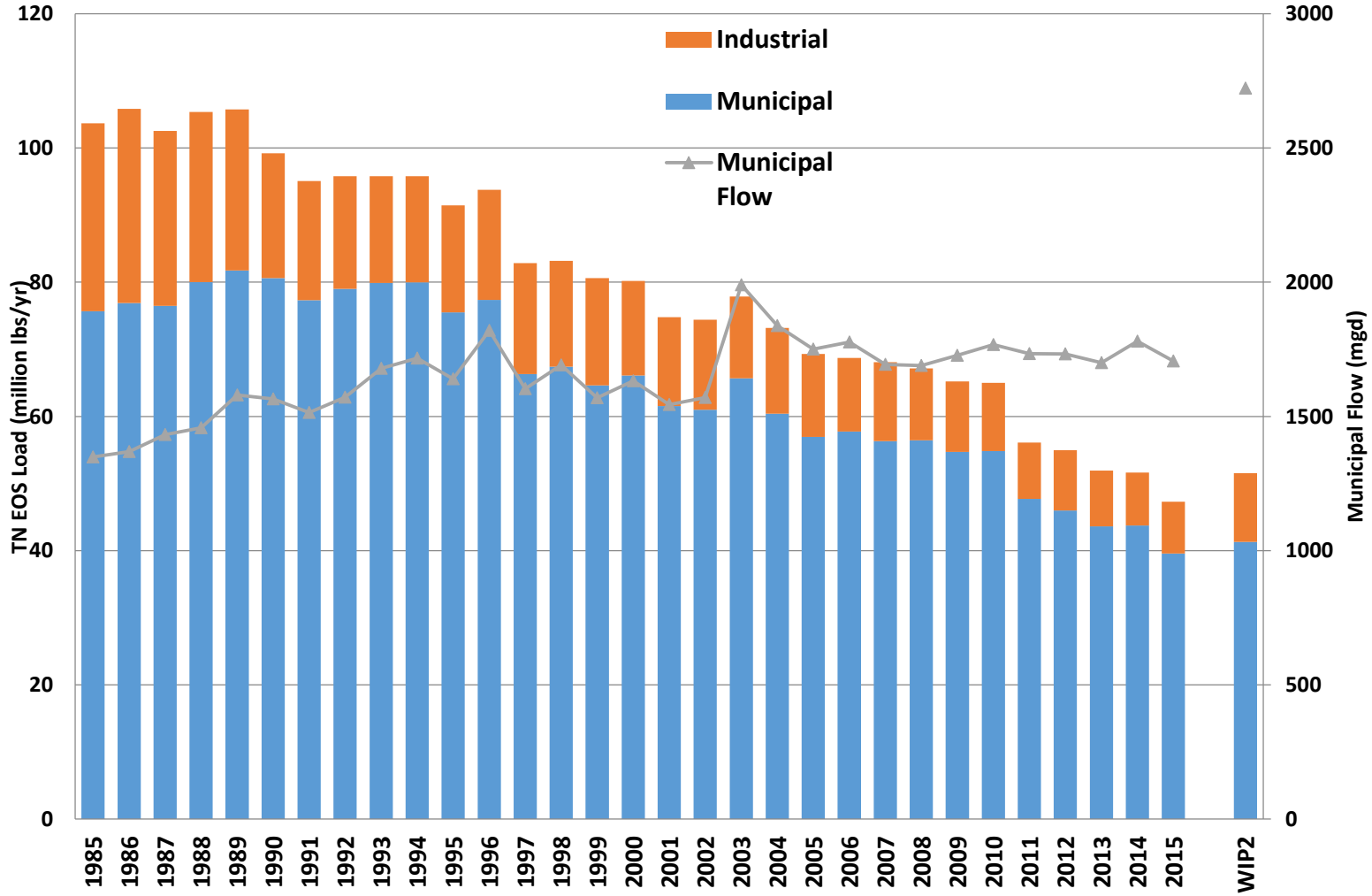
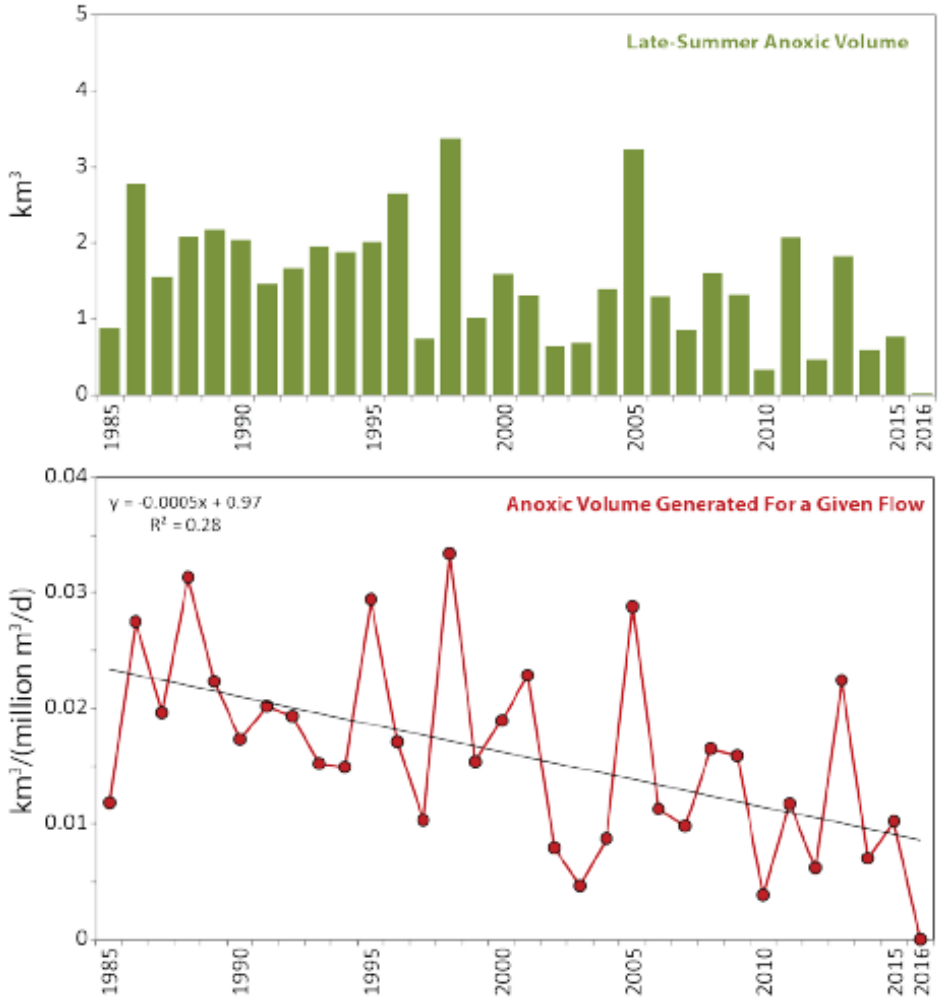
What Has Application of Models for Management Gotten Us to Date?

