Chesapeake Bay Program's (CBP)
Scientific and Technical Advisory Committee (STAC)
September 2025 Workshop Meeting Minutes
September 16, 2025; hybrid format
Chesapeake Bay Program Office, Annapolis, MD
Meeting Webpage

Attendance:
W = webinar – W
Members: Matt Baker (UMBC – W), Kathy Boomer (FFAR), Charles Bott (HRSD – W), John Bovay (VT – W), Chris Brosch (DE DA – W), Tony Buda (USDA-ARS – W), Shirley Clark (PSU – W), Bill Dennison (UMCES), KC Filippino (HRPDC – W), Carl Friedrichs (VIMS – W), Ben Hayes (Bucknell University – W), Jeni Keisman (USGS), Christine Kirchhoff (PSU – W), Scott Knoche (Morgan State, PEARL), Ellen Kohl (UMBC – W), Yusuke Kuwayama (UMBC – W), Erin Letavic (Herbert, Rowland, & Grubic, Inc. [HRG]), Dave Martin (TNC – W), Mark Monaco (NOAA-NCCOS), Greg Noe (USGS – W), Efeturi Oghenekaro (DOEE), Kevin Orner (WVU – W), Leah Palm-Forster (UD – W), Joey Reustle (Hampton University – W), Larry Sanford (UMCES), Tess Thompson (VT – W), Joe Wood (CBF – W), Weixing Zhu (Binghamton University – W)

Guests: Doug Bell (EPA – W), Patrick Bitterman (Kent State University – W), Melissa Fagan (CRC), Rachel Felver (Alliance for the Chesapeake Bay), Marjy Friedrichs (VIMS – W), Stanley Grant (VT – W), Dan Goetz (MD DNR – W), Kaylyn Gootman (EPA – W), Jeremy Hanson (CRC), Craig Highfield (Alliance for the Chesapeake Bay – W), Sujay Kaushal (UMD – W), Molly Mitchell (WVU – W), Christy Prouty (Mississippi DEQ), Nick Staten (CRC – W), Kathy Stecker (MDE – W), Breck Sullivan (USGS), Madeline Youngs (UMD), Qian Zhang (UMCES)

Administration: Meg Cole (CRC), Tou Matthews (CRC)

Call to Order, STAC Business
STAC Chair Larry Sanford (UMCES) called the meeting to start at 10:30AM with a round of introductions. The June 2025 STAC Meeting Minutes and July and August Executive Board Meeting Minutes were approved without comment. STAC Staff gave a brief overview of proposed revisions to the STAC Bylaws (update of meeting structure description, addition of temporary leave of absence policy) and STAC Operational Guidelines (update of STAC liaison description), which were unchanged from the review at the June Meeting; the committee had no comments on the proposed revisions.

DECISION: June 2025 Meeting Minutes approved; July 2025 Executive Board Meeting Minutes and August 2025 Executive Board Meeting Minutes approved.

Membership Update

Kevin Orner (WVU) was officially appointed as the STAC West Virginia Gubernatorial Appointee. The membership term for Kathy Boomer (FFAR) and Tess Thompson (VT) ends September 2025. At the end of the meeting, STAC Chairship rotated, with Sanford becoming Past Chair and Bill Dennison (UMCES) becoming Chair. STAC leadership nominated Erin Letavic (HRG) for Vice Chair and Letavic accepted nomination. A motion to approve Letavic's nomination as Vice Chair was seconded and received no opposition.

DECISION: Erin Letavic (HRG) nomination to Vice Chair approved.

Budget Update

Melissa Fagan (CRC) provided an update on the STAC budget status. The committee is funded by an EPA grant allocated through the Bay Program. Funds for FY25 have been delayed and now requires additional review; STAC has been operating on surplus funds since June 1st, 2025. To extend available resources while waiting on the funding package, STAC Staff has placed a pause on activities which would incur costs. The STAC Synthesis project has been paused until further notice and FY25 workshops will continue planning but STAC Staff will not secure contracts for venue until funding resumes.

