Integrated Trends Analysis Team (ITAT)
Meeting

Wednesday, December 7, 2022
Meeting Materials: Link

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

ACTION ITEMS

- **Breck Sullivan will share feedback on the Water Quality Standards Attainment and Monitoring Outcome (WQSAM) Logic and Action Plan (LAP) to ITAT from the public comment period.**
- **Chris Mason will reply to Qian Zhang's emails about the River Input Monitoring data.**
- **ITAT members working on the James Tributary Summary Pilot Update are asked to complete their section by early February 2023 so there is time for internal review before USGS review.**
    - **These team members are asked to include progress on their updates in the excel spreadsheet on the Microsoft Teams page and input their figures and text directly into the Tributary Summary document. Please reach out to Alex Gunnerson (agunnerson@chesapeakebay.net) and Breck Sullivan (bsullivan@chesapeakebay.net) with any questions.**
- **Alex Gunnerson will add Chris Mason to the Microsoft Teams page for the tributary summaries so he can access the necessary documents.**

Meeting Minutes

10:00 – 10:05 **Welcome – Kaylyn Gootman** (EPA) and **Breck Sullivan** (USGS)

Announcements –

- Chesapeake Student Recruitment, Early Advisement, and Mentoring (C-StREAM) ITAT Leadership submitted a C-StREAM proposal for assisting with a story map and communicating the tributary summaries. Some of the other work will include comparing SPARROW results with the Social Vulnerability Index. If funding is not awarded, Breck will explore using the Virtual Student Federal Service program to get an intern to work on this project.
- Conferences of potential interest
    - A Community on Ecosystem Services – December 12-15, 2022, Washington, DC. Abstracts were due July 15, 2022.
    - Maryland Water Monitoring Conference – December 15, 2022
    - National Water Quality Monitoring Council's 13th National Monitoring Conference – April 24-28, 2023. Location TBD. Session proposals were due June 24, 2022.
    - Species on the Move – May 15-19, 2023. Everglades National Park, FL.
    - CERF 2023 Conference: Resilience & Recovery – November 12-16, 2023, Portland, Oregon. Session and workshop proposals due September 19, 2022. Abstracts due May 10, 2023.

- Citizen Science Association conference, C*Sci 2023 - May 22-26, 2023, Arizona State University campus in Tempe/Phoenix, Arizona.

10:05 – 10:25 **Logic and Action Plan (LAP) for the Water Quality Standards Attainment and Monitoring (WQSAM) Outcome Review – Breck Sullivan** (USGS)

The LAP for the WQSAM Outcome is now available and in public comment period. Breck highlighted the items ITAT is responsible for over the next two years and which items might already be related to nontidal work. Breck emphasized that if an action is not in the LAP, it does not mean ITAT cannot participate in effort or peruse new ideas - ITAT just needs to make sure that it addresses the actions in the LAP. Breck concluded with some possible additional actions ITAT may be interested in contributing to.

Discussion

Kaylyn Gootman asked if feedback would be provided to the WQSAM team in one batch or as it is received. Breck said she believes she will receive the feedback as it is submitted but is not certain. In the past, feedback has only been received in the public comment period from the communications team or a management board member who represents a jurisdiction. Breck said she will share the feedback with ITAT once she has received it.

Elgin Perry asked if the cluster analysis sections in the LAP should be expanded to include other parameters so the list is the same for both trends and status. Breck said yes, cluster analysis for temperature values would probably be useful, and they can add more detail about who is doing that work in ITAT.

10:25 – 10:45 **Nontidal Trends Data Announcement – Chris Mason** (USGS)

The USGS is examining data and results of the most recent update of loads and trends from monitoring stations in the Chesapeake Bay Program (CBP) Nontidal Network (NTN), which contains trends though 2020 and was released in August 2022. During a process to implement a new software package for the next update of NTN data, the USGS discovered some questionable data values. Most of the questionable values were related to a coding transcription error that was occurring for selected values when data were pulled into files used to compute loads and trends for each NTN site. The USGS has (1) corrected the data, (2) rerun all the loads and trends, and (3) will be providing updated 2020 loads and trends. While only a small percentage of the data and trends were affected, out of an abundance of caution the USGS has taken the results off-line. The updated results are expected to be released in early 2023 after going through the USGS review process. More information on the planned update of the 2020 loads and trends can be found at: USGS to revise 2020 nontidal load and trend results | U.S. Geological Survey. The USGS is committed to providing high-quality data results and offer their apologies for any inconveniences this issue may have caused.

