Chesapeake Bay Program's (CBP)
Scientific and Technical Advisory Committee (STAC)
Quarterly Meeting – June 14-15, 2022
Hybrid Meeting: Lancaster, PA: Cork Factory
Meeting Webpage

Tuesday, June 14th

Attendance: **W** = Webinar
Bill Dennison (UMCES)**,** Ben Hayes (Bucknell), Denice Wardrop (CRC), Chanceé Lundy (Nspiregreen LLC – **W),** Ellen Gilinsky (Gilinsky LLC.), Ellen Kohl (St. Mary's College of Maryland – **W**), Efeturi Oghenekaro (NOAA), Eric Smith (VT – **W**), Erin Letavic (Herbert, Rowland & Grubic, Inc.), Greg Noe (USGS - **W**), Jason Hubbart (VT – **W**), Jeni Keisman (USGS), Jeremy Testa (UMCES - **W**), Kenny Rose (UMCES), Kirk Havens (VIMS), Lara Fowler (PSU), Leon Tillman (USDA-NRCS – **W**), Leonard Shabman (Resources for the Future – **W**), Mark Monaco (NOAA), Mike Runge (USGS – **W**), Scott Knoche (Morgan State – **W**), Shirley Clark (PSU), Shirley Clark (PSU), Tess Thompson (VT – **W),** Weixing Zhu (Binghamton).

Guests: Alex Echols, (The Campbell Foundation), Allyson Gibson (Lancaster Clean Water Partners), Amy Goldfischer (CRC), Amy Handen (EPA), Amy Shober (UD), Beth McGee (CBF), Breck Sullivan (USGS), Brian Campbell (TNC, PA Chapter), Briana Yancy (EPA), Curtis Dell (USDA ARS at PSU), David Maginnes (Maginnes Productions), Fiona Koye (NRCS), Gary Shenk (USGS), Harry Zhang (JHU), Jeremy Hanson (CRC), Jess Blackburn (Alliance), Jim Hershey (No-Till Alliance), John Karl Bohlke (USGS), Karl Blankenship (Bay Journal), Ken Staver (UMD), Kevin Antoszewski (MDA), Kimberly Van Meter (PSU), Kristin Saunders (UMCES), Lew Linker (EPA), Matthew Ehrhart (Stroud Water Research Center), Melissa Fagan (CRC), Mike Twining (Willard Agri-Service), Nathan Lowder (NRCS), Nicole Holmes (UMD), Peter Landschoot (PSU), Rebecca Hanmer (Retired - EPA), Rebecca Lauver (Alliance), Ruth Cassilly (UMD), Scott Philips (USGS), Shannon Sprague (NOAA), Sophie Waterman (CRC), Su Fanok (The Nature Conservancy).

Administration: Denice Wardrop (CRC), Meg Cole (CRC)

Call to Order, STAC Business, Announcements — *Kathy Boomer (STAC Chair – FFAR)*
Kathy Boomer (FFAR) called the meeting to order at 9:00 am. At the start of the Quarterly, Boomer acknowledged and welcomed new STAC At-Large members Celso Ferreira (George Mason), Jeni Keisman (USGS), Catherine Kling (Cornell University), Scott Knoche (Morgan State, PEARL), Ellen Kohl (St. Mary's College), Dave Martin (The Nature Conservancy), and Efeturi Oghenekaro (DOEE), to their first STAC quarterly meeting. To introduce newer members to the Committee, Boomer provided a brief overview of the role of STAC and unique products it produces as well as a report-out on the March meeting. Mentioned highlights from the previous quarterly included: a presentation from Katie Walker (Chesapeake Conservancy) and Peter Claggett (USGS) on high-resolution land use and cover data; the approval of five STAC workshops and one technical review; an overview of proposed changes to Chesapeake Bay Program (CBP) Best Management Practice (BMP) protocols; an update on science needs from the CBP Healthy Watersheds and Aquatic Life Cohorts; a discussion regarding the STAC effort titled, 'Comprehensive Evaluation of System Response' (CESR) and agency requirements for review; and an introduction to triple-loop learning led by STAC member, Mike Runge (USGS). Presentation slides from March are available on the meeting webpage.