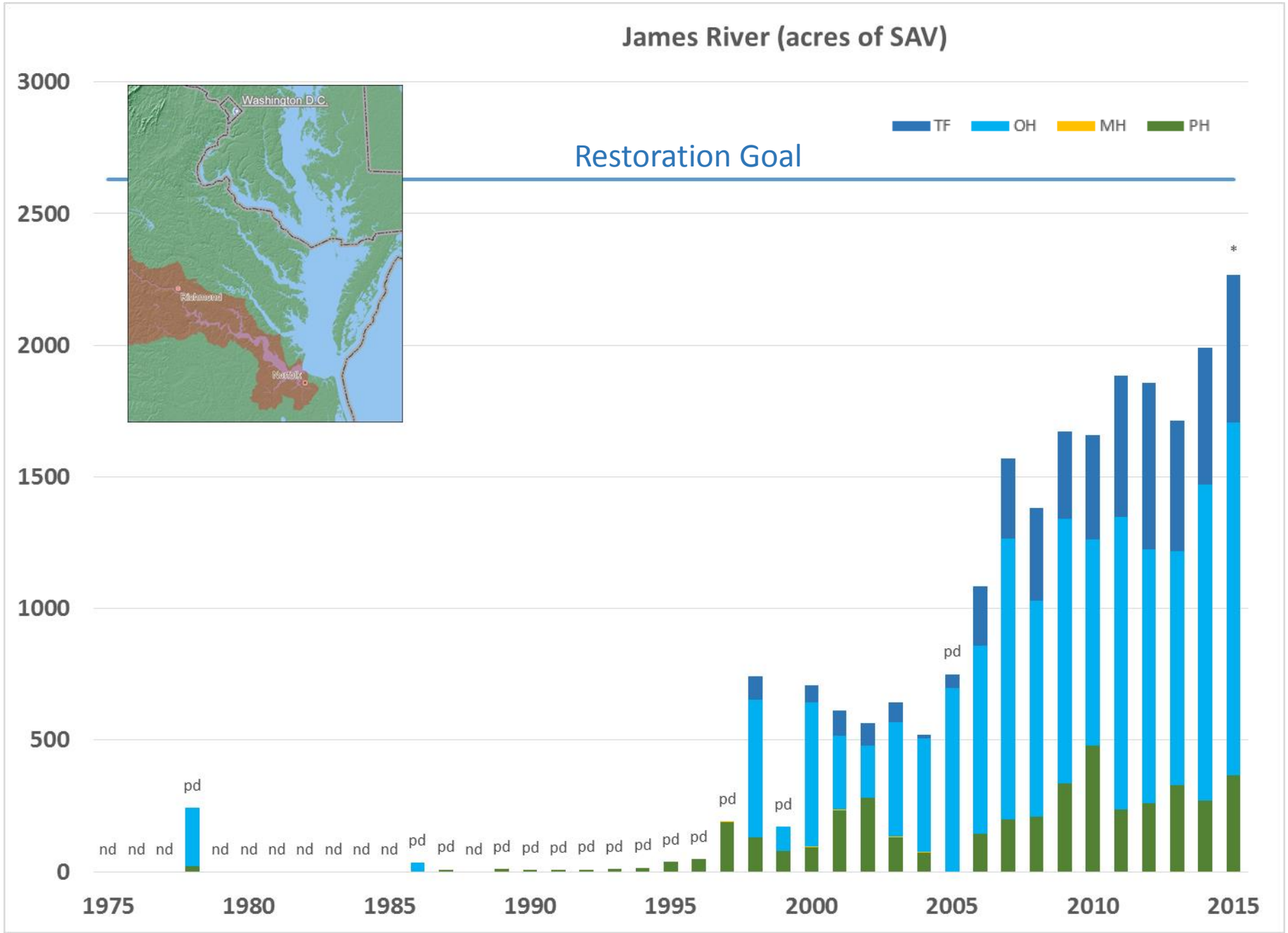
Chesapeake Bay Watershed Municipal and Industrial Wastewater Treatment Facilities Achieved their 2025 Goal a Decade Early!



The Chesapeake Bay's Summertime Dead Zone is Decreasing in Size!

