Estimated Achievement of Water Quality Standards in Tidal Waters and Relation to Nutrient Loads

Scott Phillips, Peter Tango and Laura Free

STAR meeting

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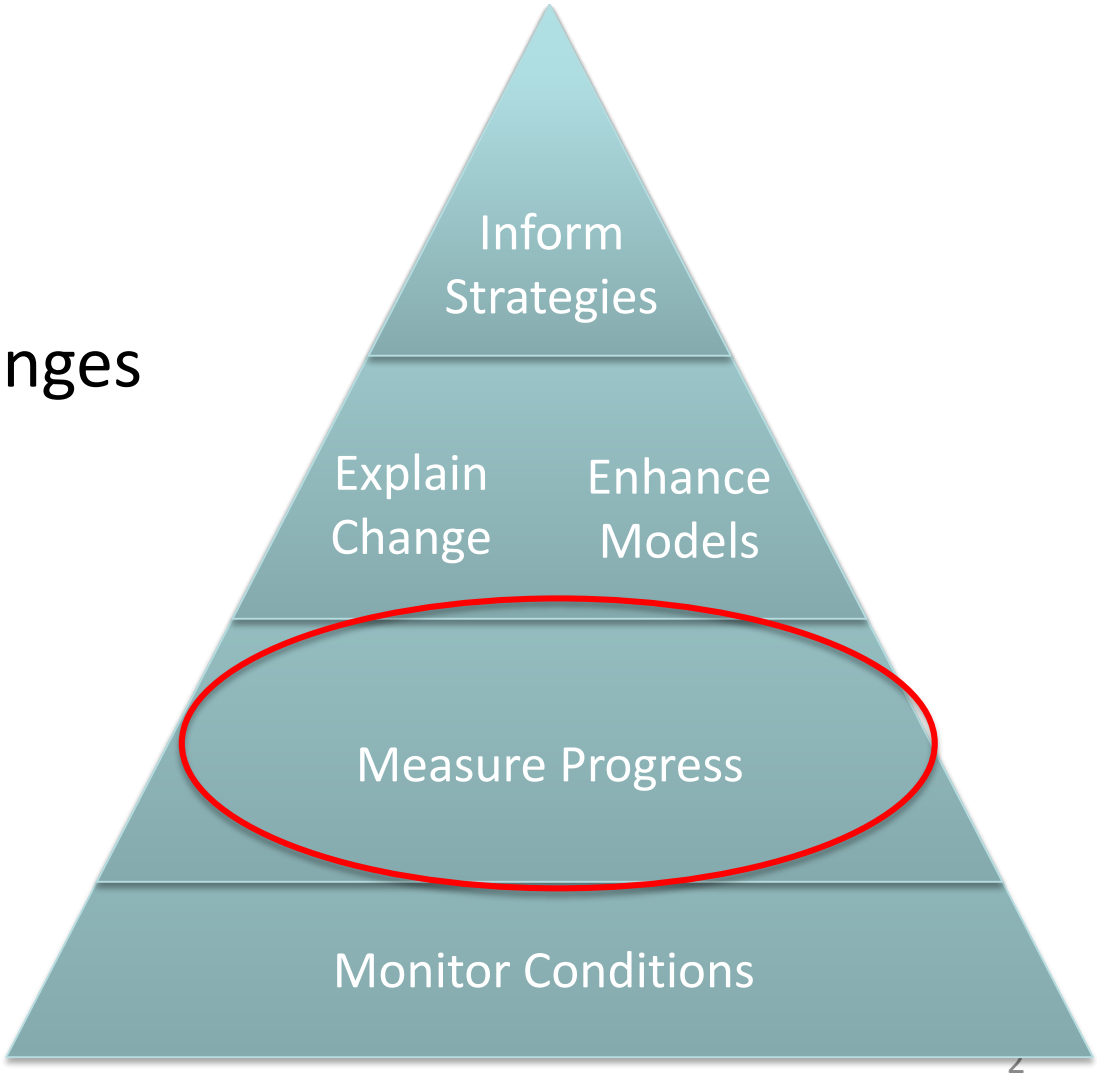
STAR: Measure and Explain Water-Quality Change

