



Chesapeake Bay Program

Science. Restoration. Partnership.

Habitat GIT Fall 2023 Meeting – Meeting Minutes

November 29th – 30th, 2023

Hybrid meeting at the USGS Eastern Ecological Science Center at Leetown Research Laboratory
11649 Leetown Road, Kearneysville, WV 25430

All meeting materials from both days can be found on the CBP Calendar ([DAY 1](#)) ([DAY 2](#))

DAY 1: Wednesday, November 29, 2023; 09:00-12:30 ET

[Link to Day 1 Materials](#)

DAY 1 ATTENDEES (79): Adam Nabors, Environmental Quality Resources, LLC; Alan Weaver, VA DWR; Alex Vidal, USFWS; Alison Santoro, MDNR; Andrew Ankers, USGS; Angela Sowers, USACE; Anna Killius, CBC; Ashley Hullinger, PA DEP; Bailey Robertory, CRC; Becky Golden, MDNR; Ben Gressler, USGS; Bill Jenkins, EPA; Breck Sullivan, USGS; Brett Towler, USGS; Brooke Landry, MDNR; Cassie Davis, NY DEC; Chris Guy, USFWS; Dave Goerman, PA DEP; David Wilcox, VIMS; Dede Lawal, CRC; Denise Clearwater, MDE; Emily Zollweg-Horan, NY DEC; Faren Wolter, USFWS; Genevieve LaRouche, USFWS; George Doumit, DNREC; Gian Dodici, USFWS; Greg Zuknick, EA Engineering, Science, and Technology, Inc.; Helen Golimowski, Devereux Consulting; Jason Detar, PFBC; Jayme Arthurs, USDA – NRCS; Jim Thompson, MDNR; Joe Berg, BioHabitats; John Young, USGS; Jon Niles, TNC; Jonathan Leiman, MDE; Jonthan Phinney, USFWS; Julie Devers, USDA NRCS; Kaitlin Scowen, MDNR; Karinna Nunez, VIMS; Karli Rogers, USGS; Katheryn Barnhart, EPA; Katie Brownson, USFS; Katlyn Fuentes, CRC; Kayla Clauson, DNREC; Keith Bolt, EPA; Kelly Maloney, USGS; Ken Hyer, USGS; Kevin Du Bois, DOD; Kevin McLean, VA DEQ; Kristin Saunders, UMCES; Lorenzo Cinalli, USFS; Lori Maloney, EBTJV; Lydia Brinkley, Upper Susquehanna Coalition; Mark Southerland, Tetra Tech; Matt Lawrence, MDNR; Matt Mayfield, TU; Matt Robinson, EPA; Melissa Harrison, PA DEP; Melissa Yearick, Upper Susquehanna Coalition; Michael Roberts, The Coastal Trust; Mike Laguna, NFWF; Mitch Hartley, USFWS; Olivia Devereux, Devereux Consulting; Paige Hobaugh, Tetra Tech; Pam Mason, VIMS; Peter Tango, USGS; Ray Li, USFWS; Robert Isdell, VIMS; Sadie Drescher, CBT; Sara Weglein, MDNR; Sarah Hilderbrand, MDNR; Sarah Koser, CBT; Sarah Roberts, BioHabitats; Scott Heidel, PA DEP; Sean Emmons, USGS; Stephanie Hall, MDNR; Taylor Woods, USGS; Tou Matthews, CRC; and Woody Francis, USACE.

09:00 – INTRODUCTIONS & UPDATES:

Presenters: Gina Hunt (MDNR) & Bill Jenkins (EPA)

- Introductions, review of agenda, and technological reminders provided by Gina Hunt & Bill Jenkins
- Welcoming remarks provided by Tom O'Connell (USGS)
- **STRATEGY REVIEW SYSTEM (SRS):** The SRS process is part of the Bay Program's adaptive management system for all 31 outcomes in the Chesapeake Bay Agreement.
 - The **Fish Passage, Brook Trout, and SAV Workgroups** have been updating their workplans and management strategies as part of the biennial SRS review process. This process will culminate with a presentation to the CBP Management Board (MB) in December of this year. The **Wetlands Workgroup**, while not undergoing the full SRS process this year, will instead be providing a brief update at the Dec. MB meeting.

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- **COMMENTS/QUESTIONS:**

- **Kristin Saunders:** Try not to think of the strategy review system as just a deliverable. It is an opportunity to shine a light on your work and share it more broadly with the partnership and give voice to the importance of your work.
 - **Bill Jenkins:** That is a great point that we need to keep in mind going forward. It is a great platform to highlight the great work the Workgroups are doing.

09:15 – HGIT MANAGEMENT STRATEGY UPDATE:

Presenter: Chris Guy (USFWS)