Boomer requested a motion to approve the March 2022 quarterly meeting Minutes and the March – June Executive Board (EB) meeting Minutes. The March Minutes were approved with the request to include a section on the FY22 RFP discussion and a minor spelling correction; the EB meeting Minutes documents were approved. There were no items for the Consent Agenda.

Before moving onto the main portion of the meeting, Boomer requested STAC provide a final fatal flaw review of the BMP Protocol revisions. The Committee was asked by the Water Quality Goal Implementation Team (WQGIT) to refine language on 'consensus' and the independent/STAC review of the BMP panel report. Regarding consensus, Denice Wardrop (CRC) wondered how to signal the end of iterations if consensus is not reached - Greg Noe (USGS) suggested to redefine consensus as 'can live with' and Lara Fowler (PSU), drawing on her experience in consensus-based processes, proposed consensus language similar to 'I am not going to stop this' instead and volunteered to gather additional materials on this subject for the WQGIT. The WQGIT utilizes a thumbs up, thumbs sideways, and thumbs down vote - Wardrop stated defining consensus in a way that is familiar to the group would be helpful. Noting it can be difficult to achieve full consensus, Ellen Gilinsky (Gilinsky LLC.) emphasized the need for documentation of dissenting comments and details on how they are addressed.

Considering the independent review process for scientific findings, Weixing Zhu (Binghamton University) suggested the process follow an article review with individuals identified as editor and reviewers. Gilinsky and Erin Letavic (Herbert, Rowland & Grubic, Inc.) cautioned that this could be a heavy lift and speaking as a practitioner, Letavic said that she didn't want STAC to become a bottleneck for progress. Kenny Rose (UMCES) stated the process as written was too convoluted and recommended that STAC write its own text under the philosophy of the National Academy of Science language.

Boomer invited STAC members to share any relevant announcements. The 2021 Chesapeake Bay and Watershed Report Card was released in early-June and now includes economic indicators and Bill Dennison (UMCES) stated the data can be viewed at the county-level. Fowler updated STAC on the Baltic Sea Science Congress 2023 and that it will be held in Helsinki in August 2023. Previously Fowler served on the planning Committee but is stepping down. STAC members interested in joining the conversation between the Chesapeake Bay and the Baltics are encouraged to consider performing in this role. A special session at the 2022 Chesapeake Community Research Symposium focused on leveraging a comparative approach to synthesize information across both systems to inform management and policy developments necessary for conservation and restoration of both coastal ecosystems. Boomer informed STAC of an upcoming RFP to support conservation practices on agricultural lands through the National Fish and Wildlife Foundation (NFWF). Grant funding will provide technical assistance to farmers and ranchers needed to plan and implement a range of critical conservation methods.

Wardrop briefed STAC on the current status of CESR. The CESR Writers' Group plans to deliver the first draft of the report to the steering committee by late June. At the same time, STAC leadership and Staff are working through the requirements of USGS and NOAA review. The Committee should receive a draft by late-August.

Chesapeake Conservation Corps Overview — *Rebecca Lauver (Alliance)*
Rebecca Lauver is the current PA Forest Project Coordinator with the Alliance for the Chesapeake Bay in Lancaster, PA. She started working for the Alliance during a one-year position through Chesapeake Conservation Corps (CCC) and joined the Alliance's forest team as a full-time staff member in August of 2021. Part of her duties include creating tree planting plans, helping lead tree planting maintenance, and coordinating several volunteer opportunities and programs. Reflecting on her experience, Lauver considers her prior connections with CCC and the Stroud Water Research Center an important step in building a personal network while meaningful paid internship experiences with intentional educational opportunities crucial to professional development. Fowler asked if there was anything she would change about her CCC experience and Lauver stated that her year was virtual due to COVID-19 and she would have preferred hands-on, in-person activities such as site visits as well as a more scientific and research-based internship structure.

