

Integrated Approach for Communicating and Assessing Progress toward the Chesapeake Water-Quality Standards

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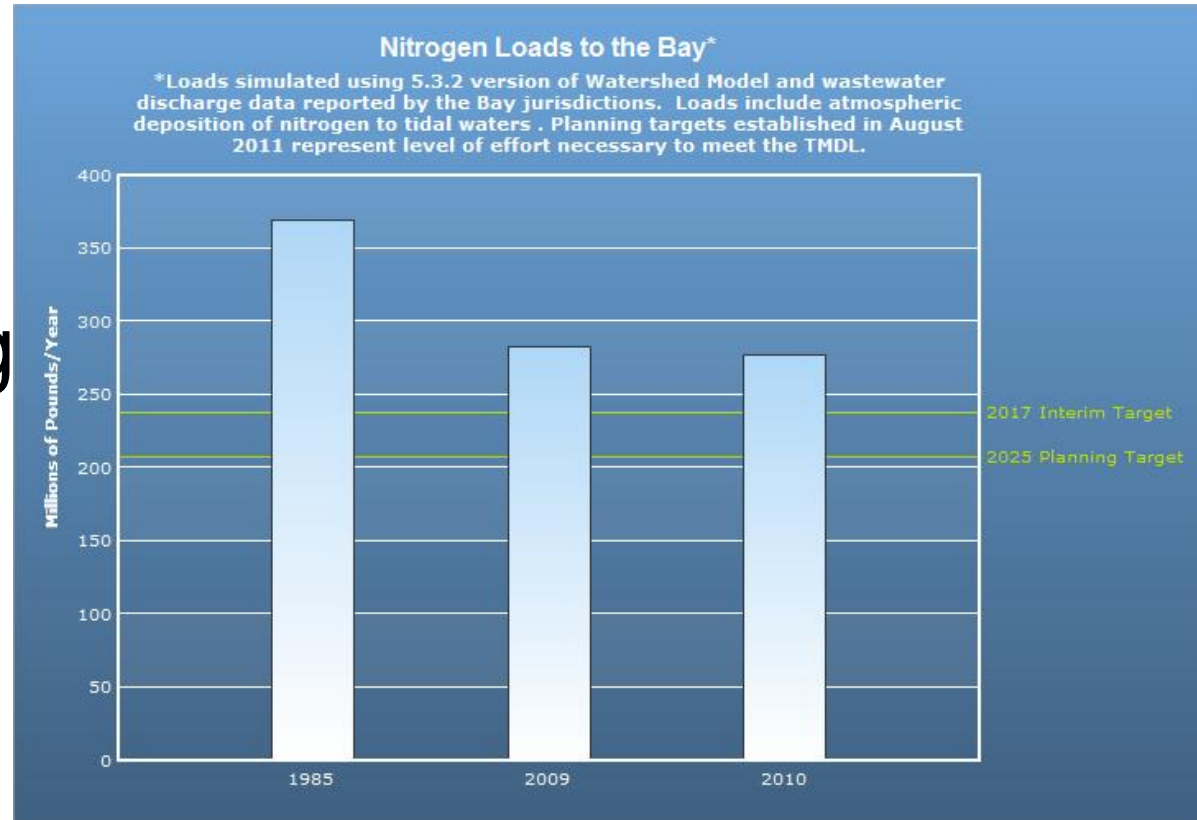
Telling the water-quality story

- How are practices being implemented for the TMDL improving water quality?
- Three pieces of information:
 - Practices implemented (TMDL)
 - Nutrients/sediment in watershed
 - Attainment of standards
- WQ GIT-STAR interactions
 - Improve communication
 - Coordinate reporting
- Current efforts and improvements



TMDL-Reporting of BMPs

- BMPs implemented
- Projected load reductions (progress runs)
- Annual reporting and 2-year milestones
- Improved BMP reporting and verification



CBP Nontidal Monitoring

- Nutrients and sediment
- Network
 - Long-term sites
 - Adding stations
- Trends
 - Long term and 10 year
- Loads
 - To the Bay
 - Yields in watershed

Nontidal Water Quality Monitoring Network

Chesapeake Bay Watershed



Monitoring Locations

- Primary
- Secondary
- River Input

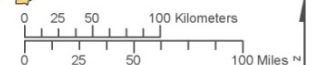
Major Drainage Basins

- Eastern Shore MD
- Eastern Shore VA
- Patuxent River
- Potomac River
- Rappahannock River
- Susquehanna River
- Western Shore MD
- York River
- James River

- Major Rivers / Streams
- State Boundary
- Chesapeake Bay

Note: This monitoring network was developed in 2004, funded by Federal and regional partners and coordinated between VADEQ, MDDNR, USGS, WVDEP, PADEP, SRBC, NYSDEC, and DNREC. Monitoring is conducted using standardized protocols; frequency depends on monitoring site type.