- The HGIT Management Strategy is a living document that is regularly updated following each biannual HGIT and HGIT Chair Meeting. The current document can be found on the [HGIT webpage](#).
- **GUIDING PRINCIPLES:**
 - Infusing social science and ecosystem service evaluation into our work.
 - Ensuring that we've considered DEIJ considerations into workgroup and HGIT discussions.
 - Coordinating and working across the six Goal Implementation Teams (GITs), STAR, and federal, state, and local groups/efforts to ensure we are leveraging resources towards common goals.
- **NEAR-TERM PRIORITIES – NEXT 6 MONTHS:**
 - Meeting the Executive Council charge to evaluate progress towards the 2025 Agreement and develop a strategy on how to move beyond 2025
 - Implementing the Wetlands Action Plan - [LINK](#)
 - Implement the Brook Trout FY2021 GIT Funding Project recommendations
 - Supporting current and future workgroup activities:
 - Comprehensive Evaluation of System Response (CESR) report - [LINK](#)
 - Rising Water Temperatures STAC Workshop Report - [LINK](#)
 - Dartmouth Report – Social Science Report for CBP - [LINK](#)
 - SRS Activities
 - Improve outcome tracking and reporting for the Wetland, Black Duck, Stream Health, and Brook Trout Workgroups
- **LONG-TERM PRIORITIES – 6 MONTHS AND BEYOND:**
 - Social science and ecosystem services - structured decision making (SDM)
 - Cross-GIT Coordination - identifying more joint workgroup meetings
 - Warm Water Stressors in Streams action items: incorporating recommendations from the STAC Temperature Report
 - Wetlands and shallow water habitat opportunities - using findings from the CESR report to develop management recommendations
 - Creating more DEIJ accessible habitat in developed portions of our Watershed
- **COMMENTS/QUESTIONS: If you have additional questions or comments, please contact Chris Guy (chris_guy@fws.gov).**
 - **Alana Hartman** requested clarification on the 2025 deadline. In 2025, the Chesapeake Bay Agreement (signed in 2014) will end, which is why there is significant effort in leading Up To 2025 and Beyond 2025 efforts.
 - **Kristin Saunders:** The 2014 Agreement does not have an expiration date. The 2025 date is when the practices are supposed to be in place to achieve the TMDL,

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and some other outcomes have a specific 2025 deadline but not all of them do. The Agreement is written in such a way that it can be adapted, so there may not be a need for a new Agreement. It depends on how the analysis and review go over the next year as they respond to the Executive Council charge. This is yet to be determined.

- **Lori Maloney:** How will the actions under the outcomes make their way to state-level employee work plans. Is it top-down? Bottom-up? Or just workgroup communication?
 - **Gina Hunt:** Every state and outcome will answer that question a little differently. For example, Brook Trout is not the same as the 30 other outcomes in the CBP. The Brook Trout Outcome is heavily reliant on workgroup members going back to their respective jurisdictions and communicating these discussion topics.
- **Helen Golimowski:** The Ecosystem Benefits Browser (<https://cast.chesapeakebay.net/ecohealth/index>) is a tool that links the water quality practices credited to the Bay TMDL with all the 2014 Bay Agreement Goals and Outcomes and explains these relationships.

09:30 – WORKGROUP UPDATES: BLACK DUCK

Presenter: Alicia Berlin (USGS)

- **VIRGINIA UPDATES:**

- **Doe Creek WMA Wetland Enhancement with Ducks Unlimited** (*Chesapeake WILD & VA Migratory Waterfowl Stamp funds*): DWR is working with Ducks Unlimited (DU) to restore and enhance 147 acres of existing wetland impoundments at Doe Creek WMA for American Black Ducks and other wetland species. Construction began in November 2023 and the project is expected to be completed by early 2024.
- **Mattaponi WMA Wetland Enhancement Project with Ducks Unlimited** (*FY22 NAWCA funds*): DWR is working with DU to restore wetland hydrology and enhance management of approximately 85 acres of wetland habitat at Mattaponi WMA. DU is currently finalizing construction plans.
- **NRCS, Ducks Unlimited, and the Working Lands for Wildlife Black Duck Initiative** (*FY22 ATBC funds*): DU is providing engineering technical assistance and advancing on-the-ground wetland habitat restoration in cooperation with the Natural Resources Conservation Services (NRCS) Working Lands for Wildlife Black Duck Initiative. DU staff are working with Eastern Shore NRCS to actively pursue private lands projects which were previously stalled/denied due to capacity and funding limitations. DU currently has a job opening in Chesapeake Virginia for a Working Lands Biologist to provide this capacity on the Western Shore of the Chesapeake Bay.

- **MARYLAND UPDATES:**

- MDNR/DU completed a 12-acre wetland restoration/moist soil impoundment in Charles County at Cedar Point WMA in June 2023.
- MDNR/DU purchased 4 water control structures at Fairmount WMA for a ~300-acre restoration project.
- MDNR/DU sprayed 150-acres of phragmites via aerial application at Fairmount WMA in Somerset County. Herbicide application occurred mostly within 2 managed salt marsh impoundments totaling over 300 acres. The elevation of 1.5 miles of dike has been raised on these impoundments and permitting work is being done to replace aging/damaged

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large water control structures on these impoundments. Water levels at impoundments are managed for SAV growth.

- MDNR has almost completed a beneficial use of dredge material project at Deal Island WMA in partnership with USACE, Somerset County Commissioners, and others. This project is using material dredged from Wicomico River's main navigation channel and pumping it 12 miles to the SE shore of Deal Island WMA where it's being used to raise the elevation of ~70-acres of marsh that's been degraded by sea level rise, erosion and storms. Application of dredge material will restore hundreds of acres of marsh and help protect the tidal impoundment from storm events. This impoundment is managed for SAV growth for resident/winter migratory birds as well as providing nesting habitat for marsh nesting species by providing stable water levels. [For more info on this project click here.](#)
- **PENNSYLVANIA UPDATES:** Lots of restoration/enhancement work is underway and being planned across PA on state game lands. Pending available funding, dozens of sites are being planned with some currently in the pipeline.
- **COMMENTS/QUESTIONS:** **If you have additional questions or comments, please contact Alicia Berlin (aberlin@usgs.gov) and Ben Lewis (ben.lewis@dwr.virginia.gov).**
 - **Matt Robinson:** Are any partners looking at whether there is overlap of restoring black duck and salt marsh sparrow habitats?
 - **Alicia Berlin:** I would need to verify but these are usually the same partners.
 - **Julie Devers:** The Delmarva Wetlands Group has used the black duck and salt marsh sparrow layers to target their outreach efforts for Farm Bill programs.
 - **Olivia Devereux:** Alicia, would you please email that report to Helen and I?
 - **ACTION: Alicia will send Dede/Katlyn the final report to distribute to folks.**