STAR's Role in the SRS and SSRF Processes — *Breck Sullivan (USGS)*
Breck Sullivan (USGS, STAR Coordinator) gave an overview of the science needs and the Scientific, Technical Assessment & Reporting (STAR) team's role in the Strategy Review System (SRS) and Strategic Science & Research Framework (SSRF). At the end of her talk, Sullivan requested member input on STAC's role and STAC members' roles within the SSRF. SSRF is a process to keep track of each fundamental science needs and is maintained through a database that CBP and outside science providers/partners can view. The framework is repeated every two years, with each outcome going through the structure. Outcomes can update their needs anytime through the SRS. SRS is an adaptive process and requires cohorts and outcomes to assess the progress of their actions in order to quantify any policy, finance, and science gaps that may be in the way of achieving the outcome. Before they are finalized and presented to Management Board (MB), Cohorts present their needs to STAR and STAR helps identify and update the science fields. After the STAR meeting, the science needs are finalized and updated into the science needs database which is publicly available. From here, the science needs are presented to STAC for the Committee to identify any needs that are missing that would prevent them from making progress on the outcome and if there are existing resources that can be utilized to support the science needs.

Sullivan provided examples of partnering with academic institutions and with STAC to support science needs. This has been done through workshops, faculty member research, graduate programs, and internships. Last year, the FY21 STAC workshop titled, *Rising Watershed and Bay Water Temperatures—Ecological Implications and Management Responses*, started from a forest buffers science need and convened a wide range of GITs due to its cross-cutting significance (workshop ~~webpage~~). A STAC-sponsored synthesis led by Jeremy Testa (UMCES, STAC member) is working to produce shallow water oxygen data for the purpose of understanding climate change impacts and a graduate program, UMBC ICARE, is using environmental DNA to track Brook Trout recovery in the tributaries of the Bay to fulfill a brook trout outcome science need. Ways for STAC and individual members can contribute to the SSRF-process listed below:

- **STAC's role** within the SSRF:
    - Provide input on outcome science needs
        - during quarterly meetings: input on science needs, should we be structuring this in a different way?
        - connections to STAC workshop recommendations: are there science needs that could be supported by a workshop?
    - Build capacity to address science needs
        - Use CRC and STAC to spread science needs: share the database with your networks
        - identify existing research and make connections to GIT needs
        - Advocate for research and associated funding to address needs: anything similar to the work Jeremy Testa has been conducting?
- **STAC members'** role within the SSRF:
    - Build capacity: provide input on outcome science needs
        - be a conduit into capacity of your academic institution
        - present appropriate research findings to GITs (you or colleagues)
        - consider new research to address needs
        - have students consider science needs for graduate work

Sullivan shared a Jamboard link for STAC to consider any questions related to the SSRF or SRS processes. To better connect a student's interest with a science need, Dennison said it would be helpful to have a science needs document on hand for student orientation or a PowerPoint to share. Agreeing, Kirk Havens (VIMS) suggested STAC may be able to take it one step further and set-up the project and approach to complete the science need. Fowler works as a research concierge for Penn State and could

share this more broadly with students, colleagues, and faculties if in an easily distributed format such as webinar. To see research-needed in real time, interested parties can be directed to the logic and action plans. Seeing a blind spot in science needs across the GITs, Rose proposed STAC engage sooner to evaluate needs.

On building capacity, Wardrop said a better place for STAC engagement is with a GIT as they are going through the logic and action plan process so that all presented science needs are critical uncertainties. Similar to Rose's point, Wardrop was supportive of STAC helping prioritize the science needs. Kristin Saunders, Chesapeake Bay Cross Program Coordinator (UMCES), recalled that in the original discussions with STAC and STAR about the SSRF and SRS, STAC was clear in that prioritization should not be carried out in the traditional sense and the high-medium-low priority designation done by each individual goal team was derived from this recommendation; Scott Philips (USGS) commented the science needs are prioritized by the GITs but many are listed as high priority. To remedy this, Boomer suggested a STAC member take on the role of consolidating and refining the science needs and consider critical uncertainty and what is missing from the decision context. Having a STAC member walk through the original listing of the plan and the expected response would be helpful as the single, double, triple loop learning is the identification of science needs Wardrop stated; Sullivan said she would be happy to work with a member to start this STAC engagement.