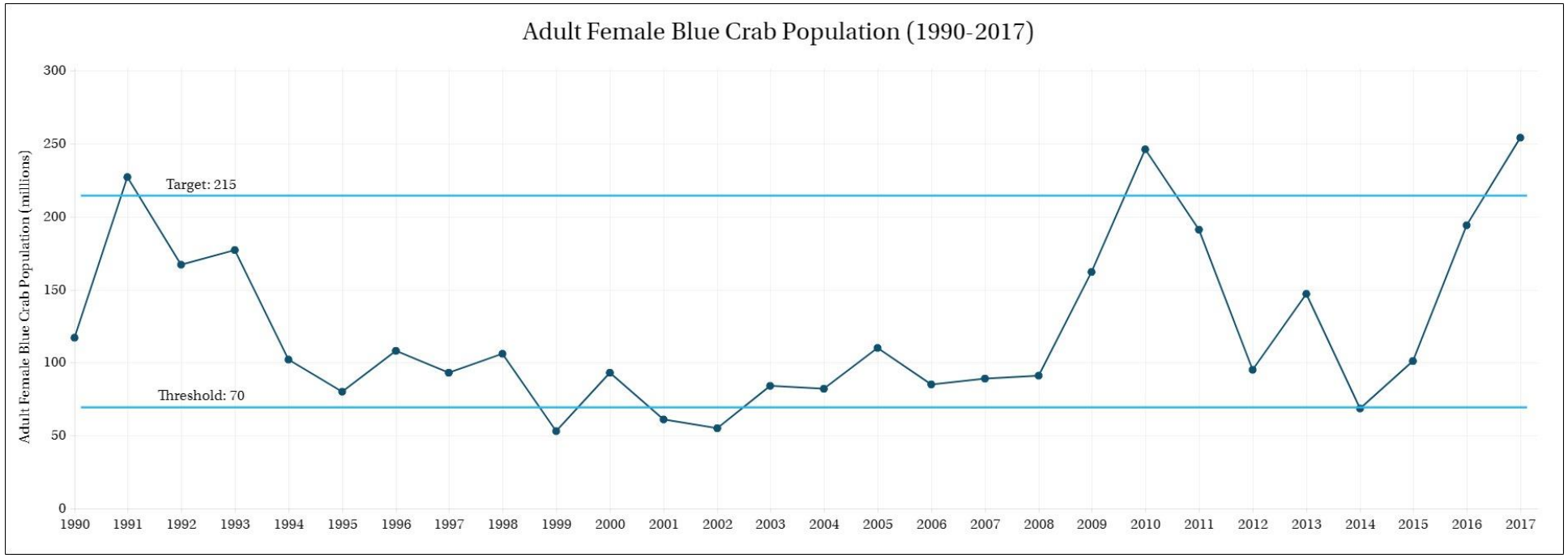


Source: Testa et al. 2017

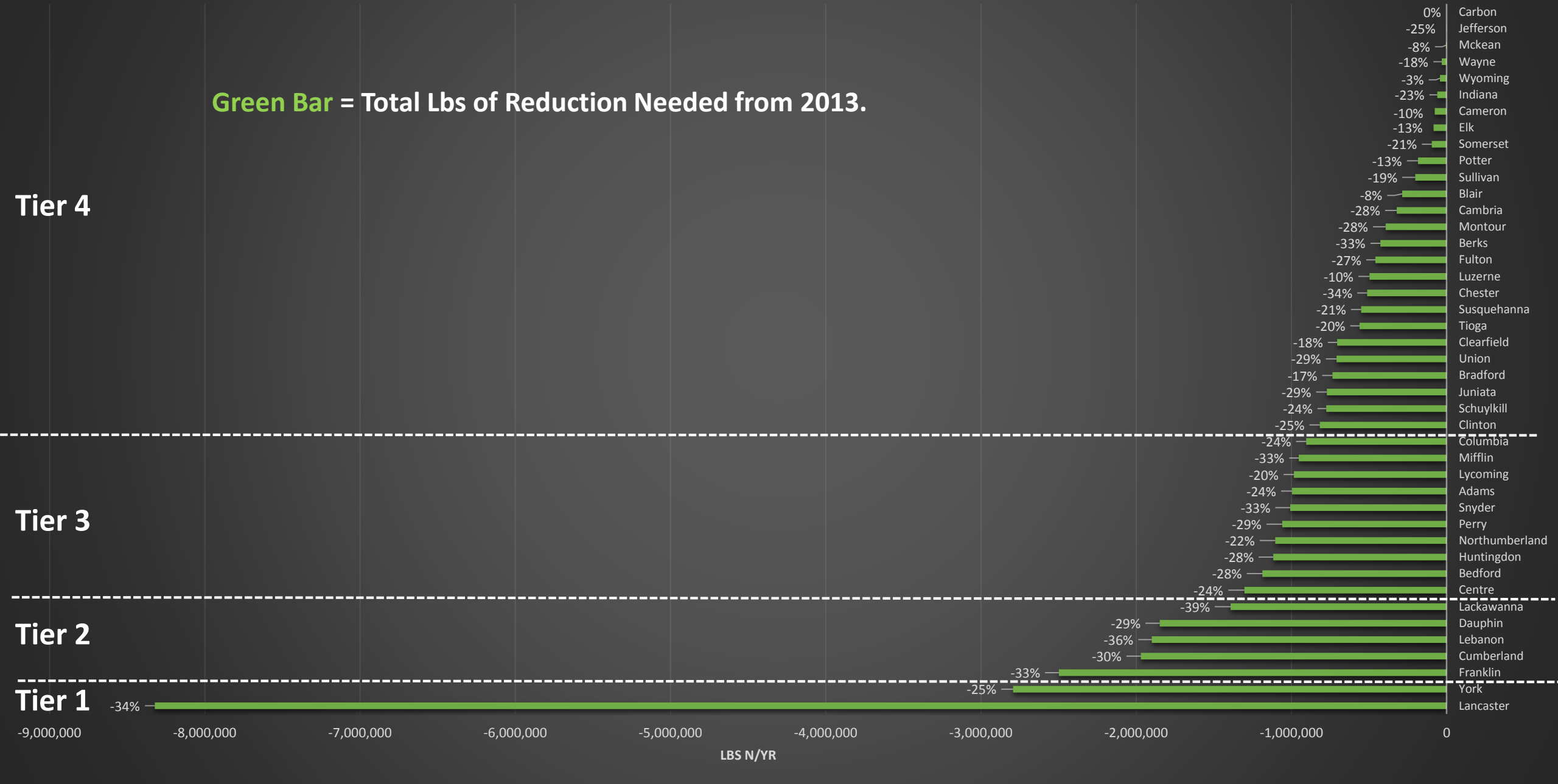


nd – No Data, pd – Partial Data, * 2015 data is preliminary, source: VIMS 3/7/16

Blue crab abundance is improving



Reductions Needed in Lbs of Nitrogen Delivered to Local Streams from 2013 Progress Assuming Equal Effort



Why?

Relevant

On Time

Partnership’s

Local Data

Transparent

Accessible

On Time

What's Needed into the Future?

