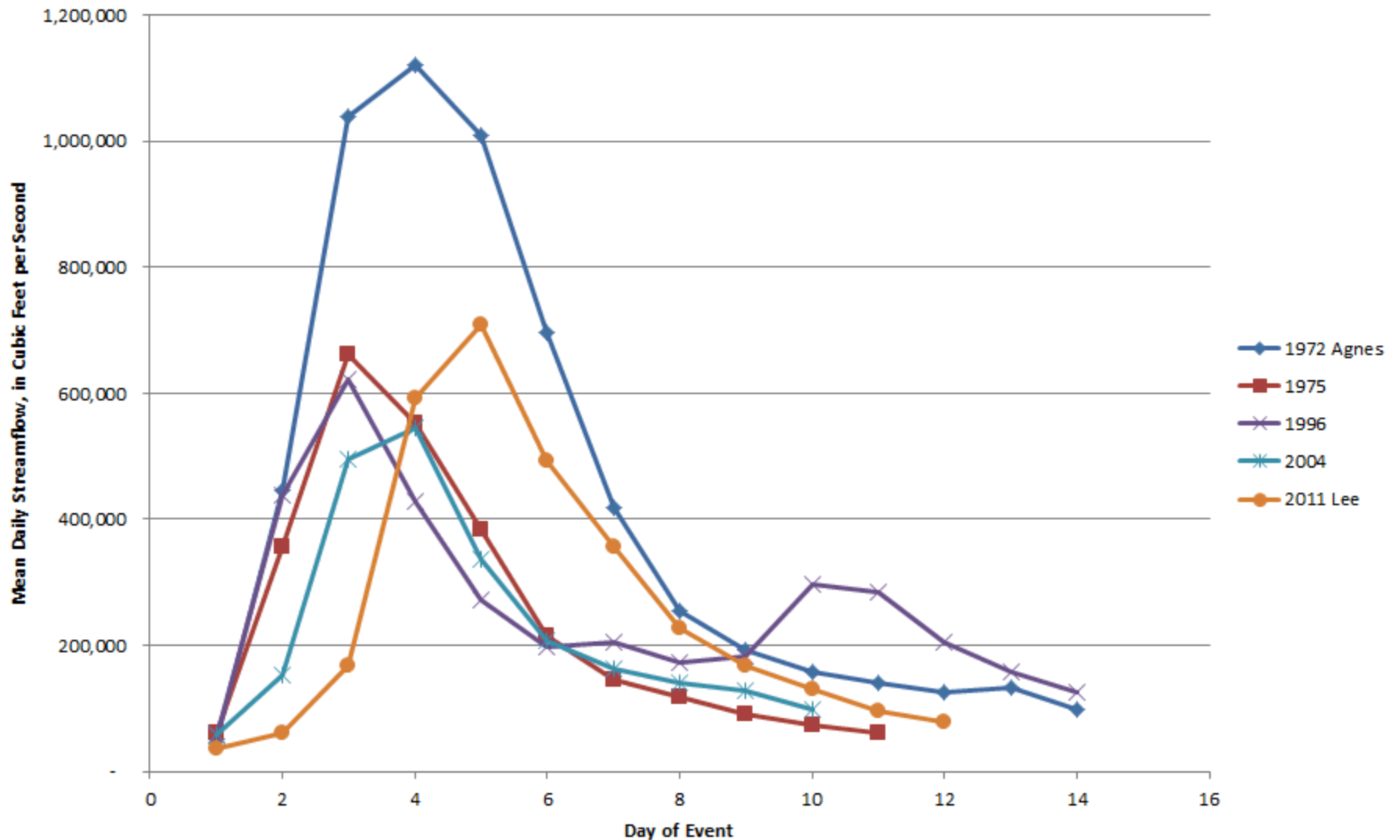
- Implement erosion and sediment control on 100% of construction sites (by 2013 milestone)
- Increase total levels of stormwater management, including transforming existing BMPs to more effective infiltration and filtration practices
- Implement nutrient management on 30% of pervious urban lands (turf)
- Plant almost 16,000 acres of urban stream buffers and almost 1,500 acres of urban trees