Measure progress
- Watershed
- Tidal waters

Explain water-quality changes
- Sources, land change
- Management practices

Enhance CBP models

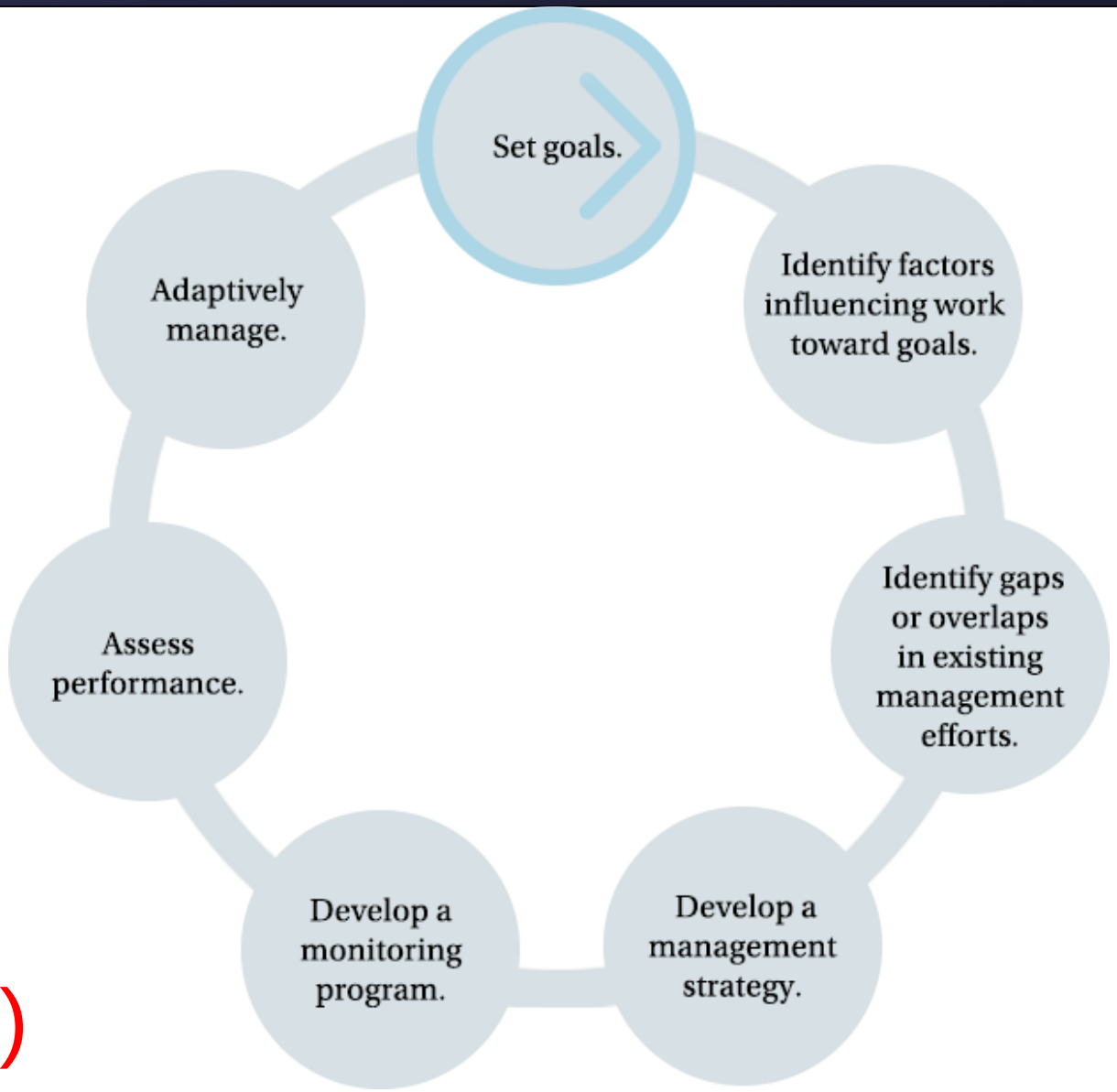
Inform management
- WIPs
- Implementation
- Meeting outcomes



Monitoring to Inform the MPA

Decision framework

- Goals
- Factors
- Existing efforts/gaps
- Stategy
- Monitor
- Assess
- Adapt (WIPs)