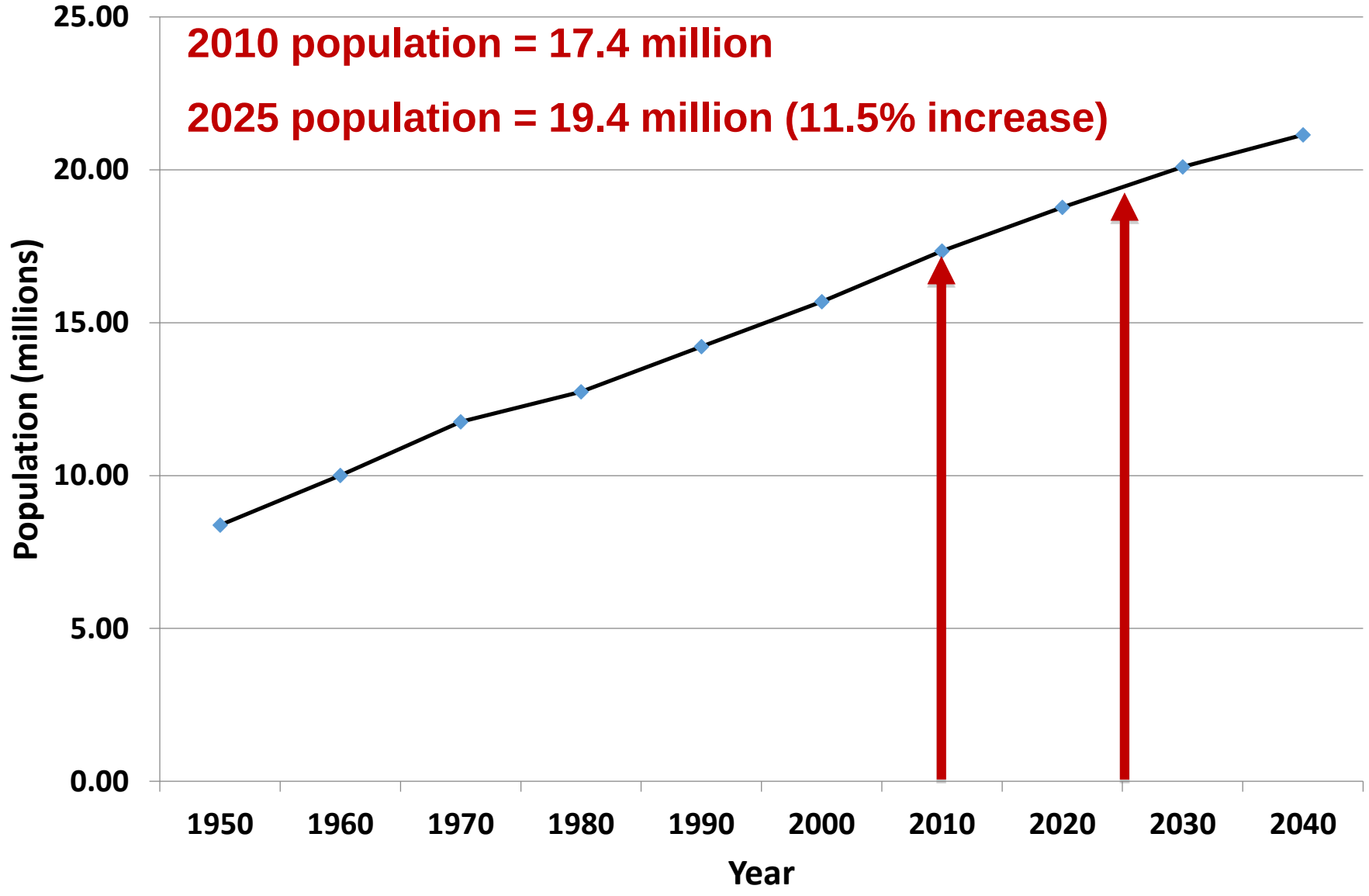
Going Very Local

More Locally Relevant

More Bay Watershed Agreement Relevant

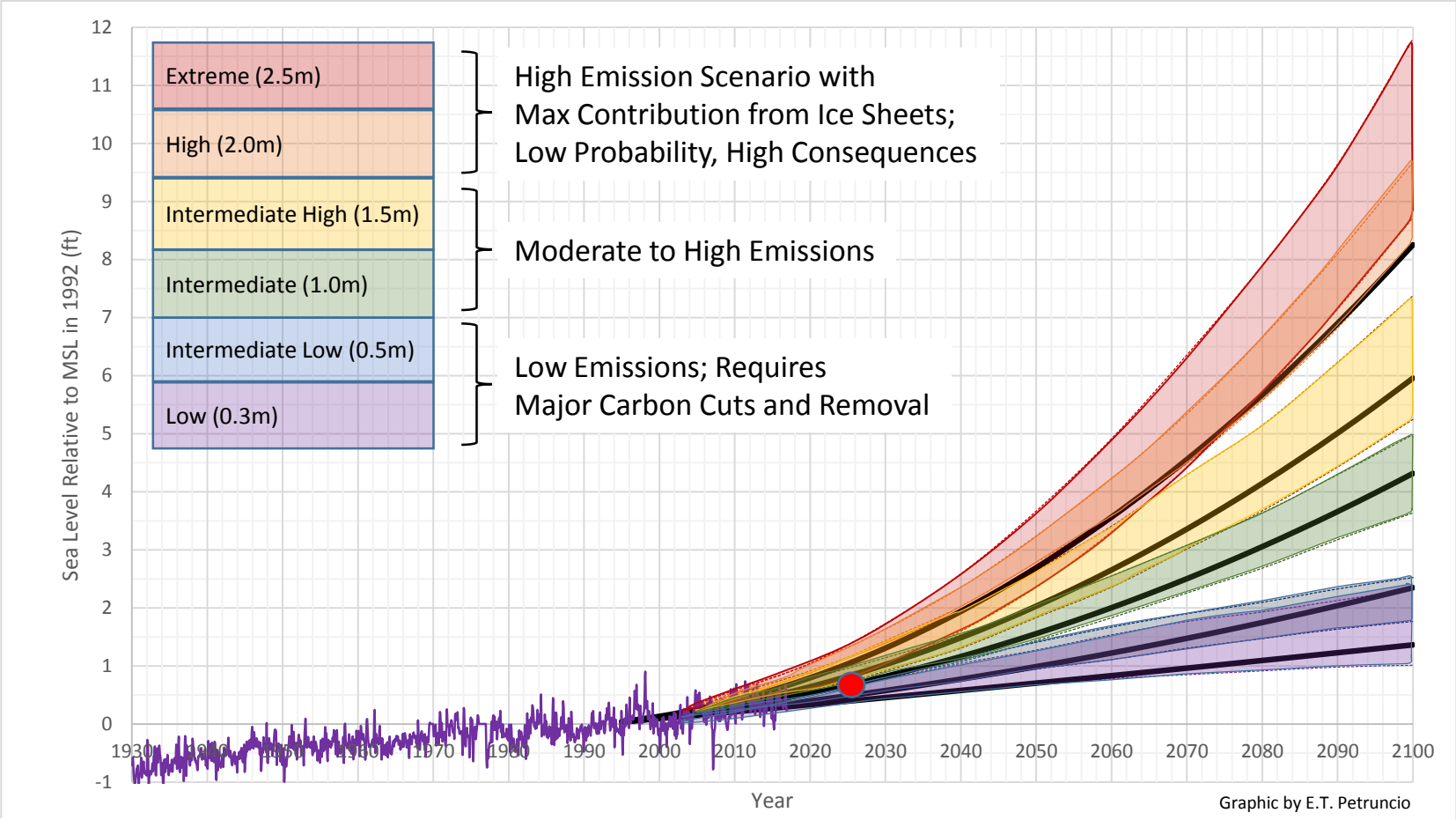
What Challenges are We Facing?