09:45 – WORKGROUP UPDATES: FISH PASSAGE

Presenter: Ray Li (USFWS)

- **WORKGROUP MEETING:** There was broad participation at the recent [October Workgroup Meeting](#); the agenda was focused on preparing for SRS.
- **2022-2023 OUTCOME PROGRESS:** Based on the 2022-2023 data of stream miles opened to fish passage, the Fish Passage outcome will not meet the annual target of 132-miles opened. The biggest challenges have been COVID-19, landowner-willingness, funding, & staffing capacity.
- **2024-2025 OUTCOME PROGRESS:** anticipated that the Outcome will meet the annual target of 132-mi opened.
 - A recent workgroup survey suggests that we can complete an additional 225+ miles opened in the next 2 years.
 - Culverts are a big opportunity as they don't require the same permissions as dams.
- **UPDATED FISH PASSAGE PRIORITIZATION TOOL:** Recent work was funded through a FY2021 EPA GIT-Funding grant. Updates to the tool include adding NAACC data on culverts and incorporating the Climate & Economic Justice Screening Tool (CEJ).
 - **Link to the Fish Passage Prioritization Tool:** <https://www.maps.tnc.org/chesfpp/#/explore>
- **LOOKING FORWARD:**
 - Will be meeting with Amy Handen (CBP Social Scientist) to discuss current challenges with landowner willingness.

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- Focus on dam removals and stream crossings.
- Cross-outcome coordination with the Brook Trout Action Team
 - Shared Interests include the Fish Passage Prioritization Tool, road-stream crossings, thermal loading with dams, etc.
- Emphasis on becoming a community of practice.
 - **DEFINITION:** A **community of practice** is a group of people who share a common interest in a topic and who come together to fulfill both individual and group goals. They generally focus on sharing best practices and creating new knowledge to advance actions toward the goal. Ongoing interactions is an important component of work.
- **COMMENTS/QUESTIONS:** If you have additional questions or comments, please contact Jim Thompson (jjim.thompson@maryland.gov) and Ray Li (ray_li@fws.gov).
 - **Faren Wolter:** Chesapeake WILD is funding aquatic connectivity and passage projects. FY22 opened 20 additional miles BKT stream in PA, and FY23 funded the Eden Mill Eel Ladder (Harford County) and MDNR for planning anadromous fish passage.
 - **Alan Weaver:** BIL is lots of money in a short window and national competition is fierce. It would have been nice if the BIL dedicated regional funds (i.e., to CBP), so that member states wouldn't be competing with each other.
 - **Keith Bolt:** Other BIL and non-BIL federal funds awarded to states may be able to be used for fish passage as well.
 - **Kristin Saunders:** A nexus to DEIJ that you may not be thinking - the flooding in inland rural areas that blows out roads for lower income communities who would benefit from some of the culvert work (side benefit to the fish for sure).

10:00 – WORKGROUP UPDATES: SUBMERGED AQUATIC VEGETATION (SAV)

Presenter: Brooke Landry (MDNR)

- **SAV OUTCOME:** Sustain and increase the habitat benefits of SAV in the Chesapeake Bay. Achieve and sustain the ultimate outcome of 185,000 acres of SAV Bay wide. Progress toward this outcome will be measured against a target of 90,000 acres by 2017 and 130,000 acres by 2025.
- **SAV #'s WERE UP IN 2022:** 76,462 acres were mapped in 2022 (an increase of 12%)
 - **2023:** #'s will most likely continue to increase in 2023 but need to wait for results to be published in Spring 2024.
- **SRS:** The SRS process for the SAV workgroup started again in October. The updated 2024-2025 Management Strategy and Workplan are currently being developed and will be presented to the Management Board on December 14th. The Outcome plans on requesting support from the Management Board to pursue the establishment of a shallow water habitat sentinel site program.
- **SAV REGULATORY REVIEW – GENERAL RECOMMENDATIONS:**
 - Encourage the CBP/SAV Workgroup to make recommendations/guidance for projects & practices with SAV impacts
 - Identify priority SAV areas
 - Consider the use of preliminary SAV data for project reviews
 - Consider sentinel/reference sites to inform SAV mitigation site selection and relative success
- **ADDITIONAL SCIENCE & DATA NEED GAPS:**

