Summary of Trends at River Input Monitoring Stations
Data period Oct 1985-Sept 2013

A Briefing to the Water Quality Goal Implementation Team

12/08/2014

Scope and Plans

- Results focus on 9 River Input Stations (RIM)
  - Flow-Adjusted trend in concentration
  - Results published on NT web site
    - http://cbrim.er.usgs.gov/
    - Summary Documents
    - Map Downloads
    - Interactive Map
    - Data downloads
  - Results published on Chesapeake Bay Indicators
    - http://www.chesapeakebay.net/trackprogress/river
- Future Reporting Strategy:
  - Trend in load
  - Annual reporting of RIM
    - 2014 results spring 2015)
  - Nontidal network results on a 2-year cycle
    - (2014 results in fall 2015)

Summary of Flow-Adjusted Trends in Concentration

Monitoring Station	Total Nitrogen		Total Phosphorus		Suspended Sediment	
	Long Term	**Short Term**	**Long Term**	**Short Term**	**Long Term**	**Short Term**
SUSQUEHANNA RIVER AT CONOWINGO, MD	Decreasing	Decreasing	Not Sig.	Increasing	Not Sig.	Not Sig.
POTOMAC RIVER AT WASHINGTON, DC	Decreasing	Decreasing	Decreasing	Not Sig.	Decreasing	Not Sig.
JAMES RIVER AT CARTERSVILLE, VA	Decreasing	Not Sig.	Decreasing	Not Sig.	Not Sig.	Not Sig.
RAPPAHANNOCK RIVER NR. FREDERICKSBURG, VA	Decreasing	Not Sig.	Not Sig.	Not Sig.	Not Sig.	Not Sig.
APPOMATTOX RIVER AT MATOACA, VA	Not Sig.	Not Sig.	Increasing	Not Sig.	Not Sig.	Increasing
PAMUNKEY RIVER NEAR HANOVER, VA	Increasing	Not Sig.	Increasing	Not Sig.	Increasing	Increasing
MATTAPONI RIVER NEAR BEULAHVILLE, VA	Not Sig.	Not Sig.	Not Sig.	Not Sig.	Not Sig.	Not Sig.
PATUXENT RIVER AT BOWIE, MD	Decreasing	Decreasing	Decreasing	Not Sig.	Decreasing	Increasing
CHOPTANK RIVER NEAR GREENSBORO, MD.	Increasing	Increasing	Increasing	Increasing	Decreasing	Increasing

Increasing:degrading conditions

Decreasing: Improving conditions

Not Sig.: No trend observerved using 95 percent confidence

Summary Findings

As published on USGS and CBP web pages

Total Nitrogen

- Long-term trends in total Nitrogen concentration are improving at five of nine sites including the three largest tributaries—The Susquehanna, Potomac and James Rivers. Degrading conditions are observed at two sites since 1985.
- Recent short-term trends in total nitrogen show only three sites with improving conditions and one site with degrading conditions. Changes at other monitoring sites were not detectable using standard methods.