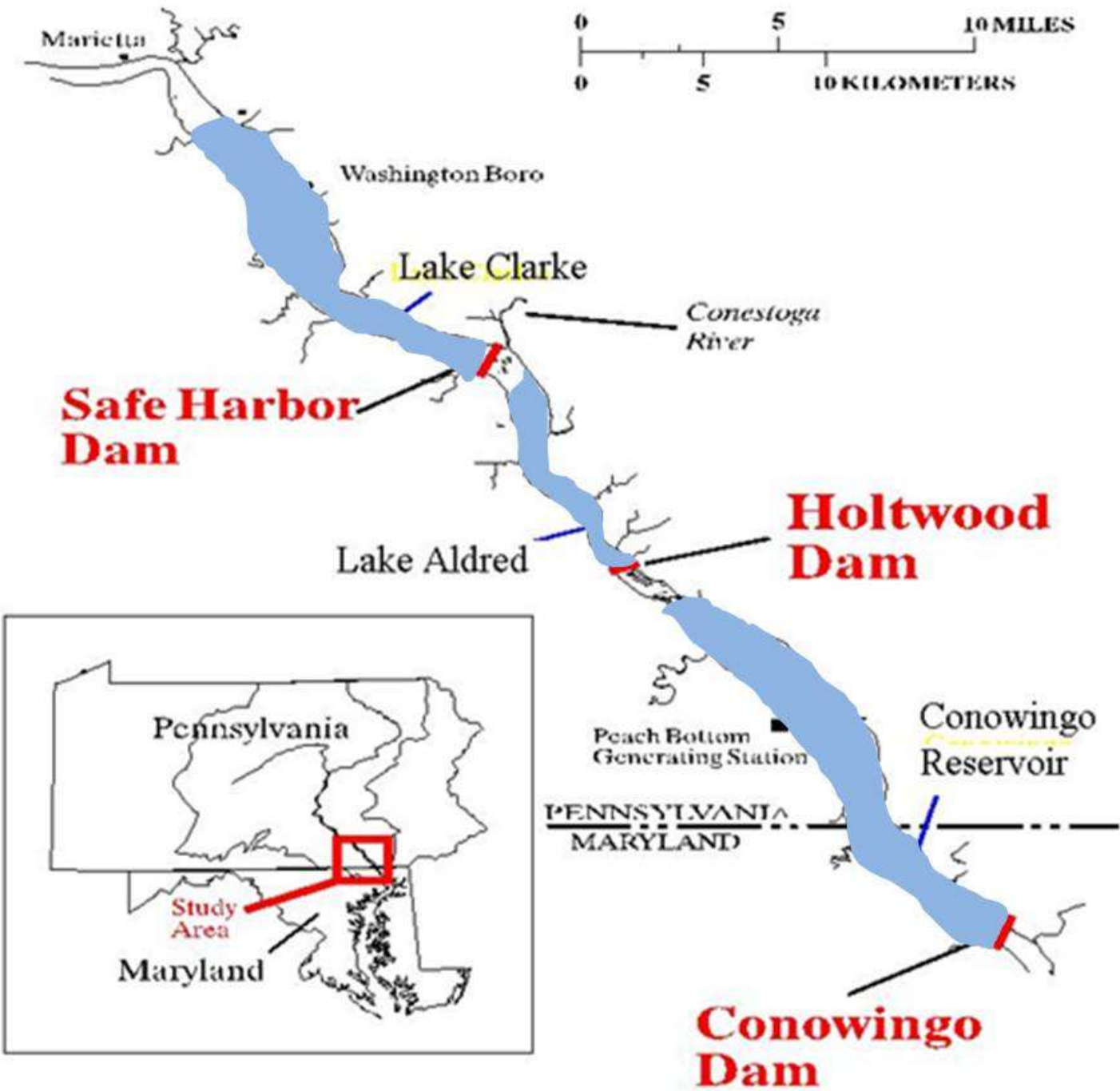
PAG-13 Activities to Address Urban Runoff