Data Source: Chesapeake Bay Program.
For more information, visit www.chesapeakebay.net
Disclaimer: www.chesapeakebay.net/termsofuse.htm



Trends: Nutrients and Sediment

- Trends
 - 1980's-2010
 - 2000-2010
 - Flow adjusted concentrations
- Nitrogen
 - LT: 2/3 of sites improving trends
 - 10 year: fewer than half improving trends
- Phosphorus
 - LT: 70 percent improving
 - 10 year: 1/3 improving,
- Sediment
 - LT 30 percent of sites improving
 - 10 year: 3 sites improving, 9 degrading
- Working on new approach to compare to loads to allocations

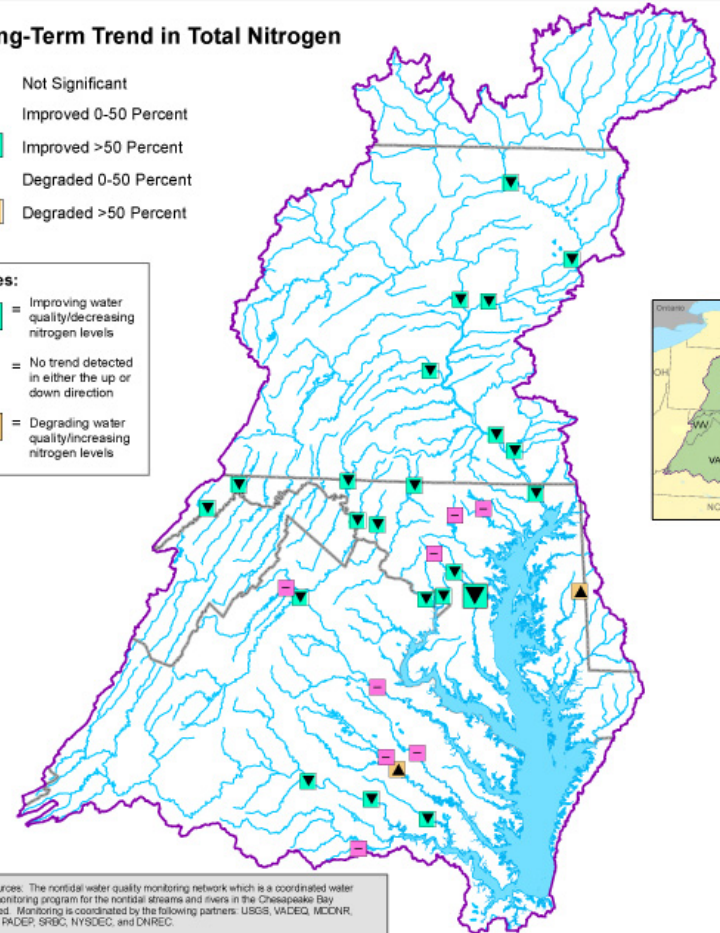
Long-Term Flow-Adjusted Trends for Total Nitrogen for 32 Sites in the Chesapeake Bay Watershed, 1985-2009



Long-Term Trend in Total Nitrogen

- Not Significant
- ▼ Improved 0-50 Percent
- ▼ Improved >50 Percent
- ▲ Degraded 0-50 Percent
- ▲ Degraded >50 Percent

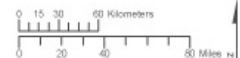
- Notes:
- ▼ = Improving water quality/decreasing nitrogen levels
 - = No trend detected in either the up or down direction
 - ▲ = Degrading water quality/increasing nitrogen levels



Data Sources: The nontidal water quality monitoring network which is a coordinated water quality monitoring program for the nontidal streams and rivers in the Chesapeake Bay Watershed. Monitoring is coordinated by the following partners: USGS, VADEQ, MDCNR, WDEP, RADER, SRBC, NYSDEC, and DNREC.