Total Phosphorus

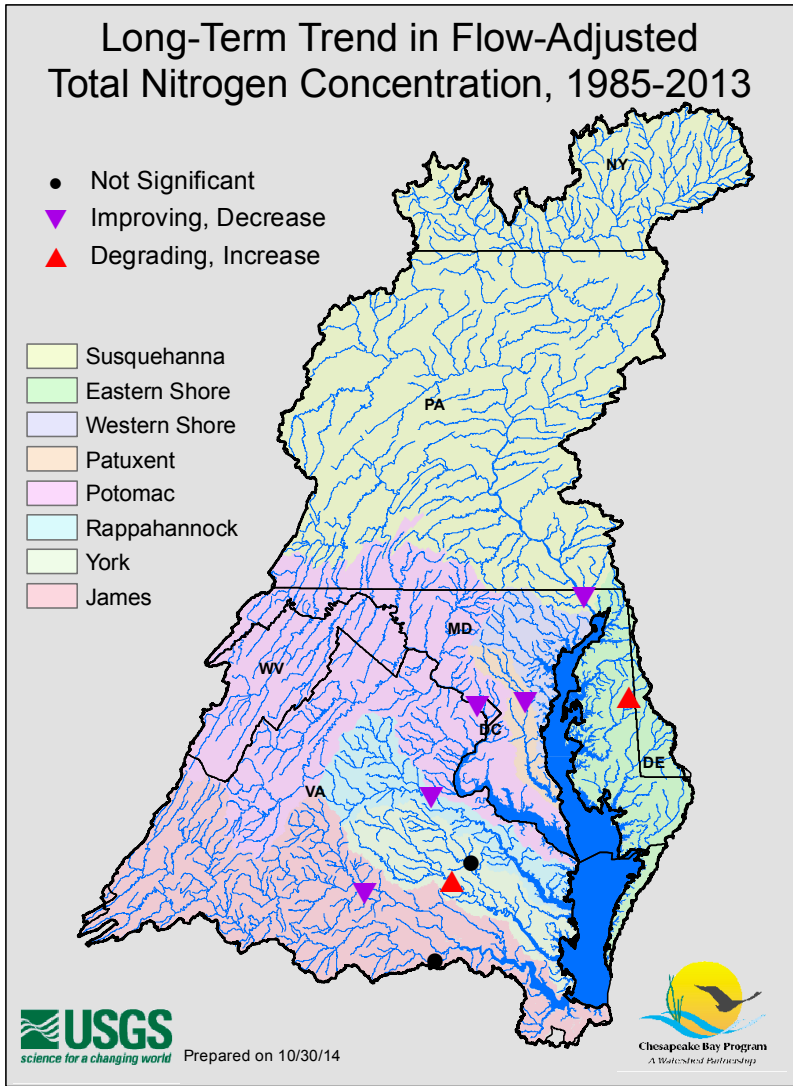
- Long-term trends in total phosphorus concentration are improving at three sites and degrading at three sites. The Susquehanna River showed no detectable change over the 29-year period.
- Two of the nine monitoring sites showed degrading conditions over the more recent short-term period for total phosphorus. Data from all other sites indicated no significant change.

Suspended Sediment

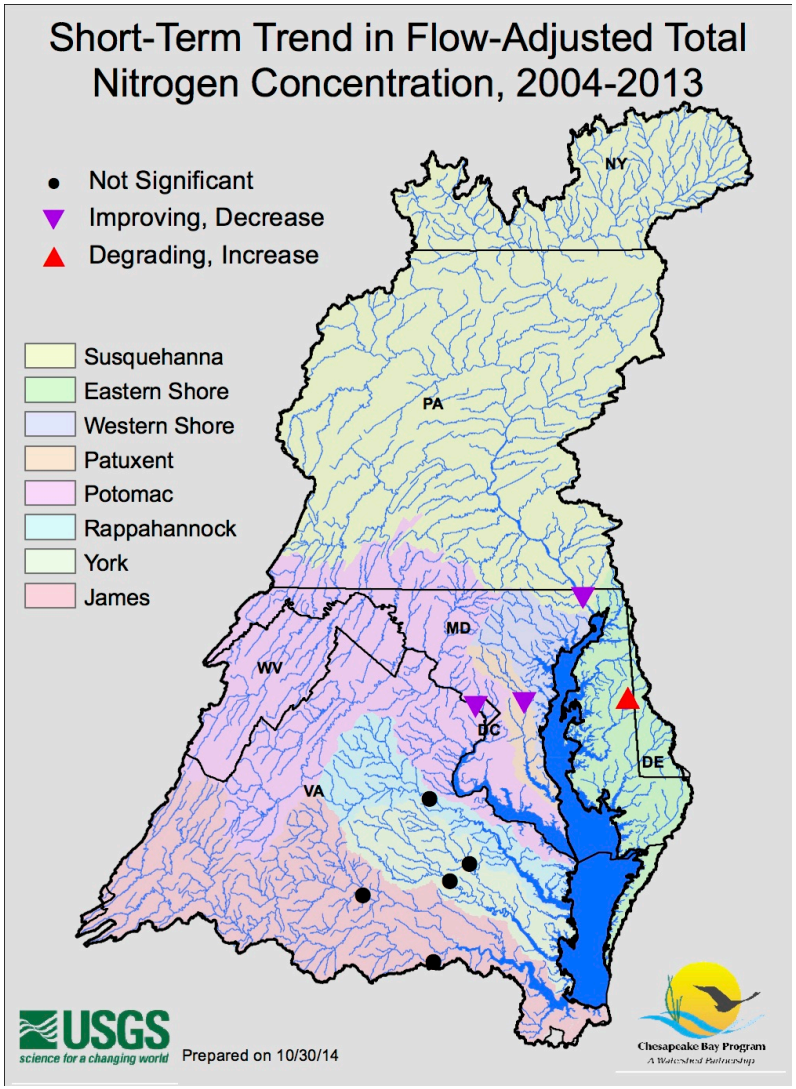
- Long-term trends in suspended sediment concentration are improving at three sites and degrading at two sites. The Susquehanna River showed no detectable change over the 29-year period.
- Degrading conditions for suspended sediment were observed at four of nine sites over the recent short-term period. All other sites showed no significant change.

