Integrated Trends Analysis Team (ITAT)

Wednesday, June 25th, 2025

10:00 AM – 12:00 PM

Meeting Materials: Link

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

MINUTES

10:00 – 10:05 AM *Welcome – Breck Sullivan (U.S. Geological Survey, USGS) and Kaylyn Gootman (Environmental Protection Agency, EPA)*

Announcements:

- Welcome the new intern – Ezra Krantz!
- Chesapeake Assessment Scenario Tool (CAST) 2024 Progress Scenario Now Available! [Link]

Conferences:

- Coastal & Estuarine Research Federation (CERF) 28th Biennial Conference, November 9-13th, 2025. Richmond, VA. *Registration is now open!*
- Alliance for the Chesapeake Bay – Chesapeake Watershed Forum, November 7-9, 2025. National Conservation Training Center, Shepherdstown, WV. *Proposal for Posters now open!*

10:05 – 10:45 AM *Community Informed Evaluation & Recommendations for Chesapeake Bay Submerged Aquatic Vegetation (SAV) Watchers*
Presenter(s): *Stephanie Letourneau (Virginia Institute of Marine Science, VIMS)*

Description: Chesapeake Bay SAV Watchers is a volunteer monitoring initiative that helps the Chesapeake Bay Program (CBP) SAV Workgroup assess SAV coverage through their tiered monitoring framework while promoting SAV stewardship in local communities. This presentation shares community perspectives on the program's successes, areas for growth, and future directions. Access the report here.

Stephanie: The SAV Watchers program grew out of natural collaboration and professional networking. While organizing the Mid-Atlantic Volunteer Monitoring Conference, we met with Brooke Landry to express our desire to expand the Chesapeake Bay Program's SAV monitoring into Virginia. The SAV Watchers initiative, led by the SAV Workgroup, sits within a three-tiered monitoring framework, aiming to enhance scientific understanding through community engagement. It relies on a "train the trainer" model where certified trainers teach volunteers, who then collect data to validate aerial surveys and capture detailed habitat observations.

To evaluate the effectiveness of the program, we conducted a mixed-methods study with surveys, interviews, and focus groups targeting Maryland (MD) trainers and volunteers, as well as newly trained Virginia (VA) trainers. The evaluation aimed to determine participant knowledge, program success in meeting its goals, and barriers to interstate expansion. Results revealed high engagement and a strong sense of stewardship among volunteers, who expressed motivations ranging from environmental concern to personal interest. Creativity in overcoming fieldwork challenges, such as waterproofing data sheets or adapting equipment, was a noted success.

The research identified three overarching themes. First, participants described growth and development within the program, including increased geographic reach and effective training materials. The program has contributed to the discovery of new SAV observations like horned pondweed, highlighting its scientific value. Second, effective volunteer monitoring requires sustained investments in infrastructure, time, and especially species identification support. Participants reported strong quiz performance but indicated that more hands-on practice would bolster confidence and data quality.

A significant challenge emerged around communication, both in conveying how volunteer data are used and in maintaining engagement post-training. Many volunteers were unclear about whether their efforts influenced policy or contributed to protection zone mapping. While the SAV Watchers data may not directly determine these zones, it helps prompt follow-up surveys. Nonetheless, these limitations, coupled with communication gaps, have led to participant frustration. Volunteers and trainers alike sought greater opportunities for collaboration and knowledge-sharing.

Based on these findings, the presenter recommended seven key program improvements: expanding hands-on training; improving transparency about data use; institutionalizing feedback mechanisms; optimizing training structure; offering additional trainer support; fostering a sense of community; and securing dedicated funding for coordination and equipment. These suggestions aim to enhance volunteer satisfaction, data quality, and program scalability.

For the program's expansion into Virginia, five additional recommendations were proposed. These include supporting the lead partner, The Nature Conservancy (TNC), through training; leveraging local partnerships strategically; tailoring the training model to Virginia's needs; establishing a clear communication plan between TNC and the coordinator; and clarifying data use pathways for local organizations. These steps are essential to address logistical and organizational differences between states and ensure the program's success in new regions.

In conclusion, SAV Watchers effectively blends science and public engagement, successfully fostering environmental stewardship and contributing valuable data. The program has met many of its initial goals and is now poised for thoughtful growth. The mixed-methods evaluation provided a nuanced understanding of participant experiences, yielding insights that inform a general evaluation framework for other community science programs.

