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CBP Water Quality Goal Implementation Team
Toxic Contaminants Workgroup
Meeting Minutes

Date: *Wednesday, January 13, 2020*
Time: 1:00 - 3:00 PM
Location: Conference Call (remote only)
Calendar Page: Link.

Chesapeake Bay Program
A Watershed Partnership

Agenda Item and Desired Outcome	Time	Background Docs, Notes, and Action Items
1. Introductions and Announcements • Microplastics and other anthropogenic particles are prevalent in mussels from San Francisco Bay, and show no correlation with PAHs (https://www.sciencedirect.com/science/article/abs/pii/S0269749120369499) • Identifying and Managing Aqueous Film-Forming Foam-Derived Per- and Polyfluoroalkyl Substances in the Environment (https://setac.onlinelibrary.wiley.com/doi/full/10.1002/etc.4894) • Evaluation of chloride contributions from major point and nonpoint sources in a northern U.S. state (https://www.sciencedirect.com/science/article/pii/S004896972037710X) • STAC workshop proposal due February 16 (https://www.chesapeakebay.net/documents/STAC_Workshop_RFP_FY2021.pdf)	1:00	• Complete the toxic contaminant indicator • Update the PCB Story Map • ~~Final SRS Materials~~ ○ ~~Completed!~~ • STAC Proposal follow- up • Mercury Monitoring Network Follow- up
2. Simulating Flood-Induced Sediment and Associated Contaminant Transport.– Dr. Pai-Yei Whung, EPA ORD • Extreme events are important for understanding contaminant occurrence and transport, which is one of the management approaches for the Research Outcome. How contaminants move with sediment is also important for the upcoming GIT-funded project and how we utilize sediment as a surrogate for contaminant transport.	1:10	• Presentation • Mentimeter
3. TCW Feedback on STAC Proposal Ideas – Greg Allen, EPA, Scott Phillips, and Emily Majcher, USGS • PFAS is a potential topic to recommend for a STAC workshop. PFAS is a growing concern nationally and in the Chesapeake watershed.	1:55	• Discussion and Menti

4. Mercury Monitoring Network Next Steps – Scott Phillips, USGS • Following previous meeting presentation, Scott will discuss some potential next steps and products the TCW could consider for a mercury monitoring network.	2:15	• Discussion • Collin Eagle- Smith Slides from December • Mercury Story Map: https://gis.chesapeakebay.net/mercury/
5. 2021-2022 TCW Meeting Discussion • Structuring meetings around LAPs for next 2 years? • Examples of other tools we plan to utilize • Technical leads to champion actions for our Management Approaches?	2:35	• Menti
6. Wrap Up and Adjourn	3:00	• ***Next meeting:* February 10, 2021**

Summary of Actions and Decisions

Action: TCW will reach back out to members and interested parties at a later date to determine interest in Mercury Network sub-group.
Action: Greg Allen will follow up with Raffi Marano about EPA coordination on some Toxic Contaminant Policy and Prevention items within the Logic and Action Plan.

1. **Introductions and Announcements**
   a. Greg Allen reviewed articles of interest in agenda.
      i. *Conclusion: no connection between PAH's and microplastics.*
      ii. *Total organo fluorine method could help produce analytical costs. Nice overview of state of science and history of pollutants. Future research piece could be helpful for PFAS STAC Workshop Proposal.*
      iii. *Sources of road salt are largest source of chloride, but also wastewater contributes to chloride.*
   b. SRS:
      i. ***Action:** Greg Allen will follow up with Raffi Marano about EPA coordination on some Policy and Prevention items.*
      ii. *Management Board will look over SRS materials and consider them final. Will provide links to final copies and will post to TCW homepage.*
   c. TCW announcements:
      i. *Vicki Blazer:* retrospective analysis paper was just published online. Took total estronisity and in male large mouth and small mouth bass all data from 2004 through 2010 and looked at 100 different land use end points and came out with ag, urban run-off and septic tank as most prevalent connections. Will share link with TCW in coming weeks.
      ii. *Kevin Du Bois:* DoD published a 101 article, Toxic Contaminants in the Chesapeake Bay, in their Quarterly Chesapeake Bay Program Journal.
2. **Simulating Flood-Induced Sediment and Associated Contaminant Transport.– Dr. Pai-Yei Whung, EPA ORD**
   a. **Summary of Presentation (unpublished results, could not be recorded)**
      i. *Drivers for this project and research:* Why do we care? In 2017 and earlier there were news reports on flooding in contaminated areas from hurricane season. For example, San Jacinto waste pit was exposed, and swift action needed to be taken to prevent damage. In addition to looking at potential transport of contaminants it is important to examine the communities as well to build resiliency. About

