

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

Submitted: Feb 5, 2018

## **Requested by:**

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

## **Workshop Steering Committee** (all have agreed to serve)

- Scott Phillips, Chesapeake Bay Coordinator, USGS , Co-Chair of STAR (Proposal lead)
- Greg Allen, Coordinator of CBP Toxic Contaminant WG, USEPA
- Brian Benham, Professor and Extension Specialist, Biological Systems Engineering, Virginia Tech (STAC Chair)
- Vick Blazer, Research Biologist, National Fish Health Laboratory, U.S. Geological Survey (USGS)
- Lee Blaney, Associate Professor, Department of Chemical, Biochemical and Environmental Engineering University of Maryland Baltimore County (UMBC),
- Heather Gall, Assistant Professor, Department of Agricultural and Biological Engineering, Penn State University
- Kelly Smalling, Research Hydrologist, Toxic Contaminants Hydrology Program, USGS
- Kang Xia, Professor, Department of Crop and Soil Environmental Sciences, Virginia Tech
- Representative(s) from the CBP agricultural work group

## **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 (2014) has a goal to reduce the effects of toxic contaminants, with an associated research strategy. An important objective of the research strategy is to better understand the potential co-benefits of managing nutrients and sediment, and getting an additional reduction of toxic contaminants in agricultural and urban settings, and water-water treatment plant effluent.

The Chesapeake Bay Program (CBP) 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 (1) fish-health problems (intersex, lesions, and mortality), use of pesticides, and contaminants of emerging concern (such as biogenic hormones and antibiotics) in agricultural settings. Therefore, a STAC workshop is proposed that brings researchers together with water-quality managers working in agricultural settings to synthesize the current knowledge on chemical of concern, and discuss approaches of how their impacts can be reduced.

## **Relevance to Management Issues**

The 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".

### **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 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 efforts related to pesticides and contaminants of emerging concern in agricultural areas. This would include their sources, transport, fate, and effects.
- Identify opportunities to reduce their effects with a focus on practices being implemented to reduce nutrients and sediment. The findings of the report on the relation of nutrient and sediment practices to other CBP outcomes (TetraTech, 2017) will be an important source of information.
- Identify future needs for the most pressing research directions and management needs.

The workshop format will 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 settings and these relation to toxic contaminants.
- Discuss and identify opportunities to reduce the effects of toxic contaminants, and which existing nutrient and sediment reduction practices may provide the most benefit.
- Identify the most pressing research gaps.

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

### **Questions to be addressed during the Workshop**

Questions will be developed by the Steering Committee.

### **Workshop Outcomes**

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

### **Potential Workshop Participants**

Research and managers working in agricultural settings. Federal and jurisdictional representatives who are implementing agricultural practices (including representatives from the CBP Agricultural work group). Target audience is approximately 40-50 participants.

### **Workshop Logistics, Timing, and Location**

The workshop will be scheduled for fall, 2018 or Winter-Spring, 2019, with location to be determined.

### **Estimated Budget**

Venue: \$1500-\$2000, Food: \$3000-\$4000, Travel/lodging for speakers: \$4500-\$5000, Total requested: \$8500-\$10,000. USGS will provide financial support (up to \$2000) for travel of selected federal invitees or space.

### **Past STAC Workshops and Peer Reviews Related to this Proposal**

- Explaining water-quality trends Workshop (2015)
- Integrating recent findings to explain water-quality change (2017)