Chesapeake Bay Watershed Population Trends



USGS

Changing Conditions



Relative Sea Level Rise Scenarios for Annapolis
with Annapolis Monthly Mean Sea Level Data for 1930-2016

Sources: Hall et al. (2016) and Sweet et al. (2017)

Addressing Locally Relevant Issues

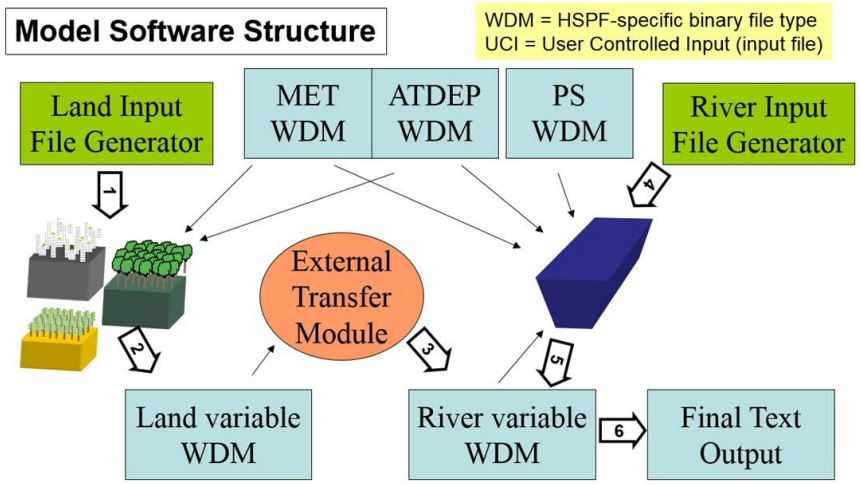
- Flooding
- Water supply
- Drinking water source protection
- Local infrastructure protection
- Recreational uses
- Fecal coliform
- Stream Restoration
- Flood plain re-connection
- Beneficial uses

Forging Socio-Economic Connections

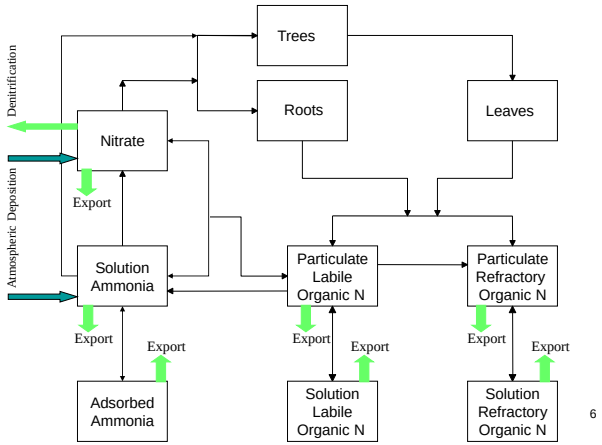
Why Am I Optimistic We Can Meet These Challenges?