Chris Mason walked through where the discrepancies were and what caused them, where the trends changed when the new analysis was run, what quality control methods were implemented, and the timeline for next steps.

Discussion

Breck expressed her appreciation for the step-by-step walk through on what the discrepancies were, how they arose, and how they will be prevented going forward. Breck said it was great to hear the discrepancies were minor and only affected a small portion of the data. Chris agreed and said that is the main take home point.

Kaylyn thanked Chris for keeping the data dashboard team in mind when this data is re-released and said this is good timing since the data dashboard has been undergoing updates.

Qian Zhang asked if there is a plan to make the Chesapeake Bay River Input Monitoring (RIM) data available any sooner since it was not affected. Chris said you can still get the RIM data via the science base data release, but Chris will email Qian directly to give him the data he needs. Qian expressed some of his analyses depend on the RIM data.

Karl Berger asked about when will the re-release occur. Chris said the goal is end of December 2022. As of December 7th, 2022, the team was in the metadata and approval phase.

Qian asked if there are any plans to republish the 2018 results. Chris said there are no current plans to republish the 2018 results, but they will remain accessible via science base. They will be archived on the water quality page.

Breck asked if the decimal error affected previous versions of the data. Chris said no because 2020 was the first year this specific data pull was being transferred from SAS to R. Because the decimal error was a result of a transcription error in the code between SAS and R, only the 2020 results have been affected.

10:45 – 11:15 **Tidal-Nontidal Linkages – Jimmy Webber** (USGS) and **Kaylyn Gootman** (EPA)

In advance of the tidal-nontidal meeting being held in January, a brief discussion was held to consider a preliminary vision for exploring tidal/non-tidal trends and to review a few examples. Anyone wanting to participate in the January meeting should email Kaylyn (gootman.kaylyn@epa.gov) and she will share the meeting information.

Jimmy Webber provided some brief slides for context to start the conversation. Jimmy highlighted results from the collaborative Science to Inform Management Priorities, from Loads to Endpoints (SIMPLE) team. Jimmy then compared the nontidal and tidal monitoring networks and selected a few trends to review for the group to consider.

Summary

Kaylyn said it is great to see all these data compared in one space because despite their differences, they all come together to tell a story about water quality in the Chesapeake Bay watershed.

Rebecca Murphy said the tidal line graphs on slides 10-15 are not the flow-adjusted ones, but the flow-adjusted graphs could be output instead.

Kaylyn asked if ITAT members could identify needs for each group (tidal, non-tidal, and entire watershed) and what needs to be done to improve the linkages of these networks. Renee Karrh suggested starting with two tasks. The first task is standardizing methodology so that both tidal and nontidal results are both producing loads and/or concentrations to make them comparable. Another task is to reconcile the different

time frames (calendar year versus water year), so the results are comparable. Renee said she thinks the dot plots in the bottom left corner of slide 9 are a great way to visualize the data. Breck and Kaylyn agreed.

In the context of comparing tidal and nontidal data, Qian Zhang said we cannot overlook the below RIM stations contributions to loads in the Bay. Qian said we need to look into point source and non-point source below RIM loads to explain the discrepancies in the trends.

Elgin Perry agreed with Qian on the importance of below RIM stations loads from the land. Elgin emphasized that estuaries are very dynamic and there could be many reasons for the disconnects we are seeing in trends between the fall line loads and the tidal trends. Elgin shared comments from a conversation he had with Walter Boynton where they discussed potential confounding factors for disconnected trends, such as a dissolved oxygen problem leading to a phosphorus release or an improving benthic community disturbing the substrate and releasing phosphorus. Elgin said these could all be potential reasons why there are disconnects. Kaylyn said that makes her think of groundwater resident times and their varying abilities to transport nitrogen and phosphorus. Kaylyn said that while ITAT knows there are these varying approaches to answering these questions, she is not sure if the trends have been systematically tackled in these ways before.

