Sustaining Monitoring Networks: Recommendations for Water-Quality Monitoring and Assessment

CBP Water-Quality Goal Team

June 22, 2015

Peter Tango (USGS@CBPO)

on behalf of STAR

USGS science for a changing world

Chesapeake Bay Program
A Watershed Partnership

University of Maryland
Center for Environmental Science

ORC

BASIN

Building and Sustaining Integrated Networks

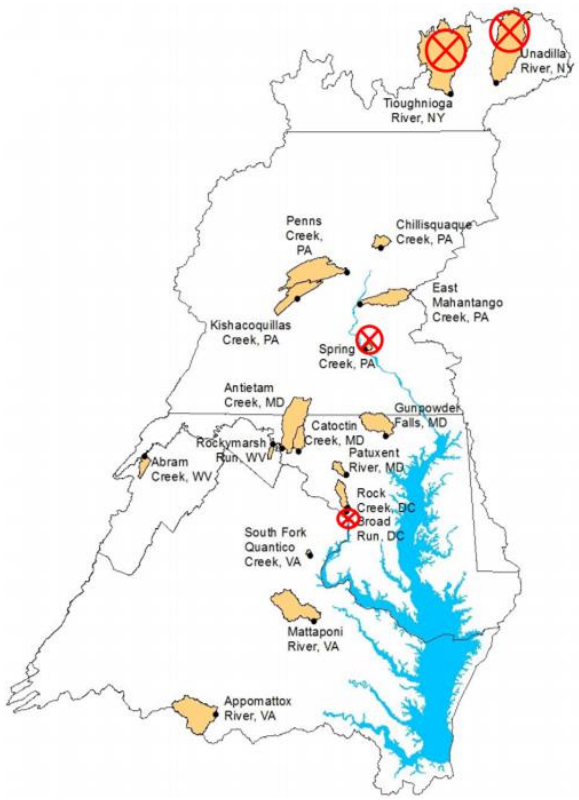
Phase I

Phase II

Phase III

Short-Term Gap Filling Solutions for FY13

June - December 2013

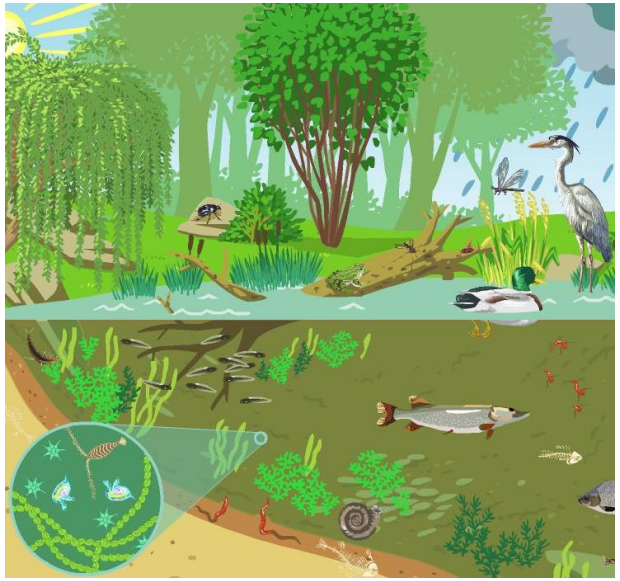


Water Quality Monitoring Networks Exploration

January - December 2014

2014 Watershed Agreement Monitoring Needs

Ongoing



Credit: eduMedia

Sustaining Monitoring: Making Adjustments

Policy Agreements

Funding Priorities

Funding Availability

Changing Science

Changing Leadership

Inflation

CBP Partnership Reviews

Alignment with Chesapeake 2000 Agreement

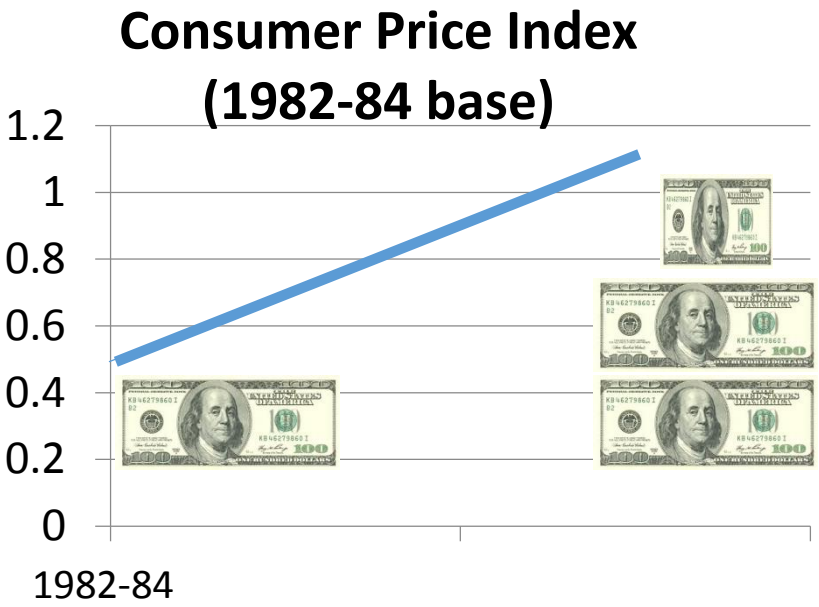
- Watershed Loads
- Bay Shallow water Monitoring Programs
- End Zooplankton Program