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- Better tracking & public availability of SAV impacts/losses due to permitted activities.
- Better tracking & public availability of SAV restoration and in-kind mitigation activities
- Valuation of SAV habitat benefits (ecosystem services)
- Additional mapping of early season SAV species to inform avoidance/minimization measures.
- **MODELING CLIMATE IMPACTS ON SAV IN CHESAPEAKE BAY:** project is now complete
 - **RESULT:** None of the 8000 simulations resulted in meeting the SAV restoration target, but accelerated and expanded nutrient management will get us closer than if we stick to the current allocations dictated in the TMDL.
 - **FINAL REPORT:** <https://www.chesapeakebay.net/who/group/submerged-aquatic-vegetation-workgroup>
 - **Proceedings of the National Academy of Science (PNAS) Article:** <https://www.pnas.org/doi/10.1073/pnas.2220678120>
 - **Shiny App:** <https://vims-sav.shinyapps.io/testshinyrmd/#section-segments>
- **FY2022 GIT FUNDED PROJECTS:**
 - *“Protecting Chesapeake Bay SAV Given Changing Hydrologic Conditions: Priority SAV Area Identification and Solutions Development”*; SAV Workgroup is Technical Lead; contracted to Tetra Tech
 - **OBJECTIVE:** Identify high priority SAV areas within the Chesapeake Bay Watershed and determine which BMPs could be most effective in protecting those areas from loss during high flow events/years using GIS spatial analysis/modeling and existing SAV, flow, land use, and water quality data. With this information, steps can be taken to target high priority SAV areas for implementation of BMPs and land management policies that will protect or restore those priority SAV habitats.
 - *“Advancing Social Marketing Through Two Pilot Programs”*; Communications Team is Technical Lead; contracted to OpinionWorks
 - **OBJECTIVE:** This project will develop pilot programs for existing community based social marketing (CBSM) campaigns that have been developed over the past few years, SAV being one.
- **CHESAPEAKE BAY SAV WATCHERS PROGRAM ([LINK](#)):** only one SAV Watcher Trainer Certification Event in 2023, at Marshy Point Nature Center on July 14th. Approximately 12 trainers certified!
- **SAV SENTINEL SITE PROGRAM:** Finally began in 2023!
 - More information on this program, including what sites will be monitored and installed can be found at this link: <https://www.chesapeakebay.net/what/programs/monitoring/sav-monitoring-program>
- **PSC REPORT & RECOMMENDATIONS:** funding was allocated for the following two topics:
 - **RFP #1:** Supports effort to develop automated methods that mimic historic SAV bed delineation methods for aerial imagery. Will also support effort to map *Zannichellia palustris* with satellite imagery throughout mesohaline as proof of concept for satellite data use. RFP was posted and closed in September. Awarded to Old Dominion University.
 - **RFP #2:** Supports long term funding for the Chesapeake Bay SAV Watcher Program, including data entry portal and management, program coordination, etc. More information on this will be sent out in the future.

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- **NOAA TRANSFORMATIONAL HABITAT RESTORATION FUNDING OPPORTUNITY:** SAV Workgroup members are involved with two submitted proposals. Both proposals were primed by Restoring America's Estuaries (RAE). The funding announcement will be made in early summer 2024.
- **COMMENTS/QUESTIONS:** **If you have additional questions or comments, please contact Brooke Landry (brooke.Landry@maryland.gov) and Becky Golden (rebecca.golden@maryland.gov).**
 - **Kristin Saunders:** Is that information re: climate simulation and needing higher nutrient removal levels being shared with the Beyond 2025 Climate and Clean Water small groups?
 - **Brooke Landry:** I will share with the Clean Water Small Team. I've shared the results around the CBP but haven't specifically targeted any of the small teams.
 - **ACTION: Brooke Landry will contact the Clean Water small team.**
 - **Kevin Du Bois:** How are you incorporating these results into the Beyond 2025 work? Are there new restoration targets? What is the SAV vision for the Bay post-2025?
 - **Brooke Landry:** We've discussed the results during our last several SAV Workgroup meetings to determine if we want to adjust our goals accordingly. We haven't made any final decisions yet about adjusting the goal.

10:15 – WORKGROUP UPDATES: STREAM HEALTH

Presenters: Alison Santoro (MDNR) & Sara Weglein (MDNR)

- **STREAM HEALTH OUTCOME:** Continually improve stream health and function through the watershed. Improve health and function of 10% of stream miles above the 2008 baseline for the watershed.
- **RECENTLY COMPLETED WORK:**
 - **FY2021 GIT FUNDING PROJECT:** *"Data Review and Development of Multimetric Stream Health Indicators"*; contract awarded to Tetra Tech.
 - **OBJECTIVE:** *This project (Phase 3A) began to address the questions: Following the implementation of management efforts, how is stream health changing, and how can we better characterize the response through non biological metrics?*
 - Report completed in 2023 and can be found on the [Workgroup Webpage](#).
 - Recommendations include the development of a Desktop Hydromorphology Assessment Tool. Also highlighted specific metrics for initial indicators
 - **STAC WORKSHOP:** *"State of the science & practice of stream restoration in the Chesapeake: Lessons Learned to inform better implementation, assessment, and outcomes"*. Workshop held in March 2023 and the report is being finalized.
 - **STREAM RESTORATION PERMITTING SURVEY:** The survey is now complete and can be found on the [Workgroup Webpage](#).
 - Results emphasized a greater need to understand the full breadth of benefits and impacts including more detailed monitoring of pre-/ post-restoration assessment of the tradeoffs between existing and proposed conditions. Data suggested the low capacity in regulatory agencies have slowed review. Overall, the permitting process for stream restoration projects has improved over the past 5 years.
 - The Stream Health Workgroup will continue to facilitate discussion between regulatory staff and practitioners.
- **CURRENT PROJECTS:**

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- **FY2022 GIT FUNDED PROJECT:** *“Literature Review: Building Climate Resilience in Stream Restoration Practices”*; contract awarded to Stroud Water Research Center.
 - **OBJECTIVE:** This project seeks to answer the questions: How do common stream restoration techniques perform when faced with climate change? What is the long-term resiliency of stream restoration practices?
- **DEIJ INITIATIVES:** The SHWG Co-Chairs met with CBP’s Diversity Workgroup Team to identify short- and long-term actions to incorporate DEIJ efforts into SHWG work. The goal is to engage with underserved, underrepresented communities to increase participation in stream health concerns.
- **UPCOMING PROJECT - SRS:** Will be undergoing the SRS process next year. Process begins in Spring 2024 and will culminate with a presentation to the Management Board in June 2024.
- **COMMENTS/QUESTIONS:** **If you have questions or comments, please contact Alison Santoro (alisona.santoro@maryland.gov) and Sara Weglein (sara.weglein@maryland.gov).**

10:30 – WORKGROUP UPDATES: WETLANDS

Presenter: Pam Mason (VIMS)