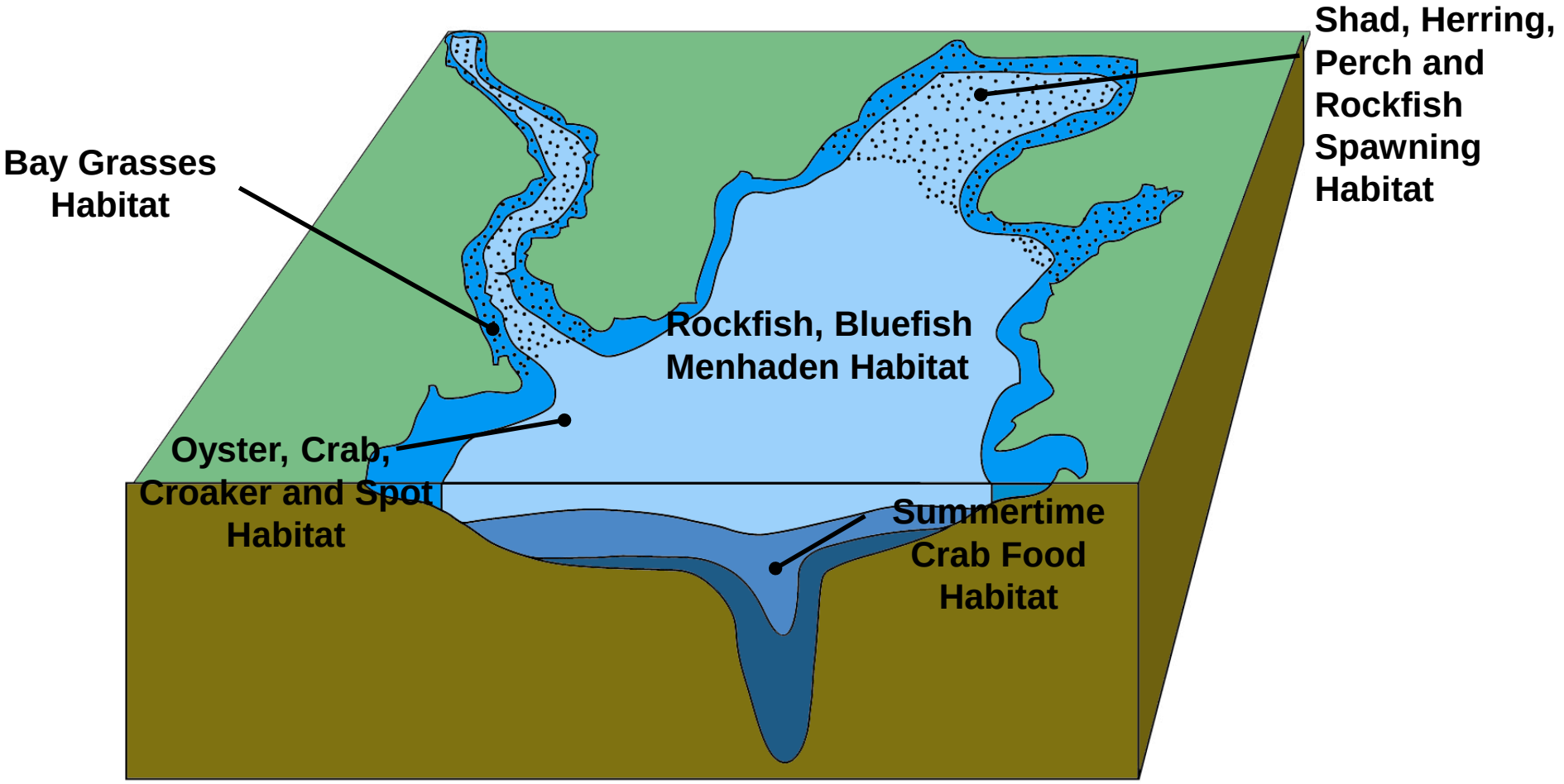


Assess Progress

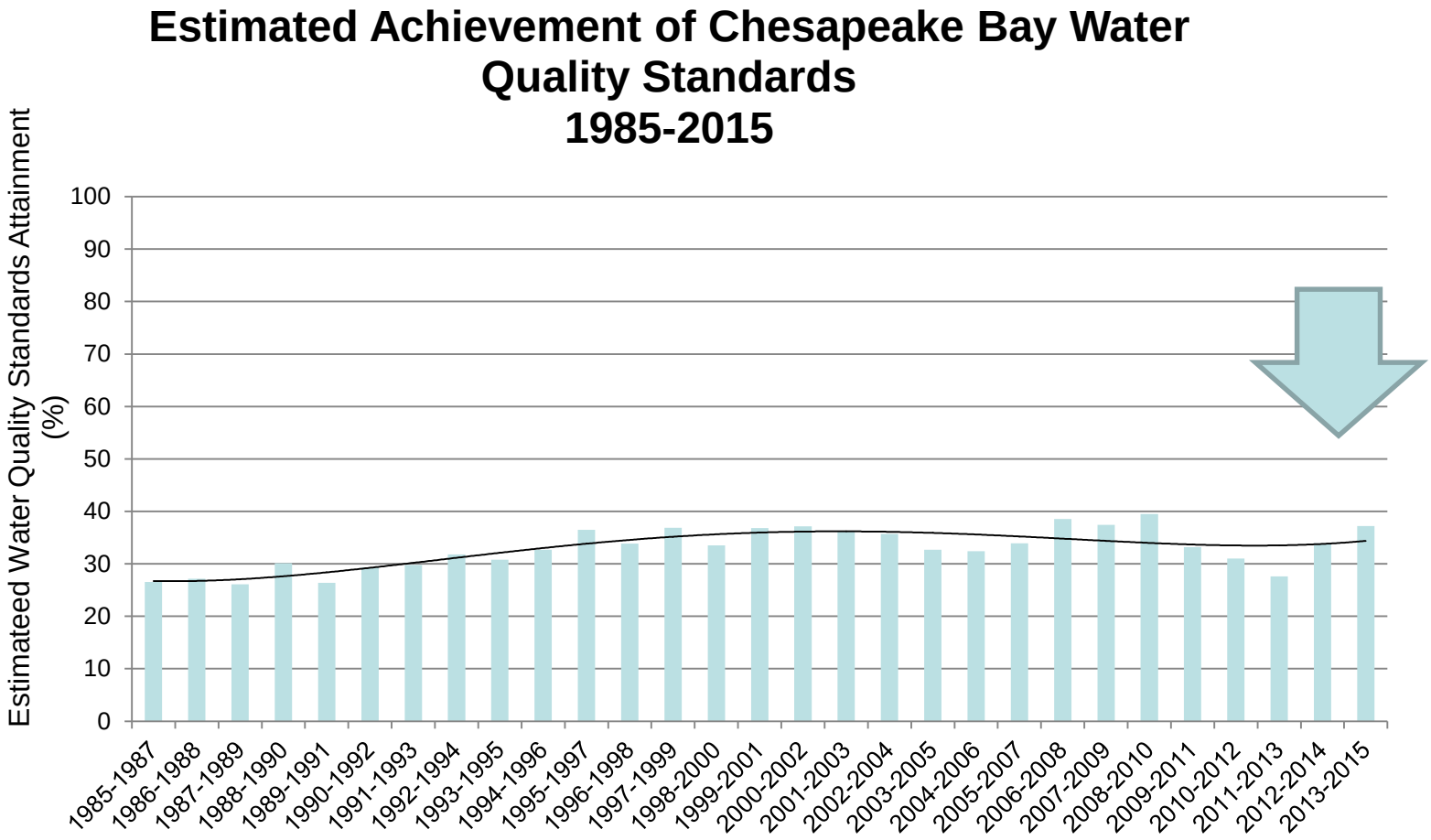
- Practices implemented
  - BMP reporting for TMDL (WSM)
- Watershed monitoring
  - Nutrient and sediment in watershed
  - Loads and trends to Bay
- Attaining standards
  - DO clarity/SAV, and Chl.