Upcoming Meeting Dates

At the June 2025 Meeting, the committee approved a restructure of STAC meetings. The dates for the November 2025 Meeting and the June 2026 Meeting were selected through an online poll. STAC Staff proposed the dates below for upcoming STAC meetings:

- Nov 18, 2025 Topical Meeting
- Feb 10, 2026 Topical Meeting
- Apr 7, 2026 Topical Meeting
- June 15-17, 2026 Strategic Planning Retreat
- Sept 15, 2026 Workshop Meeting
- Nov 10, 2026 Topical Meeting

The committee provided no comment on proposed dates.

At the June 2025 Meeting, STAC discussed priorities for the upcoming topical meetings and decided upon three themes: 1) decision-making and how it affects governance, 2) co-production of knowledge, and 3) holistic review of the Outcomes. STAC matched topics to meetings through a virtual vote following the meeting.

STAC Letter to the Executive Council

Sanford introduced the annual letter to the Executive Council (EC) with a description of the EC meeting, which next meets December 2nd, 2025. The EC of the Bay Program consists of governors of each state, a representative from DC, and the director of the Chesapeake Bay

Commission (CBC). It is a public political expression of the commitment of the partners to the partnership. The beginning of the meeting is a private session with the governors, representatives, and Advisory Committee chairs; during this session, the Advisory Committee chairs can provide direct comments and feedback to the highest level of the Bay Program. The meeting is preceded by a letter from each of the Advisory Committees.

Dennison talked about the previous STAC Letters the EC. STAC historically raised topics such as consideration of changing environmental changes and incorporating adaptive management at times the Bay Program was not receptive and pushed the issues until they were embraced. The STAC 2023 Letter to the EC and the STAC 2024 Letter to the EC both pushed the Bay Program to better practice adaptive management and engage with a broad range of stakeholders. While the 2023 letter received a pro forma response from the Bay Program, the 2024 letter received a thoughtful response from Josh Kurtz (MD DNR), chair of the Principals' Staff Committee. In the 2024 letter, STAC collaborated with the Local Government Advisory Committee (LGAC) and Stakeholders' Advisory Committee (Stakeholders' AC) to present the same message to the EC from their respective perspectives. For the 2025 letter, STAC will want to maintain the continuity of its message pushing for progress while also bringing fresh points that resonate with the uncertainty of present times and will again coordinate with the other Advisory Committees to present a joint message.

Discussion:

- Dennison: The letter should demonstrate the value of STAC in terms of dollars and experience and emphasize what STAC has done over the past years. There is a dichotomy between getting things done and doing things right; Bay Program must meet timelines, while STAC can have a role in helping ensure it is done right.
    - Christy Prouty (Mississippi DEQ): A collaborative phrasing might be "the right thing, the right way."
    - Sanford: The STAC Value Statement can inform the Letter to the EC. If each of the advisory committees does something similar, it'll be a powerful statement about the value of the advisory committees in general.
- Dennison: The letters involve a little bragging before recommendations. One of the things I wanted to highlight is how STAC has restructured the way it works with meetings and workgroups. The other Advisory Committees and the Bay Program could try to emulate the model to be more effective.
    - Weixing Zhu (Binghamton University) [chat]: Beyond 2025 is the most important document now. Highlighting what STAC has been contributing is critical.
- Boomer: It is relevant to frame the work we do in a way that highlights how we're serving and helping empower success on the ground.

STAC Workgroups Updates

Social Science Workgroup

The Social Science Workgroup (SSWG) update was provided by the workgroup co-chairs, Ellen Kohl (UMBC) and Christine Kirchhoff (PSU). The workgroup has three major focuses: 1) reflecting on and improving the Perceptions of Knowledges activity, 2) thinking about how social sciences and other forms of knowledge can and should be integrated in the scientific decision-making process of the Bay Program, and 3) brainstorming other directions for the SSWG to go.

