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

Revised and Submitted: Feb 16, 2018

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 pesticides project.
- Kang Xia, Professor, Virginia Tech, research on emerging contaminants of concern.
- Representative(s) from the Water-Quality Goal Implementation Team

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 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.

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 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".

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 related to pesticides and contaminants of emerging concern in agricultural areas. This would include their sources, transport, fate, and effects.
- Identify opportunities to mitigate their effects with a focus on practices being implemented for nutrients and sediment reduction. 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, 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 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 implementing 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:

- Which contaminants (or mixtures) are most likely contributing to fish health issues?
- What are the primary sources, fate, and transport of the contaminants?
- What are the existing nutrient and sediment practices that provide additional benefits in reducing these toxic contaminants?
- What are some additional approaches to mitigate the effects of contaminants in different agricultural settings (such as row crop, and areas of animal production)?

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 agricultural settings, opportunities for their mitigation. Additional communications materials would include summary of findings and recommendations that will be shared with the water-quality goal team, jurisdictions, and interested parties.

Potential Workshop Participants

Researchers working in agricultural settings, including those from academic institutions and federal agencies (such as USGS and Agricultural Research Service). 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 for Spring, 2019, after the jurisdictions have completed their Phase 3 WIPs. The timing will allow for participation by members of the Water-Quality Goal Team and jurisdictional representatives involved with managing agricultural landscapes. Once the proposal is selected, 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)

To: Chesapeake Bay Program Scientific and Technical Advisory Committee

From: Bill Dennison and Mark Bennett, Co-Chairs of the Scientific and Technical Assessment and Reporting (STAR) team

Date: February 16, 2018

Subject: Submission of STAR workshop proposal

The Scientific and Technical Assessment and Reporting (STAR) team leaderships supports the acute need for the responsive workshop on "**Integrating Science and Developing Approaches to Inform Management for Contaminants of Concern in Agricultural Settings".**

The CBP has a need better understand the relation between nutrient, sediment, and contaminants and effects on fish conditions. 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 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 addition outcomes, including toxic contaminants.

There is an urgent need to have the workshop in the Spring, 2019 to inform implementation of WIPs, which will have just been completed. 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 STAR has a keen interest in proposing the workshop given our focus on the inter-relation of CBP outcomes and better understanding potential co-benefits.

We appreciate you considering the proposal and are glad to address any questions.

Mark Bennett, USGS and Bill Dennison, UMCES

ORC

Rachel Dixon <dixonr@chesapeake.org>

RE: WQGIT Endorsement for the STAC Workshop Proposal (2 of 3): Integrating Science and developing Approaches to Inform Management for Contaminants of Concern in Agricultural Settings

1 message

Williams, Michelle <williams.michelle@epa.gov> Thu, Feb 15, 2018 at 2:31 PM
To: "Dixonr@chesapeake.org" <Dixonr@chesapeake.org>
Cc: "Power, Lucinda" <power.lucinda@epa.gov>, "(james.davis-martin@deq.virginia.gov)" <james.davis-martin@deq.virginia.gov>, "dinorah.dalmasy@maryland.gov" <dinorah.dalmasy@maryland.gov>, "swphilli@usgs.gov" <swphilli@usgs.gov>, "Allen, Greg" <allen.greg@epa.gov>

Sorry Rachel,

Can you use this updated message instead?

Dear STAC Leadership,

On behalf of the Water Quality Goal Implementation Team we are writing in support of the proposed Science and Technical Advisory Committee (STAC) workshop titled "*Integrating Science and Developing Approaches to Inform Management for Contaminants of Concern in Agricultural Settings*".

This topic is both important and timely. It is important because recent work by the USGS has identified the co-occurrence of fish health issues and the presence of agricultural chemicals in surface waters in the watershed. A workshop would help to coalesce the current scientific understanding of what the monitoring data has found as far as the specific chemicals of potential concern and their sources. This will help to provide future direction to additional monitoring work to determine whether agricultural chemicals may be negatively impacting fish health.

The workshop is timely because it fits well with current efforts to achieve multiple benefits from the best management practices (BMPs) that will be planned and implemented through the Phase III watershed implementation plans (WIPs) for the nutrient and sediment Total Maximum Daily Load. Our interest is in developing WIPs that provide the greatest possible value to the Chesapeake Bay and its watershed. The workshop will inform future recommendations on agricultural BMPs that may be most effective in reducing the amount of agricultural chemicals that enter surface waters.

STAC recently began to provide leadership in investigating the state of the science regarding emerging chemicals of concern. This workshop would provide further insight into this issue and help to ensure that the highest-value BMP scenarios are planned and implemented in the future.

Thank you for your consideration,

James Davis-Martin and Dinorah Dalmasy, Co-Chairs of the Water Quality Goal Implementation Team