Discussion:

Q from chat: *Elgin perry:* Are there apps for SAV equivalent to "Picture This" for terrestrial plants?

- *A: Stephanie Letourneau:* One of our volunteers actually suggested something similar in a survey. While there isn't a specific app for SAV identification, I've personally had success using iNaturalist. It's not currently integrated into the program, but it might be worth suggesting, since it can be a helpful tool. I highly recommend it, it's easy to use and quite effective.

Q: Kaylyn Gootman: I am curious about your thoughts on the feedback pathways? They are critically important to participatory science – where is the data going and how is it being used? We just haven't quite figured out a way as to where to start.

- *A: Stephanie Letourneau:* For sharing of the data and how it is being used/being communicated, there is no limit as to how many times you tell the volunteers about what you are doing. Repetition and clarity is helpful. Especially in the form of a fact sheet with a lot of visual representation. Visual tools like flowcharts or fact sheets can help make the data pathway more tangible.

Q from chat: *Elgin perry:* Does the program recruit volunteers to work on data assessment? Or is it just data collection?

- *A: Stephanie Letourneau:* For the program, it is just data collection and no assessment. But, the individual organizations have discovered ways to get involved with the volunteers in a deeper context, like the customization of their own data assessment for their tributary with their volunteers, as long as the data is being delivered in the correct format to the jurisdictions.
- *Q: Breck Sullivan:* Regarding Maryland's use of aerial surveys to designate sanctuaries, is it just policy wording that limits use of SAV Watchers data, or are there protocol issues?

- *A: Stephanie Letourneau:* It's mostly the wording in the policy. The Maryland code specifically calls for mapping based on aerial surveys. SAV Watchers data is point-based rather than spatially comprehensive, so it doesn't meet the definition of mapping in the current policy. That's a limitation of the protocol. While my research didn't dive deeply into policy, I did notice that some local organizations are advocating for changes to make timely use of community-collected data possible. Maryland Department of Natural Resources (DNR) does review SAV Watchers data, but regulatory use is limited, especially with permitting processes and documentation requirements.

Q: Breck Sullivan: In your survey, do you address any barriers that might play into volunteers' ability to participate in the program, i.e., their own kayaks, etc.?

- *A: Stephanie Letourneau:* For the kayaks, participants should have their own unfortunately. However, we are considering reaching out to businesses to

donate/borrow their kayaks as a sponsorship. For example, businesses could offer discounted or free rentals to certified SAV volunteers and display a sticker that says, "We support SAV in the Chesapeake Bay."

- ***Response from chat:*** *Elgin Perry:* Some Virginia parks are making Kayak rentals available.

10:45 - 12:00 PM *[Tools for Tracking Water Quality Trends: ITAT Tributary Summaries and Geonarratives](#)*

Presenter(s): *Gabriel Duran (Chesapeake Research Consortium), Breck Sullivan (USGS), Kaylyn Gootman (EPA).*

Description: ITAT leaders recently hosted a CBP webinar showcasing the tools developed by ITAT, along with several use-case scenarios. As a follow-up, they will provide a brief overview of the tools presented and facilitate a discussion on ways to improve them, identify additional target audiences, and explore strategies for better marketing and tracking the use of these products. Participants will also be invited to respond to a Mentimeter poll regarding the use of tidal monitoring data and to indicate any interest in developing a tidal monitoring fact sheet.

Gabriel: ITAT develops tributary summary reports for the Bay's 12 major tributaries, using data from over 130 monitoring stations across the watershed. These reports analyze long- and short-term trends in tidal water quality parameters (i.e., nitrogen, phosphorus, dissolved oxygen, Chlorophyll-a, and Secchi depth) and investigate the environmental factors influencing them. To enhance accessibility and audience engagement, ITAT also produces complementary Geonarratives, which translate the technical findings into interactive and user-friendly format via ArcGIS Story Maps.

Geonarratives follow a very similar structure as the Tributary Summary reports but are designed for broader audiences. They provide background on tributary characteristics like physiography and land use and show how these factors influence water quality. For instance, in the Rappahannock watershed, differences in landscape features across four physiographic regions affect nutrient yields and sediment transport. Likewise, land use changes have increased impervious surfaces, contributing to water quality degradation.