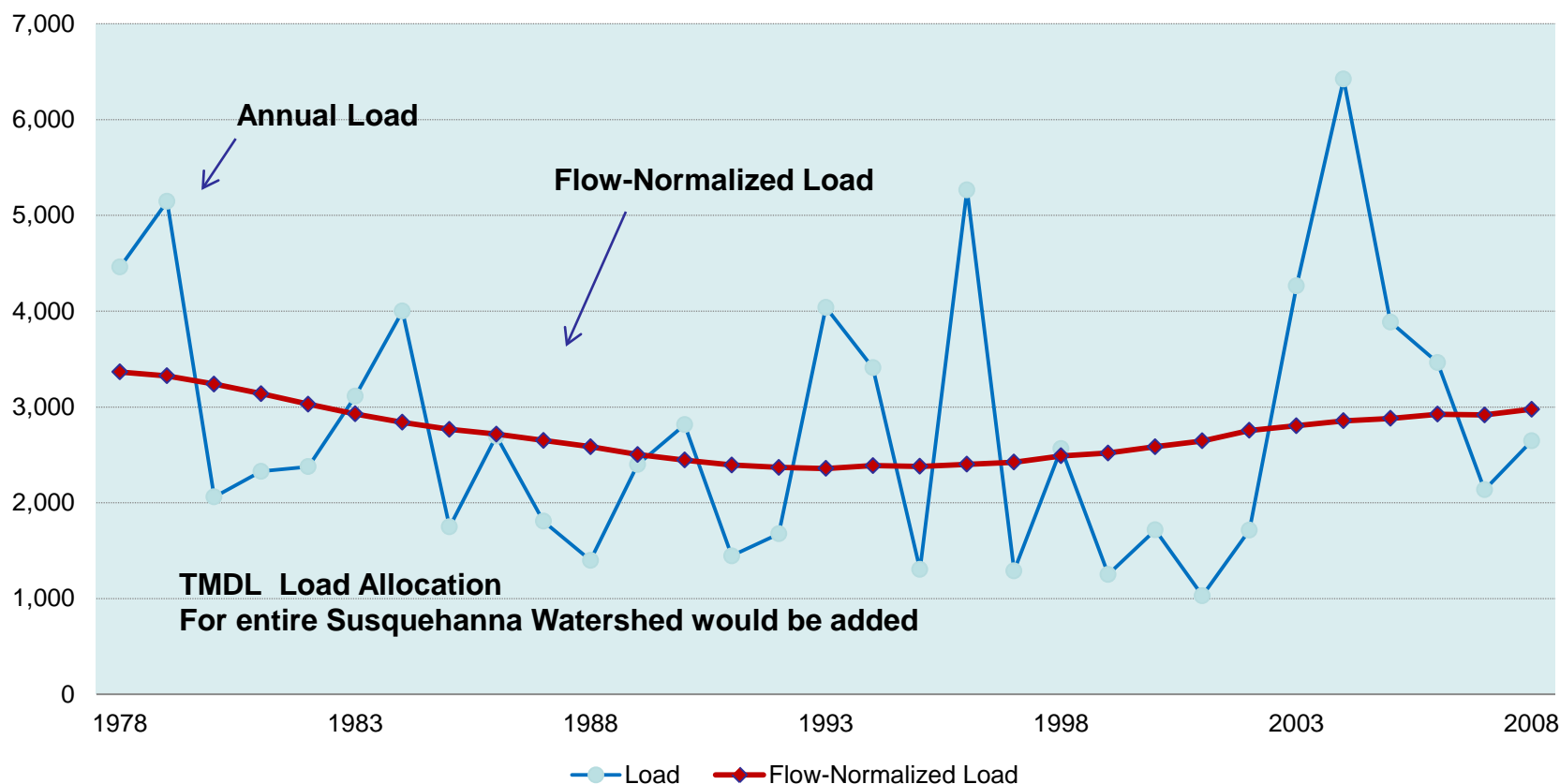
Trends in the Chesapeake Bay may differ from measured values due to downstream ecological processes. For more information on nitrogen trends in the Bay see <http://www.chesapeakebay.net/status/pollutants.aspx>

For more information, visit www.chesapeakebay.net
Disclaimer: www.chesapeakebay.net/footer/Disclaimer.aspx



