Integrated Trends Analysis Team (ITAT)
Meeting

Wednesday, September 27, 2023
10:00 AM – 11:30 AM

Meeting Materials: Link

This meeting was recorded for internal use only to assure the accuracy of meeting notes.

ACTION ITEMS

- **Alex Gunnerson will distribute the draft agenda for the Joint ITAT-Factors Team Meeting to the workgroup, as well as information about lunch and the optional social event.**
  - **Status: Done**
- **Alex Gunnerson will send the Rappahannock River Symposium meeting information to the Rappahannock Multiple Tributary Model (MTM) team and will CC Lew Linker.**
  - **Status: Done**
- **Alex Gunnerson will organize a list of organizations and contacts with local watershed organizations where ITAT can present and discuss the results of the updated tributary summaries. Alex will let the Communications and Strategic Engagement Teams know about these efforts so the appropriate coordination can be undertaken.**
  - **Lew Linker will contact the Severn River Association.**
  - **Alex Gunnerson will contact James Riverkeeper Association, specifically the point of contact provided by Jimmy Webber.**
  - **Status: In Progress**
- **Kaylyn Gootman, Breck Sullivan, Qian Zhang, Peter Tango, and Alex Gunnerson will coordinate on submitting Chesapeake Community Research Symposium session proposals.**
  - **Status: Done**

Meeting Minutes

10:00 – 10:30 **Welcome – Kaylyn Gootman** (EPA) and **Breck Sullivan** (USGS)

Announcements –

- Tributary Summary Status Update – Breck Sullivan
  - The James Tributary Summary has passed the first round of USGS review and is now waiting on higher level review. ITAT leadership has addressed initial comments and questions, which were mostly of a grammatical nature. ITAT will be notified if any major revisions are required in future rounds of review and when the James Tributary Summary has been cleared for release.
  - **NOTE:** Since the meeting, the Tributary Summary was approved by USGS BAO. Minor grammatical edits need to be made. Once completed, it will be distributed to ITAT members and put on respective webpages.
- Tributary Summary Story Maps Status Update – Breck Sullivan

- As presented at the August ITAT meeting by Anoosh Tauqir, a C-StREAM intern working with ITAT, a template story map for the tributary summaries and an example of its application for the Rappahannock have been developed. The Rappahannock Story Map is currently undergoing peer review. While one USGS reviewer has been selected, we still need a non-USGS reviewer to advance to the next level.
    - **NOTE:** Since the meeting, we have secured a non-USGS reviewer and received feedback from both peer-reviewers. This feedback has been incorporated into the Rappahannock Story Map and it has now gone through all review steps. It is approved, and this work will be presented by Anoosh Tauqir at the Rappahannock River Symposium on October 25th.
        - Lew Linker recommended inviting the Rappahannock MTM development team to the Symposium. Alex Gunnerson sent the Rappahannock River Symposium meeting information to the Rappahannock Multiple Tributary Model (MTM) team.
- Lew asked what efforts are being made to contact watershed organizations for tributaries other than the Potomac, since all local tributary organizations could likely benefit from this knowledge.
    - Breck shared that Alex presented on the Potomac Tributary Summary at the ICPRB conference on Climate Change in the Potomac on September 21st. However, a more thorough outreach effort has not yet been undertaken since ITAT's time has been focused on updating the tributary summaries with new data and content. Lew recommended reaching out to groups like the James River Association now to get on their agenda for large upcoming meetings so there is enough time for outreach. In the event of a delay, the presentation can be pushed back. Lew also recommended reaching out to the Severn River Association, and offered to do so since he has a connection.
    - Lew suggested compiling a list of all the riverkeepers in the Chesapeake Bay watershed with tidal waters and contacting them about sharing and/or presenting the tributary summaries. Lew recommended coordinating with the communications team. Breck and Alex agreed this is a good next step.

- Joint ITAT-Factors Team Retreat on October 25th at the USGS MD-DE-DC Water Science Center Office (5522 Research Park Dr, Catonsville, MD 21228) from 10am to 3pm. The meeting will be hybrid, but attendees are encouraged to attend in person. Additional details on hotels, activities, and agenda to follow.
    - This meeting will include presentations on the 2022 tidal trends results and the nontidal results. A large portion of the meeting will be focused

on discussions, such as how to draw connections between watershed and estuarine conditions, and how to best communicate results.
    - A draft agenda will be distributed the first week of October, which includes information on hotel accommodations, lunch, and a post meeting networking event at the Guinness Brewery.

