Scientific, Technical Assessment and Reporting (STAR) Team

Theme: Monitoring for Measures of Progress

Thursday, February 26th, 2026

10:00AM – 12:00PM

Visit the meeting webpage for meeting materials and additional information.

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

Purpose: This is the monthly meeting of the Scientific, Technical Assessment and Reporting Team. As the Chesapeake Bay Program (CBP) moves forward with the revised Watershed Agreement, outcomes may need to reenvision or establish new monitoring to track progress. The meeting will focus on examples to help build effective monitoring plans and data framework requirements to measure and track progress which ultimately supports the communication of the science and status of CBP commitments in the Watershed Agreement.

Minutes

I. Welcome, Introductions & Announcements (10:00 – 10:05)

Lead: ***Ken Hyer*** *(U.S. Geological Survey, USGS) STAR Chair,* ***Breck Sullivan*** *(USGS) STAR Coordinator, and* ***Peter Tango*** *(USGS) CBP Monitoring Coordinator.*

Upcoming Conferences, Meetings, Workshops and Webinars

- Choose Clean Water Conference – May 18-20, 2026. Lancaster, Pennsylvania.
- Chesapeake Community Research Symposium – June 1-3, 2026. Annapolis, Maryland.
- Restore America's Estuaries' 2026 Coastal & Estuarine Summit – September 22-25, 2026. San Francisco, California.

II. Overview of Previous and Upcoming STAR Meetings (10:05 – 10:15)

Lead: ***Breck Sullivan*** *(USGS)*

Breck Sullivan: Throughout 2025 and into 2026, STAR has been actively discussing how indicators should be defined and used across the partnership. A central theme has been the need to rethink what counts as an indicator, including whether there should be different tiers or levels of indicators. These discussions emphasized that indicators may need to capture not only environmental metrics, but also ecosystem responses and the influence of program actions, including possible policy decisions. Members also highlighted the importance of using relatable

metrics that are meaningful to different audiences, along with the need for more consistent vocabulary across outcomes and related documents such as management strategies.

At the January meeting, STAR continued this conversation by exploring how to move forward with both quantitative and qualitative outcomes and targets in the updated Watershed Agreement. Presentations from UMCES (University of Maryland Center for Environmental Science) and the Puget Sound Partnership reinforced the importance of flexibility in defining indicators and communicating progress. One key takeaway was that while targets can function as indicators, not all indicators are targets. This distinction allows outcomes to remain flexible while still maintaining accountability and building a more comprehensive story about the health of the Bay and watershed.

Following these discussions, STAR leadership recognized that the conversation had started too far downstream by focusing mainly on existing Chesapeake Progress indicators. To support new outcomes and targets, we first need to focus on monitoring. Monitoring determines how information is collected and tracked; that information must then be analyzed, interpreted, and visualized before it can be translated into progress reporting on Chesapeake Progress. As a result, the current meeting is focused on effective monitoring plans, with the goal of providing broad guidance that can support all outcomes and targets across the partnership.

III. Monitoring for Measures of Progress:

Good Practices and Considerations in Your Work Ahead (10:15 – 10:30)

Lead: ***Peter Tango*** *(USGS)*

Peter Tango: Discussions during the Beyond 2025 effort highlighted that measuring and reporting progress is not a simple or uniform process. Different stakeholders approach accountability from different perspectives, and expectations for measurable results have evolved over time. Historically, accountability was rooted in trust and reliability, but since the Industrial Revolution there has been increasing emphasis on quantifiable outcomes and performance metrics. This shift has shaped modern government accountability systems, which often require measurable outputs and monitoring to demonstrate progress. As a result, monitoring systems have become a central mechanism for documenting and communicating program performance.

Effective monitoring begins with a clear conceptual model that identifies the key drivers influencing a system and the measures that are most responsive to management actions. Indicators should ideally reflect variables that change when management actions occur, allowing programs to understand and explain how interventions influence outcomes. Credible and well-documented data collection methods are equally important to ensure the data produced are defensible and scientifically sound. The Chesapeake Bay Program (CBP) has long relied on peer-reviewed science, technical reports, and standardized methods to support the credibility of its monitoring efforts. Consistency in methods across jurisdictions is also critical; past efforts demonstrated that inconsistent approaches can lead to conflicting results. Establishing shared metrics, like the Chessie BIBI (Chesapeake basin-wide index of biotic integrity), illustrates how collaborative development of standardized indicators can create a strong foundation that can be refined over time.

