

Panel 2: What is changing in the scientific arena?

Or: What science is useful now?

CHESAPEAKE BAY PARTNERSHIP
BIENNIAL STRATEGY REVIEW SYSTEM KICKOFF MEETING

FEBRUARY 8, 2017

Why we are here

- What trends or indicators suggest the need for a change in strategy?
- Which specific strategies might need to be adjusted to enhance progress?
- Where should we stay the course, even if progress is slow?

Panelists

1. *Lisa Wainger – Ecology*
UMCES, STAC Chair
2. *Don Boesch – Climate Change*
UMCES, President
3. *Marc Ribaud – Economic incentives*
USDA Economic Research Service,
Branch Chief, Conservation and Environment & STAC
4. *Kacey Wetzel – Social science*
CB Trust, Director of Programs for Outreach & Education & GIT5

Ecological Lurking Issues

LISA WAINGER

STAC CHAIR & RESEARCH PROFESSOR

UNIVERSITY OF MARYLAND CENTER
FOR ENVIRONMENTAL SCIENCE



Photo credit: Jerry Prezioso, NOAA

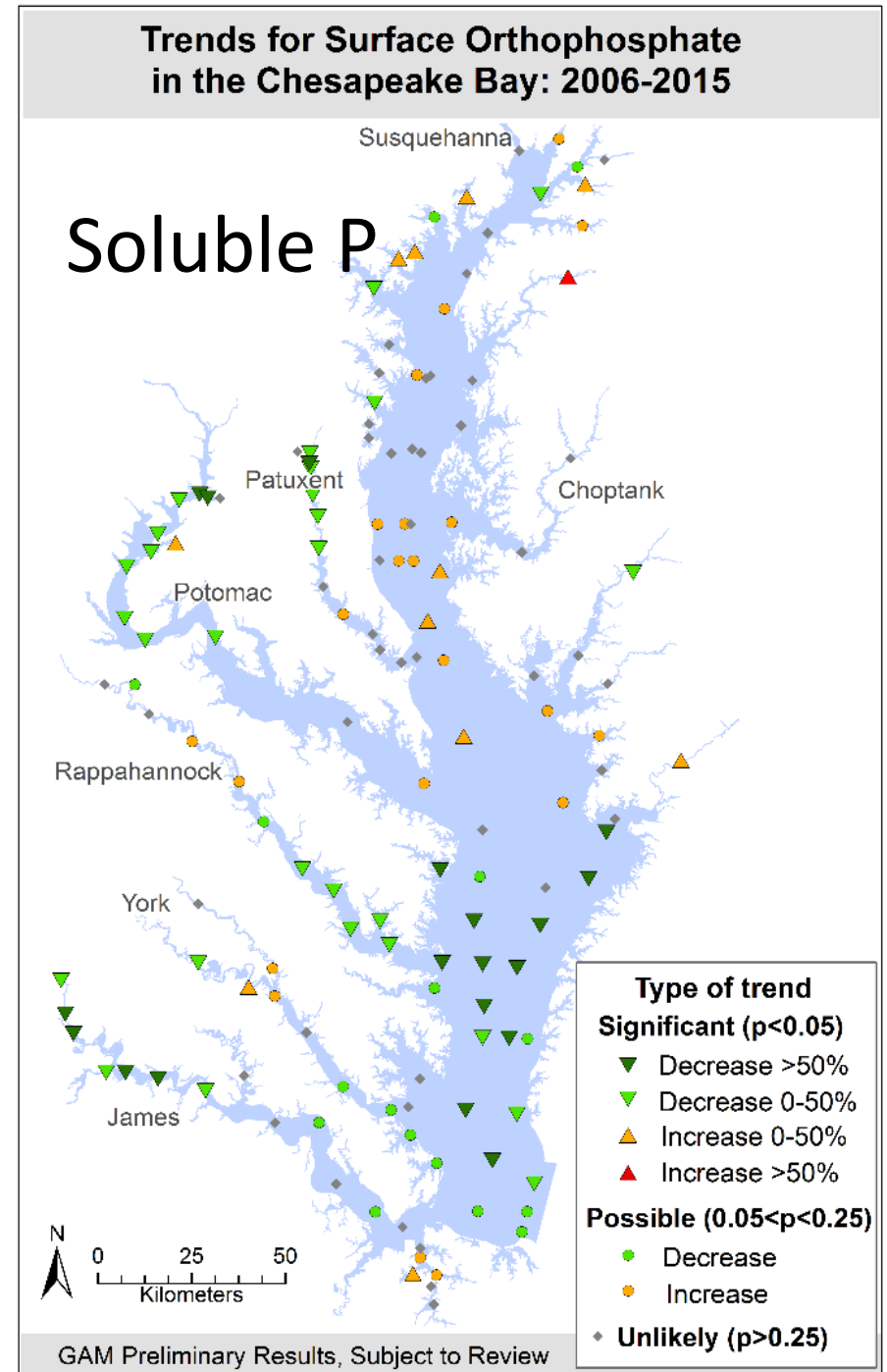
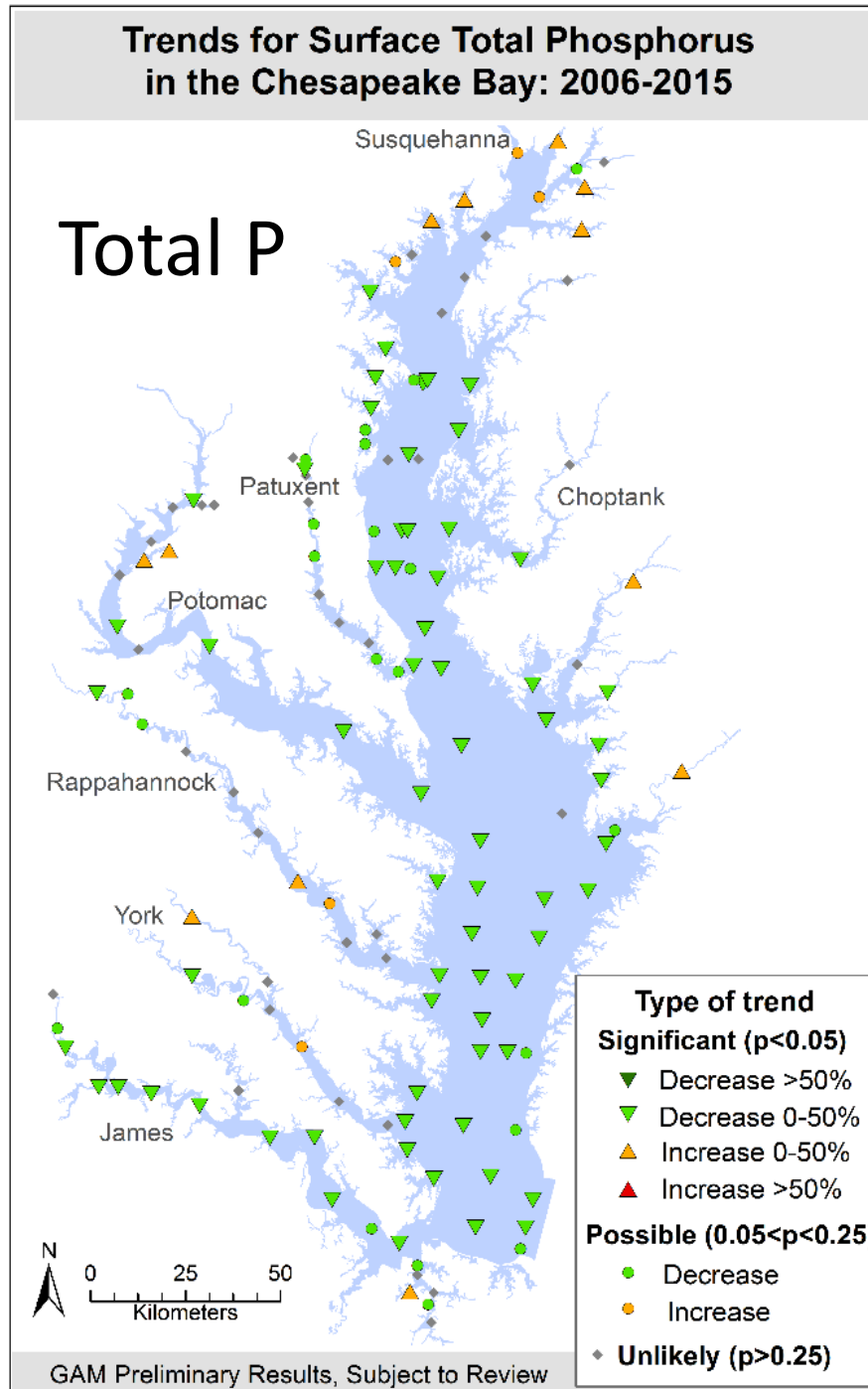
Chesapeake Bay Partnership
Biennial Strategy Review System Kickoff Meeting
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Are water quality trends supporting habitat goals?