STAC 2007-09 Review: *Monitoring Realignment*

- Water quality standards attainment;
- Basin focus assessing BMPs
- End Phytoplankton Program

TMDL and Standards Attainment

Building and Sustaining Networks: Pressures on Financial Planning



In 2013 it required about $234 to afford what $100 could purchase in 1982/4. That's about a 2.5x increase over 30 yrs.

INFLATIONARY PRESSURES

http://www.statista.com/statistics/190974/unadjusted-consumer-price-index-of-all-urban-consumers-in-the-us-since-1992/

Local to Regional Scale Events:

- Harmful Algal Blooms (HABs) can introduce food security and human health threats.
- Public pressure may demand increased monitoring information.

War waged against pfiesteria
Sick fish close down third river
Coping with pfiesteria threat won't be easy
Doctors affirm link between pfiesteria and human illness

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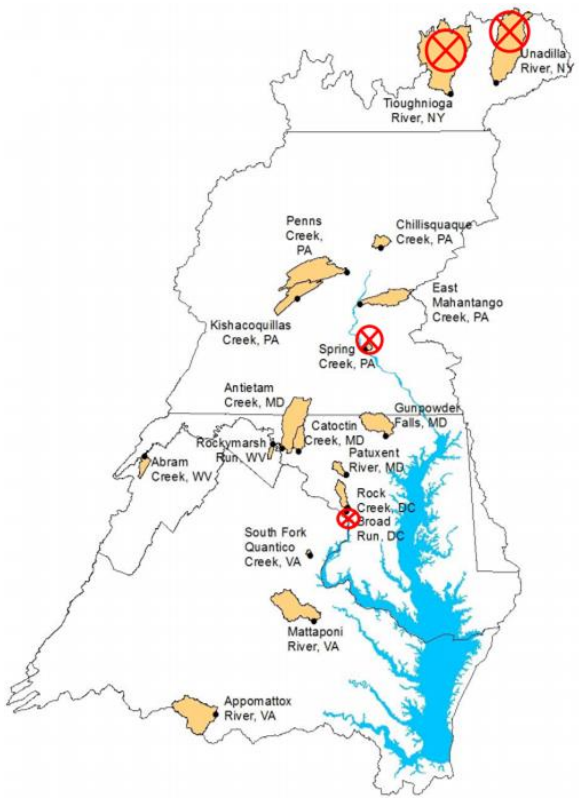

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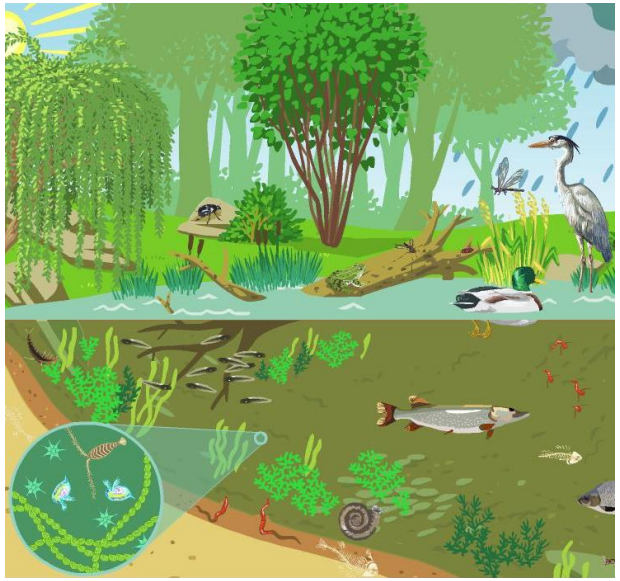