Carol Cain asked if there are any correlations between changes in concentration with land use changes. Jimmy replied that for the nontidal stations there is sometimes evidence of this, particularly in urbanizing basins over a long-term period where increasing impervious coverage leads to changes in nutrient and sediment transport. Breck said it would be good to look into this now with the new high-resolution land cover/land use data. Kaylyn said it would be interesting to explore the relationship on distance between the RIM station and the downstream tidal station(s) to see if that is an explanatory variable.

Kaylyn said communication of the trends is incredibly important and these graphics, maps, and plots do a great job portraying the information. Kaylyn emphasized the need to think about other communication products tailored to the stakeholders ITAT is trying to reach, such as a fact sheet or R Shiny App. Rebecca Murphy asked what the stakeholders would find most useful when connecting the tidal and nontidal networks and how we should engage with them. Rebecca said some work has already been done relating trends in the watershed to those in the estuary, so understanding which connections need to be made is key. Rebecca asked if the SIMPLE team's fundings might inform the answers to these questions. Kaylyn said SIMPLE would be a good start but suggested expanding further to reach those who are in implementation. George Onyullo said the best starting point would be the jurisdictional representatives because they understand this data the best within their jurisdiction. George said one positive development has been drawing the connections between the watershed and the estuary. George said one area that requires more work is standardizing methodological differences between the different datasets. George said at the end of the day, the two processes are driven by concentration measurements done at the local level, so they need to be reconciled.

Jimmy Webber asked if all these data are housed in one place and if the differences in data are acknowledged. Kaylyn replied she does not think so, but the data dashboard

and other products being completed for the monitoring webinar can help address this gap.

11:20 – 11:30 Check in on Tributary Summary Updates – All

An opportunity was provided for those updating the tributary summary pilot in the James to share their progress, ask questions, share concerns, or make notes about the process.

Summary

Chris Mason and Alex Soroka have been helping with the new climate change section by acquiring and processing Parameter-elevation Regressions on Independent Slopes Model (PRISM) data. This puts the completion target for the James Tributary Summary around late February. To ensure the report is submitted to USGS for approval on time, ITAT members are asked to complete their sections by early February so there is time for internal review.

For the James Tributary Summary Pilot, Breck asked team members to update the Excel Spreadsheet document as they progress in their work and to input figures in the respective folders on the Microsoft Teams page. Team members are also encouraged to directly input figures and text into the shared Tributary Summary document. For text, team members are asked to use track changes but for figures track changes are not necessary because they clutter the document.

Jimmy Webber said Chris Mason will be the point of contact on nontidal data for the Tributary Summaries going forward. Alex Gunnerson will add him to the Microsoft Teams page so he can access the necessary folders and documents.

Breck shared that ITAT leadership has met with the Friends of the Rappahannock to solicit feedback on which ITAT products the organization would find most helpful, and they expressed interest in the Tributary Summaries and the associated story maps. The Friends of the Rappahannock invited ITAT to speak at their forum in October 2023.

11:30 Adjourn

Next Meeting: Wednesday January 25, 2023

Participants: Alex Gunnerson, Alex Soroka, Andrew Keppel, Amanda Shaver, Breck Sullivan, Brendan Foster, Carl Friedrichs, Carol Cain, Chris Mason, Cindy Johnson, Claire Buchanan, Doug Moyer, Elgin Perry, George Onyullo, James Webber, Jeffery Chanat, Jeremy Hanson, John Clune, Jon Harcum, Karl Berger, Kaylyn Gootman, Mike Lane, Mukhtar Ibrahim, Qian Zhang, Rebecca Murphy, Renee Karrh, Tish Robertson, Tom Butler.