1. Are we managing the most biologically relevant N and P conditions?
 - Soluble Reactive Phosphorus (SRP) trending up in some places
 - SRP can enhance algal growth under some conditions
 - DIN:DIP can also determine algal responses (including HAB changes per P. Glibert)

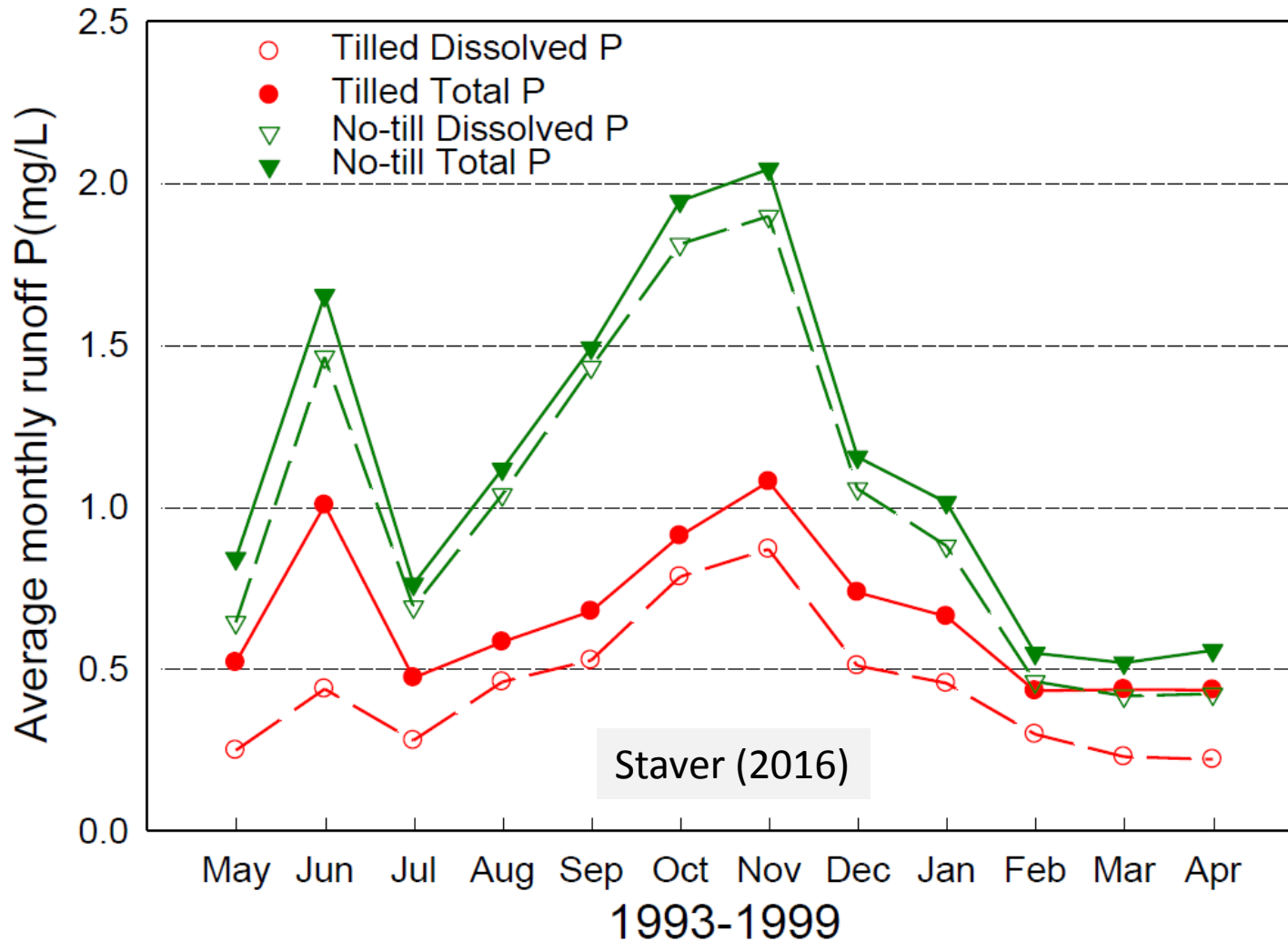
Ortho-
phosphate
trends
differ from
Total P