Water quality status is assessed using criteria such as dissolved oxygen, chlorophyll-a, and water clarity. In the Rappahannock, long-term data (1985–2021) reveal mostly degrading trends in bottom dissolved oxygen, particularly in mesohaline areas, with only one station showing improvement. These insights are made accessible through interactive maps within the Geonarrative. The tool also incorporates data on nutrient and sediment loads from both observed and modeled sources, revealing increases in nitrogen, phosphorus, and sediment over time.

To understand and address pollutant sources, ITAT uses the Chesapeake Assessment Scenario Tool (CAST), which models nutrient and sediment loads and estimates the effects of best management practices (BMPs). From 1985 to 2019, nitrogen loads decreased by

12%, phosphorus by 33%, and sediment by 13%, mostly due to agricultural and wastewater BMPs. These ITAT tools tracks BMP implementation, showing progress by practice type. For example, pasture management has exceeded 2025 goals, while agricultural nutrient management is only halfway there.

The Geonarrative also highlights the impact of changing environmental conditions, including extreme precipitation, warming temperatures, and sea level rise. For example, heavier rainfall in 2018–2019 increased nutrient transport and decreased water quality attainment. Rising water temperatures exacerbate stress on aquatic life and the attainment of water quality criteria. Sea level rise is visualized through NOAA's Sea Level Rise Viewer, helping users understand localized impacts up to 10 feet of sea level rise. These different changing environmental conditions present ongoing challenges despite pollutant reduction efforts.

To connect with local efforts, the Geonarrative features community organizations such as *Friends of the Rappahannock*, a grassroots nonprofit involved in education, river stewardship, and conservation for over 40 years. We invite users to help us in identifying other local groups and organizations that we can highlight in future Geonarratives. These tools also have real-world applications for local governments, nonprofits, and watershed groups. For example, they can be used in public meetings to build support for restoration projects or by stormwater managers to align on targeted actions using shared data.

Finally, we are seeking feedback to improve the tools and expand their reach. We want to gather input on how audiences currently use ITAT products, what improvements are needed, and which groups should be included in future features. Suggestions are also welcome for new products, such as a tidal monitoring fact sheet. We aim to foster collaboration and transparency by providing tools that communicate environmental progress and support effective decision-making across the Chesapeake Bay watershed.

Discussion:

Comment from chat: *Julie Reichert-Nguyen:* Maybe consider the work by the University of Michigan School for Environment and Sustainability (UM-SEAS) Masters students working in creating a coastal wetland resilience plan. The students' project continues through next spring. They're conducting GIS analysis and building a targeting map, along with their own story map, in collaboration with the Vision the Choptank partnership. At National Oceanic and Atmospheric Administration (NOAA), the Choptank is one of our habitat focus areas, so we work closely with that group. There are additional resources we could connect to during the development of the Choptank summary. Another potential use case for this work is as we transition our resilience work into supporting the *Adapting to Changing Environmental Conditions Outcome*. The environmental condition analyses, especially the changing environmental conditions component, could help inform where we target adaptation efforts. I'd love to set up a focused meeting with you all once we begin developing our management strategy to see how this information could help guide resource allocation.

Q from chat: *Michael Lane:* Is there any chance of integrating living resource trends in the Tributary Summaries?

- **A:** *Breck Sullivan:* That's a great question with several parts. We're open to including living resource trends. In earlier versions of the tributary summaries, we included SAV fact sheets, but those haven't been updated due to staff turnover. Since the fact sheets were outdated by nearly a decade, we chose not to include them in newer versions. If partners have current trend data, we'd love to incorporate it. One thing we've done in the current updates is to reference NOAA's seasonal summaries, which provide information on how changing environmental conditions impact living resources, like salinity and dissolved oxygen. We include links to these in the summaries, even if we don't feature the data directly.

- **Comment:** *Julie Reichert-Nguyen:* My group at NOAA helps produce the seasonal summaries. I'm also aware of an effort within the Chesapeake Program (supported by the Sustainable Fisheries Goal Implementation Team, GIT1) focused on identifying and prioritizing segments for living resource assessments. Lee and Bruce lead that work. I'm not sure if you're connected with them, but your data and analysis could support their prioritization work and narrative development.

- **Comment from chat:** *Michael Lane:* We run trends on the Benthic basin-wide index of biotic integrity (IBI) on an annual basis and we can also provide the same for the phytoplankton IBI. For both Maryland and Virginia tidal rivers for the benthic and Virginia for the phytoplankton.