Additional considerations include ensuring strong data integrity through quality assurance procedures, documenting spatial and temporal coverage of monitoring efforts, and maintaining clear records of monitoring frameworks and methodologies. Even concise documentation can be extremely valuable for future users who need to understand how programs were designed and implemented. Equally important is thinking ahead about how monitoring results will ultimately be communicated. Designing monitoring systems with future reporting in mind helps ensure the

data collected can be translated into clear, meaningful indicators of progress. In practice, assessing progress typically follows several stages: defining appropriate measurements, establishing consistent data collection, developing methods to interpret the data, determining what will be reported, and creating a framework for communicating those results effectively.

Discussion:

Comment: *Breck Sullivan:* There is a template we used back in 2015–2017, supported by ERG, and a publication came out of that work that provides a useful summary (link, page 9). The template is straightforward: identify the topic of interest and the measure you're using, then walk through whether you've addressed each of these five stages. If you can check all 5 boxes, you're in a good position to report. If you're solid on the first 3-4 but not all 5, it helps a workgroup (WG) or goal team pinpoint what still needs to be developed before moving into full reporting.

Q from chat: *Melinda Cutler:* Thinking about appropriately capturing baseline and progress, have any good 'rules of thumb' or common guidance been documented for space and temporal considerations, and data minimum requirements? Or does it tend to be project specific?

- ***A from chat:*** *Breck Sullivan:* I would say it is project specific because for example the nontidal and tidal trends CBP produces, we want to have 10 years of data before we speak on trends and patterns but other projects can't wait for 10 years of building up data.
- ***A from chat:*** *Peter Tango:* That is a great point to add. Some targets are simple in terms of annually, biennially, decadal, did we meet our expected outputs - numbers of Best Management Practice's (BMP), protocol was developed by 2028 - no baseline needed. But many targets will need some basis for evaluating rates of progress. The Chesapeake Bay Program (CBP) community says we want to accelerate progress - to your point then, we want, need baselines to judge change. I might add that topic as a slide, it deserves capturing here.

IV. Monitoring SAV in Chesapeake Bay:

An integrated, hierarchical, and tiered approach **(10:30 – 11:00)**

Lead: ***Brooke Landry*** *(Maryland Department of Natural Resources, MD DNR)*

Brooke Landry: Monitoring submerged aquatic vegetation (SAV) in the Chesapeake Bay uses an integrated, tiered, hierarchical approach designed to capture information at multiple spatial scales and levels of detail. The foundation of this system is the Tier 1 aerial survey, conducted annually since 1984 by the Virginia Institute of Marine Science (VIMS) through a federal–state partnership. This Bay-wide survey provides long-term data on SAV acreage and density by mapping the entire Bay each year. While this approach offers extensive spatial coverage and a valuable historical dataset, it primarily captures broad metrics and does not provide detailed information on species composition, plant health, or ecological processes.

To address these limitations, the partnership expanded monitoring efforts beginning around 2017 by developing additional tiers of data collection. Tier 2, known as the SAV Watchers program, was established as a volunteer-based monitoring effort involving riverkeepers, watershed groups, and other community partners. The program uses a "train-the-trainer" model in which certified trainers work with volunteers to collect field observations throughout the Bay. This tier provides moderate spatial coverage and collects additional ecological information such as species composition, reproductive status, algae presence, water depth, and habitat characteristics. The program has also transitioned to digital data collection through ArcGIS Survey123, allowing participants to submit observations and photos directly from mobile devices. Training materials, field guides, and videos support volunteer participation and data quality.

Tier 3 monitoring focuses on Sentinel Sites, which provide the most detailed data through intensive, in-water measurements. Scientists collect information on physical conditions, water quality, and biological characteristics to better understand the drivers behind observed changes in SAV. These sites support early detection of ecological changes and help inform adaptive management and policy decisions. Maryland Department of Natural Resources (DNR), VIMS, and other partners currently monitor several sentinel locations across the Bay, with plans to expand monitoring frequency to multiple visits per summer to better capture seasonal variation in plant communities.

The tiered system is designed so that each level complements the others. Tier 1 provides comprehensive Bay-wide coverage and long-term trend data, Tier 2 fills in spatial gaps and adds species-level information through community science, and Tier 3 offers detailed ecological insights at specific sites. Together, these datasets allow researchers to detect changes in SAV extent and condition, investigate the underlying processes driving those changes, and develop statistical models that help interpret patterns across the broader Bay ecosystem.