Credit: eduMedia

Building Environmental Intelligence Report: Leading the future of water-quality monitoring

- What we know
- What we learned: Global Seminar Serie
- What we recommend
  - Water-quality standards
  - Explaining response to management actions
  - Sustaining Resources
- Summary of recommendations

- Authors: Lea Rubin Peter Tango, Scott Phillips, Mark Bennett, Bill Dennison

Decision Support
Citizen Science
Innovation
Sustainable Water Quality Monitoring In the Chesapeake will require:
Combining Funds
Partnerships
Leadership

Decision Support

Credit: Council of Communication Associations

"Addressing the needs of the CBP partners requires monitoring to support adaptive management and communication of results to inform decision makers."

- TMDL and Standards Attainment
- Evaluate progress, WIPs
- User Council

Citizen Science

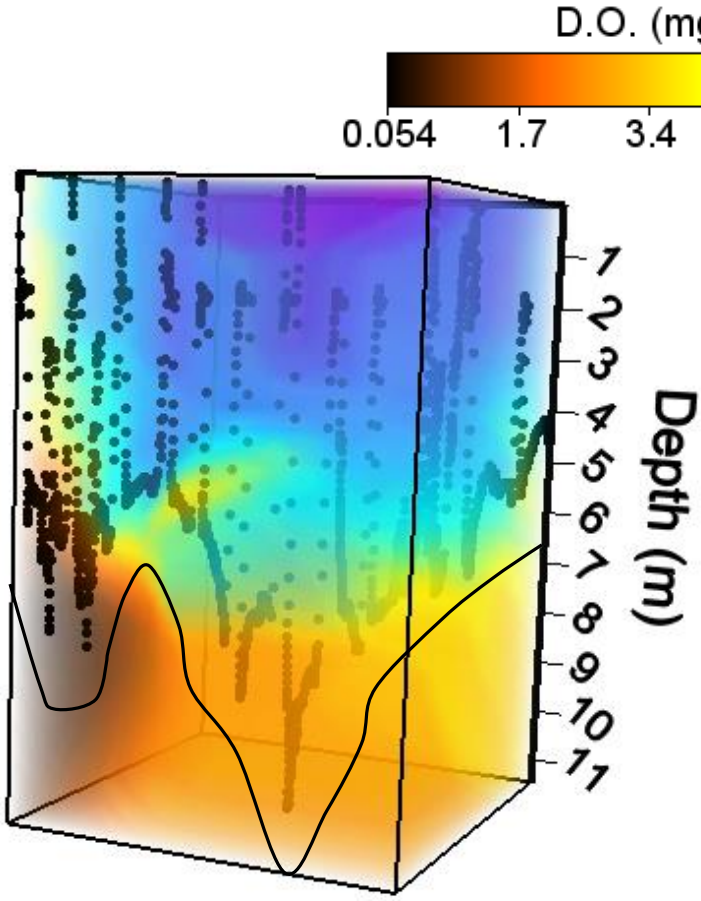
Credit: Wisconsin's Citizen-Based Water Monitoring Network

"Citizen Science has tremendous potential but requires coordination, training and continuity."

- Supplement CBP monitoring
- Watershed "hot spots"
- Target smaller tidal tribs
- New Citizen's monitoring project

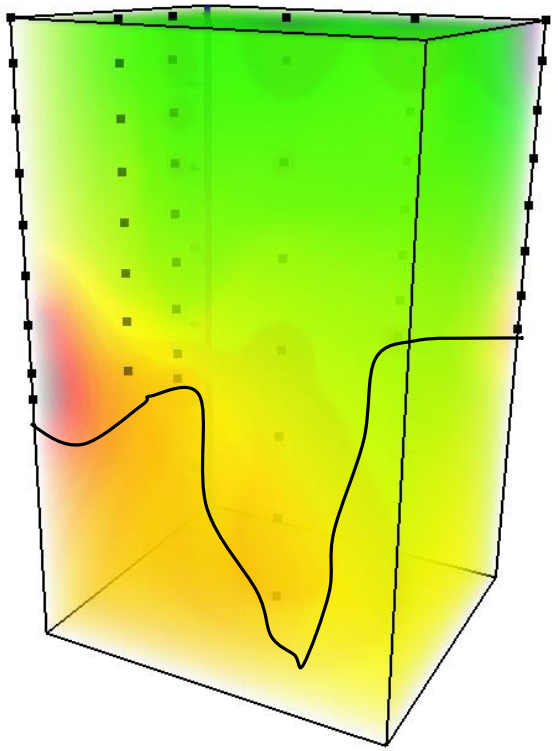
Innovation

Credit: UC Santa Barbara



REMUS 100 AUV (6-8 AM)