- Commonwealth issued Phase II Small MS4 General Permit in September 2011 (PAG-13)
 - Requires permittees to develop Chesapeake Bay Pollutant Reduction Plans (CBPRP)
- DEP developing CBPRP guidance and training
- DEP and EPA will review permittees' CBPRP plans

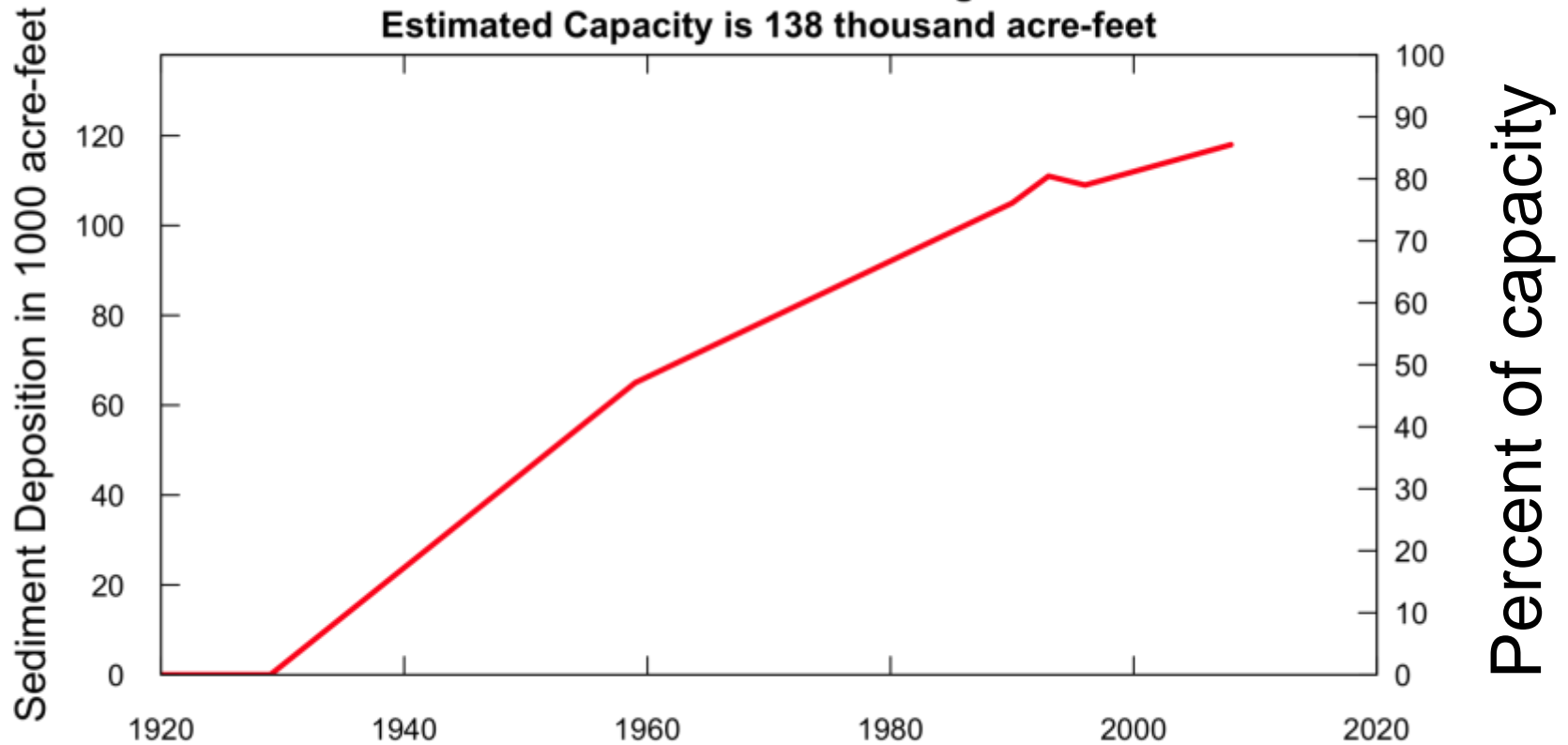


Susquehanna River at Conowingo, MD Storm Events with Mean-Daily Flow Exceeding 500,000 CFS