The aerial survey itself remains a cornerstone of the program and involves extensive technical work. VIMS conducts roughly 188 flight lines each year to collect high-resolution multispectral imagery, which is then processed and manually interpreted to delineate SAV beds. Researchers compare imagery across years and ground-truth portions of the data to ensure accuracy. The resulting dataset is used to track Chesapeake Bay SAV acreage goals, which have recently been updated from a long-term target of 185,000 acres to 196,600 acres to align with water clarity standards.

Looking ahead, new technologies are being explored to improve monitoring efficiency and temporal coverage. A project led by Old Dominion University (ODU), funded by EPA and NASA, is testing the use of high-resolution satellite imagery from Planet Labs combined with machine-learning algorithms to automate SAV mapping. Because these satellites collect imagery daily, this approach could provide multiple snapshots of SAV conditions throughout the year rather than a single annual peak biomass survey. If successful, this method could reduce costs, shorten data processing time, and allow scientists to better understand seasonal dynamics and emerging patterns in SAV distribution across the Chesapeake Bay.

You can sign up for the SAV Watchers Newsletter here.

Discussion:

Q: *Breck Sullivan:* Your program is a great example of an established monitoring plan, but you're also re-envisioning monitoring through satellite imagery. As that shift became part of your thinking, what questions did you need to ask to move toward satellite-based monitoring?

- ***A:*** *Brooke Landry:* The exploration of satellite imagery for SAV monitoring was largely motivated by concerns about potential funding losses and the need for a more cost-effective and timely approach. The current aerial survey process involves a substantial delay, with imagery collected in one summer often not finalized or widely usable until the following year. Satellite imagery offers a promising alternative because it is relatively affordable, more readily available, and provides frequent observations at about 3-meter resolution which is sufficient for many monitoring needs. Increased temporal coverage would allow scientists to capture seasonal dynamics rather than relying on a single annual snapshot. This is particularly valuable for species like horned pondweed, which grows in early spring and dies back before aerial surveys are conducted, meaning it is currently underrepresented in monitoring data and management decisions.

Q: *Larry Sanford:* this is an incredibly impressive program. It is very well designed and thoughtfully implemented. My question is whether all of this data can be used for EPA criteria evaluation, or whether some of it is primarily for understanding and other purposes. In other words, can the volunteer data be used for official purposes?

- ***A:*** *Brooke Landry:* Because the SAV Watchers program operates on a voluntary basis and does not currently have formal funding, it has not developed a Quality Assurance Project Plan (QAPP), meaning the data cannot yet be used for certain official regulatory purposes. However, the information collected through this community science effort has still proven highly valuable. The data have helped identify restoration opportunities, locate potential donor beds, and support exploration of new monitoring approaches such as satellite imagery. Volunteer observations, particularly those collected in the spring, also revealed previously undocumented occurrences of species like *Zannichellia*, highlighting areas of SAV that had not been captured by traditional surveys. While the program has not yet conducted large integrated analyses across all monitoring tiers, the data have already informed decision-making and program development. Similarly, the Sentinel Site program is still building its dataset and does not yet have a QAPP, though it is expected that within the next few years enough data may be available to support more formal analyses.

- ***Response:*** *Larry Sanford:* That makes sense. I keep wondering about all the other volunteer-collected data that exists, like water quality data collected by Riverkeepers. What would it take to expand our use of that data? What is the value of that information beyond evaluating official criteria? Even without a QAPP, it still seems like it should have considerable value.

- ***Response:*** *Peter Tango:* Volunteer-collected data can serve multiple roles depending on its quality assurance status and intended application. Some programs meet formal certification standards that allow their data to be incorporated into regulatory criteria assessments, while other datasets are used to guide further investigation, support education, or inform broader understanding of environmental conditions. In the case of SAV monitoring, volunteer observations provide valuable context that helps validate aerial imagery and confirm whether observed features truly represent vegetation rather than artifacts such as shadows. More broadly, these examples highlight that not all data must serve a regulatory purpose to be useful. Community science data can support trend analysis, inform management decisions, and contribute to telling a broader story about ecosystem progress. As the partnership moves forward, there is an opportunity to better understand how these various datasets are being used, improve communication around their value, and identify additional ways they can support CBP goals.

- ***Comment from chat:*** *Breck Sullivan:* This speaks also to how we can use data to help explain our story around progress but might be different than the data used to track the watershed agreement targets.