Phase 6 Bay Watershed Model

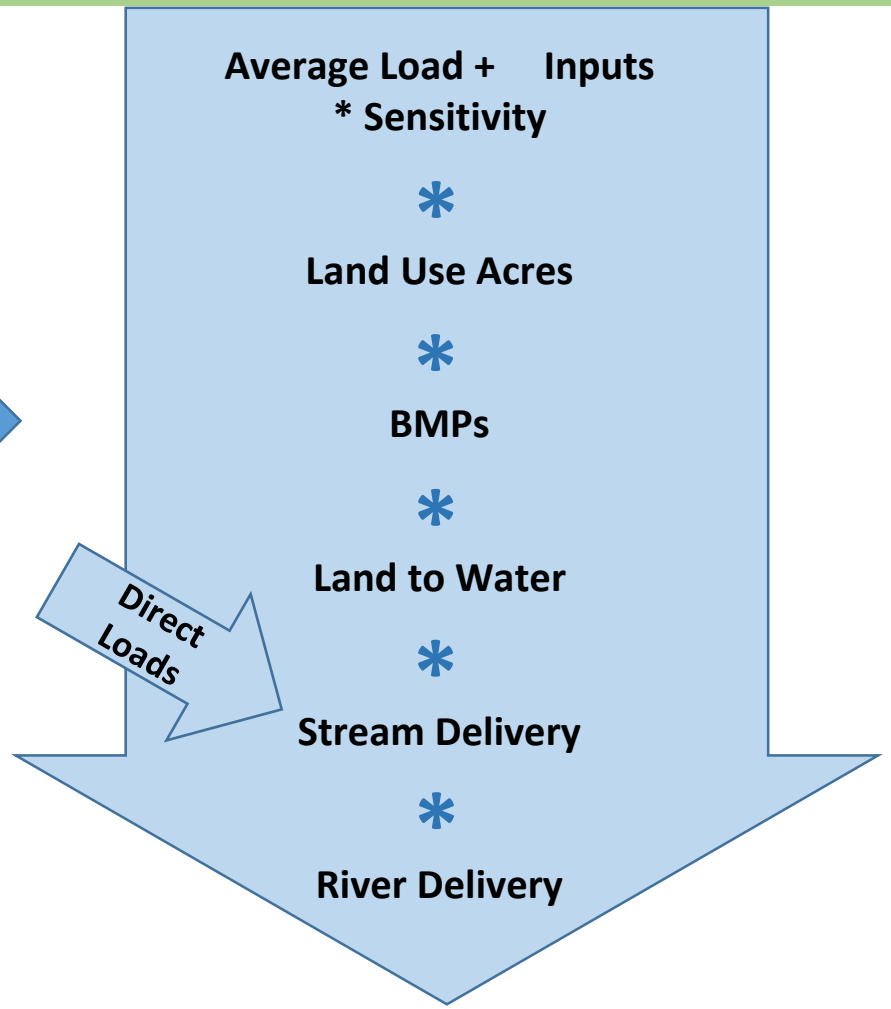
Prior Bay Watershed Models



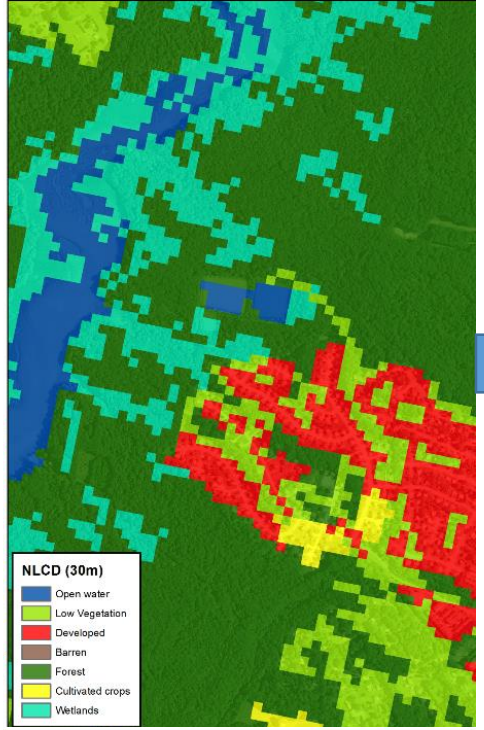
Each submodel has a complex hydrologic or nutrient cycling structure