The goal of the Perceptions of Knowledges activity that STAC participated in at the June meeting was to prompt the committee to think more broadly about what knowledge is and the role of different forms of knowledge that can and should be within STAC. This activity and subsequent discussions will prepare STAC for moving into conversations about engaging with and integrating forms of Indigenous knowledge. The SSWG is working on modifying and improving the knowledges training activity and proposes repeating the activity with Bay Program groups such as the Scientific, Technical Assessment and Reporting (STAR) team and the Strategic Engagement Team (SET). The SSWG requested feedback from STAC on the Knowledges Activity.

The SSWG has also begun to examine programs similar to the Bay Program (e.g., Puget Sound partnership, San Francisco Estuary partnership). The workgroup seeks to understand how other organizations intentionally integrated social sciences into their programs and to learn best practices for continual consideration of social sciences. The SSWG has proposed modifying the topic to "integration of social science in other programs" (originally co-production of knowledge) and matching this topic to the February 2026 Meeting. The structure of the meeting would likely follow:

- Panel 1: examples of programs that integrated social sciences into their scientific decision-making mechanisms
- Panel 2: aspirational panel - programs that coproduced knowledge from project's inception
- Reflective activity

Discussion:

- Boomer: This kind of research is a different approach that does not often resonate with potential funders and conventional reviewers. These discussions to think about how to shift our mindset and value alternative approaches to research will be helpful to those doing the research and for supporting funding for the research.
- Jeni Keisman (USGS): I am always rushing to develop a tool to inform decision or action. While I've found it very effective to pause and reflect, I struggle to do so. We have to retrain our minds to recognize the value of co-production outside of creating a tool.

    - Kirchhoff: The panelists from sister programs might be able to provide examples of how co-production worked in other spaces and what was produced. The ideas would be more approachable and less abstract, STAC can think about how to apply examples to the Bay Program.
- Breck Sullivan (USGS): In the past, the Bay Program funded a contractor to present opportunities for integrating social science but that work did not provide tangible steps for which our complex partnership could actually implement the integration. It would be very helpful for STAC to turn the examples from other programs into tangible actions for the Bay Program.
- Boomer: Suggest including our tribal colleagues.
- Sanford: The Bay Program is good at producing technical tools but those technical tools alone have not allowed us to reach our goals. The people and social institutions need to be much more involved in order to actually achieve progress. Behavior modification is the wrong approach, we need to listen to people and ask what they want out of the program. It will be a fundamental shift to embrace and practice co-production.
- Yusuke Kuwayama (UMBC) [chat]: In the September 2023 STAC meeting, we had a session titled "Provocateur Panel: Exploring the Successes and Challenges of Water Resource Management Programs that Compare in Scale to the Chesapeake Bay Program." It wasn't related to co-production of knowledge but it was similar to what is being proposed here in that the panelists described their experience leading large water resource management programs (Great Lakes Restoration Initiative, MS Basin, Platte River Recovery Implementation Program, SGMA). I remember that STAC thought the session was very insightful and I would expect that a similar session about co-production of knowledge would be as if not more rewarding.

Inform Governance and Accountability Workgroup

The Inform Governance and Accountability Workgroup update was provided by Erin Letavic (HRG). The purpose of the workgroup is to combine STAC expertise to inform the Governance and Accountability Team (GAT), which is a small group charged with developing recommendations on governance and accountability for the Bay Program partnership; the team includes a representative from each jurisdiction, federal agency, and advisory committee. The GAT has collaborated to organize governance and accountability resources as well as public feedback for the Bay Program into six themes: 1) priority setting, decision making, and resources; 2) role definition and logistics; 3) complexity, structure, disconnect to local communities; 4) transparency; 5) accountability and adaptive management; and 6) communication. The GAT will prepare a one-pager defining each theme and proposing recommendations for Bay Program governance.