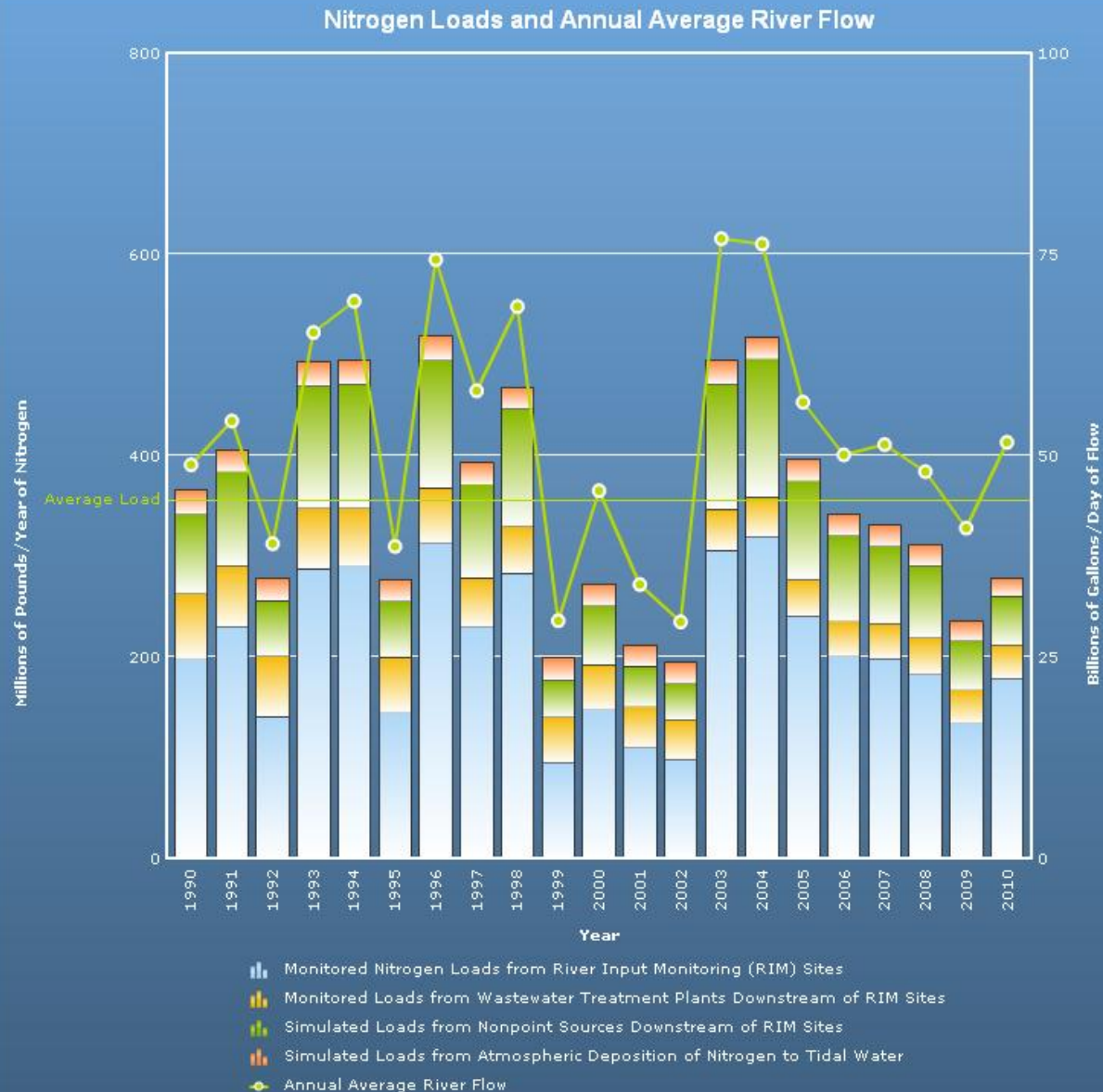
New Technique: Change in Load and Progress Towards Allocations

Susquehanna River At Conowingo, Maryland
Total Phosphorus Load (tons per year)