Estimating Attainment

Combines DO, SAV/Clarity, Chl-a Baywide



Improving conditions in Bay



- Score: 37.2 (2013-15)
- Almost 10% improvement

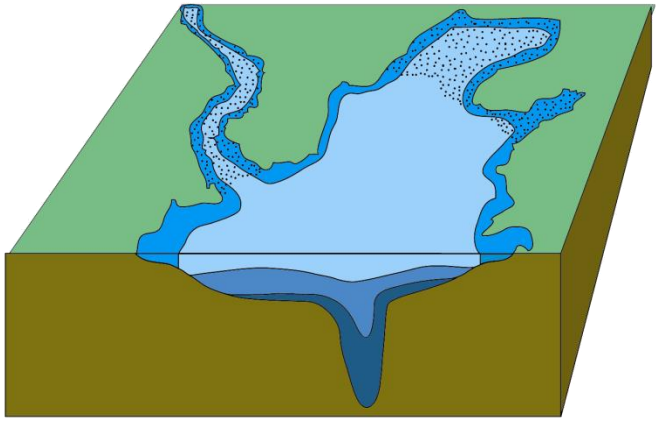
IMPROVEMENTS VARY

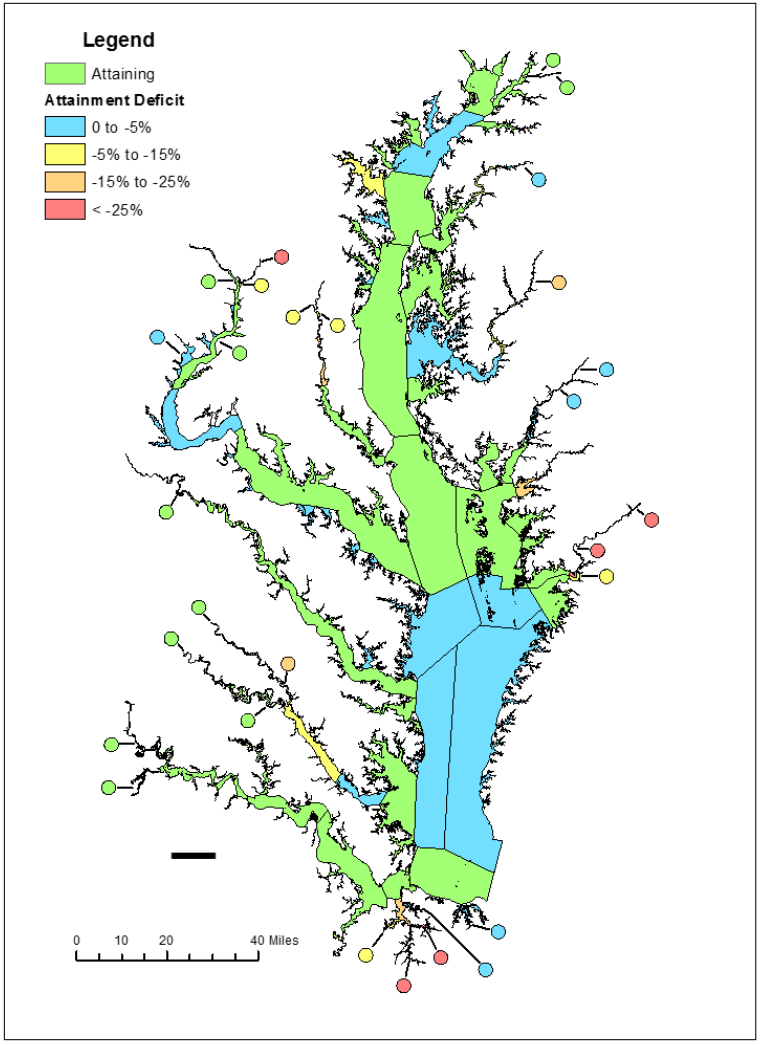
DO:

