Trends in Load: An update on measuring progress in the watershed based on Monitoring Data

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USGS

Purpose

- Prepare GIT members for upcoming release of Nontidal Trend results
  - Refresher on trends in load (Flow-Normalized loads)
  - Review selected product formats
  - Status of Results

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Chesapeake Bay Program "Outcomes"

Water-Quality Goals – Provide USGS Science to:

(1) Inform the development of *Watershed Implementation Plans*

(2) Assess *Water-Quality Standards Attainment and Monitoring*

Core questions related to water-quality status and trends:

(1) What is the trend in nitrogen, phosphorus, and suspended-sediment loads being delivered to the Bay estuary from the nontidal portions of the watershed?

(2) How are nitrogen, phosphorus, and suspended-sediment loads responding to restoration activities and changing land use?

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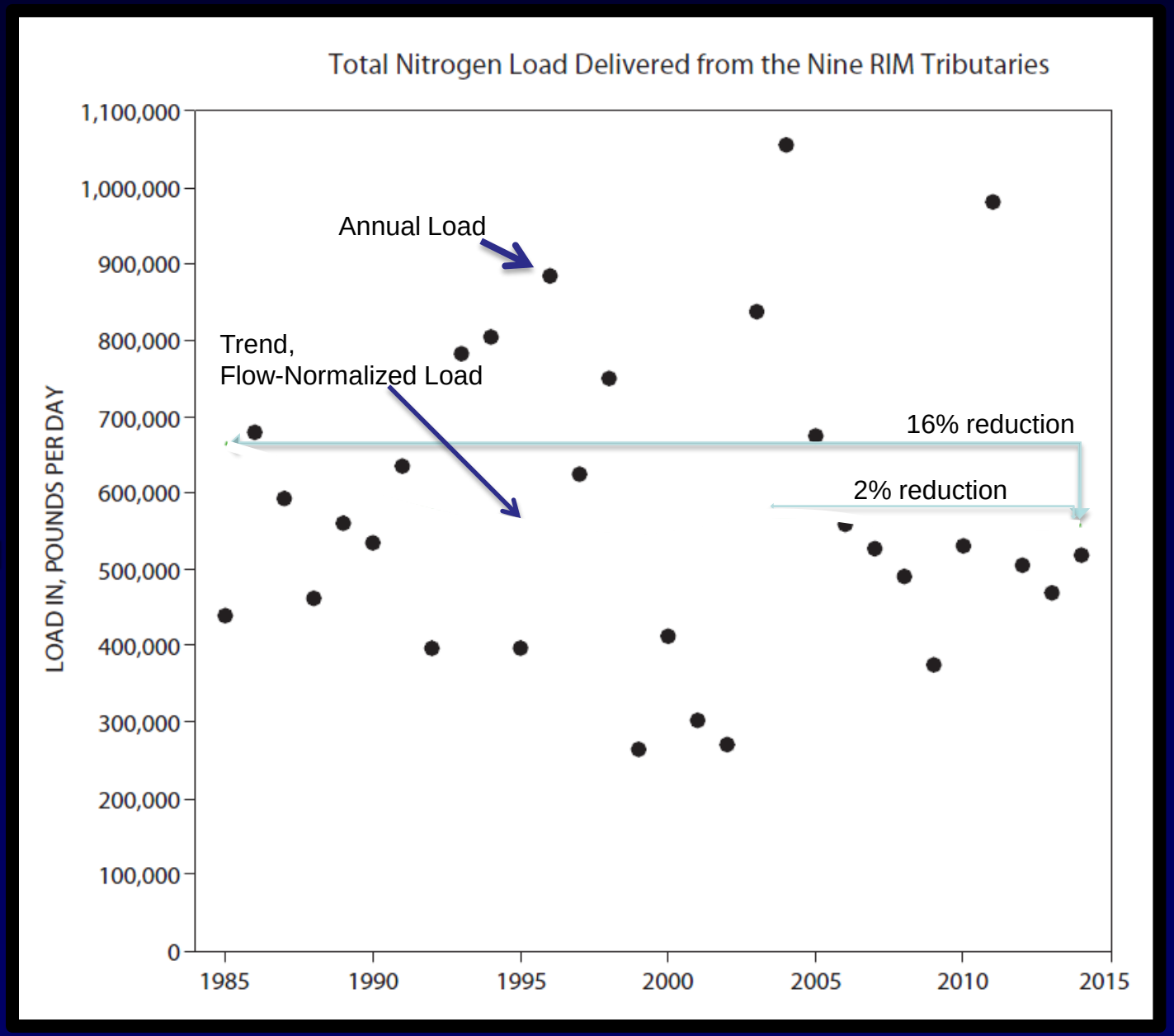
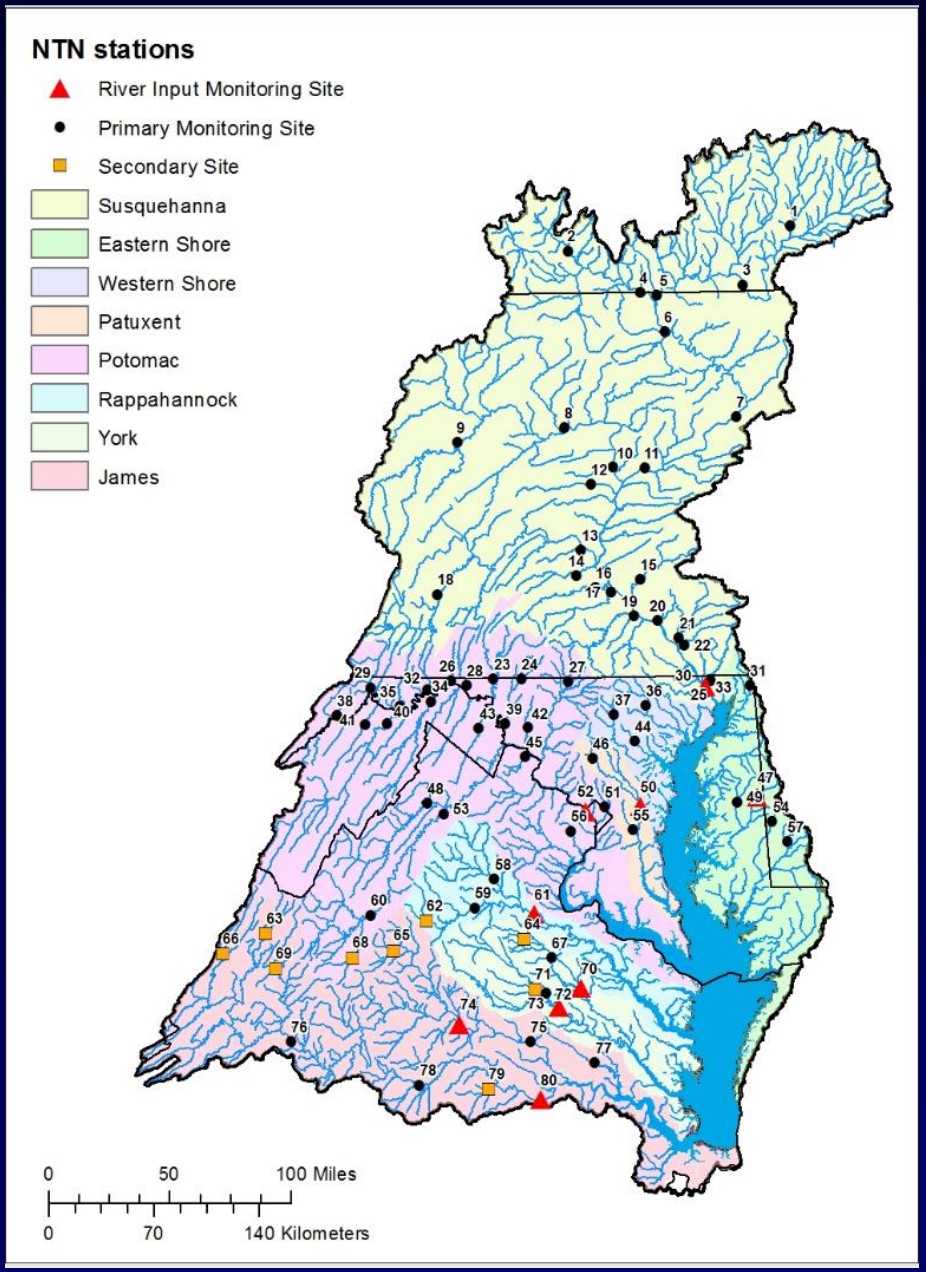
Changes in Total Nitrogen Delivered to the Bay Estuary from the 9 RIM Stations



Total reduction in RIM total nitrogen:
1985 to 2014 = 16%
2005 to 2014 = 2%

USGS



Chesapeake Bay Nontidal Monitoring Network

How are loads responding to restoration activities and changing land use?