Total Nitrogen

Long Term

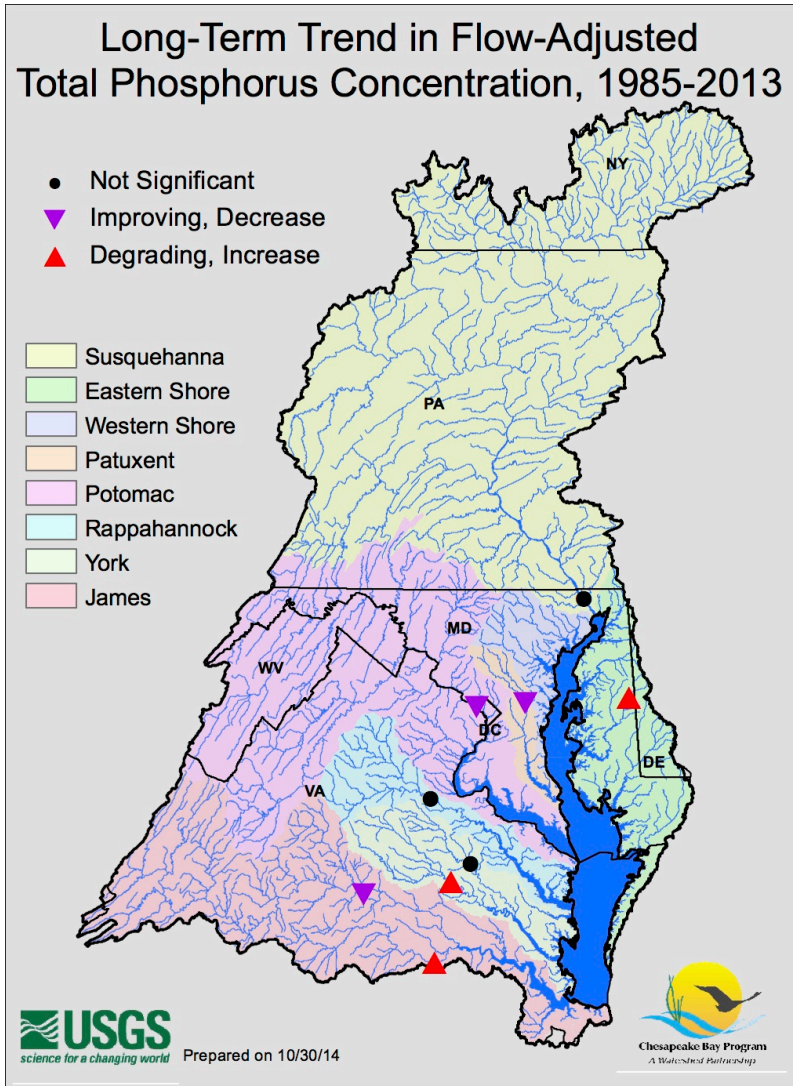


Short Term

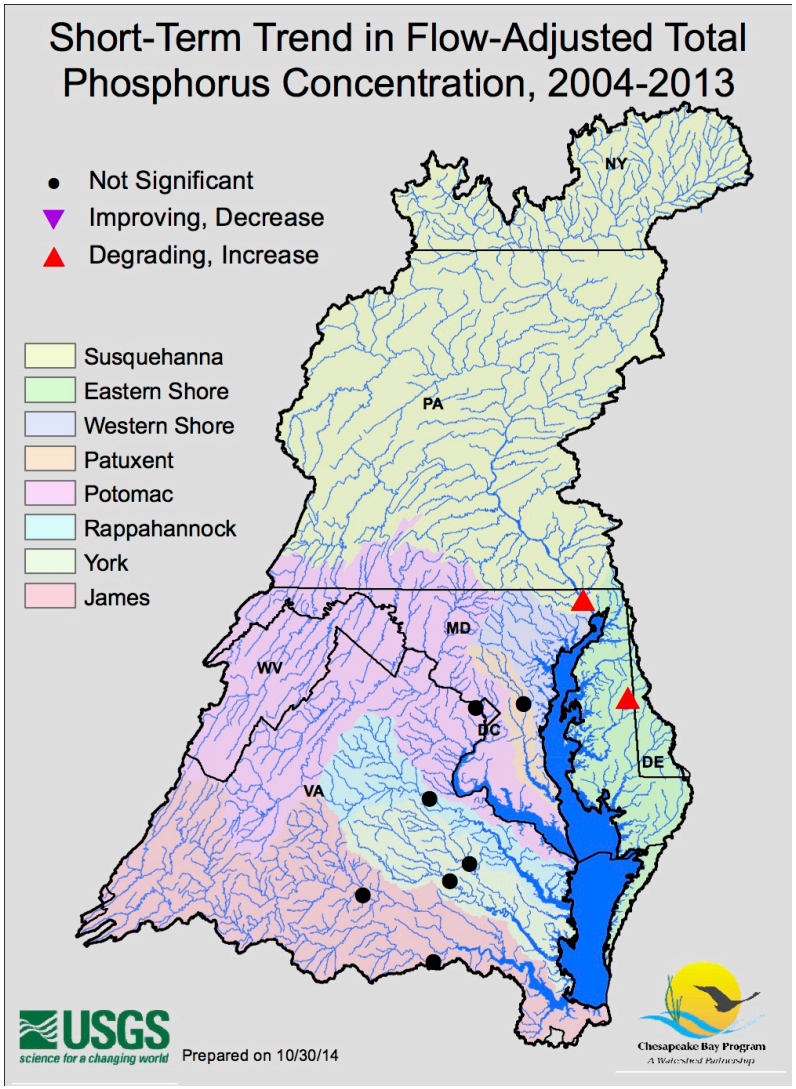


Total Phosphorus

Long Term

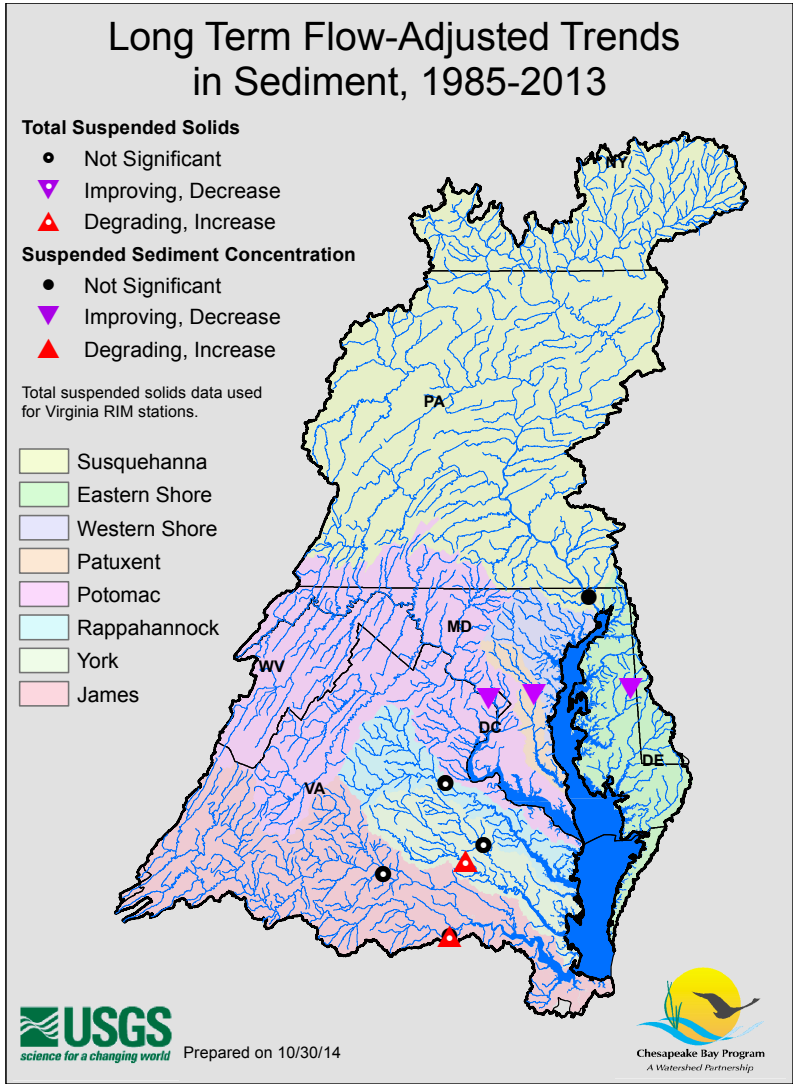


Short Term

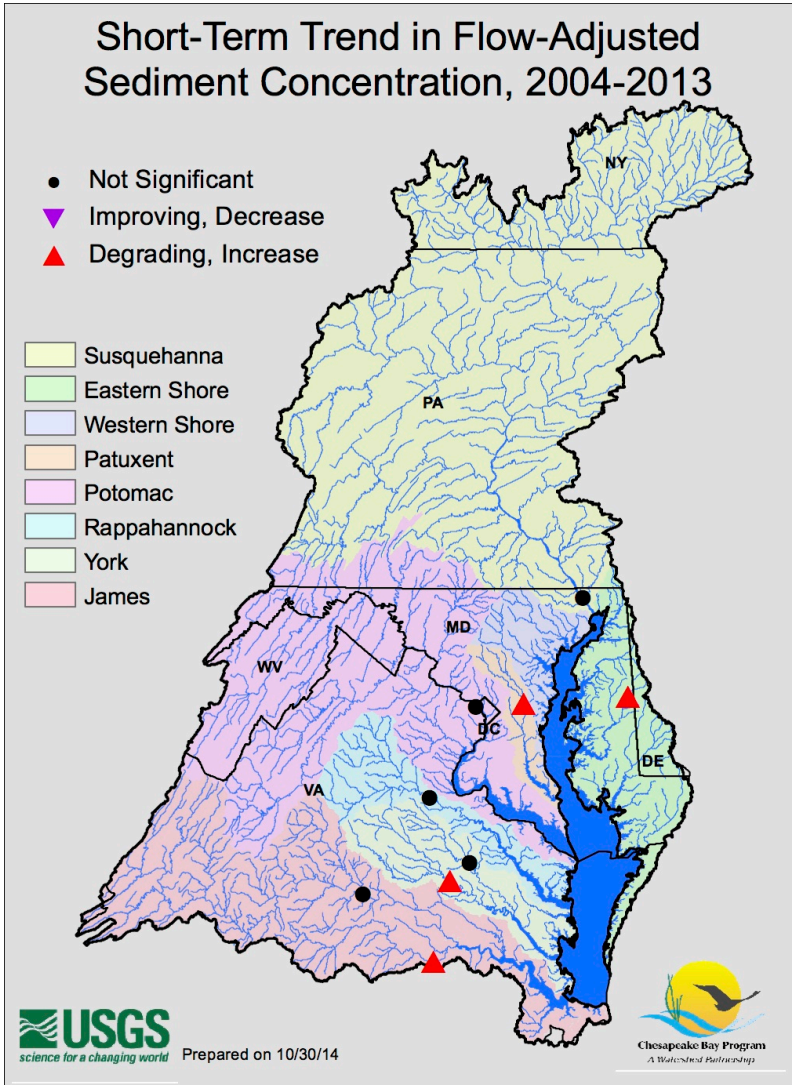


Suspended Sediment

Long Term



Short Term



Using Monitoring Data To Measure Progress and Explain Change

Overview: STAR Workplan Elements

Elements of STAR Mid-Point Assessment Workplan

1. Measure progress
   - Trends of nitrogen, phosphorus and sediment in the watershed.
   - Trends of water quality in the estuary
2. Explain water-quality changes
   - Response to management practices
3. Enhance CBP models
4. Inform management strategies
   - WIPs
   - Water-quality benefits