In addition to providing input to the GAT, the STAC workgroup has been analyzing the existing Bay Program structure to identify key disconnects impeding adaptive management and seeks to

provide input on decision-making alternatives at various levels of the Bay Program. The workgroup has drafted a logic model of the Bay Program to identify existing accountability feedback loops and highlight where feedback loops are missing. STAC will request the logic model to be included in the Fall 2025 Management Board retreat materials for discussion on ways that the Bay Program's governance, accountability, and structure can be updated, as well as recommend a decision-making framework to consider.

Discussion:

- Sanford: The Bay Program originally wanted revisions to the governance and accountability decided before the 2025 EC Meeting on December 2nd. If this effort is rushed, it will not be done right. Hopefully the Bay Program will decide that this needs more time to be done right and our contribution to the discussion will make an impact.
- Keisman: STAC can consider if insights about co-produced knowledge gained at the proposed February meeting can feed into the third GAT recommendation theme of *disconnect to local communities*.
    - Boomer: There is a tension between the time it takes to develop solutions collaboratively and to take action. "Be careful of planting process instead of corn."

Phase 7 Model Review Workgroup

The Phase 7 Model Review Workgroup update was provided by Larry Sanford (UMCES). The Bay Program's estuary and watershed model are being revised and are predicted to be complete by the end of 2026. This will be Phase 7 of the suite of models and has been tasked with facilitating peer-review of the new models. The review teams can include STAC members and experts external to the Bay Program and the Chesapeake Bay watershed region; the review should be completed within a year so that Phase 7 models can be used to forecast the effects of best management practices (BMPs) and the impacts of changing environmental conditions. In previous phases, the Bay Program tends to push off considering non-fatal error to the next revision, so any issues found in the Phase 7 model might not be addressed until 2033. The workgroup will interact with the program modelers before being given the charge for the review so the right things are in the charge.

Discussion:

- Keisman: Having been involved in the process before and knowing the time pressures the Bay Program is under, it is going to be a continuing challenge to have an influence on the Phase 7 models.
- Sanford: In a previous model, an external peer review panel identified a fatal issue was post facto. While there was resistance to changes, the issue was resolved and the model functioning was greatly improved. Our role is to identify any major disconnects and aspects that can be improved in future iterations.

- Boomer: A fatal flaw from a different perspective would be devaluation of the model from an administrator's perspective. We need to consider who and what decisions the model is informing. Not only whether the model is technically sound from a scientific basis, but also if the data are useful, credible, and relevant to the decisions being made.
    - Sanford: A phase of the model is a brand new tool that is set for the duration of the phase. The version of the model is when inputs are changed, such as an update to the data that drives the model.
    - Boomer: Both are really important.
- Sullivan: The Watershed Agreement could potentially require using the new model to revise planning targets by December 2030. This would create a timeline for the model to be completed.

CESR Impact Assessment and Application Workgroup

Due to delay caused by technical difficulties, the CESR Impact Assessment and Application Workgroup was unable to provide an update during the meeting.

Living Resources Assessment Update

Kaylyn Gootman (EPA) provided an update on the Living Resources Assessment effort, which is the first step in the Tiered Implementation of the Bay TMDL recommendation that came out of the Comprehensive Evaluation of System Response (CESR) report. The team is conducting a habitat suitability analysis of the 92 segments of the Bay that will inform an assessment of living resource habitat improvement as well as assist in setting interim targets with a dual focus of deep water deep channel while considering shallows. The outcomes of the work will focus on what is able to be implemented and feasible for the Bay Program and the partnership. During the Living Resources Charrette in May 2025, they discussed how to approach linking responses of living resources, structural habitat, and water quality. The team is currently compiling fish data to link with habitat and water quality data in a model to be presented to the Bay Program in 2026.

Discussion:

- Boomer: Are you making the assumption that we don't have any influence on salinity and temperature, so we're remaining focused on water nutrients.
    - Gootman: That's what we're remaining focused on in the partnership. We are looking at the limits in nitrogen, phosphorus, and sediment and how it ties to dissolved oxygen, living resources, and habitat spaces.
    - Boomer: I am uncomfortable with that assumption. The folks working at the triblet scale are finding that watershed condition data centers are having a big influence on the timing, frequency, magnitude, and duration of freshness, salinity gradients, and temperature. As we're doing the modeling review, this is something we need to pay attention to. There are huge risks with this modeling

framework that can lead to bad decisions and losing credibility with stakeholders on the ground who are seeing changes on the land and in the waters they work.