Monitoring Stations

- Loads at stations with ≥ 5 years
- Long-term trends ≥ 25 years
- Recent trends =10 years
- Drainage areas range from 1 to 27,100 mi^2

Monitoring:

New York, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, Washington D.C., SRBC, and USGS

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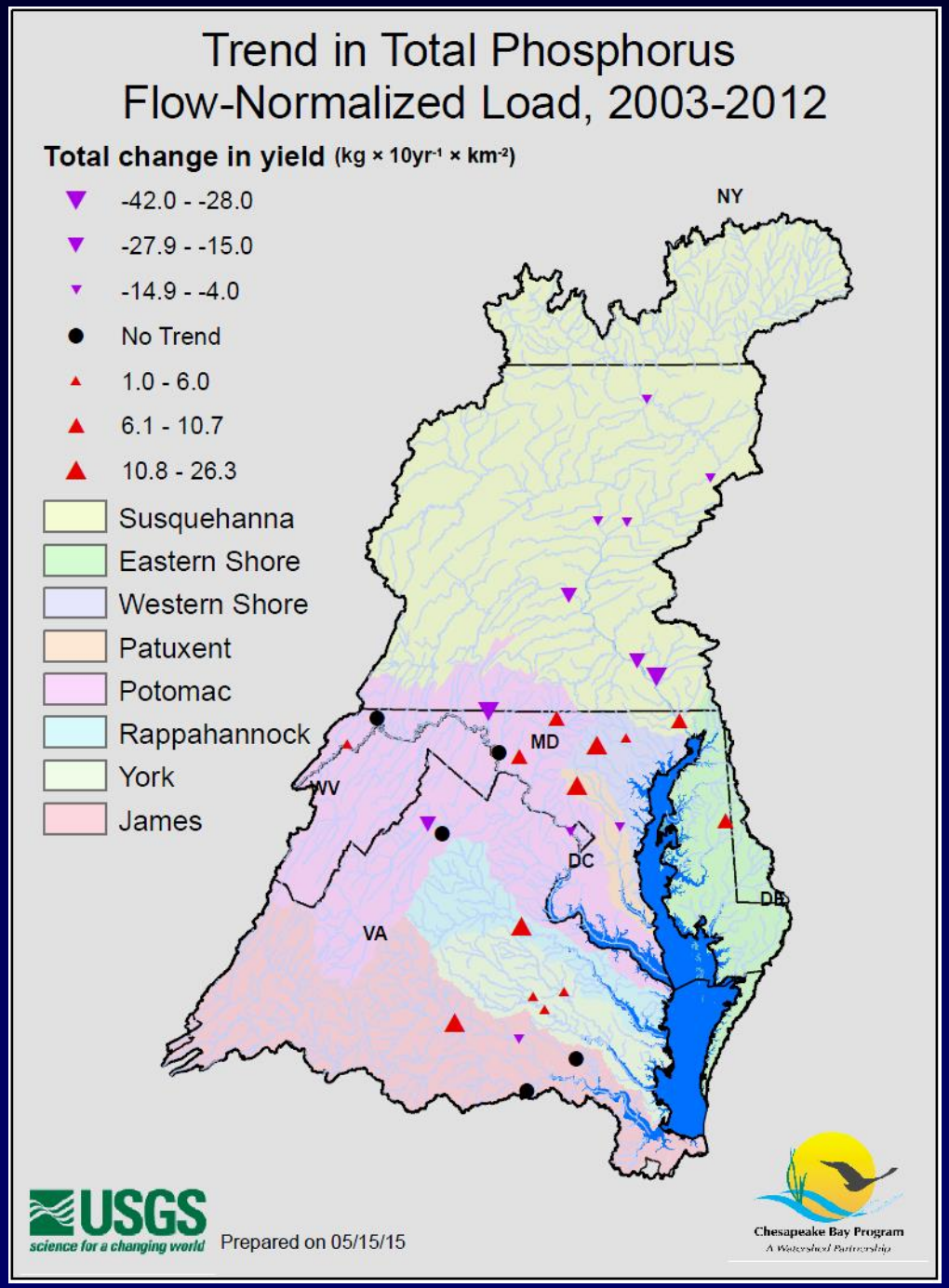
Changes in Phosphorus Yields: 2003-2012

Of the 30 long-term NTN stations

- 12 are improving
- 13 are degrading
- 5 exhibit no discernable change
- All Susquehanna stations above Conowingo are showing decreased TP loading