High Priority Science Needs of the Chesapeake Bay Program: Stewardship Outcome —
Breck Sullivan (USGS), Outcome Leads
The Stewardship Outcome includes the public access, diversity, and stewardship goals. The Cohort identifies factors influencing science during the Strategy Review System and updates their science needs as part of the Strategic Science and Research Framework. The CBP Science Needs Database can be found here and details on each outcome are listed and linked here.

- **Diversity Workgroup: STAC Science Needs** – *Briana Yancy (EPA)*

Briana Yancy (EPA, Diversity Workgroup Coordinator) presented on the Diversity outcome and afterwards, opened the floor for discussion. Dennison mentioned income inequality is an indicator UMCES has included in this year's report card. On health and climate issues, Fowler said that there is a growing call at the National Institutes of Health (NIEHS) for more research in this space with an eye to economic inequality and provided a link to a NIEHS webinar from Nov 2021 accessed here. The entity is proposing $100 million in this space to think about health and the environment, climate and inequity. Dennison asked about the community's access to resources; Shirley Clark (PSU) cited researchers replotting the American Community Survey (ACS) data at zip code level and that it could be a future investment. In reference to the presented Diversity Outcome, Clark and Wardrop both requested more information to better define the second presented need: 'develop a better understanding of effects from external factors such as climate change, public health, and economic inequity.'

- **Stewardship Outcome: STAC Science Needs** – *Amy Handen (EPA)*

Amy Handen (EPA) reported on the primary high priority need of the Stewardship outcome: analyze new data collected with the 2022 stewardship survey, compare 2022 data to 2017 data to 2022 data, and determine how to display that comparison on the Chesapeake Behavior Change website. The survey and website were created to establish a baseline and means to measure progress on individual stewardship behaviors. This is the first year that there will be new data to compare and display that progress. Wardrop asked if there was a way to assess if the website was being used; Handen stated the audience for the website is not the general public but more a niche group of behavior change practitioners and local governments and watershed groups. The Stewardship GIT will be working with the Bay Program web team to inquire about website analytics in the near future.

Relating Science Needs to Single, Double, Triple Loop Learning Discussion — *Mike Runge (USGS), Kathy Boomer (FFAR), Denice Wardrop (CRC)*
Mike Runge (USGS) led a conversation on relating the presented science needs with the ongoing single, double, trip loop learning discussion. In relation to the factors affecting the ability to reach an outcome, Havens suggested an analysis of whether the identified factors are the correct factors or in some cases, it is a type of factor that can't be addressed. Larry Sanford (UMCES) said that overall, STAC is concerned about asking the 'right question' and argued the committee might be engaged at the wrong part as STAC hears from the GITs after they have identified their science needs. STAC could hold a more effective role if members with the GITs while they are preparing their logic and action plan for the next two years, Sullivan replied. Mike posed questions that STAC can ask about underlying assumptions such as 'what are the models using? What are the embedded assumptions in models? Are they right or have we failed to consider uncertainties?'

Wardrop debated whether STAC is responsive enough to tackle single-loop needs as it isn't the timeline the Committee operates on; for example, tool development is likely not appropriate for STAC. Some science needs may require a tool to track, collect, or analyze data, Runge noted. Tess Thompson (VT) liked the idea of breaking needs into tools, resources, and research (knowledge) and that STAC can help provide the knowledge gaps. Saunders mentioned that GITs are operating at very different points along a spectrum and some are focused on a single-loop need and others are farther along in understanding the system. Single-loop needs might initially look like a technical ask but there may be looped questions STAC can consider to learn as the task is performed – Mark Monaco (NOAA); Runge wondered if this could be done actively to accelerate learning while in the process and achieve outcomes faster. Boomer suggested STAC help facilitate the hypothesis behind collecting this data.