- Closer to attainment in open water
- Worsening deep water

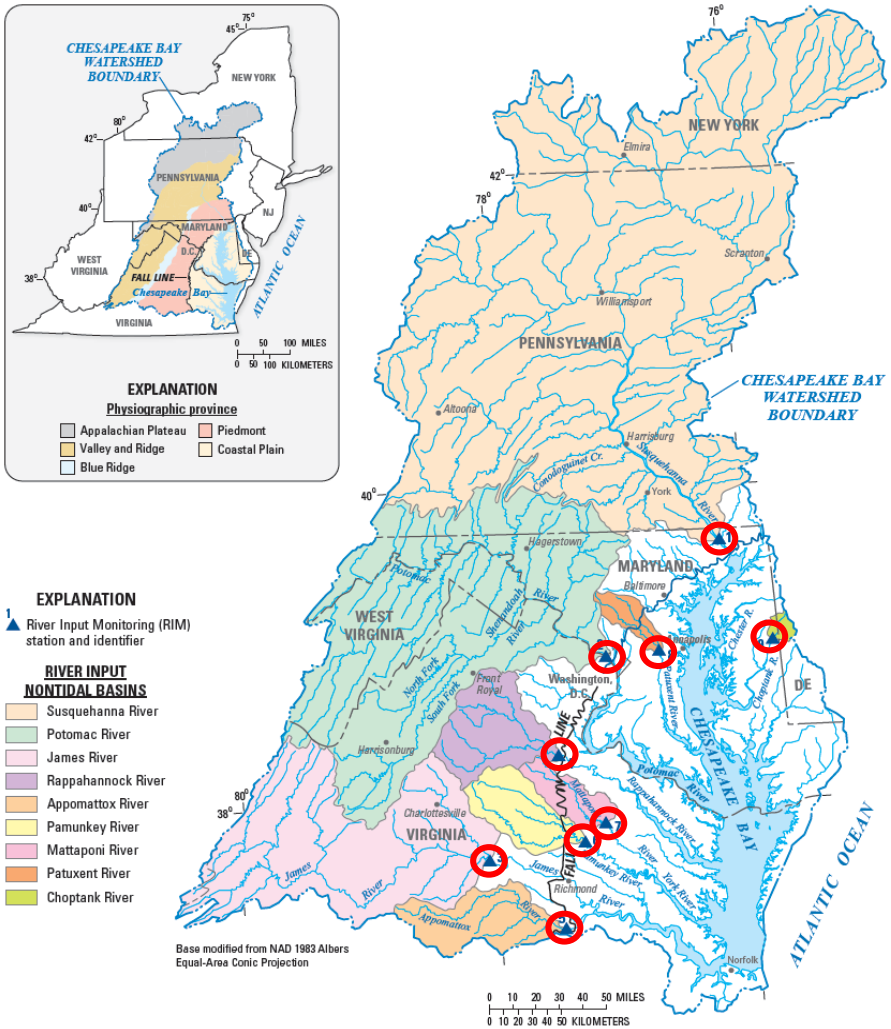
SAV

- 91,000 acres in 2015





Total Loads to the Bay



-RIM sites

- Almost 80% of watershed

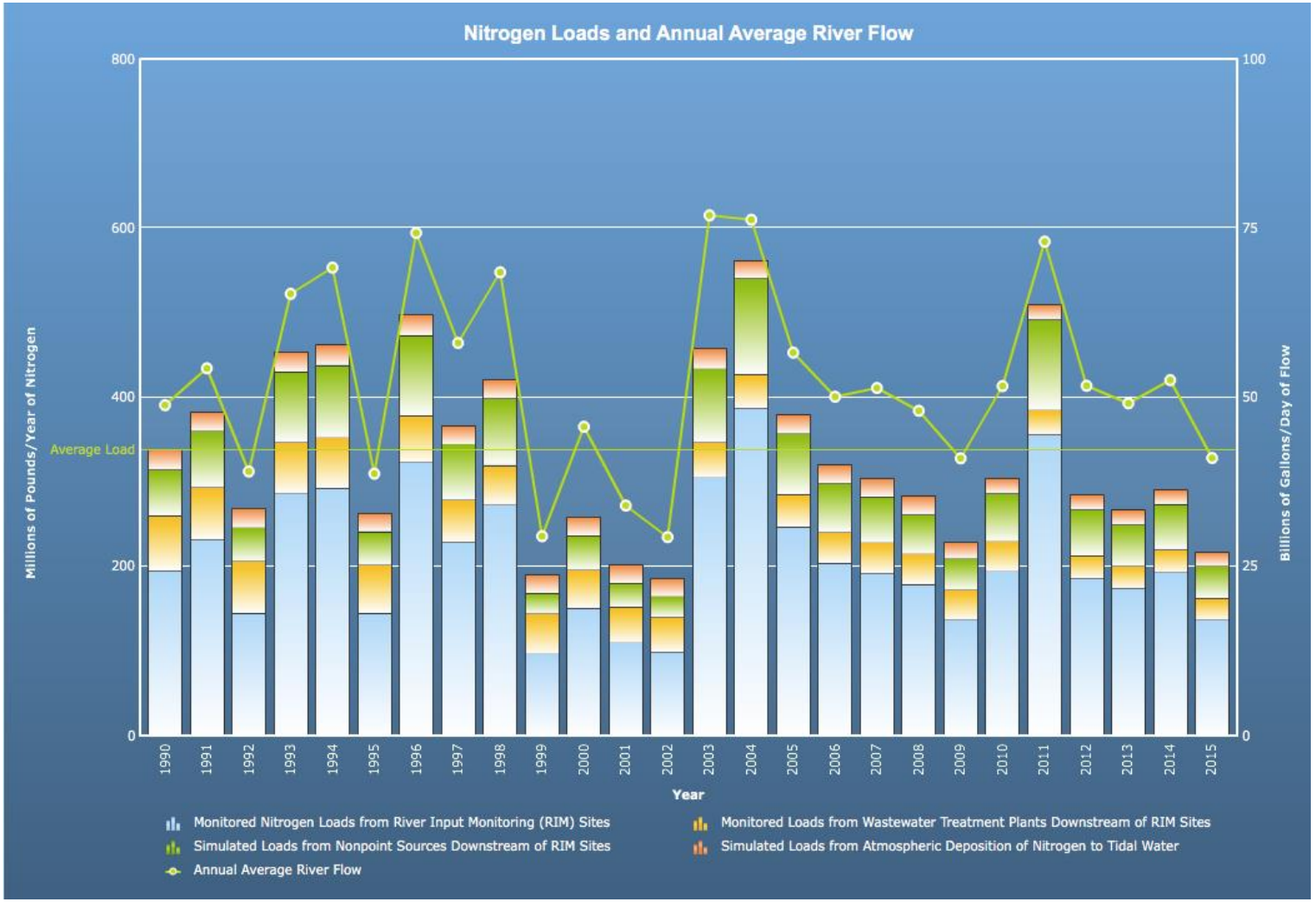
-WWTP

-Nonpoint source contributions

-Annual and trends

Lower Load and Flow