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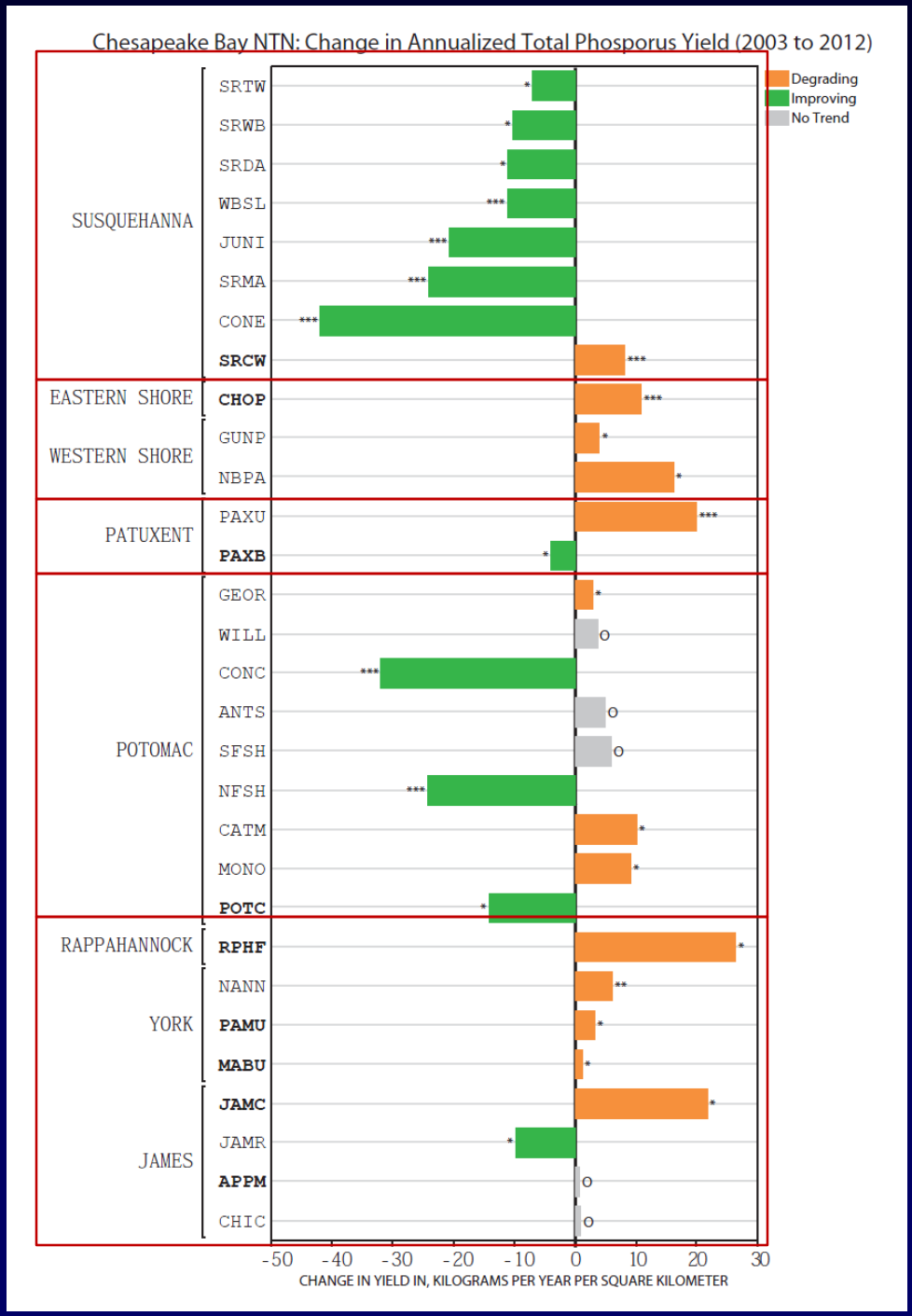
Changes in Phosphorus Yields: 2003-2012



Status

- Computation of 2014 results -- completed.
- Review of results – ongoing.
- Preparation of standardized products– ongoing.
- Modifying web-delivery system – ongoing

- Expected release -- December 2015

USGS

Summary of Stations with Reported Loads and Trends

Constituent	Long-Term (1980s to 2014)	Ten-Year Trends (2005 to 2014)	Short-Term Loads Only (2007 to 2014)
Total Nitrogen	43	81	6
Total Phosphorus	18	60	7
Suspended Sediment	18	60	7

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