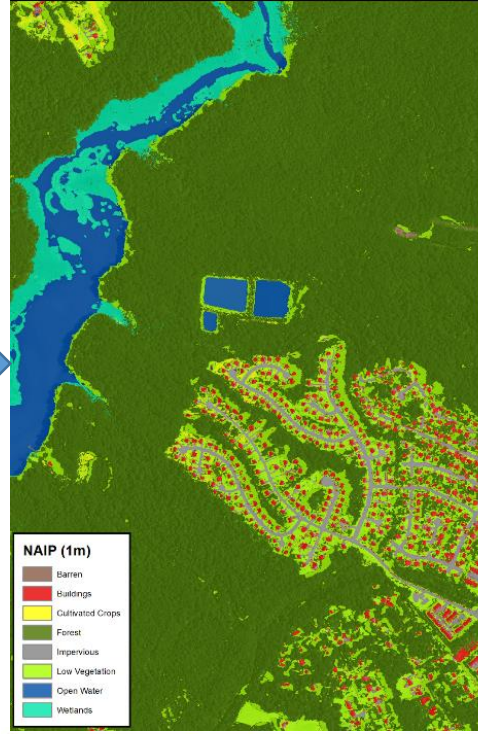


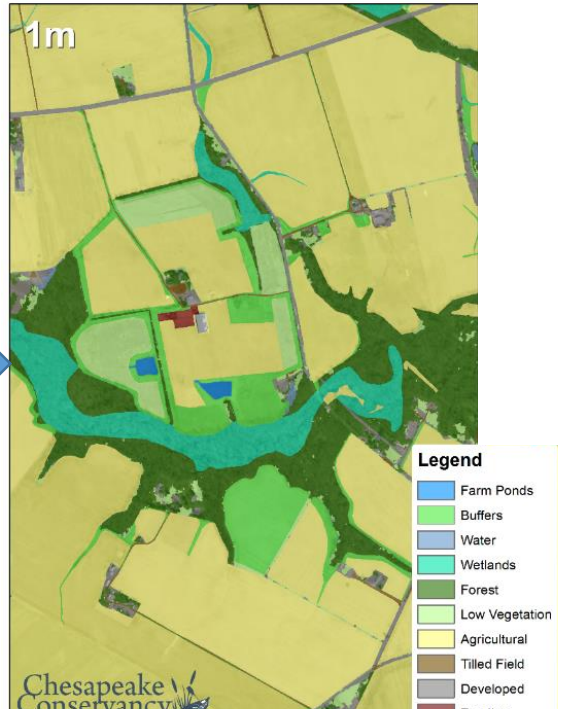
Phase 6 Watershed Model



Phase 5 30-Meter Resolution Land Use/Land Cover Data



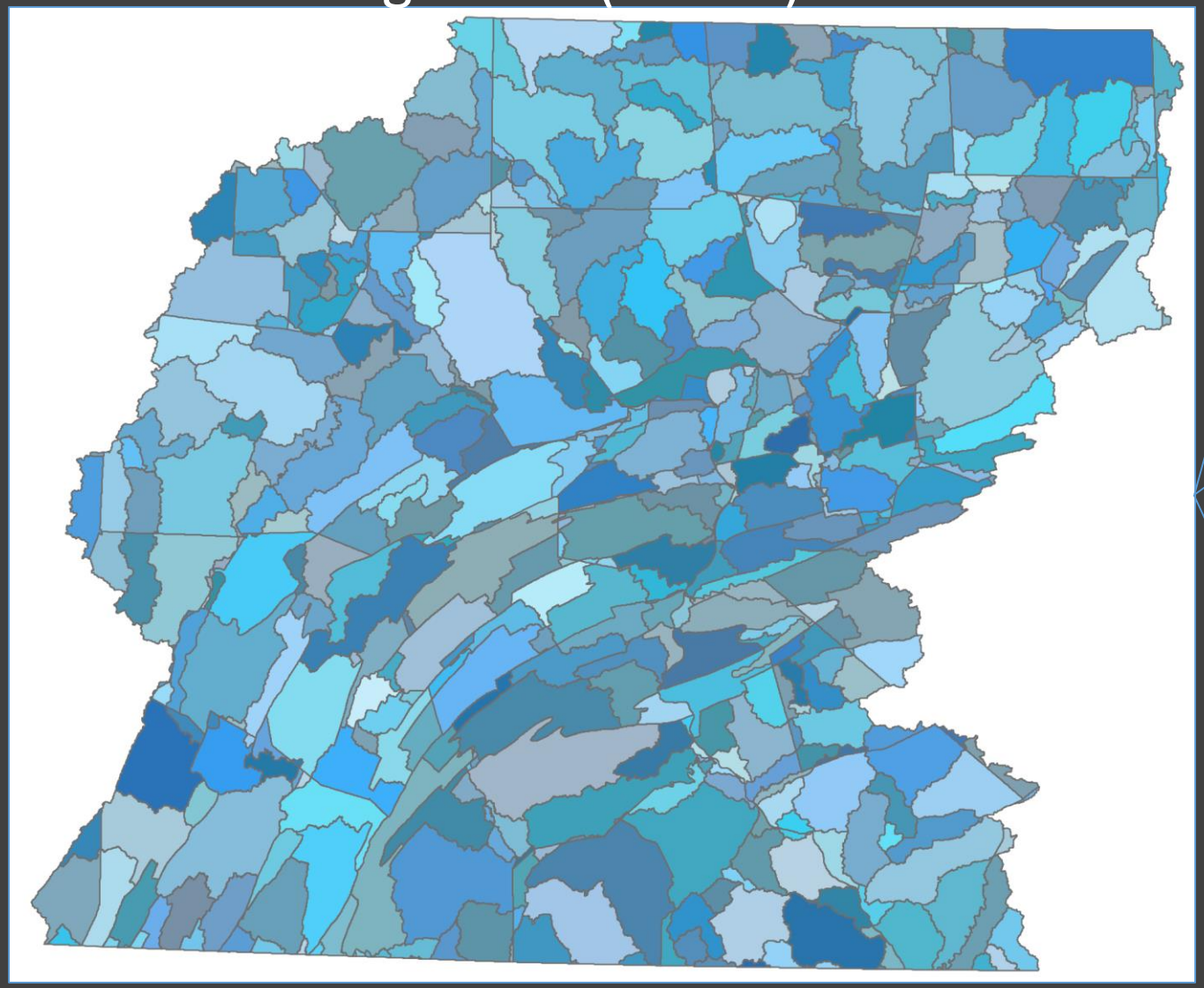


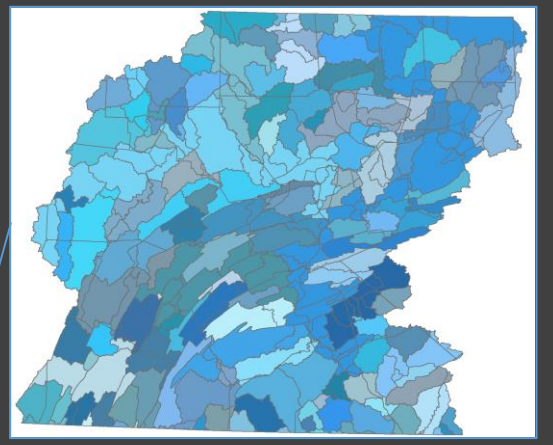


Phase 6 1-Meter Resolution Land Use/Land Cover Data

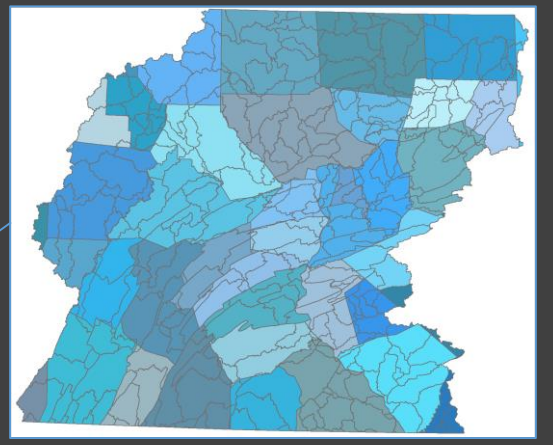
Geographic Scales Available

Land-River Segments (LRSEG) - 505

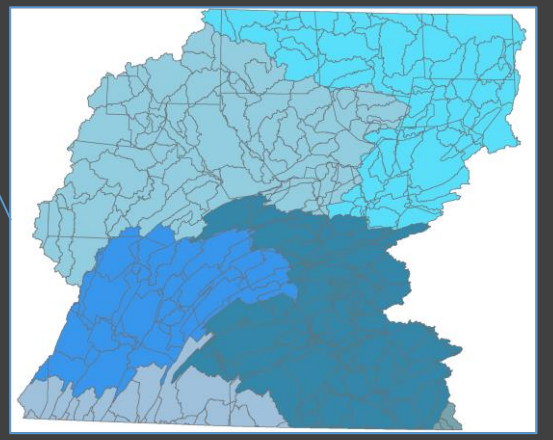




Rivers - 122



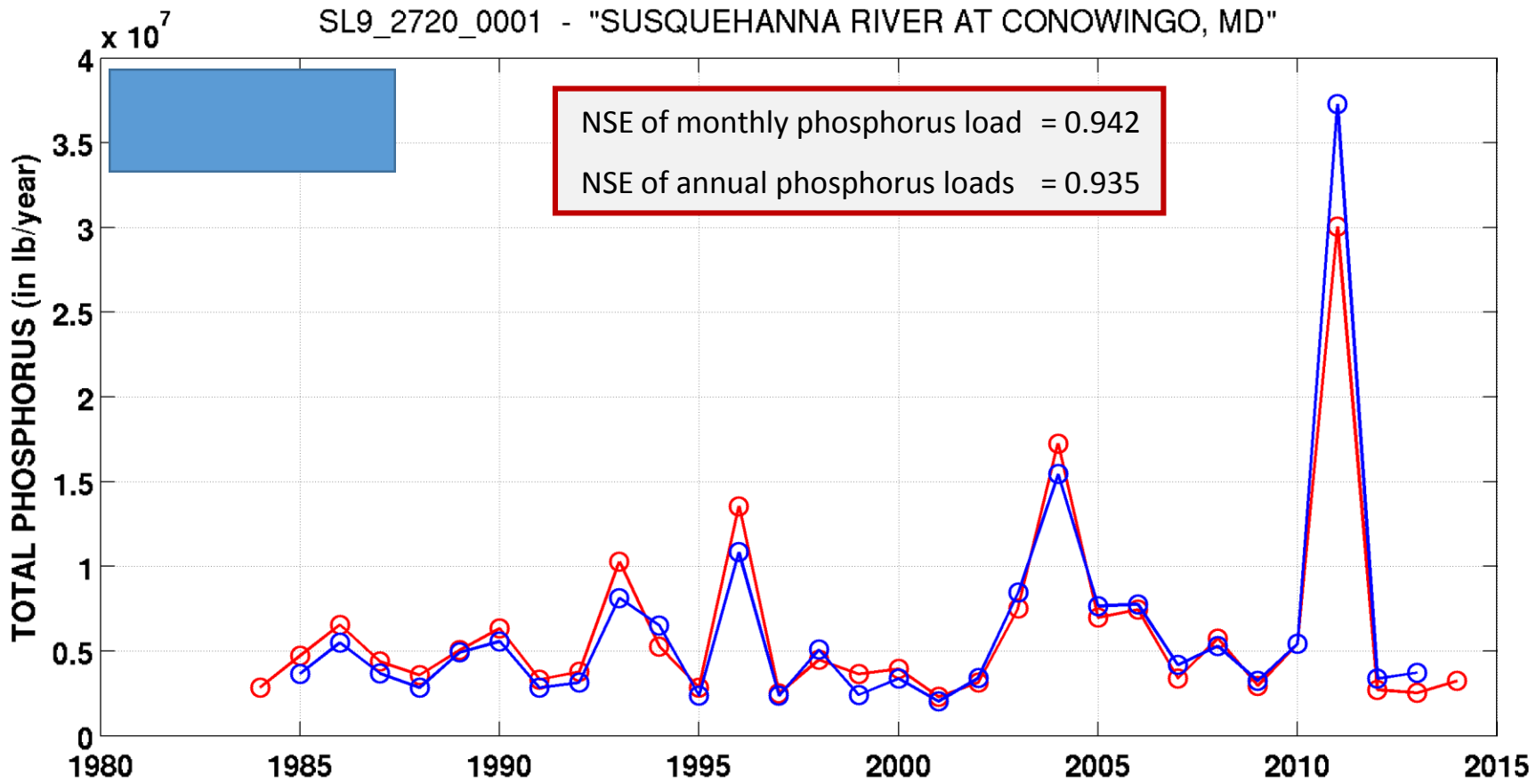
Counties - 42



Sub-Basins - 6