- **Q from chat:** *Peter Tango:* Mike - are those trends published online now? They used to be updated on the Versar website, not sure if those trends are up to date or if you keep them posted elsewhere on the most up-to-date BIBI trends at segment, tributary, and bay-wide levels. Love having those insights!!!

Discussion Questions [Responses from the Mentimeter]:

1. *How do you use the ITAT tools? How do you use the tidal monitoring data?*

   - I used the tidal monitoring data for water quality standards and assessment work.

   - CRWG – We use the temperature change trends data with our outreach with partners when discussing potential impacts to fisheries.

   - I use the trends when I get questions about specific tidal conditions and want to see how the trends line up with other findings or research questions.

   - ODU uses tidal monitoring data to produce long term and status analysis results as a deliverable to EPA (ITAT). Also we use the data internally for presentations and scientific papers.

   - **A:** *Tish Robertson:* In the past, I cited ITAT tools in a James River support document. It wasn't a central focus, but we included a map from the

summaries in the appendix to support our basin-wide understanding. While I haven't used the tools recently, the maps have been helpful in the past.

2. *How can we better track the use of Tributary Summaries and Geonarratives?*

   - ***Comment from chat:*** *Peter Tango:* Sometimes - some websites have a sign-in. It's a step in terms of documenting access. References in papers and presentations might show up with a search. Google analytics may provide insight

3. *How can we attract more audiences? Similarly, what audiences should we be targeting more? What organizations should we be reaching out to for our "For the Community" section?*

   - ***A:*** *Julie Reichert-Nguyen:* Look into state and partner groups supporting resilience work – e.g., MD Whole Watershed Act. There is a lot of cross over in MD, and VA is starting to conduct more place-based work. This might be a good place to engage with more audiences.

   - ***Comment:*** *Gabriel Duran:* We should look into the Nontidal Network Workgroup (NTN) Geonarrative and how they track their own products.

     - ***Response from chat:*** *Christopher Mason:* I think we track NTN Geonarrative through SmartAnalytics/Google, but I'll doublecheck.

   - ***Q:*** *Julie Reichert-Nguyen:* I think there are other ways to raise visibility and how they can be used in other Bay Program work. For instance, is this on ChesapeakeData and other programs that the CBP supports?

     - ***A:*** *Breck Sullivan:* There may already be a link from Chesapeake Data, but a featured "place-based tools" section could improve visibility, especially as more outcomes emphasize local applications.

     - ***Response:*** *Julie Reichert-Nguyen:* That's a good idea. Featuring place-based data across outcomes would align with the direction many partners are headed and raise visibility across the Bay Program's platforms.

     - ***Comment:*** *Peter Tango:* The Chesapeake Monitoring Cooperative (CMC) call also discussed place-based videos to bring locations to life. Adding those to our products could make them more engaging and dynamic.

4. *How can the items within the Tributary Summaries and Geonarratives be improved?*

   - ***Comment:*** *Breck Sullivan:* We have missed putting the NTN trends in the Geonarratives even though it is included in the Tributary Summaries. In speaking with the USGS team that makes the NTN Geonarrative, we agreed

to add a short 1-2 sentences highlighting and directing users to each other's respective Geonarratives.

- ***Comment from chat:*** *Elgin perry:* Some comparisons of where a tributary stands on assessment measures compared to other tributaries would be of interest.

    - ○ ***Response:*** *Breck Sullivan:* That's something we can easily add by noting how one tributary compares others on specific topics.

- ***Comment from chat:*** *Peter Tango:* Strategic local stories embedded and linked using videos of local interviews perhaps.

12:00 PM Adjourn

Next Meeting: Wednesday July 23rd, 2025, from 10 AM – 12 PM

Attendees:

Breck Sullivan (USGS), Kaylyn Gootman (EPA), Gabriel Duran (CRC), Stephanie Letourneau (VIMS), Allison Welch (CRC), Claire Buchanan (ICPRB), Anthony Timpano (VADEQ), Mukhtar Ibrahim (MWCOG), Elgin Perry (CBPO), Ezra Krantz (CRC), Glessing Edje (DOEE), Tish Robertson (VADEQ), Michael Lane (ODU), Rebecca Murphy (UMCES), Julie Reichert-Nguyen (NOAA), Stephanie Nummer (ICPRB), Andrew Keppel (MDDNR), Christopher Mason (USGS), Peter Tango (USGS), Liz M.