PA in the Balance: Focus on Lancaster — *Allyson Gibson (Lancaster Clean Water Partners)*
Allyson Gibson, Director of Strategic Partnerships and Programs for Lancaster Clean Water Partners (LCWP), provided an introduction to Lancaster and its importance to soil health. Lancaster County is the most productive non-irrigated farming county in the United States with about 5,100 farms. The county's Agricultural Preservation Board and Lancaster Farmland Trust have 113,000 acres of farmland preserved. Nearly 80% of preserved farm owners that work with the Farmland Trust are Plain Sect Amish or Mennonite farmers.

LCWP is a collaborative group of partner organizations (nonprofits, academia, local and federal government, and business leaders) working towards a goal of 'clean and clear' water in Lancaster County by 2040. More than half of Lancaster County's 1,400 miles of streams are impaired and have the highest amount of nitrogen, phosphorus, and sediment in monitored areas of the Chesapeake Bay Watershed. With a mixture of rural, suburban, and city landscapes, the sources are diverse and deeply tied to land use, both current day and historical. Among other priority actions, LCWP is achieving clean and clear streams by the scaled use of sustainable, proven and promising practices (BMPs) at adequate levels for rapid success with the Lancaster Countywide Action Plan (CAP).

Alex Echols (Campbell Foundation) asked Gibson to compare the development and implementation of CAP in Lancaster versus other counties, and what STAC could do to help with CAP progress. The CAP development process was a grassroots effort, which included 'as many voices as possible' Gibson said. Although since it was during harvest season, there were not as many agricultural voices as the organization would have liked. After writing the CAP, there has been some language change in response to feedback received from users as it pertains to implementation on the ground. Letavic, a consultant for a number of PA counties, added that about 30 counties started implementing their CAPs this year and are still working through growing pains with new protocols, additional staffing, and fundraising needs. Saunders asked if LCWP ever purchases long-term conservation easements on farm buffer

contracts to maintain the conservation/restoration investment indefinitely - Gibson recommended that Saunders speak with the Lancaster Conservancy and/or Lancaster Farmland Trust as they would be the leading experts on easement details.

Group Field trip (Optional)
To close out the first day, there was an optional field trip to visit sites where soil health is the focus. Transportation was provided to **Bottom Line Ag Supply LLC** and **Cedar Meadow Farm**. Along with Gibson, Lamonte Garber (Watershed Restoration Coordinator, Stroud Water Research Center) and Shelly Dehoff (PA Agricultural Ombudsman, Eastern PA) helped facilitate the volunteer field trips. Katie Walker, Geospatial Program Manager at the Chesapeake Conservancy, provided detailed maps of the field trip locations. STAC members were able to review the aerial maps in between field trip locations, which utilized the Conservancy's new land use data set.

At Bottom Line Ag Supply, STAC members met with two Amish farmers to discuss their belief in soil health practices and their understanding and experimentation with a horse drawn manure injection unit, a new innovative technology. Both farmers had experience with custom haulers and the injection equipment. STAC visited Cedar Meadow Farm after, meeting with Steve Groff, the owner of the farm. Groff is a 'soil health entrepreneur' and runs a regenerative farming operation. On his farm, Groff believes soil is meant to be covered, planning and understanding are essential to farm success, and cover crops should be treated like cash crops. More information on Cedar Meadow Farm is available on their website.

Wednesday, June 15th:

Soil Health 101 and Its Relevance to CBP/STAC — *Kathy Boomer (STAC Chair – FFAR)*
Boomer began Day 2 with an overview of the meeting theme and a discussion of the relevance of soil health to STAC and the greater Bay Program. The entire second day was devoted to questions around soil health and how they may fit into the single, double, triple loop learning framework STAC has engaged in during the past two quarterly meetings. Planned objectives were the following:

- Explore uncertainties that challenge soil health management and associated priority research areas likely strategic for bringing federal funds to the Bay watershed (e.g., federal commitment to Climate Smart Ag and Development) (Single-Loop Learning Opportunity)
- Explore healthy agriculture through soil health as an essential component of CBP Framework for securing "an environmentally and economically sustainable Chesapeake Bay watershed with clean water, abundant life, conserved lands and access to the water, a vibrant cultural heritage and a diversity of engaged citizens and stakeholders." (Chesapeake Bay Agreement 2014) (Triple-, Double-Loop Learning Opportunity)

