STAC Responsive Workshop Proposal: Integrating Science and Developing Approaches to Inform Management for Contaminants of Concern in Agricultural and Urban Settings

Updated November 27, 2018 (to better reflect both ag and urban settings)

Requested by:

Toxics Contaminant Work Group of the Water-Quality Goal Team and STAR

Workshop Steering Committee and Contributing Expertise

- Scott Phillips, Chesapeake Bay Coordinator, USGS, Co-Chair of STAR (Proposal lead), helps lead the research outcome for the Toxics Contaminant work group.
- Greg Allen, Coordinator of CBP Toxic Contaminant WG, USEPA, provides coordination and management implications for toxic contaminant outcomes and associated work group.
- Brian Benham, Professor and Extension Specialist, Virginia Tech (STAC Chair), works with colleagues on research and does outreach related to agricultural settings.
- Vick Blazer, Research Biologist, U.S. Geological Survey (USGS), leads multiple investigations of fish health issues across the Nation.
- Lee Blaney, Associate Professor, University of Maryland Baltimore County (UMBC), research on contaminants in agricultural and urban settings.
- Heather Gall, Assistant Professor, Penn State University, research on emerging contaminants of concern in agricultural settings.
- Kelly Smalling, Research Hydrologist, USGS, project leader on endocrine-disrupting chemicals in the Chesapeake Bay watershed and national infrastructure contaminants project.
- Kang Xia, Professor, Virginia Tech, research on emerging contaminants of concern.
- Representatives from the Water-Quality Goal Implementation Team: Loretta Collins, Chris Brosch, add Urban WG member

New members for urban settings:

- Upal Gosh, Professor, UMBC, research on PCBs and remediation in urban settings
- Emily Majcher, USGS, research on PCBs and contaminants in multiple settings.
- Fred Pickney, USFS, research on toxic contaminants and fish in urban settings.

Issues and need for Workshop:

Toxic contaminants have degraded fish and wildlife populations, and pose a threat to humans, in the Chesapeake Bay watershed. The Chesapeake Bay Watershed Agreement has a goal to reduce the effects of toxic contaminants, with associated outcomes for policy and prevention (focused on PCBs), and research. An important objective of the research strategy is to better understand the potential co-benefits and risks of managing nutrients and sediment, and getting an additional reduction of toxic contaminants in agricultural and urban settings. States and local jurisdictions are particularly interested in non-point source practices that can provide multiple benefits for (1) meeting the Bay TMDL for nutrients and sediment, (2) reducing toxic contaminants, and (3) improving local waters for fishing and recreation.

STAC is increasing its focus to better understand contaminants of emerging concern and dedicated much of their Dec 2017 meeting on the issue. The STAC discussion revealed the need for a greater understanding of the relation between fish-health problems (intersex, lesions, and mortality), and contaminants in urban and

agricultural settings. Therefore, a STAC workshop is proposed that brings researchers together with water-quality managers working in urban and agricultural settings to synthesize the current knowledge on chemicals of concern, and discuss how selected BMPs and other innovative approaches can collectively reduce contaminants, nutrients, and sediment.

Relevance to Management Issues

The Chesapeake Bay Program (CBP) has a large investment in nutrient and sediment reduction practices to improve water-quality conditions in the estuary for fisheries. The states are updating their Watershed Implementation Plans (Phase III) to describe approaches and practices for nutrient and sediment reduction during 2019-2025. The CBP and jurisdictions have agreed to describe how nutrient and sediment practices can benefit additional outcomes, including toxic contaminants. Findings from the workshop will provide the jurisdictions with more insight to effectively choose and implement nutrient and sediment practices that also reduce toxic contaminants. The findings will also address the CBP Toxic Contaminant Research outcome to:" identify which best management practices might provide multiple benefits of reducing nutrients and sediment pollution as well as toxic contaminants in waterways". Finally, the revised CBP Toxic Contaminant Strategies for Research and Policy and Prevention, (recently updated based on SRS process), have a focus on co-benefits and risks of management practices for toxic contaminants, sediment, and nutrients.

Purpose, Objectives, and Format of the Workshop

The purpose of the workshop is to synthesize findings on occurrence, transport, fate, and impacts of contaminants of concern in agricultural and urban settings, and approaches to mitigate their effects. Specific objectives of the workshop are to:

- Present and discuss major findings from the recent and ongoing science related to toxic contaminants in agricultural and urban settings. The focus will be on contaminants related to fish consumption advisors, affecting fish health, and those of emerging concern.
- Summarize the understanding of the sources, transport, fate, and effects of chemicals of concern. In agricultural settings, the focus will include chemicals associated with manure generation and pesticide application. PCBs will one of the topics in urban areas. In both settings
- Identify opportunities to mitigate effects of chemical contaminants in each setting by taking advantage of practices being implemented for nutrients and sediment reduction, and other innovative approaches.
- Identify future needs for the most pressing research directions and more integrated management approaches.

The workshop format, planned to occur over 2 days, would include:

- Presentations about the current state of the knowledge (speakers will be chosen by Steering Committee).
- Overview of practices to reduce nutrient and sediment in agricultural and urban settings and their relation to toxic contaminants.
- Discuss and identify opportunities to mitigate the effects of toxic contaminants, and which existing nutrient and sediment reduction practices may provide the most benefit.
- Identify the most pressing remaining management needs and research gaps.

The workshop should be held in the upcoming STAC proposal cycle, since the jurisdictions will be finalizing their Watershed Plans, and begin implementing them during 2019.

Questions and Topics to be addressed during the Workshop

Questions will be developed by the Steering Committee but could include:

- What are the primary contaminants affecting fish health and causing consumption advisories in urban and agricultural settings?
- What are the primary sources, fate, and transport of the contaminants?
- What are the nutrient and sediment practices that provide additional benefits in reducing these toxic contaminants?
- What are some additional and innovative approaches to mitigate the effects of contaminants in urban and agricultural settings?

The steering committee will contact potential speakers based on the topics in the final questions.

Workshop Outcomes

A report summarizing the findings about the sources, transport, fate, and impacts of contaminants in urban and agricultural settings, opportunities for their mitigation. Additional communications materials would include summary of findings and recommendations that will be shared with the CBP water-quality goal team, habitat goal team, jurisdictions, and interested parties.

Potential Workshop Participants

Researchers working in agricultural and urban settings, including those from academic institutions and federal agencies (such as USGS and USFWS). Federal and jurisdictional representatives who are implementing agricultural practices (including representatives from the CBP Water-Quality Goal Team). Target audience is approximately 40-50 participants.

Workshop Logistics, Timing, and Location

The workshop is proposed for Spring, 2019, after the jurisdictions have completed their initial Phase 3 WIPs (April 2019). The timing will allow for participation by members of the Water-Quality Goal Team and jurisdictional representatives involved with managing urban and agricultural landscapes. The steering committee will begin planning with an initial focus on topics, questions, and speakers. A final agenda will be released at least one month prior to the workshop.

Estimated Budget

The total cost is projected to be range from $8,500-$10,000. The USGS will provide financial support (up to $2000) toward the venue to reduce the overall funding needed from STAC. Estimates for different aspects of the workshop are: venue: $1500-$2000, food: $2,500-$3,000, travel/lodging for selected speakers: $4500-$5000,

Past STAC Workshops and Peer Reviews Related to this Proposal

- Quantifying Ecosystem Services and Co-Benefits of Nutrient and Sediment Pollutant Reducing BMPs (2017)
- Integrating recent findings to explain water-quality change (2017)