- Mary Friedrichs (VIMS): What we're doing is developing a habitat suitability model and the primary habitat variable which fish depend on is temperature, so that will be in the model. We plan to do experiments with the TMDLs at various levels of achievement and there is little difference in temperature in the various scenarios we have planned. We can certainly add another scenario that changes the temperature in a triblet to see what happens.
- Gootman: My perspective is looking at what the Bay Program has the ability to influence and control. Much of our focus is built into reducing nutrient loads for the sake of those habitat spaces in our tidal water. Ultimately, the models will be used to inform our planning target development and the next phase of watershed implementation plans.
- Dennison: A previous STAC workshop focused on rising temperature and an upcoming workshop focuses on salinization, both of which will result in recommendations for actions to ameliorate those climate-related efforts. You can run different scenarios with how much intervention we could hope to achieve. Or potentially consider larger chunks.
- Mark Monaco (NOAA): We are going to be using the Phase 6 model which includes temperature and salinity variables within the habitat data. The potential limiting factor is having enough bandwidth to run so many scenarios.
- Gootman: This is the best opportunity to tie in living resources and other considerations to water quality for the sake of planning targets in watershed implementation plans. It will not be perfect but it will be a great step forward. Our current charge is to look at the 92 segments and we might adjust the spatial scales and other factors in the future.

FY24 Workshop Report-Outs

Striped Bass Survey Assessment and Habitat Connections

The STAC workshop titled "Striped Bass Survey Assessment and Habitat Connections" convened February 13th and 14th, 2025, in Edgewater, Maryland. Due to delay caused by technical difficulties, a report-out for this workshop was unable to be provided.

Leveraging Artificial Intelligence and Machine Learning to Advance Chesapeake Bay Research and Management: A review of status, challenges, and opportunities

The STAC workshop titled "Leveraging Artificial Intelligence and Machine Learning to Advance Chesapeake Bay Research and Management: A review of status, challenges, and opportunities" convened February 24th and 25th, 2025, in Edgewater, Maryland. The report-out was provided by the workshop chair, Qian Zhang (UMCES). The workshop had more than 50 participants to discuss the use of artificial intelligence (AI) and machine learning (ML) tools in Chesapeake Bay restoration and research. Key objectives of the workshop were to assess the current status of

the application of AI and ML tools for the watershed and the estuary, identify challenges and gaps in applying AI and ML tools, and develop recommendations to leverage opportunities for AI and ML tools to address Chesapeake Bay questions. Presentations, lightning talks, and breakout sessions resulted in four major recommendations: 1) strengthen data infrastructure and integration for AI and ML applications, 2) leverage AI and ML for restoration of Chesapeake Bay tidal and non-tidal regions restoration and decision support, 3) promote transparency and engage managers and stakeholders, and 4) build collaboration and capacity.

Discussion:

- Keisman: What conversations were had around explainable AI in the causal inference space?
    - Zhang: It was touched upon but there was not much time in the workshop to dive deeper. That's definitely something we need to think more about, as well as explore blending physics and machine learning so they can inform each other.
- Boomer: In the agricultural field, there is a lot of interest in using AI technology to figure out better ways of carbon sequestration and reducing greenhouse gas emissions. There's a small community of folks concerned about the potential trap AI is creating with the mindset of collecting more and better data instead of testing or evaluating the structural models and considering the underlying data we're choosing to put into the model. It seems like one of the most exciting but least discussed opportunities is to use AI to confront multiple models at the same time rather than trying to come up with the best calibration.
    - Zhang: That seems tied to workflow. We talked about how to continue this conversation and bring people together to try to standardize how we do things. Everyone has their own tools and different understanding of their tools. The more we talk to each other and understand each other's tools and approaches, the better.
    - Boomer: Everyone is a modeler with their own idea of how the system behaves and responds to management actions. We're not capturing those alternative models which is important in aligning perspectives. It seems like AI could be a way to bring capacity to capturing those different alternative models.
        - Keisman: As an example, a design thinking workshop could have everyone illustrate their conceptual model of the system and AI used to blend the different understandings.
        - Prouty: This is similar to community-based complex systems modeling, which establishes a community consensus on the structure, the parameters, and how decisions are based on the parameters.
- Dennison: The use of AI tools starts to blur the boundary between measured versus modeled results so we have to be clear when outside the academic community.