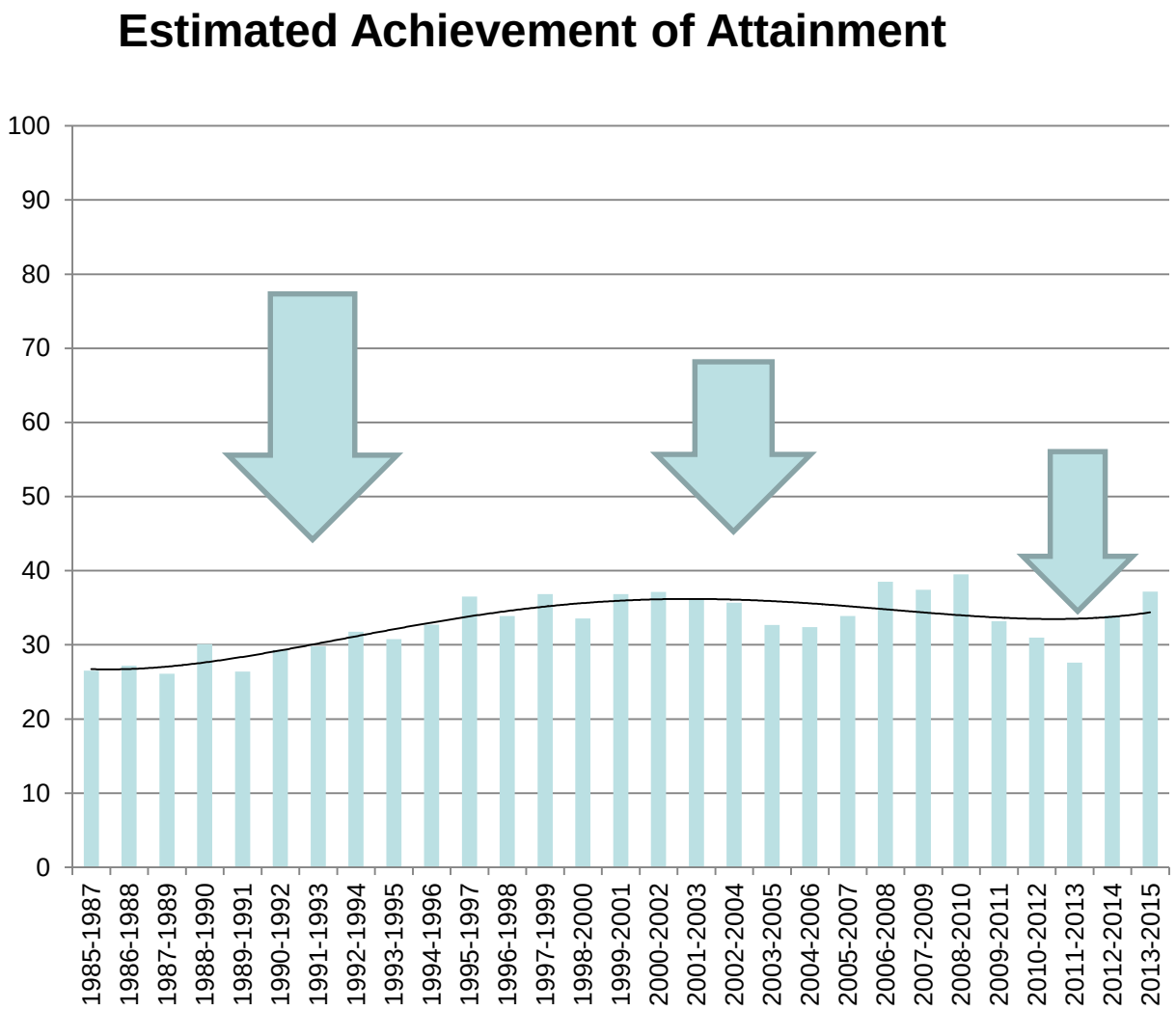
- Lower N, P, and S loads
- River flow below avg in 2015
- BMPs



Source: Chesapeake Bay Program
http://www.chesapeakebay.net/indicators/indicator/nitrogen_loads_and_river_flow_to_the_bay1

Attainment over time

- Improvements in 80-90's
- More static during 2000s
- 2011 storms and rebound
- Trends in loads
- BMPs