- The Wetland Workgroup has reorganized to create two subgroups – Tidal Wetlands and Non-Tidal Wetlands. **Tess Danielson** (DC DOEE) is the Workgroup Vice Co-Chair for tidal wetlands and **Nancy Schumm** (City of Gaithersburg) is the Workgroup Vice Co-Chair for nontidal wetlands. **Pam Mason** (VIMS) will continue to be the Workgroup Chair. Meetings will now be alternating in nontidal or tidal wetlands, with at least two general Wetland Workgroup meetings annually.
- **CURRENT GIT FUNDED PROJECTS:**
 - *“Understanding and Addressing the Impacts of Wetland Mowing to Facilitate Meeting the Chesapeake Bay Wetland Enhancement Goals”*; contract awarded to Clean Streams; Pam Mason is project technical lead.
 - **OBJECTIVE:** gather data to inform an understanding of the potential impact and extent of tidal wetland mowing across the entire Bay watershed. This project is one phase of a larger effort that will inform a long-term, multi-phase effort to reduce tidal wetland mowing and make progress towards the Wetlands Outcome.
 - *“Monitoring Vegetation Condition Throughout the Delmarva Peninsula”*; contracted to TerraPulse; Peter Claggett (USGS) is project Technical Lead.
 - **OBJECTIVE:** retrieve historical time-series of Landsat- and Sentinel-based indices of vegetation cover at 10- to 30-meter spatial resolution and monthly, bimonthly, seasonal, and annual temporal resolution, as well as percentage tree and water cover at 10- and 30-meter spatial resolution and annual temporal resolution, over the Delmarva Peninsula from 1984 to 2022. Data will be used to create a report of time-series analysis of indices from 1984 to 2022.
 - *“Mapping Non-tidal Vegetated Wetlands in Areas with Outdated Wetland Maps”*; contracted to Chesapeake Conservancy; Zhenhua Zou and Megan Lang are Project Technical Leads.
 - **OBJECTIVE:** refine a deep learning model for mapping wetland presence in non-tidal geographies within the Chesapeake Bay watershed, using openly available imagery and elevation products.

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- **OUTCOMES:** a data dictionary of known wetland data resources, geospatial data noting presence of non-tidal wetlands for a subset of the Chesapeake Bay watershed, an accuracy assessment for said geospatial data, the code for the wetland mapping methods, and a project summary report that outlines the status of the mapping effort and what it might take to get the data fully FGDC compliant for consideration in the NWI program.
- One challenge that the workgroup is facing is that terms and metrics are not defined consistently throughout the watershed. Work is currently being done to create general definitions on wetlands terminology that can be applied in each jurisdiction, to minimize confusion and boost effectiveness in communication.
- A proposal was recently put forth to work with graduate students at the University of Michigan to develop materials on wetlands.
- **COMMENTS/QUESTIONS:** If you have additional questions or comments, please contact Pam Mason (mason@vims.edu).
 - **Denise Clearwater:** Maryland uses federal definitions for rehabilitation and enhancement for reporting purposes.
 - **Kristin Saunders:** Once migration layers are done, we should connect them to the layers being used by Chesapeake Conservation Partnership for land conservation targeting. Let's stay connected on this, and to have a discussion on wetland areas that are no longer protected under WOTUS. These are two priority layers that land conservation efforts can work with you on protecting.
 - **ACTION:** Pam will contact Kristin when the migration layers are complete.
 - **Faren Wolter:** For those of you working in adjacent or overlapping watersheds, Highland's Grant Program also funds the permanent protection of important habitats <https://www.fws.gov/program/highlands-conservation-act-grant>

10:45 – BROOK TROUT WORKGROUP AND TRACKING PROJECT UPDATE:

Presenters: Katie Ombalski (Woods & Waters), Dan Goetz (MDNR), Stephen Faulkner (previously with USGS), Lori Maloney (EBTJV), Matt Mayfield (TU) and Shawn Rummel (TU)

- **NOTE:** The following presentation contained preliminary results from an ongoing project. As such, some information pertaining to these data were omitted from the meeting minutes.
- **RETIREMENT NOTICE:** Stephen Faulkner recently retired from USGS and has stepped down as the Brook Trout Workgroup Co-chair. Stephen served as Brook Trout Workgroup Chair for over 8 years. (*Thank you for your service, Steve! You will be sorely missed.*)
- **NEW WORKGROUP CO-CHAIR:** Dan Goetz (MDNR) has been selected as the new Workgroup Co-Chair. (*Welcome, Dan!*)
- **BROOK TROUT OUTCOME:** restore and sustain naturally reproducing brook trout populations in Chesapeake headwater streams with an 8% increase in occupied brook trout habitat by 2025.
- **OCCUPIED HABITAT BASELINE – 2016 EBTJV:** The original 8% increase was based on the 2016 brook trout patch data from EBTJV data which includes state-level data from all states with brook trout in the east. This patch data will be updated by the end of this year or early 2024. The new dataset will be helpful in determining where populations have increased or decreased over time.
 - Based on this 2016 data, an “8% increase in occupied brook trout habitat” would be the expected equivalent of 137 km²/year to be gained.