**History of Sediment Deposition
In the lower 11.5 miles of Conowingo Reservoir
Estimated Capacity is 138 thousand acre-feet**

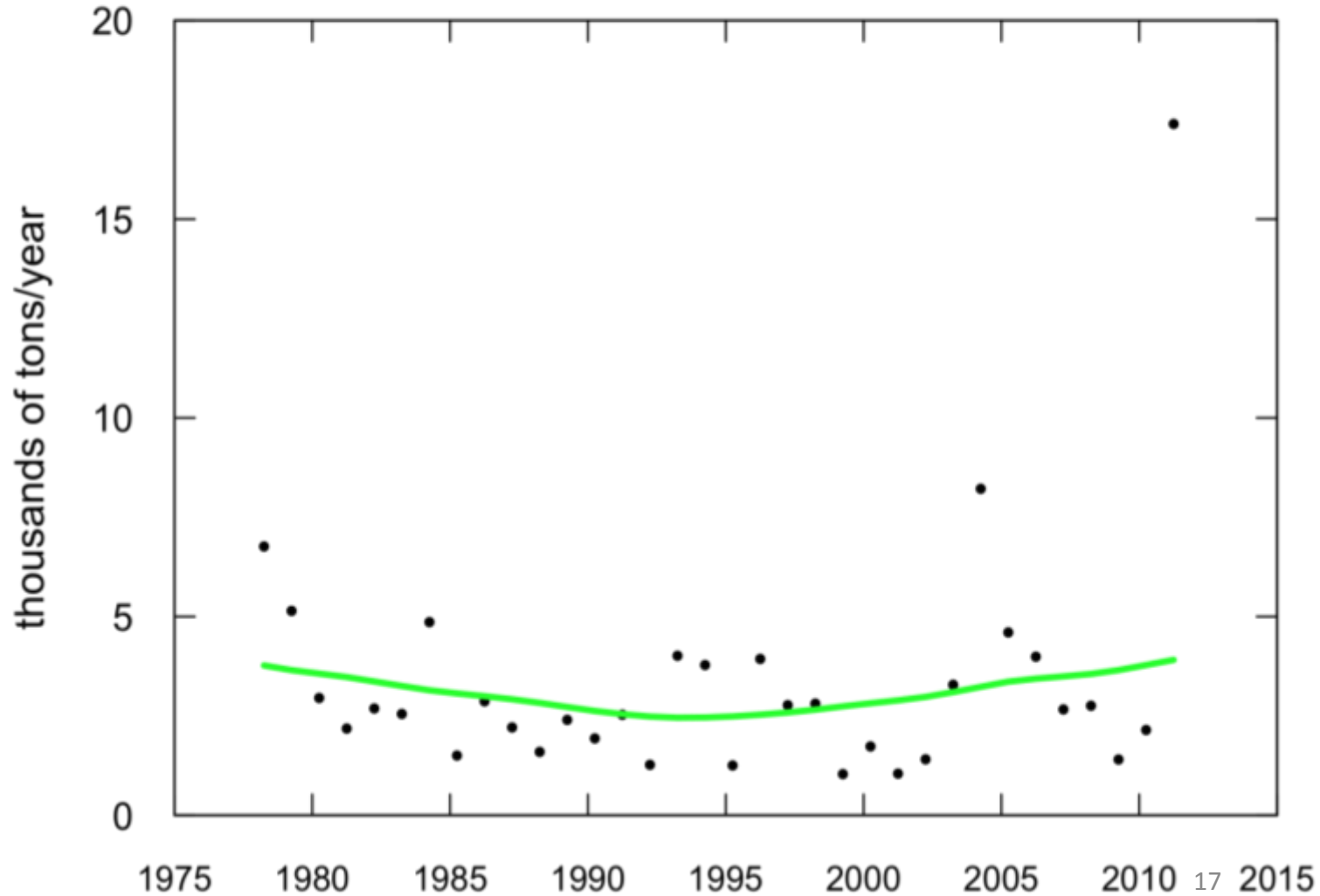


Source: Langeland, 2009, USGS
<http://pubs.usgs.gov/sir/2009/5110/>

Annual Load of Phosphorus

(In 10^3 tons/yr)

Susquehanna River at Conowingo, MD Total Phosphorus
Water Year
Flux Estimates (dots) & Flow Normalized Flux (line)



Flow
Normalized
Load
Up 55%
Since 1996

Susquehanna River Loads to the Bay at Conowingo Dam: Observed and Predicted

	Change in Load since 1996 in Monitoring Data	Predicted change when reservoirs “filled”
TN	-3%	+2%
TP	+55%	+70%
SS	+97%	+250%

Anticipated Implications

- As the reservoirs fill:
 - This leads to more frequent scour of sediment/phosphorus
 - Less trapping of sediment and phosphorus
- Increase in sediment and phosphorus loads
 - Nitrogen less effected
- Upstream practices to reduce P and sediment may be counter balanced by reservoir effects
- More difficult to achieve standards in upper Bay
 - Water clarity most impacted; less for DO

EPA's Evaluation of Pennsylvania's Nutrient Trading Baseline

- Simulated levels of regulatory requirements in Pennsylvania that would enable a farm to be eligible to trade under Pennsylvania law.
- Evaluated the nitrogen, phosphorus, and total suspended solids loads compared to the Pennsylvania's allocation under the Chesapeake Bay TMDL.

Summary of Results

- EPA's simulation of Pennsylvania's trading baseline requirements showed that these did not meet PA's Ches Bay TMDL allocation.
- Findings:
 - at least 41% greater than PA's nitrogen allocation
 - 9% greater than PA's phosphorus allocation
 - 4% greater than PA's sediment allocation