Trend in river loads

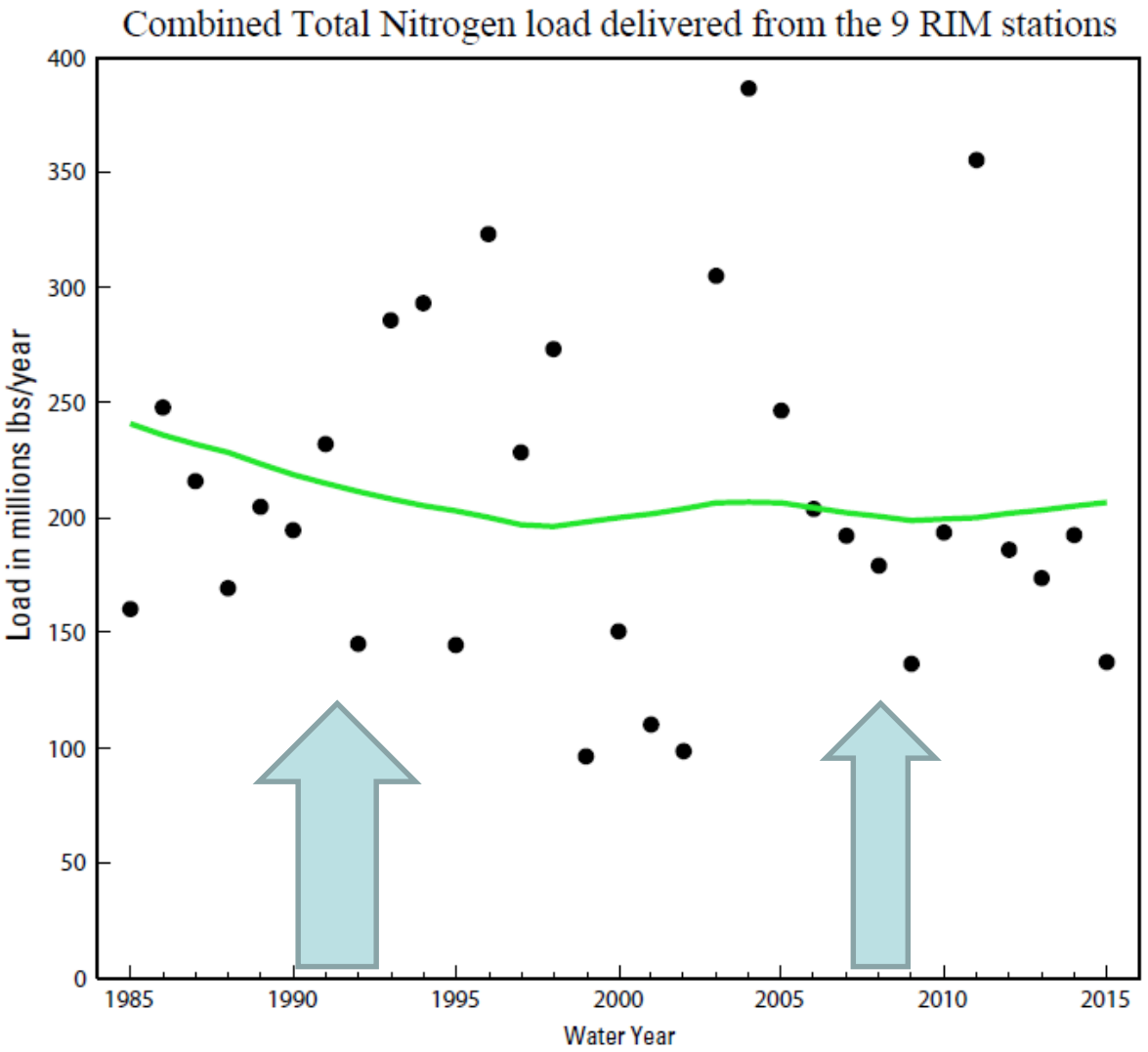
-RIM sites added together

-Flow-normalized trends

-Similar patterns to attainment

-WWTP reductions

-NPS practices



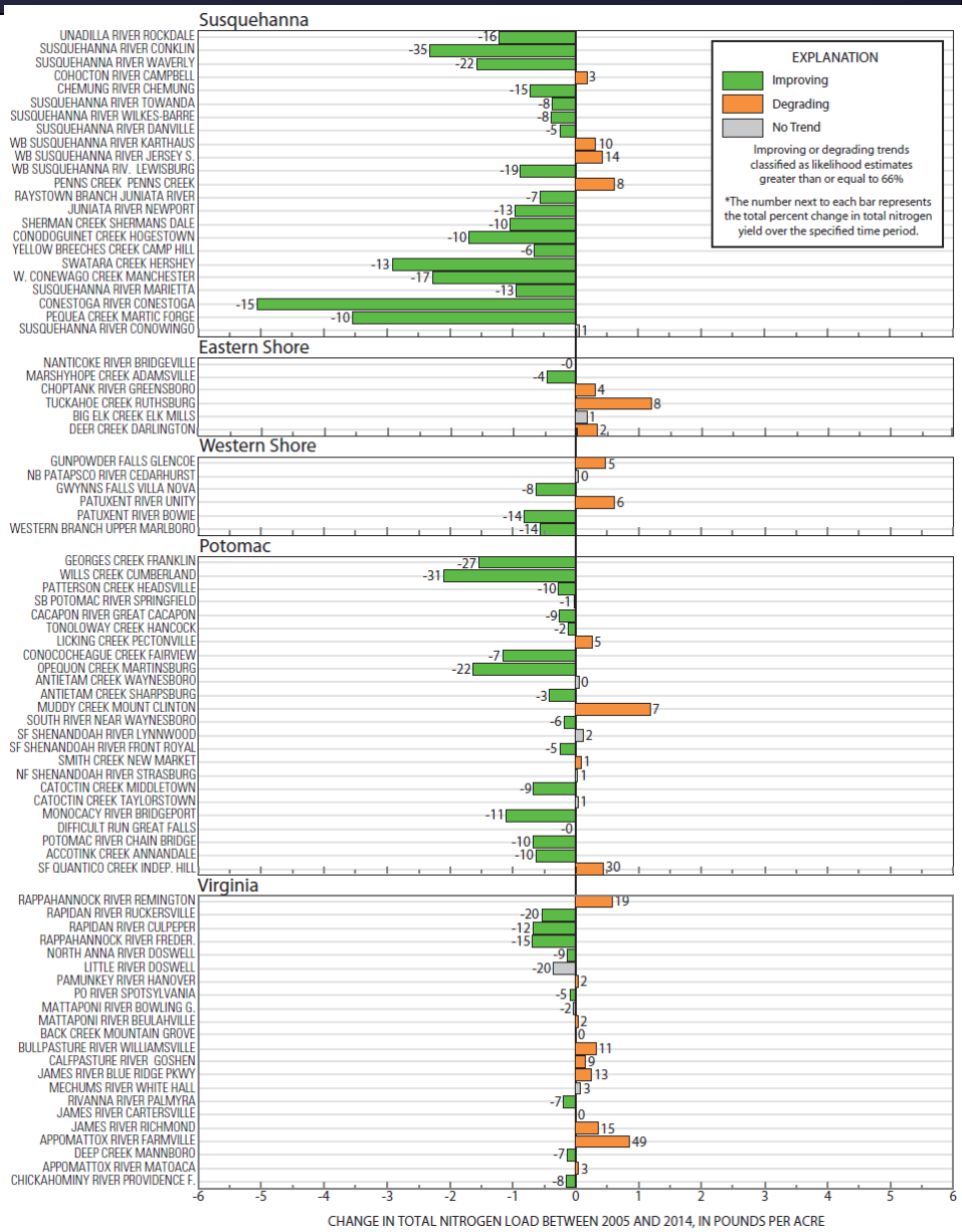
More Improvement in Watershed

Monitoring sites (TN)

- Improving conditions: 54%
- Degrading conditions: 27%
- No Trend: 19%

Factors:

- Practices
- Land-use change
- Lag times

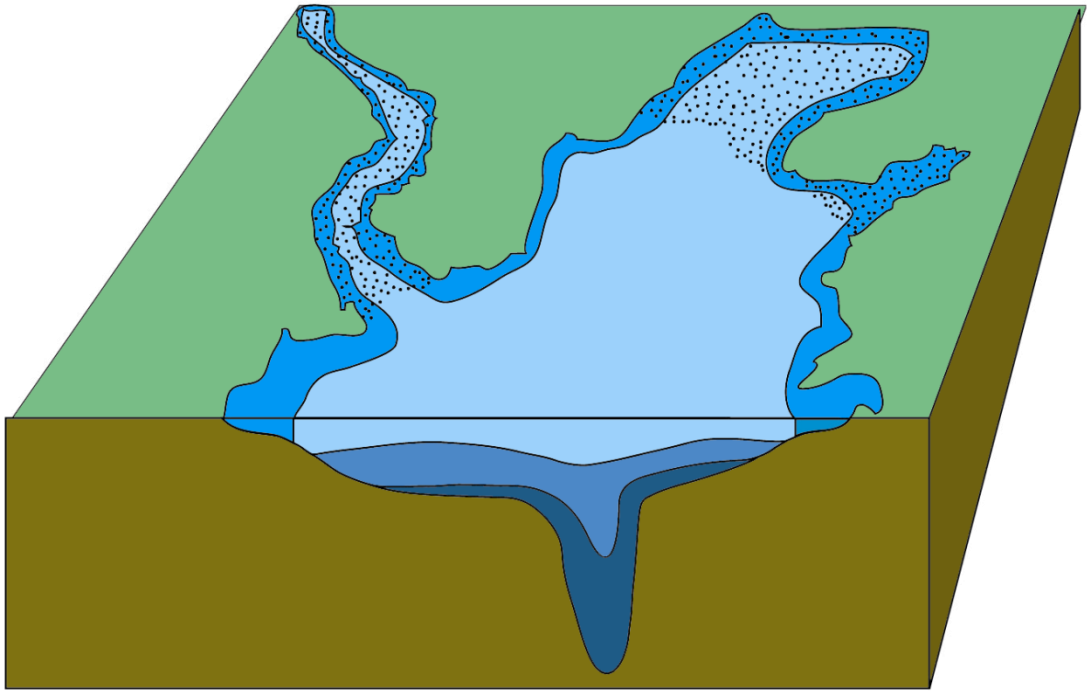


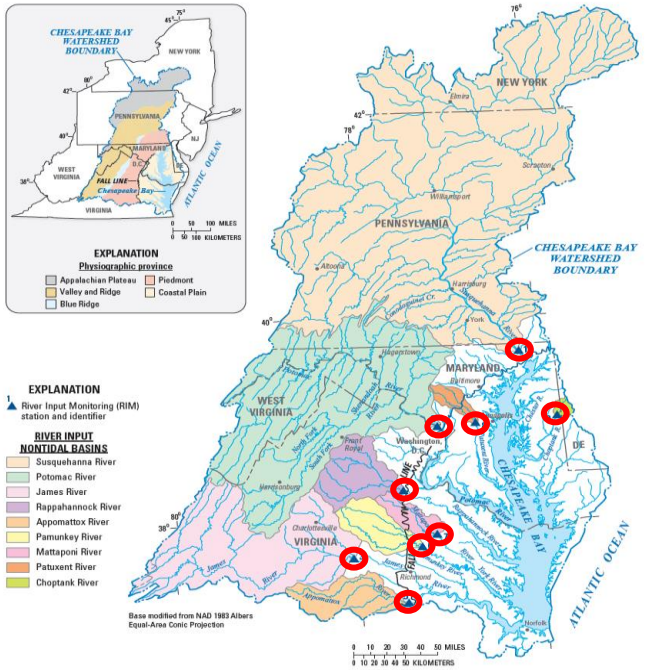
Messages

- Bay water quality improved in 2015
  - 37% estimated attainment
  - Lower river flow/loads
- Long-term attainment
  - Improvement during 80-90s’
  - More static since 2000
- More improvement in the watershed
  - First place to see effects of BMPs
- Water-quality changes
  - BMPs, lag times and land-use changes

Discussion

- Communicating and informing
  - Areas most important for living resources
  - Implications for load allocations





Questions and Discussion?

Scott Phillips – swphilli@usgs.gov
Peter Tango – ptango@chesapeakebay.net
Laura-free.laura@epa.gov