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- The current status of outcome progress is unknown.
- **CURRENT GIT FUNDING PROJECT:** *“Facilitating Brook Trout Outcome Attainability through Coordination with CBP Jurisdiction and Partners”*; contract awarded to Trout Unlimited; Stephen Faulkner and Katie Ombalski are project technical leads. (*Stephen Faulkner has since retired*)
 - **OBJECTIVE:** Trout Unlimited (TU) is partnering with the Eastern Brook Trout Joint Venture (EBTJV) to gather data and collaborate with partners and stakeholders to develop appropriate reporting metrics and a reporting framework so the work to accomplish the goals of the Brook Trout Outcome to evaluate the current status and ensure work will endure into the future. Additionally, TU and EBTJV will use the reporting metrics and framework completed for this project, along with a final summary report, to build the momentum and increase public and key decision-maker support for continuing collaborative efforts and work to improve brook trout and coldwater habitat in the Chesapeake Bay watershed.
- **PROJECT GOALS:**
 - Identify opportunities for cross-GIT collaborations with other CBP teams.
 - Strengthen communication and coordination with other stakeholders.
 - Collect and compile existing data from stakeholders and analyze monitoring and implementation data necessary to adequately track progress.
 - Work with CBP-EPA Data Center Team to develop a tracking/reporting application (e.g., Habitat Tracker).
- **STAKEHOLDER OUTREACH:** Outreach to 102 stakeholders within the Chesapeake Bay watershed (federal, state, local, & NGOs); total # of projects reported were 5,440.
 - Specific on-the-ground project location/other relevant metrics based on project type.
 - Looked at projects completed between 2016 and 2022.
 - Project-specific information/metrics recorded included: lead organization name, coordinates, project type, project objective, presence of brook trout, etc.
- **NEXT STEPS:** requested a no-cost extension for this project to gather the remaining data from the last of the stakeholders.
 - Incorporate EBTJV data update for entire Chesapeake Bay Watershed to evaluate progress towards CBP’s Brook Trout Outcome and inform future goal setting.
 - Compile lessons learned and provide recommendations
 - Selection and evaluation of metrics used to track projects/outcomes
 - Work with CBP’s Habitat Goal Implementation Team to incorporate brook trout project metrics into the Habitat Tracker Tool.
- **FINAL REPORT:** When the final report for this project is complete, it will be posted to the Brook Trout Workgroup Webpage and sent to the HGIT (all members and interested parties).
- **COMMENTS/QUESTIONS:** **If you have additional questions or comments, please contact Katie Ombalski (katie@woodswaters.com) and Dan Goetz (danielb.goetz@maryland.gov).**
 - **Lori Maloney:** If you want to see the new EBTJV data, you can request an account now and we will bookmark you for permissions later: <https://ebtjv.de/>
 - **Helen Golimowski:** The Habitat Tracker (<https://habitat-tracker.net/>) will be used by the new data manager that was mentioned earlier in the meeting, so logins are restricted to the data managers, but you can still view info on the home page. If anyone has an interest in seeing a demo, I would be happy to set up a time to walk through it with you.

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- **Katie Brownson:** This will be a fantastic resource to be able to know where restoration efforts are happening across the landscape. It would be great to get our forestry partners using the Habitat Tracker too, so we can try to better capture riparian forest buffer restoration projects across the watershed.

11:25 – GIT FUNDING UPDATE:

Presenter: Chris Guy (USFWS)

- The FY2023 GIT Funding Cycle has been postponed as the CBP evaluates the current process and determines a new path forward. More information will be sent out as soon as it becomes available regarding what the new process will look like.
- **ACTION: In the meantime, if you have any projects that you are seeking funding for, please contact your workgroup chair/staffer.**
- **COMMENTS/QUESTIONS:**
 - **Breck Sullivan:** STAR has started making a list of science needs that would be a good fit for GIT Funding. Once we are done, we will share this with Coordinators and Staffers so that people may add/edit so that we can have one document to show what is needed and how GIT Funding can help.
 - **Alison Santoro:** I'd appreciate that - we have Phase 3B of our additional indicators on hold.
 - **Kristin Saunders:** Keep your priority wish lists handy! And make sure to keep your strategic science needs updated in the database that STAR maintains – we are hoping that those project needs are scanned by leadership to fund needs as well.
 - **Faren Wolter:** Chesapeake WILD funds organizational and community capacity building to engage in and support fish/wildlife habitat restoration and permanent protection.
 - **Faren Wolter:** The Protected Lands Workgroup has been working on cleaning up and standardizing data collection across all the entities that record/hold permanent protection. They are currently seeking ideas for on-the-ground project ideas, identifying critical habitats or landscapes and waterways for acquisition or easements.
 - **Olivia Devereux:** Is money from the current year rolled into next year or is it gone?
 - **Gina Hunt:** It's not gone, it will most likely roll into next year, if not sooner.

11:35 – UP TO 2025 PRESENTATION:

Presenter: Chris Guy (USFWS) presenting on behalf of Rachel Felver (Alliance for the Chesapeake Bay)

- At the 2022 Executive Council meeting, a charge was issued on how to best address and integrate new science and restoration strategies leading up to 2025, as well as provide a snapshot of outcome attainability.
- **TIMELINE:**
 - **Feb. 2023:** Management Board formed a steering committee representing jurisdictions, federal agencies, non-profits and advisory committees.
 - **May-Jun. 2023:** work sessions with subject matter experts
 - **Jul. 2023:** draft report issued for public comment
 - **Aug. 2023:** public comment period closes
 - **Sept. 2023:** Principals' Staff Committee (PSC) approves the three high-level recommendations and endorses them to be taken to the Executive Council