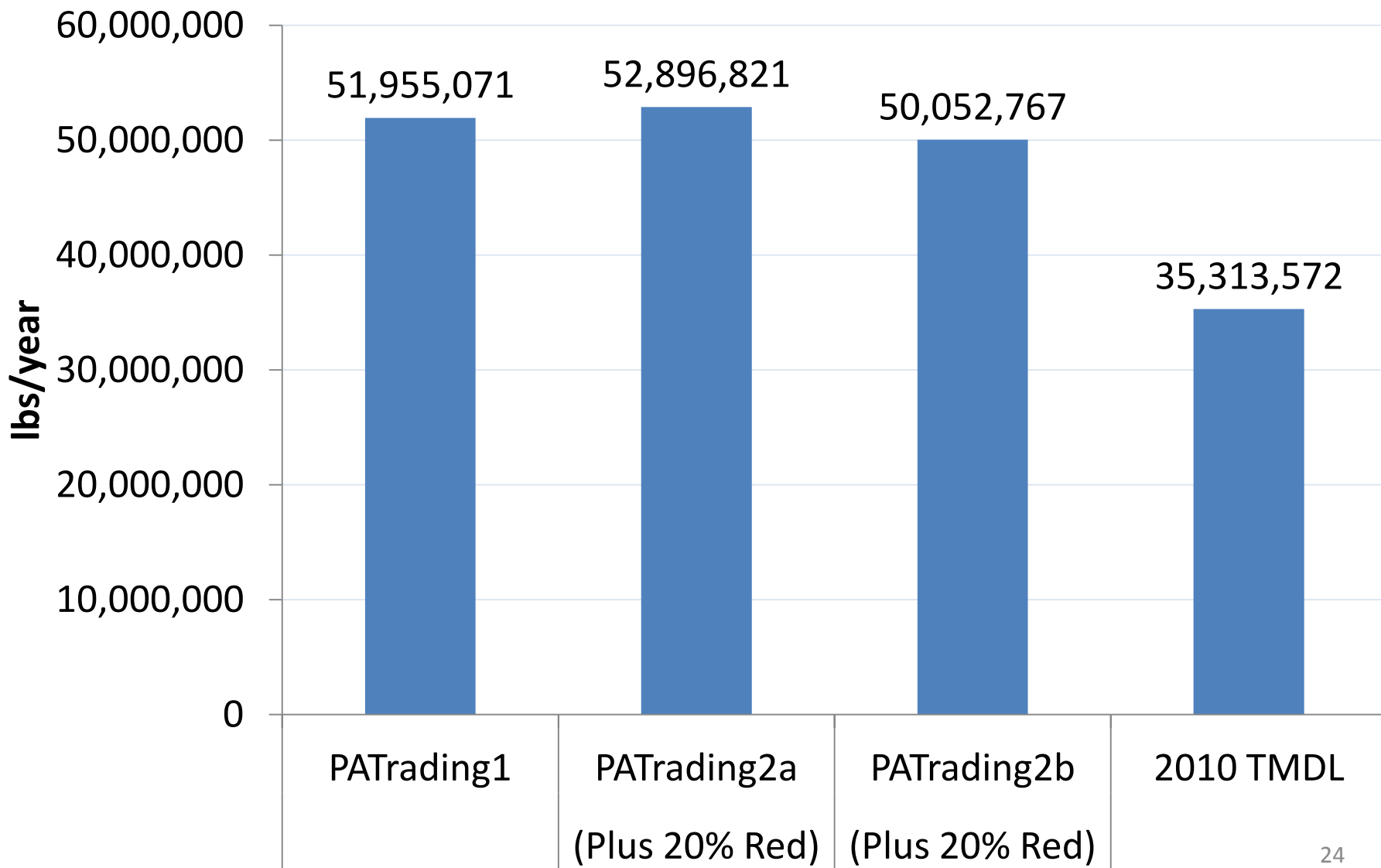
PADEP's Proposal to meet CB TMDL Requirements

- November 2012 – PADEP proposed significant modifications to its trading program to address EPA 's TMDL baseline concerns, ensure greater transparency, and ensure accountability.
- PADEP has determined that existing regulations would need to be revised to comply with the TMDL baseline requirements.
- Regulation development occurring now through December 2013
 - Work will be done through advisory committees and stakeholder process
 - Workgroups will be established to develop specific program components and guidelines
 - Public comment will be solicited.
 - Schedule:
 - December 2013 – EQB approves draft regulations
 - March-April 2014 – Public comment period
 - January 2015 – EQB Approves regulation
 - May 2015 – Regulations published in the Pennsylvania Bulletin.