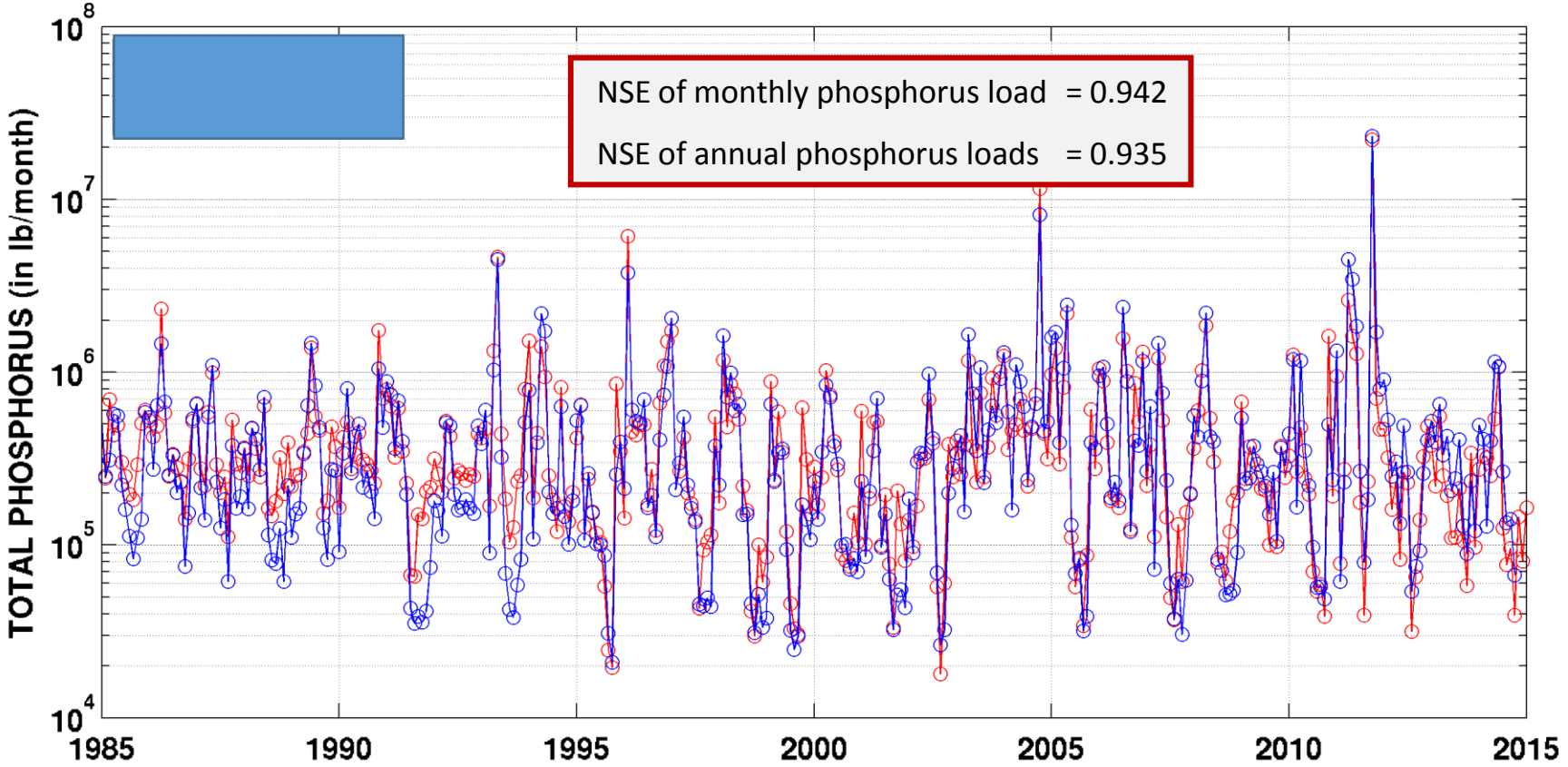
Best Match with Monitoring Data Ever!

Conowingo Phase 6 Simulation Compared to Annual WRTDS Loads



Best Match with Monitoring Data Ever!

Conowingo Phase 6 Simulation Compared to Monthly WRTDS Loads

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Rich Batiuk

Associate Director for Science, Analysis and Implementation

U.S. EPA Chesapeake Bay Program Office

410-267-5731 Work

443-223-7823 Mobile

410-268-5226 Home

batiuk.richard@epa.gov

www.chesapeakebay.net

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