Credit: U.S. Naval Academy



Severn River Keeper weekly monitoring (8 AM – 2 PM)

- Improved interpretation of the monitoring information
- Efficiencies in monitoring

Innovation

Credit: UC Santa Barbara

- Distinct source sectors
- Tidal network design
- More frequent measurements
  - Loads
  - Standards attainment
- Refine networks

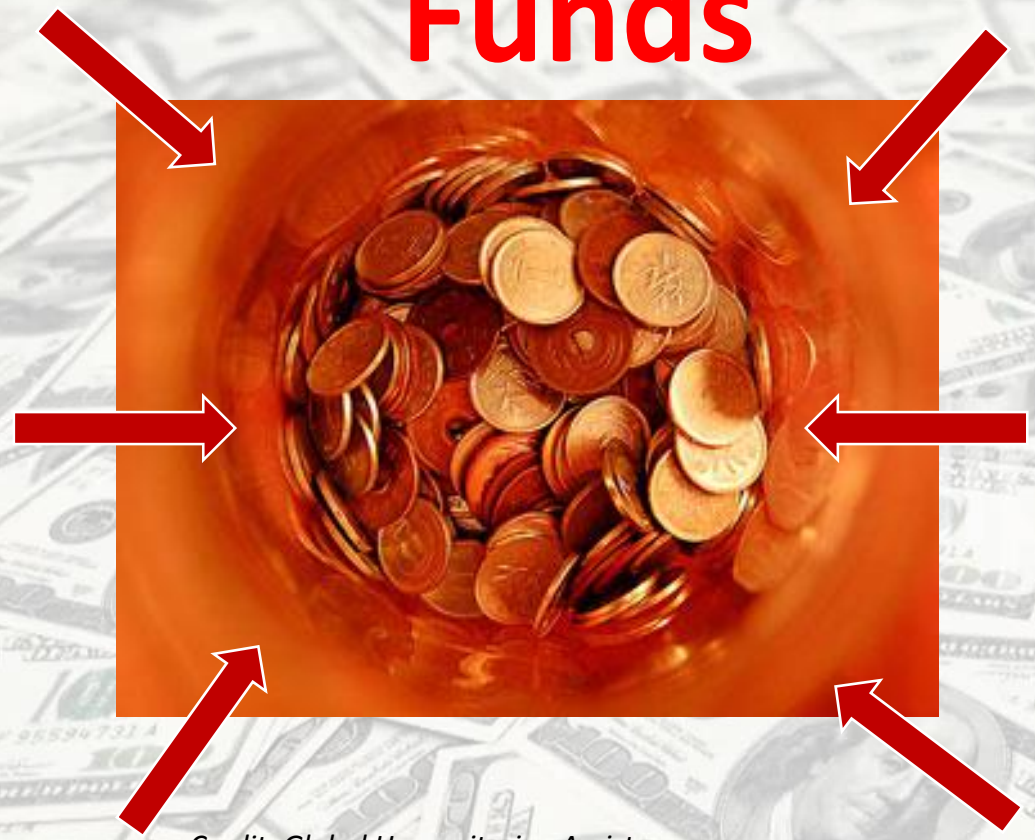
Partnerships

Credit: Social Media Examiner

"Partnering …each partner benefits by co-locating monitoring efforts and the overall cost of the monitoring effort is reduced"

- Local jurisdictions
- Enhance coordination with regional partners
- Build upon existing infrastructure

Combining Funds



Credit: Global Humanitarian Assistance

"Having agencies contribute funding into a common pool of resources provides opportunities for efficiencies and integration of priorities."