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- **Oct. 2023:** Chesapeake Executive Council concurs with the three high-level recommendations
- **Nov. 2023:** undated (v. 2) report sent to the Management Board for final flaw review
- **Dec. 2023:** final report to be posted on www.chesapeakebay.net
- **REPORT STRUCTURE:** Executive Summary; High-Level Recommendations; Deeper Focus Sections (Bay TMDL/Phase III/WIPs; Emerging Science/Monitoring; DEIJ/Climate Change; Forest Buffers/Wetlands); Outcome Attainability Templates
- **HIGH LEVEL RECOMMENDATIONS:** Accelerate investments; Integrate emerging science and monitoring; Fast-track action plans
- **OUTCOME ATTAINABILITY FINDINGS:**
 - While both quantitative and qualitative outcomes can be effective, successful qualitative outcomes require milestones and measures of progress to evaluate their effectiveness.
 - Successful quantifiable outcomes have clear geographic and numerical targets, measures of success, accounting systems and monitoring protocols in place.
 - Jurisdictional and federal commitments, costs, roles and responsibilities must be clear. The success of many quantitative outcomes is driven by a federal champion and/or coordinator looking across the watershed, in coordination with one or more state or non governmental champions or coordinators for regional relevance and legitimacy.
 - Ambitious outcomes are inspiring and can help drive change, but they must be established with a reasonable understanding of the costs, commitments, responsibilities and their importance for restoring local waterways and the Chesapeake Bay.
 - Outcome efforts must operate at the appropriate scale in order to make progress. For broader outcomes, such as climate change or diversity, establishing or modifying to focus on manageable pieces of these challenges, while maintaining a sense of their place in the larger context, could generate meaningful progress.
 - Working with local communities, governments and non-profit organizations is essential to identify high priority geographies and align outcomes with local partner needs and priorities. Identifying priority geographies to implement measures to achieve outcomes and matching those with local partners would accelerate progress.
 - While several federal and state agencies provide staffing and funding for Chesapeake Bay restoration, it is the EPA that has regulatory oversight, dedicated staff and funding to work across the entire partnership. However, their annual funding is modest compared to the total annual investment in the region and is highly constrained. A mechanism to match Chesapeake Bay Program needs with staff support and funding from across the partnership could be instituted to support its growth and effectiveness.
- **FOREST BUFFERS/WETLANDS:**
 - **CHALLENGES:** implementation programs; dedicated funding; outreach & engagement; capacity; tracking & verification; emerging threats
 - **OPPORTUNITIES:**
 - Workshops and action plans
 - Reorganization of the Wetlands Workgroup
 - Help other GITs and workgroups fill their information needs and gaps
 - Expansion of existing flexible and effective buffer programs to complement current CREP funding
 - GIT funded projects

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- **RECOMMENDATIONS TO PROGRESS TO 2025:**
 - **ESTABLISH:** Establish clear geographic and numerical targets, measures of success, accounting systems and monitoring protocols for tidal wetland restoration.
 - **ENSURE:** Ensure conservation of existing and new forest buffers and wetlands to protect the investments being made in restoring these critical habitats.
 - **UTILIZE:** Utilize federal, state and local investments and resources to conserve areas that have the hydrology and proximity to become wetlands.
 - **SUPPORT:** Support effective, flexible buffer and wetland programs to limit out-of-pocket costs for landowners, provide maintenance, fund practices on a rolling basis and limit eligibility requirements.
 - **BUILD & RETAIN:** Build and retain professional staff capacity to scale-up implementation of both buffers and wetlands and offer high-quality technical and maintenance services.
- **NEXT STEPS:**
 - Version 2 of the report was sent to the Management Board for their fatal flaw review on November 22, 2023.
 - The final report is expected to be posted following the December Management Board meeting on December 8, 2023.
 - Findings and recommendations from this report will also be provided to the Beyond 2025 steering committee.
- **If you have any additional questions or comments, please contact Rachel Felver (rfelver@chesapeakebay.net).**

12:00 – CHESAPEAKE WATERSHED INVESTMENTS FOR LANDSCAPE DEFENSE (WILD)

Presenter: Faren Wolter (USFWS)

- Grant slate announcements can be found here:
<https://www.chesapeakebay.net/what/event/habitat-git-2023-fall-meeting-day-1-of-2>
- **WHAT IS CHESAPEAKE WILD:** America's Conservation Enhancement Act (2020) called for the implementation of a new landscape scale program in a way that ensures equitable grant processes/access and fosters new and impactful partnerships, the U.S. Fish & Wildlife Service is partnering with the National Fish & Wildlife Foundation (NFWF) to co-administer the WILD grants, along with Chesapeake Conservation Partnership to help us coordinate a network of partners.
- **CHESAPEAKE WILD PROGRAM PILLARS:**
 - Improve the functionality and connectivity of habitat for at-risk and listed fish and wildlife.
 - Improve water health to benefit both human and fish and wildlife communities.
 - Enhance climate resilience and readiness in natural and human communities using nature-based solutions.
 - Equitably connect people with nature to improve wellbeing and grow support for restoration and conservation actions and funding.
 - Build capacity to access funding and implement coordinated restoration and conservation activities; emphasis on under-resources partners and communities.
- **Over \$26M invested in FY22 and FY23 WILD Grant Cycles!**
 - **2022:** awarded \$3.5M to 12 projects (>\$4M match)
 - **2023:** awarded \$7.4M to 25 projects (>\$11M match)
- **WILD GRANTS IMPACT – ECOLOGICAL:**