60% of all nonfederal NPL (National Priority List) sites are located in areas that may be impacted by these potential effects (e.g., flooding, wildfire, SLR, storm surge). How do we better and best address flooding and what scientific approaches can be taken to fill some of the knowledge gaps?

ii. *Purpose:* simulate and assess flood impacts on soil and sediment and associated chemicals at contaminant sites, to inform remediation planning and build nearby community resiliency to extreme events for climate adaptation. Some of these sites are located in the Chesapeake Bay Watershed (ex. there are landfills in the Lower Darby FEMA floodplain).

iii. *Methodology:* Data collection/ processing (contaminants, LiDAR, bathymetry) → HEC-RAS (HEC_HMS watershed model as input; flood extent, water velocity, water depth, shear stress) →Develop a HEC-RAS +WASP Hydrolink →WASP (quantify fate and transport of contaminants; multiple flood return periods) →Story Map (interactive mapping of spatiotemporal distribution of contaminants)

iv. *Initial Findings:*

1. Changes in surface sediment volume (higher net gain in 500-yr flood compared to 10-year flood)
2. In contrast to sediment volume gain, the arsenic in sediment has more dilution factors in 500-yr flood compared to 10-yr flood.
3. BaP concentration behaves differently than arsenic. BaP has some increases (high net gain) in the 500 yr. flood).
4. Lead concentrations appears to be significant gain in concentration from 10-yr to 500-yr flood. Perhaps because of the tributary input could contribute to this higher concentration.
5. Hydrodynamic mixing of water, suspended sediment in water and surface sediments is one of the primary driers in redistributions of contaminants in sediment.
6. Initial spatial concentration on f the contaminants of concern in surface sediment plats an important role in contaminant concentrations changes at the end of flood simulation period.

b. **Questions/ Discussion:**

i. *Scott Phillips:* from a design perspective, if people are looking at what flood interval they should design to, what should people be considering?

ii. *Pai- Yei:* when we choose a site, it's good to figure out the trend of precipitation to determine frequency of type of flood. We didn't do that and still did the 10, 50, 100, AND 500 yr. flood is a good start for bandwidth perspective

iii. *Emily:* You talked about the need for spatial resolution and a lot of folks are dealing with the TMDL world in addition to particular contaminated sites. Usually with superfund you may have a higher density of sampling compared to a TMDL development to monitor for load reductions.

iv. *Pai- Yei:* IO can hypothesis in terms of contaminated sites. I don't have a SOP type of answer. To study contaminated sites, we also

v. *Pai- Yei:* Storm sampling is a good point. I have not been able to find anyone who samples during a storm event, but it would be good data to have. Whoever typed in storm sampling should contact me.

vi. *George Onyullo:* I am not directly involved in this work at DOEE, but I know who is in our department and I can send that information to Dr. Whung.

vii. *Pai-Yei:* because the initial concentrations of each contaminant differ at each location, when you move to different places it could dilute or increase depending on the contaminant. For example, Lead could increase at a location while arsenic decreases. It's important to understand how each contaminant behave to understand how they may change in flooding events.

viii. *Greg Allen:* our challenge is whether or not different BMP's and how those different practices do or do not capture and help to mitigate toxic contaminants. Since we don't have empirical studies that measure this, we thought if we could measure sediment that it would

give us an indication. The partition coefficient is really important in this for if it's above or below a certain criterion it may tell us which BMPs would be able to capture a certain amount of sediment.

ix. *Pai – Yei* let's say you have 5 contaminants with similar coefficients, but one contaminant is one magnitude higher.
x. *Greg Allen:* we don't care if there are different contaminant concentrations making its way through, we just want to see if we can make some assumptions about BMPs. If we put a certain BMP in place can we take its coefficient for sediment and make some estimates about sediment concentration.
xi. *Pai- Yei:* Because the tributary input is constantly high for lead, I am not certain if this would be possible. I know it's not easily done. I am not very helpful in providing conclusive evidence that this would work.
xii. *Greg Allen:* it's a big question and your expertise on how contaminants move etc. would be helpful as we try to answer that question.