Upcoming Conferences, Meetings, Workshops and Webinars

- Chesapeake Watershed Forum – November 3-5, 2023, Shepherdstown, VA. Session proposals were due June 11. Poster proposals were due July 28.
- CERF 2023 Conference: Resilience & Recovery – November 12-16, 2023, Portland, Oregon. Abstracts were due May 10, 2023.
- Environment Virginia Symposium – April 9-11, 2024, Lexington, Virginia. Presentation Proposals were due August 31, 2023.
- National Conference on Ecosystem Restoration – April 14-19, 2024, Albuquerque, New Mexico. Abstracts were due September 1, 2023.
- Chesapeake Community Research Symposium – June 10-12, 2024, Annapolis, Maryland. Session proposals are due October 2, 2023.

10:30 – 11:00 **2022 River Input Monitoring (RIM) Station Results – Chris Mason** (USGS)

Chris presented an overview of the 2022 RIM station results. Following the presentation, there was time for questions and discussion of the results.

Summary

Chris began with the objective of this work, which is to summarize results of updated long- and short-term RIM monitoring data that describe how nutrient and sediment loads, and trends in loads, have changed over time.

Chris then walked through the network, explaining the locations of RIM stations, discrete sampling summaries, the temporal range of sampling, and the methods used to compute the trends.

Before showing the results, Chris highlighted the delivery of freshwater flow and loads Total Nitrogen (TN), Total Phosphorus (TP), and Suspended Sediment (TSS)). Chris summarized the long- and short-term trends on slides 10, and then walked through the results for each parameter on slides 11-16. The results also included a summary of 5- and 10-year yields.

Chris concluded with a description of where to find the results and how USGS is planning on communicating them.

Discussion

Kaylyn Gootman asked about comparing short- and long-term trends, especially when they are divergent. Chris replied it depends on when the data was collected and how the model has changed. Chris said peaks and troughs in the short-term trends will be

more heavily weighted compared to long-term trends. Kaylyn wondered if from a management perspective, stations with a change to short-term degrading trends should serve as a call for attention and resources to address these challenges. Chris said considering how WRTDS works, stations on the boundary of a categorical designation see greater variability because of new data points which tip it one way or another. This highlights the importance of checking the associated p-value with each station. Kaylyn noted this is a challenge with categorical designations, as stations near the boundary might see rapid shifts.

Regarding slide 11, Lew commented the public would not understand the relative flow contributions of the Susquehanna compared to the Choptank. Lew asked if the team has considered putting together an additional slide that aggregates all of the inflow into the tidal waters of the Bay for the sake of clarity. Chris said they tried to get at this point on slide 9. Lew replied for practitioners this is clear, but to the public it would be opaque. Lew said it would be important and revealing to have a simple pie chart that illustrates weights and their importance. Doug Moyer asked if Lew is specifically asking for a combined result of the nine RIM stations that is not the load, but the trend in that load. Lew responded yes, that is what he is interested. Doug said it is a good idea, but given the USGS defend-ability constraints on the statistical methods being used, they likely could not present the trend results in that way. This would be a hurdle for USGS. Lew countered that if we simply weight the categories by load, that would not be representing the quantitative values that USGS has issues with. Chris replied that since those categories are coming out of published likelihood estimates, the defend-ability constraints are still an issue. Chris said a different organization could take the results and weight them, but USGS could not stand behind that. Lew said his focus is on effectively communicating the findings.

Jon Harcum suggested that on the maps the symbol sizes be scaled to represent total load to watershed.

Carl Friedrichs agreed there are a lot of reasons to weight the improvement by area. Carl also commented on how status should also be compared with trends. For example, the Pamunkey and Mattaponi are doing well, but when only the trends are displayed it can mislead people into thinking that watershed has more of a negative impact on the health of the Bay than the Susquehanna. Carl said this is another reason to weight improvement by area. Chris said he agreed, which is why he included the figure on slide 17 to illustrate the status component. Rebecca Murphy said we have this issue with the tidal trends too - that increasing trends in nutrients are showing up at stations with relatively low concentrations. Rebecca is thinking of experimenting with showing relative concentration along with trends for the October ITAT meeting as it might be a good discussion. Anyone with ideas on how to do that, feel free to email Rebecca (rmurphy@chesapeakebay.net). Peter Tango said he could picture a table of stations that is ranked by the concentration 1-150 and having the trend associated with each station so that the context of relative impact is communicated.