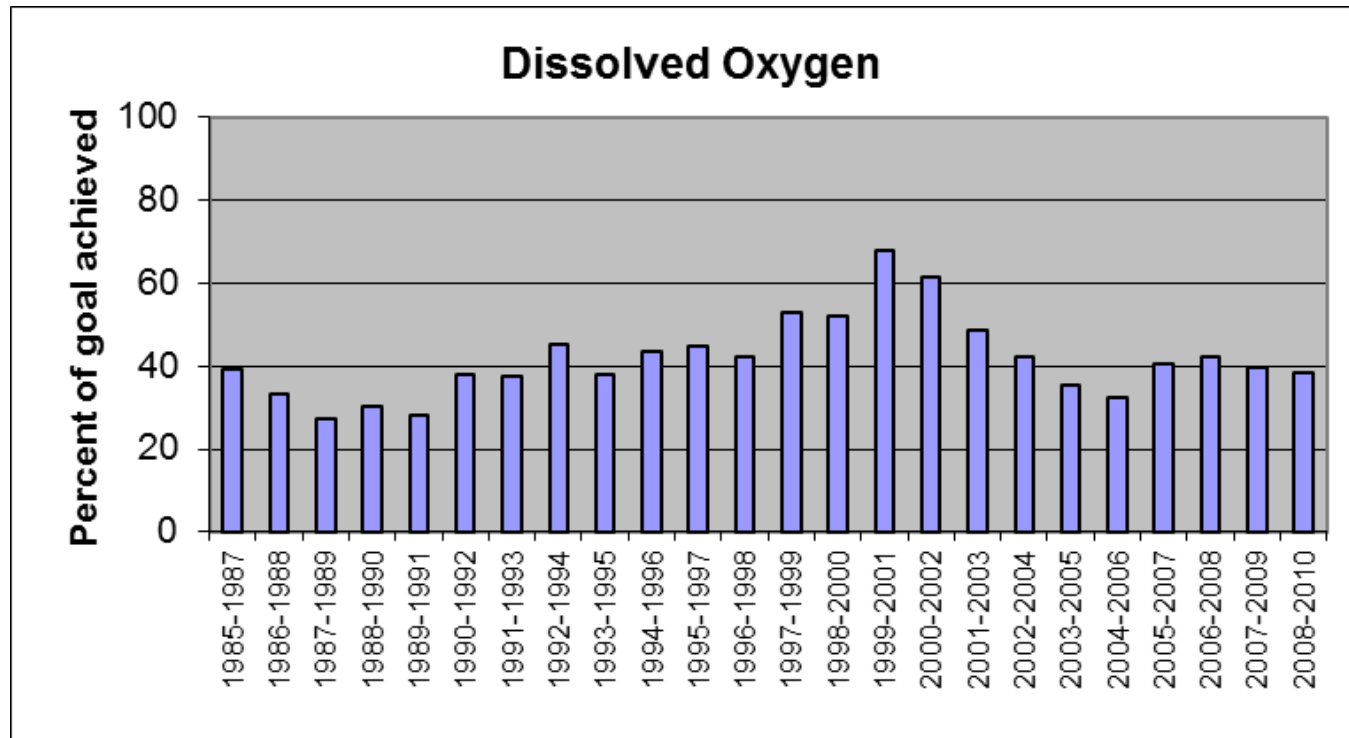


Loads to the Bay

- Annual changes in nutrient and sediment
- Needed to explain tidal water quality
- 2011 will be near record
- Relation to TMDL



Water quality in the Bay



- DO, clarity, chl-a in relation to standards (2008-2010)
- DO: 38%, Clarity: 18%, Chl-a: 22%
- Enhanced assessments

Communicating the Story

- What can be provided in 2012?
 - Progress toward milestones
 - Nutrient and sediment trends
 - Attainment of water-quality standards
 - Planned improvements for accountability
- Reporting opportunities in the future:
 - Annual updates
 - 2-yr milestones
 - 2017 evaluation
 - 2025 attainment of TMDL

Planned Improvements

- Improvements in 2012-2013 for integrated reporting:
 - Decision framework (WQGIT)
 - “Lessons learned” report (STAR)
 - “Lag times” (STAC)
 - Monitoring/allocations (USGS/EPA/CBP)
 - Summary reports to help with 2017 TMDL evaluation
 - USGS/STAR: Eastern Shore (2013), Potomac (2015)

Discussion with MB

- Do you have any concerns/recommendations for communicating results from a more integrated approach to assess progress toward water-quality standards and relation to TMDL?
 - Progress in BMP implementation
 - Nutrient and sediment trends
 - Attainment of standards
 - Enhanced accountability
- What other pieces of information would you like considered?
- What could be considered for EC meeting?