3. **TCW Feedback on STAC Proposal Ideas –** Greg Allen, EPA, Scott Phillips, and Emily Majcher, USGS
   a. *George Onyullo:* DC DOEE is working on a proposal for PFAS in DC and I want to mitigate the amount of work that we need to do on this.
   b. *Greg Allen:* Maybe this is a good time for the Bay Program to put a stake on the ground and be on the leading edge of on how it's impacting the ecosystem beyond the drinking water issue.
   c. *George Onyullo:* how do we see the prevalence of PFAS in different media (water column, land, etc.). We will flush it out a little bit more as I work with you and Scott.
   d. *Lee Blaney:* that pre-proposals were due in the last week. I put one in the last week regarding these questions. I think there will be a lot more ecological data being collected in the next few years.
   e. *Scott Phillips:* Kelly Smalling anything you would like to share on anything that USGS is doing
   f. *Kelly Smalling:* we submitted a pre-proposal to look at fish, sediment, and birds. Other USGS opportunities- Vicki has her work on fish. There are pieces of some work that could go towards ecological components.
   g. *Marel King:* some of our members are preparing PFAS related legislation for this upcoming session. DoD has also been looking at this in terms of cleaning up their facilities. This is something that policy makers are interested in and receptive to.
   h. *Scott Phillips:* Marel are they looking at drinking water and ecological impacts?
   i. *Marel King:* I think the driver is drinking water but looking at the ecosystem helps illustrate how water is connected.
   j. *Greg Allen:* It is going to be difficult to identify a scope for this workshop and know when we do it will be relevant. It will take some careful thinking to make sure we have a unique workshop objective that isn't being covered by someone else. I am hearing a pretty positive response.
   k. *George Onyullo:* because there is a lot of interest between jurisdictions, not all the studies have the same scope or purpose. It would be good to see how they could be scaled up to a Bay wide focus instead of local.
   l. *Emily Majcher:* that was a main focus in our research outcome LAP this year.
   m. *George Onyullo:* I would like to help with putting the proposal together.
   n. *Greg Allen:* we would send the draft proposal to the whole group for review. There will be other opportunities to provide input. You can also put me in for working on the workshop report.
   o. *Lee Blaney:* you can count me in for all parts.
   p. *Kelly Smalling:* I will do what I can to help out.
4. **Mercury Monitoring Network Next Steps –** Scott Phillips, USGS
   a. *Scott Phillips:* did others feel that Mercury was a much more complicated issue than we originally thought?
   b. *Greg Allen:* Yes. These are things that we have always known. To develop a consistent, uniform, cross-watershed program is a sizable project.
   c. *George Onyullo:* the logic there is we should elevate it to STAC at some point once we have enough information.

d. *Greg Allen:* at some point we need to describe what we are going to do with this network: why do we need it, and who will use the data?
e. *Scott Phillips:* we kept this item vague in our workplan
f. *People interested in participating in small mercury network sub-group:*
    i. George Onyullo
    ii. **Action:** TCW will reach back out to members and interested parties at a later date to determine interest in Mercury Network sub-group.

5. **2021-2022 TCW Meeting Discussion –** Greg Allen and Emily Majcher
    a. *Emily Majcher:* You will be receiving correspondence from myself and Hilary over the next couple months so that we can be proactive with our planning.
    b. *Greg Allen:* we can use other interactive tools like Mentimeter, jam board, breakout rooms to help create more interaction as well.
6. **Wrap Up and Adjourn**

Call Participants

Greg Allen, EPA
Pai-Yei Whung, EPA
Emily Majcher, USGS
Scott Phillips, USGS
Hilary Swartwood, CRC
Scott Phillips, USGS
Matt Kundrat, PA DEP
Mark Richards, VA DEQ
Debbie Herr Cornwell, MDP
Doug Austin, EPA
Cecilia Lane, DOEE
Jamie Mitchell, HRSD
George Onyullo, DOEE
Paul Hlavinka, MDE
Tom Butler, CRC
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Vicki Blazer, USGS
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Kevin Du Bois, DoD
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Lorie Baker, EPA
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