- ***Q from chat:*** *Kaylyn Gootman:* @Liz Chudoba, can you speak to this from the Chesapeake Monitoring Cooperative (CMC), perspective?

    - ***A from chat:*** *Liz Chudoba:* A lot of the Riverkeeper organizations are Tier 3, but some are Tier 2 based on their methods. The majority of it comes through the CMC to the Bay Program. A lot of the Riverkeeper organizations that participate in the CMC are also participating in the SAV Watchers program too. It would be interesting to see if any of those organizations are using all of the data together.

- ***Response from chat:*** *Brooke Landry:* I know a lot of them use their SAV Watchers data combined with their WQ data for communications (State of the River, etc.), but I'm not sure what level of analyses they're undertaking.

- ***Comment:*** *Chris Guy:* Recent discussions within the SAV WG highlighted broader challenges related to how data are used across the CBP. Because much of the program operates through voluntary partnerships rather than regulatory mandates, not every dataset needs to meet the strict legal standards required for regulatory compliance. In many cases, data that are sufficiently robust for trend analysis and public communication about Bay health can still be extremely valuable, even if they do not meet formal regulatory thresholds. However, the absence of dedicated funding mechanisms, like the former Goal Implementation Team (GIT) funding, makes it more difficult to coordinate and prioritize these types of efforts across WGs. Addressing data needs will require thoughtful planning and collaboration rather than simply adding responsibilities to existing data teams. Instead, the partnership must first define clear objectives, identify priority datasets, and determine how available resources can be used most effectively. Groups like STAR and STAC (Scientific and Technical Advisory Committee) can play an important role in facilitating these conversations by sharing lessons learned across different work areas and helping the partnership identify practical approaches for collecting and using both qualitative and quantitative data. Establishing clear priorities and developing coordinated strategies will be essential for ensuring that available data and expertise are used effectively to support Bay Program goals.

V. Chesapeake Bay Program Metadata Specification (11:00 – 11:30)

Lead: ***Data Center Representative***

Megan Thynge: CBP recently updated its metadata specification as part of a broader effort to improve data management and governance across the partnership. To support this work, an internal Data Governance WG was formed in fall 2024, bringing together representatives from the Data Center, GSAT, the web team, data managers, and staff involved in Chesapeake Data and the Data Hub. The group's goal was to develop updated policies, standards, and guidance to help manage authoritative CBP data throughout its lifecycle, whether the data are internal or publicly available.

The WG aimed to strengthen trust and transparency in the program's data products by ensuring that datasets have documented quality and clear descriptions of what they represent. Another important goal was to improve accountability among data stewards and reduce confusion caused by redundant or fragmented data storage systems that had developed over time. By modernizing data management practices, the group sought to make it easier for users to identify where official datasets are stored and how to access them. Much of the initial work was completed during Phase 1 of the effort, and several resulting documents and resources are now available through a Data Governance webpage.

To guide the effort, the WG established several core principles, including improving discoverability and accessibility of data, promoting standardized classification and documentation practices, and increasing transparency around data quality and intended use. The group also aligned on a shared understanding of the "data lifecycle," spanning data collection, storage, use, publication, and eventual archiving. These principles informed the development of new documentation standards designed to support consistent data management practices across the program.

A central product of this effort is the updated metadata specification. The revised standard introduces a three-level framework for documenting data. Level 1 represents the minimum

metadata required for any dataset submitted to the Bay Program, supporting basic discovery and documentation. Level 2 builds on this foundation by adding additional information relevant to tabular datasets, including details about data quality, attributes, and processing steps. Level 3 applies to spatial datasets and includes additional geospatial requirements such as positional accuracy and coordinate system information. Each level inherits the requirements of the previous one, ensuring progressively more detailed documentation.

The specification was designed to align with existing standards where possible, including earlier Bay Program guidance, Federal Geographic Data Committee (FGDC) and International Organization for Standardization (ISO) metadata frameworks, and the requirements of Chesapeake Data. It also considered compatibility with related resources such as Chesapeake Progress indicator documentation and emerging geospatial cataloging approaches. The document includes tables, explanatory text, and appendices with standardized value lists to promote consistency in how metadata fields are completed.

Alongside the metadata specification, the WG also developed a companion document called the Data Resource Deliverable Guidance. This guidance explains expectations for anyone submitting data to the Bay Program, including contractors, grantees, and project teams. It outlines metadata requirements, acceptable data formats, and the process for publishing data through platforms such as Chesapeake Data and Data.gov. Together, these documents provide a clearer framework for managing and sharing CBP data while supporting transparency, consistency, and long-term usability.