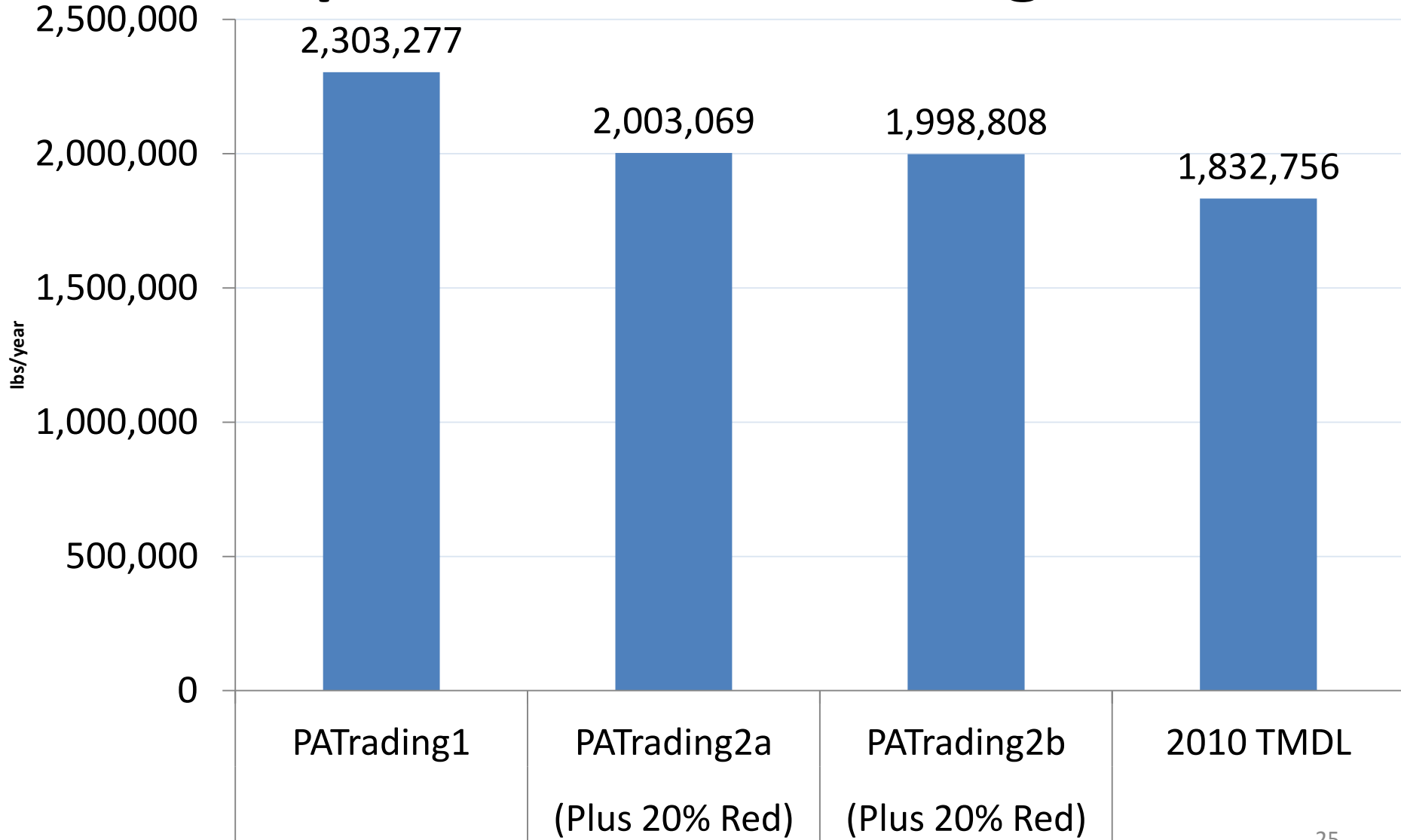
Three Scenarios

- Three different scenarios were run to approximate PA regulatory requirements, each of which assumes the required actions with one of the three options.
 - Scenario 1: 35-foot buffer plus nutrient management, E&S control, animal waste storage system
 - Scenario 2a: 20% reduction plus nutrient management, E&S control (conservation plan and barnyard runoff control only), and animal waste storage systems.
 - Scenario 2b: 20% reduction plus nutrient management, E&S control (conservation tillage, conservation plan, and barnyard runoff control), and animal waste storage systems.