Before moving to the main portion of the meeting, Boomer shared a video contribution by Dr. Rattan Lal (OSU), a 2020 awardee of the World Food Prize and often referred to as the 'father of soil health'. Lal was a guest speaker at a FY19 STAC workshop entitled, 'Linking Soil and Watershed Health to In-Field and Edge-of-Field Water Management' (workshop webpage). Following this pre-recorded video, Boomer moved to introduce the first panel of invited speakers.

***Panel*: Stakeholder Perspectives Related to Soil Health**
— Matthew Ehrhart (Stroud Water Research Center) Alex Echols (The Campbell Foundation) Jim Hershey (No-Till Alliance), Brian Campbell (TNC, PA Chapter) Mike Twining (Willard Agri-Service)
The first panel focused on broad perspectives related to soil health, with a group of invited experts who frequently work with stakeholders (farmers/growers) on the ground. Panelists were requested to highlight on the role of soil health in advancing toward the collective goal of watershed management and restoration. Each speaker was allotted 5-10 minutes. A recording of this panel can be found on the STAC June 2022 meeting webpage accessed here.

During the Q&A portion, Dennison (UMCES) stated that Maryland has over 1 million acres of turf lawn and wondered how soil health could be translated to residential/professional lawn care. Professional lawn care businesses will say they are regulated the same if not more so than farmers are though there is no control on homeowner actions, Jim Hershey (Grower with the PA No-Till Alliance Board of Directors) responded. There have been reports of 300 pounds+ of nitrogen being applied per acre on residential lawns and Hershey suggested additional work be done as part of residential nutrient management. Alex Echols (Program Director-Agriculture with The Campbell Foundation) repeated the rigorous training professional associations must complete. Matthew Ehrhart, Director of Watershed Restoration with Stroud Water Research Center, responded that if the goal is to maintain two inches of Kentucky bluegrass, then management is limited. Brian Campbell (TNC, PA Chapter) echoed the previous replies and noted that lawns can be a key opportunity for soil health outreach because homeowners have more dollars per acre to apply to their lawn than farmers do for cropland. Mark Twining (Willard Agri-Service) agreed with the group and challenged state agencies that manage public roadways to diversify the thousands of acres of lawn near waterways into pollinator habitat instead of over-mowed and over-fertilized lawn. Homeowner associations may need to be brought into the conversation as they often require recreational mowing to take place at certain heights Havens said.

Wardrop expressed there has not been much alignment with farmers and the indicators of soil health related to crop productivity and reflecting on the Chesapeake Bay goals, Wardrop was wary of a top-down approach as 'agriculture is a culture' and if it makes sense, farmers will likely enact these practices on their own (e.g. no-till, cover crops). The realization of soil health and its impact on productivity is a relatively new concept and one that cannot be purchased or easily measured, Hershey pointed out. Ehrhart agreed, suggesting there are disconnects between managing soil health and maximizing short-term model nitrogen reductions and that both may not be synchronous. The increased interest within the PA agricultural community in cover crops without a subsidy is notable as it is more a thoughtful ecological practice that likely would not make a difference within the Bay model. This discussion would benefit from a social scientist that could examine the human decision-making processes - Echols. Campbell cited that soil health is a long-term benefit but much of the research conducted about farmer practices revolves around short-term benefits as farming is often done on rented land. Incorporating language on outcome-based farming that is desirable is important as up to this point, the highlighted outcome has been to provide safe, low-cost food supply Twining explained. Providing funding opportunities to enable growers to make an economic and ecological decision is necessary as a commodity-producing business should not be expected to bear the cost and the risk associated with unproven technologies or practices.