- Keisman: The ChesBRAIN idea can be a place where we investigate and challenge the explainable AI frontier. It can be very powerful but we have to be very careful because if it's not constructed correctly, it can bring you to all sorts of wrong conclusions that look right.
    - Dennison: The good thing is that we have such a robust data set. AI falls apart when there is not enough data.
    - Zhang: This community has good data to begin with and research to provide validation for the AI results. ChesBRAIN would be a good starting point and hopefully the work will broaden with collaboration with different partners.
- Sanford: There was a discussion at the end of the workshop about using AI to simplify retrieving information from the entire Chesapeake Bay watershed database, which would go a long way towards increasing transparency.

Blueprint for Building Partnerships and Recommendations for Scaling Brook Trout Restoration in Stronghold and Persistent Patches

The STAC workshop titled "Blueprint for Building Partnerships and Recommendations for Scaling Brook Trout Restoration in Stronghold and Persistent Patches" convened May 29th, 2025, in DuBois, Pennsylvania and June 3, 2025, in Westminster, Maryland. The report-out was provided by the workshop co-chair, Dan Goetz (MD DNR). The goals of the workshop were to bring together private NGOs, watershed organizations, and local, state, and federal agencies – in Potter and Clearfield Counties in Pennsylvania and Baltimore, Carroll, and Garrett Counties in Maryland – to agree on a collaborative process to increase brook trout conservation in priority watersheds, identify stakeholder roles and responsibilities for working together more efficiently and effectively, and provide recommendations on ways to increase awareness of brook trout conservation and increase project prioritization and implementation. Designed for this workshop, a spatial planning tool displays threats to brook trout patches within the gathered counties. Both workshop mornings consisted of lightning talks from programmatic experts and a discussion on aligning the different entities towards common goals and themes; in the afternoons, participants met in breakout groups to consider action plans and timelines for local implementation. High-level recommendations developed from both states' participants were to establish a brook trout collaborative that includes more than conservation groups, adopt a two-tiered spatial approach which targets patches within watersheds, and bundle BMP projects for cost and conservation efficiency.

Discussion:

- Boomer: The findings remind me of other conversations going on around the concept of healthy river corridors and how we can seed a vision of restoring river corridors from their headwaters down to our coastal areas, including riparian zones and floodplains. The workshop report will be strong support for the healthy river corridor concept and an opportunity to highlight that healthy river corridors are not talked about enough. It

can pose the question of whether a patch approach is actually effective or if we can pull these restoration projects together in a holistic way that truly advances our collective shared goals.

- Goetz: I like the healthy river corridor concept and advocate for top-down approaches. From a nutrient and sediment standpoint, a buffer planted anywhere in the intermediate zone between the Bay and the headwater streams will have a net benefit. From a cold water standpoint, restoration has to start from the top and extend downstream. Headwater streams are the most erodible areas of the watershed given the gradient and elevation of the headwater streams, so if they are not protected, there is a compounding impact downstream. Speaking solely about brook trout, it's best to prioritize projects on the ground because we have limited funding for many stream miles; we do not have the resources to full-scale save marginal habitats from uncertain effects of changing environmental conditions so we have to protect the places we know are still going to be around for decades.