VI. Discussion on Monitoring Plans for Measuring Progress (11:30 – 12:00)

Lead: ***STAR Leaders***

Description: STAR Leaders will guide an open discussion on outcome monitoring plans as it relates to measuring progress and communicating the science.

Guiding Discussion Questions:

- Did the recap, provided by Breck, and the directions formed from this meeting resonate with participants for future STAR topics? What other topics around tracking/targets would help outcomes for STAR to cover in future meetings?
- Where do groups stand in being able to track/measure progress for their outcomes/targets?
- Are there gaps in monitoring/analysis that need support?
- What question(s) are you trying to answer with your monitoring and data? Progress on the Agreement, progress/status of ecosystem elements, etc.?

Discussion:

Comment: *Julie Reichert-Nguyen:* Tracking progress for the Adapting to Changing Environmental Conditions Outcome will likely require a hybrid approach that combines qualitative and quantitative information. Rather than attempting to track every action occurring within each sub-watershed, the Climate Resiliency WG has emphasized focusing on how the partnership is building capacity to implement nature-based solutions. One potential approach is to identify seven priority sub-watershed areas and build a network of organizations and agencies that support adaptation efforts within them. Progress could then be represented through a map-based tracking system showing participating partners and the activities they are undertaking to strengthen local resilience. In this framework, partners would report their progress along a general implementation pathway. For example, conducting vulnerability assessments, identifying

nature-based solutions, securing funding, and moving into project implementation. Over time, the map would illustrate where work is occurring and how efforts are advancing across the sub-watersheds, providing a visible picture of capacity building and collaboration. While longer-term efforts may eventually develop quantitative indicators to measure resilience outcomes, this network- and map-based approach offers a practical starting point for documenting progress and understanding how collective actions contribute to broader watershed resilience and Chesapeake Bay health.

Comment: *Melinda Cutler:* Accurately measuring progress toward water quality goals also requires addressing several technical challenges related to assessment methods. For example, CBP is not yet able to fully assess all aspects of the dissolved oxygen criteria, and new assessment methodologies are expected to be developed by 2028. Ongoing work on tools such as the 4D interpolator may help address some of these gaps. In addition, broader technical questions are emerging within groups like Criteria Assessment Protocol (CAP) WG, including determining minimum data requirements and appropriate exceedance frequencies for evaluating criteria. These foundational methodological decisions are critical, as they influence how monitoring data are interpreted and how progress toward water quality standards is ultimately assessed.

- ***Comment:*** *Breck Sullivan:* These points highlight that different goal teams within the partnership are at very different stages of development. Some areas, such as water quality, already have well-established quantitative metrics and assessment frameworks, while others are still working to define how progress should be measured. This underscores the need for flexibility and creativity when evaluating progress across all major goals, rather than applying a single standardized approach. In some cases, even when data already exist, additional technical methods are needed to properly assess and interpret those data so they can be translated into meaningful measures of progress.

Q: *Breck Sullivan:* Where do other groups see a gap that may need support for their measure of progress?

- ***A:*** *Sophie Waterman:* An example from Protected Lands, partners are currently collaborating with data managers across the watershed to improve the attribution and completeness of the protected lands dataset. This effort builds on earlier work supported through an National Fish and Wildlife Foundation (NFWF) data establishment project and is important for understanding how land protection changes over time. At present, the dataset often provides only a snapshot rather than a consistent record of protection trends across multiple years. Another priority is improving attribution related to public access, since the Public Access WG will rely on this dataset to track access outcomes. Addressing these gaps requires coordination across jurisdictions, aligning data standards, managing timelines, and in some cases securing funding to support the work. These steps are necessary to ensure the dataset can support not only basic reporting but also more detailed analyses needed by the workgroup.

    - ***Q:*** *Breck Sullivan:* That's a helpful example and it's also a situation where you're working across jurisdictions. Is the challenge that tracking is done differently across jurisdictions, or is it more about completeness?

    - ***A:*** *Sophie Waterman:* Most jurisdictions generally follow the Protected Areas Database of the U.S. standards, although one or two use slightly different formats. The larger challenge is not format consistency but the completeness of the dataset's attribution fields, which varies significantly across jurisdictions. For example, Pennsylvania has nearly complete information on the dates when protected areas were established, allowing analysts to track how protection has changed over time. However, because other

jurisdictions have less complete establishment-date information, it is currently difficult to conduct comparable trend analyses across the entire Chesapeake Bay watershed.