Panel: Science Perspectives on the Opportunities, Challenges and Uncertainties to Advancing Soil Health

— Nathan Lowder (NRCS Regional Soil Health Specialist) Curtis Dell (USDA ARS at PSU) Ken Staver (UMD) Amy Shober (UD) Peter Landschoot (PSU)

The second panel concentrated on the science of soil health, with five invited panelists: Nathan Lowder, North Carolina grower and Regional Soil Health Specialist (NRCS); Curtis Dell, Soil Scientist USDA-ARS-Pasture Systems Watershed Management Research Unit at PSU; Ken Staver, Research Scientist at the Wye Research Center (UMD); Amy Shober, Professor and Extension Specialist in Nutrient Management (U Del); and Peter Landshoot, Professor of Turfgrass Science (PSU).

Boomer began the Q&A session with a question to the panel on whether there is a need to elevate soil health within the Bay Program not from a biophysical standpoint but from a stakeholder engagement perspective. Shober considered it beneficial to elevate soil within the CBP as it is a popular and accepted topic currently and in general, good soil health practices are good conservation practices if conducted in

a way to minimize trade-offs. Referencing NRCS' practice to work with producers voluntarily in all programs and planning efforts, Lowder believed a well-organized outreach program that was not mandatory would be most successful. Agreeing with Shober, Dell commented that soil health should be encouraged given its overall conservation benefits but not necessarily targeted only to soil health. Staver proposed a matrix be established to provide a full understanding of the tradeoffs and potential issues associated with these suggested practices such as nitrogen availability in the system, phosphorus losses, long-term versus short-term, etc. Landschoot advocated for more education and certification programs concentrated on the fundamental aspects of soils similar to the outreach on pesticides.

Group Discussion

STAC and meeting participants moved from the panels into an open group discussion with invited panelists joining in the conversation. Considering a Chesapeake Bay Program goal, Sanford commented soil health processes will require a longer timeline whereas the program is currently facing a 2025 deadline; Sanford asked panelists what a typical timescale for adoption and effectiveness development and when major water quality benefits would be achieved from the adoption of these practices.

STAC functions best when it is working towards a product and from the panel conversations, there are obstacles in the way to achieving a soil health goal, Wardrop observed. STAC could contribute to a full review matrix for management action tradeoffs or a certificate program for education regarding implementation as mentioned earlier. Gilinsky emphasized that soil health is difficult to measure but until it can be quantified, a targeted soil health goal cannot be established, and this is likely a research need. In addition, Gilinsky worried that by assigning a numerical goal, soil health would not be properly encouraged. Instead, she suggested soil health be examined from a climate change standpoint and called out explicitly within the CBP climate goals. Clark agreed and added that by building soil health into the climate goals, the program can begin to examine how to translate it to the urban environment (e.g. urban nutrient movement from lawns, urban compaction issues with flooding, turfgrass percentage). A future task for the program to lead in is pulling together the research on nutrient movement by setting up a future panel, review, or workshop. A workshop evaluating 1) how soil health metrics relate to management and co-benefits, and 2) how to predict the development of the desired performance from improved soil health, could fill science gaps Ehrhart stated.

To this point, Saunders said that as the Principal Staff Committee and Management Board hone their implementation plan for the climate directive, there is an opportunity to elevate soil health as something the federal agencies and state signatories can work together on as a climate adaptation and resilience action. Adrienne Kotula, Virginia Director at the Chesapeake Bay Commission, agreed. Sullivan wondered if there was a path to incorporate the agriculture workgroup as a joint effort between WQGIT and Climate Workgroup instead of solely placing it into the Climate outcomes. Overall, Hershey supported more education and more research.

Wrap Up

As a whole, STAC concluded the program is not ready to elevate soil health as a goal but in the future, could revisit this topic. In the short-term, there is an opportunity to discuss soil health in terms of promoting climate resiliency while working in collaboration with workgroups such as the WQGIT and Climate Workgroup to align efforts and engage stakeholders.

The STAC September quarterly meeting will take place on Tuesday and Wednesday, September 13th and 14th at the Vandiver Inn in Havre de Grace. The meeting theme is wetlands restoration, with a special emphasis on the recent CBP Wetland Outcome Attainability Workshop that convened on August 2nd and 3rd.