Advancing Market-Based Approaches in the Agricultural Sector to Support Chesapeake Bay Watershed Restoration

The STAC workshop titled "Advancing Market-Based Approaches in the Agricultural Sector to Support Chesapeake Bay Watershed Restoration" convened July 8th and 9th, 2025, in Annapolis, Maryland. The report-out was provided by the workshop co-chairs, Leah Palm-Forster (UDel) and Yusuke Kuwayama (UMBC). The workshop aimed to identify key knowledge gaps and provide actionable guidance for implementing market-based approaches to achieve Chesapeake Bay goals, with a focus on corporate sustainability programs and pay-for-performance programs. A series of panels explored existing corporate sustainability programs, aligning food supply chain goals with Chesapeake Bay goals, various perspectives on pay-for-performance, how decisions are made within the private and public sectors, and incentives for scaling conservation in agriculture. A roundtable session on Day 1 encouraged participants to switch between discussion topics with small groups and subject matter experts and a breakout session in Day 2 prompted participants to develop recommendations for pursuing short- and long-term opportunities. The workshop resulted in 17 recommendations, with the top five being: 1) identify and quantify co-benefits, 2) lower-cost MMRV options, 3) financing for large scalable projects, 4) advance science and behavioral insights, and 4) sandbox trials in high priority areas.

FY25 Workshop Updates

State of the Science of Salinity Risks in the Chesapeake Bay and Its Tributaries: Connecting Monitoring, Modeling and Management

The STAC workshop titled "State of the Science of Salinity Risks in the Chesapeake Bay and Its Tributaries: Connecting Monitoring, Modeling and Management" is in planning and anticipating convening Spring 2026 in the DC area. The update was provided by the workshop co-chairs,

Sujay Kaushal (UMD) and Stanley Grant (VT). The objectives of the workshop are to assess the state of the science of salinization in the Chesapeake Bay watershed, gain a better understanding of long-term trends and the magnitude and frequency of extreme salinity events, and identify effective ways to anticipate and manage changes in salinization. The workshop was motivated by observed trends of increased salinity in major drinking water supplies in the Bay watershed, which are caused by a variety of factors including road salting, wastewater inputs, water reuse, breaking down of roads and infrastructure, agricultural fertilizers, and saltwater intrusion from dry weather. The steering committee will be inviting participants from a variety of sectors and discussion will focus on four themes: 1) trends and pulses in salinity across the watershed; 2) saltwater intrusion and estuarine/tidal freshwater impacts; 3) anticipating risks to drinking water, agriculture, and infrastructure; and 4) management strategies, social/technological innovations, and policy/economic dimensions.

Discussion:

- Dennison: In Australia, the salinization of soil was equivalent to about a cricket pitch of land per day taken out of agricultural productivity. Is there a similar danger to agriculture in the Chesapeake Bay watershed?
    - Kaushal: Yes. Chloride is added to fertilizer, potassium is in potash, and lime has carbonates in it, all of which will increase the salinity of the area. Salinity and alkalinity are connected, and we've also seen alkalinization trends in streams and rivers. A paper on how saltwater intrusion is affecting soil on the Eastern Shore estimated a high economic impact from loss of agricultural land.
    - Grant: Agricultural productivity is affected by a variety of factors happening at the same time, such as changing environmental conditions, salinization of the water supply, impacts to the urban forest, and more. It is a social, ecological, and technical system challenge at all scales.
    - Thompson [chat]:
- Carl Friedrichs (VIMS): I strongly agree that salinization in non-tidal waters is a problem. I wanted to mention that before European settlement, the Chesapeake Bay estuaries were much saltier because more water was trapped in wetlands and there was more evapotranspiration. Some of the management actions happening in the watershed, such as increasing non-tidal wetlands and forests, would result in increased evapotranspiration and salt intrusion in tidal waters. Also, the years of high water clarity and low algae blooms are dry years.
    - Kaushal: That is a good point. There is a freshening trend for most of the main stem of the Bay and outlets of those rivers. Even though we focus on increases in salinity, the decreases in salinity where there's supposed to be salt is also a risk.
- Boomer: Exciting elements of this workshop that could be overlooked is recognizing salinity as a fingerprinting tool to help us understand different water sources, potential contamination, and biogeochemical transformations. Salinity is much easier to measure