Qian suggested adding a column to the table on slide 10 which provides the total area of each basin, which could partially address the concern Lew and Carl raised earlier. Qian also suggested adding a column to this same table that would contain the long-term median yield, so some contextual information on status is also provided. Qian asked if it would be possible to plot the flow normalized load, similar to what is on slide 9, so

others can compute the combined trends by basin. Chris said he has not thought about that, but it seems that is desired. Qian said if USGS is uncomfortable with assigning the trends, at least a representation like this would allow people to run their own numbers. Doug said this makes sense, but they would need to follow their fundamental science practices. Doug said he has done something like this before but was then asked not to show them. Doug said it depends on what the interpretation is: a satellite view of the Bay is fine, we just need to be careful about interpreting statistically. Doing this is easy, but we need to make sure we can be scientifically defendable in our results.

Peter Tango agreed with Qian's suggestion on including drainage, or perhaps as ranked flow contribution using mean annual flow as the metric? That should also align with drainage area.

Carl said the flow normalized approach is very powerful and appreciates these results.

Carl asked about the statistics behind the plots on slide 8. Carl said at a 95% confidence interval, it is not surprising two would be significant out of the 72 trend plots explored. Chris said these plots agree with what the MD-DE-DC Water Science Center is observing. Carl cautioned being careful with how these results are presented.

Lew commented how on the suspended sediment graph on slide 9, it might be useful to include weather events alongside the data to provide greater explanatory context for the observed loads.

Breck shared a press release from 9/26/2023 on the Water Quality Standards Attainment and Monitoring and 2025 Watershed Implementation Plan indicators: https://www.chesapeakebay.net/news/pressrelease/chesapeake-water-quality-sees-slight-decline.

Kaylyn commented on the importance of this conversation and ensuring that the results are both scientifically defendable and communicable to the public.

11:00 – 11:30 **Chesapeake Community Research Symposium Session Proposal Discussion – Breck Sullivan** (USGS) and **Kaylyn Gootman** (EPA)

Breck and Kaylyn presented the current ideas for a session proposal to Chesapeake Community Research Symposium. ITAT members had an opportunity to weigh in with their own ideas and any support they have for specific session proposals. Session proposals were due October 2nd, 2023.

Discussion

Breck explained the purpose for this discussion is to avoid duplicating session proposals. Breck walked through the current session proposal ideas.

Lew said not to worry about overlap since the conference organizing committee will be doing that. The modeling team will be submitting one on Phase 7 Model development and another on the 2035 climate change assessment. Nicole Cai will be submitting a proposal on tidal wetlands influence on processing nutrients and sediment. Isabella Bertani and Qian Zhang may be submitting a proposal on machine learning.

Qian said he is involved in putting session proposals together.

Peter said on the building capacity element, we could also remind folks of the Community Science MOU as an element to include in a session proposal.

Peter said the first one is a good universe, is it worth considering opening up innovative monitoring to living resources too? There is the telemetry network tracking fish in the Bay and beyond for example, camera tracking of flow conditions and migratory fish entering reopened habitats, etc. Perhaps more to link for integrating thinking with water quality and living resources in the Bay/watershed. Lew said this is a great idea. Peter said if you need him to be a coordinator or co-coordinate on the first session, let's follow-up for the submittal.

Breck will follow up after the meeting with Kaylyn, Peter, and Qian to organize session proposal submissions.

11:30 Adjourn

Next Meeting: Wednesday, October 25, 2023

Participants: Alex Gunnerson, Amanda Shaver, Andrew Keppel, August Goldfischer, Blessing Edje, Carl Friedrichs, Carol Cain, Chris Mason, Cindy Johnson, Claire Buchanan, Doug Moyer, Efeturi Oghenekaro, George Onyullo, Helen Golimowski, Jimmy Webber, Joe Morina, John Jastram, Jon Harcum, Kaylyn Gootman, Lew Linker, Mukhtar Ibrahim, Peter Tango, Qian Zhang, Rebecca Murphy, Roger Stewart, Tom Butler, Tony Timpano.