Comment: *Jeremy Hanson:* An example from Workforce highlights how some goal areas are still in the early stages of development compared to more established efforts like water quality. Rather than refining existing metrics, this group is still building the network itself, receiving technical assistance on how to structure partnerships and determine how progress toward three workforce-related outcomes might be assessed by 2040. The work also involves engaging a new audience focused on workforce and economic development, which differs from the traditional technical stakeholder community. Because these efforts often rely heavily on volunteer participation and limited staff capacity, the absence of dedicated funding, like GIT funding, can pose challenges. As a result, helping these groups build networks and identify practical approaches for tracking progress may need to become a priority if the partnership aims to communicate outcomes effectively across all goals.

Q: *Sophie Waterman:* Could STAR play a role in identifying these gaps and advocating for resources? Even if GIT funding isn't coming back in the same form, could STAR help justify needs by documenting gaps and making the case for investment?

- ***A:*** *Breck Sullivan:* Reflecting on the discussion, it brings to mind STAR's 2021 effort when goal teams were asked to identify their monitoring and analysis needs, and STAR compiled and presented those needs along with recommendations. The goal was not necessarily to rank priorities but to document what support was required across the partnership. A similar approach could be useful again, helping illustrate where different outcomes currently stand, where some already have monitoring data and analytical capacity, while others are just beginning and require additional support. Mapping out and clearly communicating this landscape could help identify gaps and better inform future coordination and resource decisions.

- ***Response:*** *Kaylyn Gootman:* Addressing these challenges may require an "all hands on deck" approach across the partnership. WGs and partners will likely need to contribute time and expertise rather than relying solely on office staff or external funding sources. Expanding participation in developing methods, agreements, and reporting approaches will be important for building the systems needed to track and communicate progress. Since funding may not always be available, this effort will require sustained collaboration, broader engagement, and a long-term commitment from partners across the program.

- ***Response:*** *Chris Guy:* The discussion reinforces that addressing monitoring and data needs is a long-term effort, and one way STAR can contribute is by conducting a data gap analysis. However, the key challenge is prioritization. In the past, when monitoring needs were collected across the partnership, the result was a very large list that was difficult to act on because clear priorities were not established. Mechanisms like GIT funding helped create a structure that forced prioritization and made those discussions more concrete, even if the process was not perfect. Moving forward, a stronger connection between priority-setting and leadership decision-making will be important. The Principals' Staff Committee (PSC) has expressed interest in helping prioritize Bay Program efforts, but historically the process has not always aligned smoothly with their input. STAR may not solve the entire prioritization challenge, but it can play an important role by identifying key data gaps and helping outline a clearer pathway for prioritizing needs so that limited resources can be directed toward the most important efforts across the partnership.

VII. Adjourn **(12:00)**

Next Meeting: *March 26th, 2026, from 10 AM – 12 PM.*

Attendees:

Breck Sullivan (USGS), Allison Welch (CRC), Labeeb Ahmed (USGS), Sophie Waterman (USGS), Jeremy Hanson (CRC), Kaylyn Gootman (EPA), Greg Barranco (EPA), Chris Guy (USFWS), Gabriel Duran (CRC), Peter Tango (USGS), Erin Sonnenburg (CRC), Melinda Cutler (MDE), Katherine Brownson (USFS), Liz Chudoba (Alliance for the Chesapeake Bay), Rebecca Murphy (UMCES), Christina Garvey (CRC), Amanda Shaver (VADEQ), Emily Young (ICPRB), Tyler Trostle (PADEP), Ashley Hullinger (PADEP), Mary Stack (ICPRB), Sidney Anderson (UMCES), Cynthia Johnson (VADEQ), Larry Sanford (UMCES), Keith Bollt (EPA), Bruce Vogt (NOAA), Kaylyn Gootman (EPA), Nick Staten (CRC), Julie Reichert-Nguyen (NOAA), Meg Cole (CRC), Zhaoying Wei (UMCES), Joseph Schell (DNREC), Megan Thynge (EPA), Katie Ayers (EPA), Suzanne Trevena (EPA), William Mann (W&M), Stephanie Nummer (ICPRB), Tou Matthews (SI), Matthew Stover (MDDNR), Emily Heller (EPA).