Integrating Recent Findings to Explain Water Quality Change:

Support for the Mid-Point Assessment and Beyond

A STAC Responsive Workshop
December 12-13, 2017
Annapolis, MD

Steering Committee

- Joel Blomquist, USGS (workshop co-chair)
- JK Bohlke, USGS
- James Davis-Martin, VA DEQ
- Bill Dennison, UMCES
- Carl Friedrichs, VIMS
- Jeni Keisman, USGS (workshop co-chair)
- Rebecca Murphy, UMCES
- Scott Phillips, USGS
- Jeremy Testa, UMCES
- Emily Trentacoste, EPA
- Donald Weller, SERC

Workshop Motivations

- Over the past 2 years, each of you researchers has been involved in efforts to synthesize and advance the current state of knowledge in your respective areas of expertise.
  - You also share a common interest in supporting the science needs of Chesapeake Bay resource managers.

- Jurisdictions are facing the TMDL Mid-Point Assessment, and have a pressing need for the best available science to inform development of their Phase III Watershed Implementation Plans (WIPs).
  - Beyond the Mid-Point Assessment, they will have a continuing need for science to inform the ongoing adaptive management of Chesapeake Bay watershed and estuary restoration efforts.

- Advancing our knowledge of how management strategies can improve aquatic conditions requires an interdisciplinary approach.
  - Bringing these groups together will help us make connections that provide new insights and better inform future research.

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Workshop Goals

- To share our findings with each other
- To identify results that complement each other, and make connections that generate new insights
- To identify information that may be used to inform the Phase III WIPs, ***and*** ongoing adaptive management efforts
- To articulate remaining uncertainties and gaps
- To identify which of these are most critical to supporting natural resource managers' needs

Workshop Process – Day 1

3 Sessions

- I: Nontidal Network Synthesis
- II: Sediment, Water Clarity, and Submersed Aquatic Vegetation (SAV)
- III: Watershed Loads and Estuarine Response

Focused Presentations

- Key Insights (Confirm? Inform? Change?)
- Key Uncertainties

Lots of Discussion

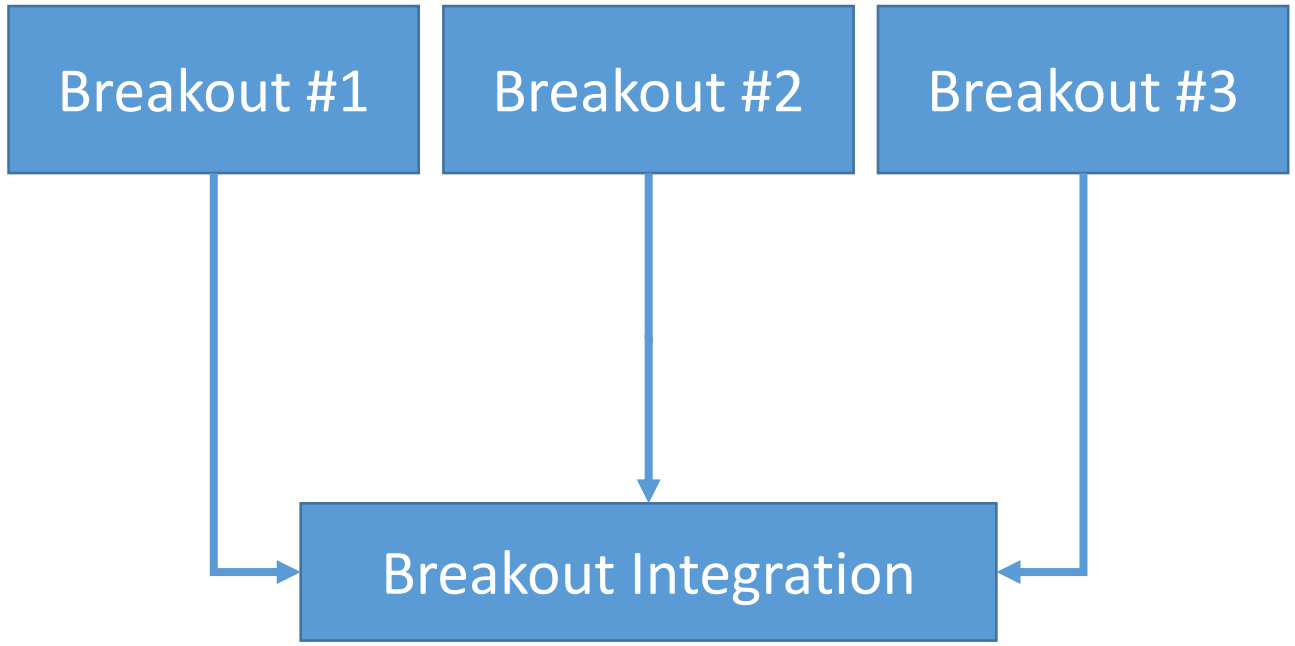
- Did the findings make sense? Did they surprise you? How do they relate to your work?
- How does the work relate to manager's questions? What are the critical uncertainties?

Presentation Guidelines

- 20 Minutes
- Light on methods
- Emphasis on key findings and critical uncertainties
- Key findings:
  - Confirm; Inform; Change
- Critical uncertainties:
  - What limits our understanding of how aquatic conditions respond to changes on the landscape?

Breakout Groups

- 3 Groups
- Same Questions
- Presentation slides viewable on laptops
- Discussion facilitators
- Don’t fear silence
- Mix it up!



Workshop Process – Day 2

Morning Session

- Potomac Study
- Choptank Report

Afternoon Session

- What Have We Learned? What's Next?
- Jurisdiction Panel

Workshop Topics – Session I

Stakeholder Challenges

- Obstacles to developing evidence-based management strategies
- Technical, Social, Political

Key findings from USGS nontidal network analysis of water quality, land use change, and best management practices. Integrates "building block" studies on:

- Watershed change characterization,
- Hydrologic process studies, and
- Factors driving yields and associated trends.

Workshop Topics – Session II

Sediment Synthesis

- Summarizing the current state of knowledge regarding sediment storage and transport in the Chesapeake Bay Watershed

Water Clarity Synthesis

- Addressing the Chesapeake Bay water clarity conundrum

SAV Synthesis

- Re-envisioning SAV as a sentinel for Chesapeake Bay water quality

Workshop Topics – Session III

RIM Synthesis

- Re-thinking trends in loads from the watershed River Input Monitoring stations to inform estuarine response

Estuarine Water Quality Synthesis

- Revisiting conceptual models of Chesapeake Bay eutrophication and restoration processes