than nutrients and contaminants of concern and is an essential tool to understanding impacts on our water systems.
    - Grant: A recently published article looks into using the covariance patterns of salt ions for fingerprinting.
- Prouty [chat]: Are there potential privacy issues with water quality data among farmers?
    - Thompson [chat]: Virginia Cooperative Extension is monitoring conductivity in the Rappahannock River to help farmers determine when/when not to withdraw water from the river near the tidal area to minimize salt damage to cropland.

Challenges and Opportunities in Operationalizing Coupled Human and Natural Systems (CHANS) Research in the Chesapeake Bay Watershed

The STAC workshop titled "Challenges and Opportunities in Operationalizing Coupled Human and Natural Systems (CHANS) Research in the Chesapeake Bay Watershed" is in planning and anticipating convening Spring 2026 in the Annapolis area. The update was provided by the workshop chair, Patrick Bitterman (Kent State University). The objectives of the workshop are to synthesize the current state of applied CHANS science and its relevance to addressing challenges in the Bay watershed ecosystem, map human-environment feedbacks in complex adaptive systems, identify CHANS research gaps, assess CHANS applications, and develop recommendations for the Bay Program and partnership. The steering committee will be inviting participants from federal, state, local, and academic partners to learn from case studies in similar systems and collaborate through structured breakout sessions, a stakeholder roundtable, and a poster session.

Discussion:

- Dennison: STAC and Bay Program groups are reaching out to different programs as well. It might be beneficial to compare notes across the board.

Healthy Forests: Proactive Strategies for Managing Threats and Promoting Conservation

The STAC workshop titled "Healthy Forests: Proactive Strategies for Managing Threats and Promoting Conservation" is in planning and anticipating convening Winter 2026 in the Frederick area. The update was provided by the workshop co-chair, Craig Highfield (Alliance for the Chesapeake Bay). The objectives of the workshop are to: identify major stressors to forest health and resilience in the Bay watershed; evaluate whether and the extent to which the major stressors identified may lead to declines in forest health; evaluate how impairments to forest ecology may impact the ability of forests to improve water quality, how these impairments may lead to forest loss, and the implications of these for meeting the Bay Program's goals; and develop actionable recommendations for improving forest health and resilience to enhance conservation outcomes. During the workshop, participants will integrate insights from scientific research, expert testimony, and case studies to build a comprehensive

framework of monitoring programs, adaptive management strategies, collaborative efforts, and other measures for achieving meaningful conservation outcomes.

Meeting Conclusion

STAC Chairship rotated at the conclusion of the September 2025 Meeting.

ACTION: Larry Sanford (UMCES) is now STAC [Immediate] Past Chair, Bill Dennison (UMCES) is now STAC Chair, and Erin Letavic (HRG) is now STAC Vice Chair.

Due to technical difficulties at the beginning of the meeting, STAC was unable to get to all agenda items. STAC Staff will communicate with the committee online for those items.

ACTION: STAC Staff will request the committee's feedback on STAC member expertise gaps to include on the STAC Membership Self-Nomination Form.

ACTION: STAC Staff will distribute the STAC FY26 Workshop Proposal Process, which has been updated from the previous year's process by the Executive Board. The committee will discuss the process prior to the Call for Workshop Proposals typically released in the beginning of December.

The STAC November 2025 Topical Meeting will take place virtually on Tuesday, November 18, 2025.

Post-Meeting

DECISION: In an online vote following the meeting, STAC approved the SSWG proposal to modify topic "co-production of knowledge" to "integration of social science."

DECISION: In an online vote following the meeting, STAC decided the themes of the upcoming Topical Meetings:

- November 2025 Meeting: *decision-making and how it affects governance*
- February 2026 Meeting: *integration of social science in other programs*
- April 2026 Meeting: *holistic review of the Outcomes*