Murphy et al.
2016

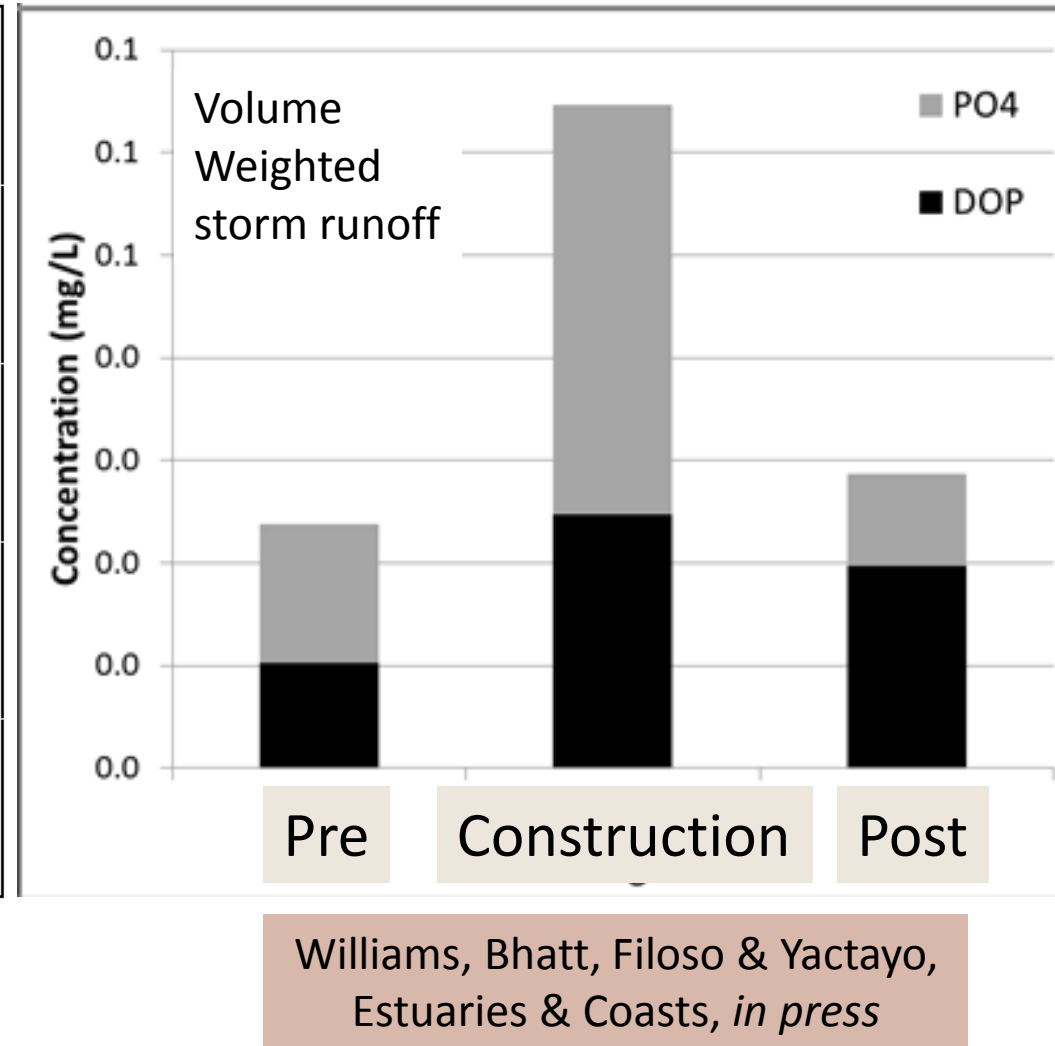


Some nitrogen reduction practices can enhance soluble reactive P

No-Till



Stream restoration



Are water quality trends supporting habitat goals? (cont.)