- MD Water Monitoring Council
- Public-private opportunities
- Pooled CBP monitoring

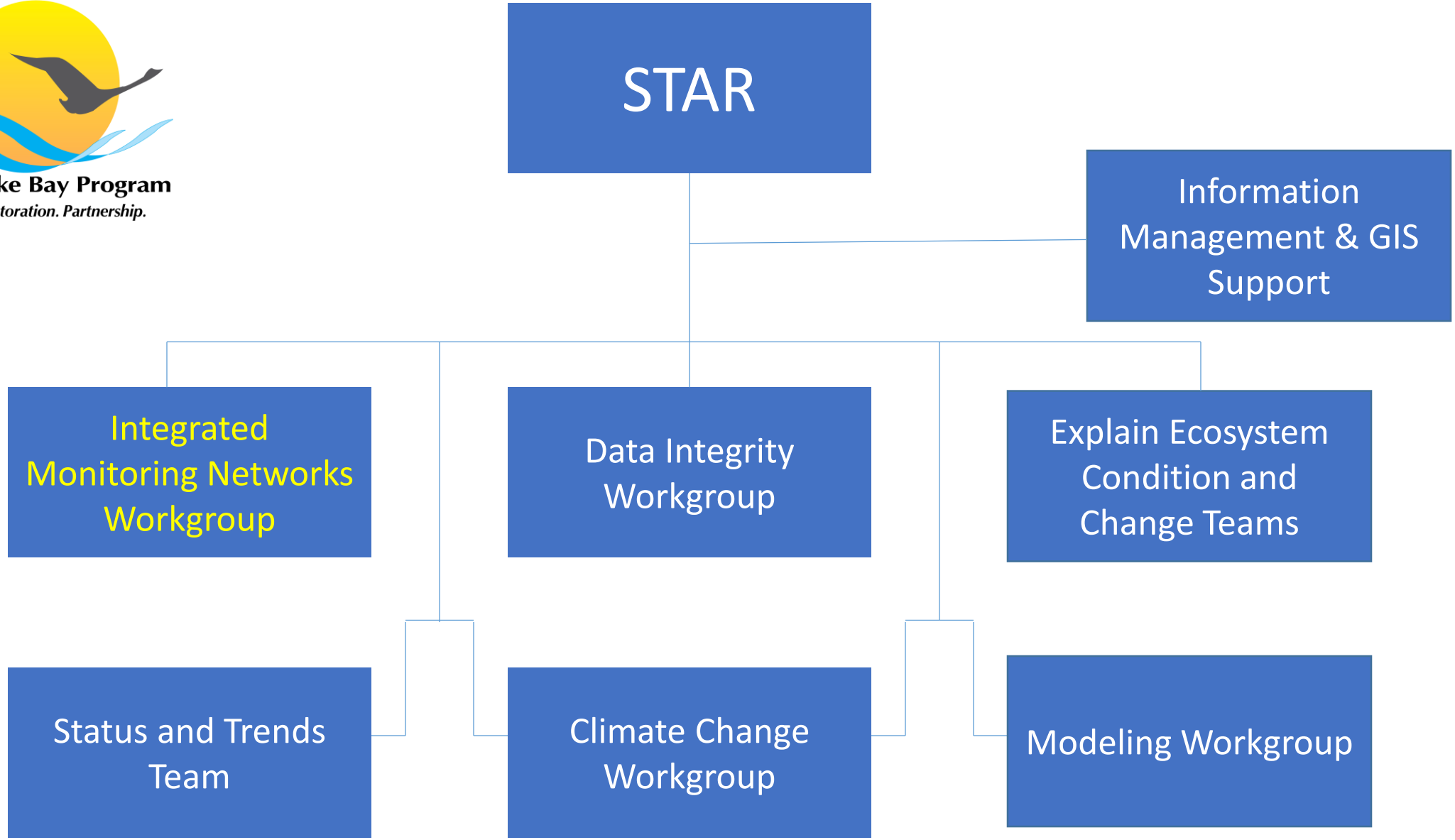
Leadership

Credit: Kuder, Inc.

"It is essential to have a network of peers to share and discover successes and challenges when operating monitoring programs."

- Think beyond own programs
- Interact with Global partners
- Emphasize and build integrated networks

Chesapeake Bay Program
Science. Restoration. Partnership.



Next steps and help from WQ Goal Team

- Technical review of report
- Summer release
- Implement recommendations
  - User council
  - Prioritize recommendations
  - Partner on network enhancements
- Phase III: Watershed Agreement

Contacts: Lea Rubin and Peter Tango, STAR