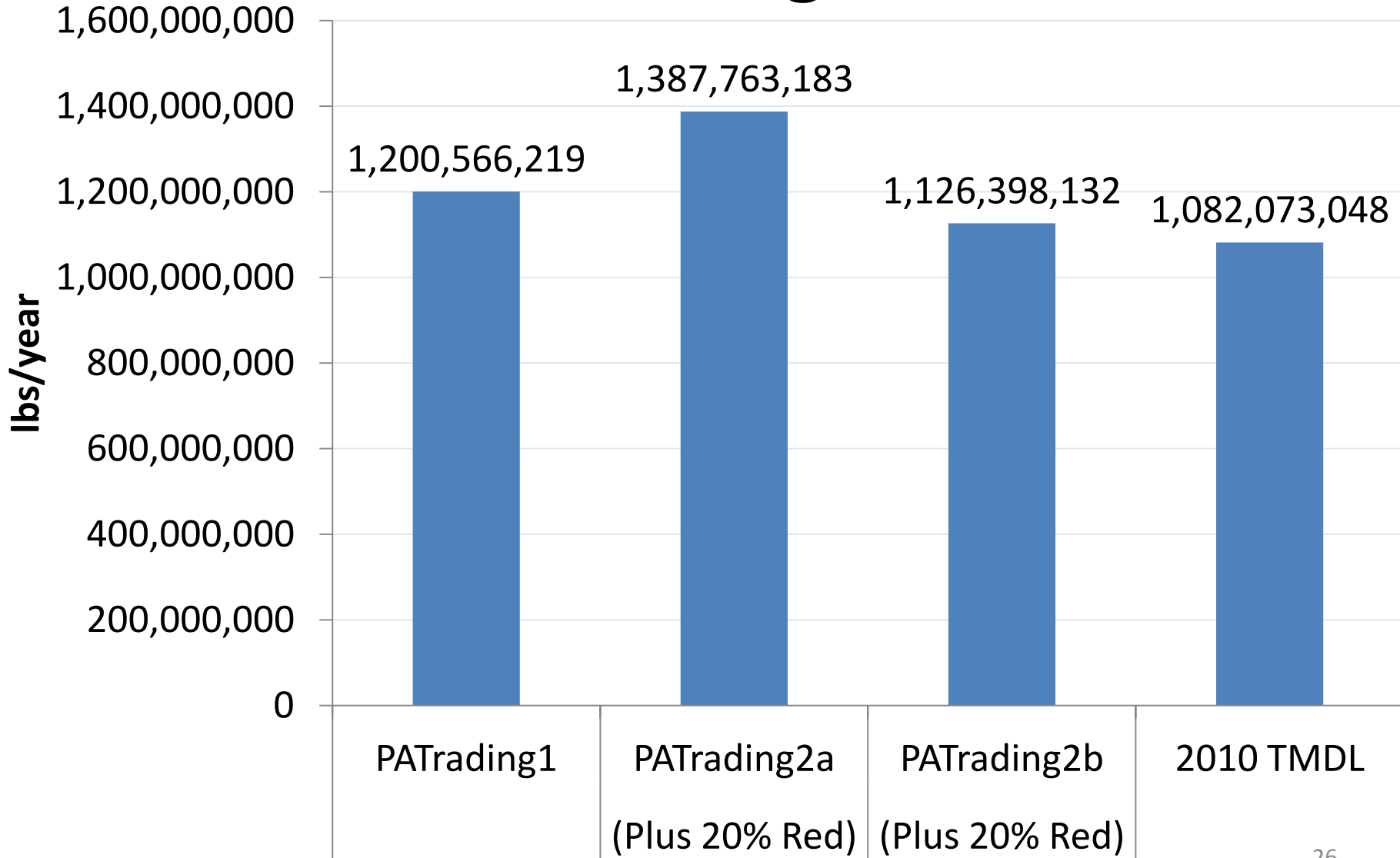
Model Simulated Delivered Nitrogen Loads from Ag Lands



Model Simulated Delivered Phosphorus Loads from Ag Lands



Model Simulated Delivered Sediment Loads from Ag Lands



Challenges

- 2017 Mid-Point Assessment
- Trading & Offsets
- Climate Change
- Shale Gas Extraction
- BMP Verification
- Stream/Wetland Restoration and Stormwater Management Permitting
- Funding/Sequestration

**So Keep up the Excellent Work so We
Can Have Less of This...**



...and More of This





**Nick DiPasquale, Director
Chesapeake Bay Program Office**

USEPA

410-267-5709

dipasquale.nicholas@epa.gov

www.chesapeakebay.net