2. Should all sediment be treated the same?
 - Historically high sediment loads did not seem to create big problems for biota
 - Differentiate sediment with bound nutrients or toxics to cost-effectively meet habitat goals
(per A. Miller and sediment workgroup)

Are water quality trends supporting habitat goals? (cont.)

3. Are we adapting to BMP side-effects on fish?

- Some evidence of higher herbicide use with no-till
- Correlation of atrazine and metachlor concentration with intersex fish prevalence & severity (V. Blazer, USGS)
- Only slightly higher intersex severity downstream of WWTPs (V. Blazer, USGS)

4. How can we respond to known unknowns?

- Anadromous fish not recovering despite substantial restoration investments

Adaptive Management Suggestions

1. Consider progress on water quality indicators in terms of habitat needs
2. Consider incentives for BMP *systems* that can mitigate ancillary harms
3. Refine the science strategy to address unresponsive fishery goals including data and model development
4. Revisit simplifying assumptions for evidence of systematic bias and cost-ineffectiveness



United States Department of Agriculture

Incentives for farmers to reduce nonpoint source pollution

Marc Ribaud
Economic Research Service and STAC

Chesapeake Bay Program Partnership Biennial Strategy Review System
February 9, 2017

The views expressed are those of the authors and should not be attributed to the Economic Research Service or USDA



Incentives work when farmers perceive that actions are in their own best interest

- Financial incentives
 - Payments for conservation practices are common components of conservation programs
 - Can be effective if payment is high enough
 - Cover crop program in Maryland an example
 - But, if budgets are limited, measures for improving cost-effectiveness are important
 - Targeting
 - Market-like mechanism such as auctions



Trading

- Trading is one way of offering financial incentives through a market mechanism
 - Design of program is critical
 - Experience presents many examples where program design prevents or discourages potential buyers from participating – no demand
 - Design choices can also discourage potential sellers, particularly farmers



Farmers respond to more than financial incentives

- A strong stewardship ethic can motivate farmers to change management, even if there is a cost.
 - Very important when financial incentives do not cover implementation costs
- Challenge for program managers is to find ways of tapping into or strengthening stewardship beliefs.



Experimental or behavioral economics

- Type of information, how it is delivered, and who delivers it can improve participation
 - Convince operators there is a problem that they can help address
- Foster “community conservation”
 - Farmers working together in a watershed to address a problem
 - Attain recognition within the community





The Status of Social Science Application in the Chesapeake

Kacey Wetzel

Chesapeake Bay Trust

Director of Outreach and Education

Chesapeake Bay Program Partnership Biennial Strategy Review

February 8, 2017

Social Science Framework Adoption

- Social science frameworks
 - Organizations are starting to recognize the necessity for audience insights
 - Non-strategic social science tool use
 - Underestimating the time it takes to change behavior
 - Creating programs that lack evaluation



Barriers and Opportunities

- Pursuing a Critical Mass
 - Case Study Database
 - Common barriers and opportunities exist
 - Turn key tool kits
 - Streamlining prioritization of strategies



Changing Existing Programs

- Social Science Frameworks
 - Programs that already exist must be willing to change
 - Established incentive based programs must be willing to augment their monetary and non-monetary incentives
 - Strategies must be applied comprehensively not in isolation



Strategies Moving Forward

- Applying Lessons Learned
 - Embrace social science as a foundation
 - Address behavior change misconceptions
 - Offer opportunities to learn more
 - Provide technical assistance
 - Encourage collaboration
 - Apply social science best practices in advancing framework adoption