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- At risk & SGCN listed species focus
- Science and data gaps
- Actions led by Indigenous and people of color
- Cross jurisdictional management & capacity building
- **EXAMPLES:**
 - >8Kac of permanently protected forest, wetland, pollinator, and marsh habitats
 - ~1Kac of restored riparian forest and wetland habitats
 - ~31mi of improved river and trail recreational access
 - ~130mi of aquatic connectivity/river opened for migratory species
 - >97k trees planted
 - Nature-based solutions for stormwater & erosion management
- **WILD GRANT IMPACT – CONNECTING PEOPLE WITH NATURE:**
 - Restore cultural connections with living resources
 - Equitable access
 - Community led and managed greenspaces and pollinator habitat
 - Faith based and injustice led conservation actions
- **WILD GRANTS INVESTMENT IN UNDER-RESOURCED COMMUNITIES:** 83% of WILD proposals are doing conservation work in places with more diversity, higher poverty and unemployment, and lower household income, than the national average! Projects will restore habitat and conserve species, improve water quality, enhance climate resilience and readiness, equitably connect people with nature, and provide many other benefits to surrounding communities.
- **TIMELINE:**
 - **FY24 RFP RELEASE:** late January 2024
 - **APPLICANT WEBINAR:** TBD
 - **FieldDoc WEBINAR:** TBD
 - **PROPOSAL DUE DATE:** late March 2024
 - **PROPOSAL REVIEW PERIOD:** April-August 2024
 - **AWARDS ANNOUNCED:** ~September 2024
- Technical assistance for WILD is available year-round through one-on-one meetings, NFWF Field Liaisons, etc.
- **COMMENTS/QUESTIONS:** If you have any additional questions or comments, please contact **Faren Wolter** (faren_wolter@fws.gov).
 - **Bill Jenkins:** This is an incredible grant program that is helping to fill capacity gaps that will help us to further our habitat goals and outcomes. Faren has done a phenomenal job of managing the entire process associated with this program. It would not have been as successful as it has been without her.
 - **Kristin Saunders:** A huge recognition of Faren for her intentional effort to diversify our applicants for these grants. The awards were so diverse and there was a lot of handholding that went on to help non-traditional grantee applicants get through the process. A good model to use.
 - **Kevin Du Bois:** How is Chesapeake WILD integrated with DoD's Virginia Security Corridor and Middle Chesapeake Sentinel Landscapes Partnerships? Seems like good overlap in goals/outcomes.

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- **Lydia Brinkley:** We have a lot of areas that are rural and don't necessarily meet underserved community thresholds for priority when doing restoration work. How do you create a competitive proposal in areas with limited diversity engagement potential?

12:30 – DAY 1 MEETING ADJOURNED.

OPTIONAL FIELD TRIP: Those who attended the meeting in-person had the opportunity to go on an optional field trip in the afternoon following Day 1 of the meeting. Attendees were given a tour of a brook trout hatchery at Reymann Memorial Farms, run by West Virginia University. After the hatchery, folks visited Dillons Run (in the Cacapon River Watershed), which is the focus of an ongoing brook trout repatriation project.

DAY 2: Thursday, November 30, 2023; 09:00-12:00 ET

[Link to Day 2 Materials](#)

DAY 2 ATTENDEES (74): Alan Weaver, VA DWR; Alana Hartman, WV DEP; Alex Vidal, USFWS; Alicia Berlin, USGS; Alison Santoro, MDNR; Andy Miller, UMBC; Angela Sowers, USACE; Anna Killius, CBC; Ashley Hullinger, PA DEP; Bailey Robertory, CRC; Becky Golden, MDNR; Bill Dennison, UMCES; Brett Towler, USGS; Brooke Landry, MDNR; Chris Guy, USFWS; Dan Goetz, MDNR; Dave Goerman, PA DEP; David Lee Haskins, USGS; Dede Lawal, CRC; Denice Wardrop, CRC; Denise Clearwater, MDE; Faren Wolter, USFWS; Genevieve LaRouche, USFWS; Gina Hunt, MDNR; Greg Zuknick, EAEST Inc.; Helen Golimowski, Devereux Consulting; Jeremy Testa, UMCES; Jim Thompson, MDNR; John Young, USGS; Jon Niles, TNC; Jonthan Phinney, USFWS; Julie Devers, USDA – NRCS; Kaitlin Scowen, MDNR; Karinna Nunez, VIMS; Katheryn Barnhart, EPA; Katie Brownson, USFS; Katie Ombalski, Woods & Waters Consulting; Katlyn Fuentes, CRC; Ken Hyer, USGS; Kenneth Rose, UMCES; Kevin Du Bois, DOD; Kevin McLean, VA DEQ; Kirk Havens, VIMS; Kristin Saunders, UMCES; Lindsey Boyle, USGS; Lori Maloney, EBTJV; Lydia Brinkley, Upper Susquehanna Coalition; Mark Hoffman, CBC; Mark Southerland, Tetra Tech; Matt Lawrence, MDNR; Melissa Harrison, PA DEP; Melissa Yearick, Upper Susquehanna Coalition; Michael Roberts, The Coastal Trust; Mitch Hartley, USFWS; Nancy Roth, Tetra Tech; Nancy Schumm, City of Gaithersburg; Natalie Karouna-Renier, USGS; Pam Mason, VIMS; Peter Claggett, USGS; Ray Li, USGS; Robert Isdell, VIMS; Sadie Drescher, CBT; Sara Weglein, MDNR; Sarah Koser, CBT; Sarah McDonald, USGS; Scott Heidel, PA DEP; Sean Emmons, USGS; Shawn Rummel, TU; Suzanne Trevena, EPA; Tammy O'Connell, MDNR; Tess Danielson, DC DOEE; Tom Ihde, Morgan State University; Tou Matthews, CRC; and Zach Kelly, USGS.

09:00 – WELCOME & SUMMARY OF DAY 1:

Presenters: Gina Hunt (MDNR) & Bill Jenkins (EPA)

- Gina provided both a summary of Day 1 and technical reminders for those in attendance today.

09:10 – BEYOND 2025 PRESENTATION:

Presenter: Anna Killius (CBC)

- Beyond 2025 Steering Committee webpage: <https://www.chesapeakebay.net/who/group/beyond-2025-steering-committee>

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- **EXECUTIVE COUNCIL CHARGE:** “[The] Executive Council charges the Principals’ Staff Committee (PSC) in recommending a critical path forward that prioritizes and outlines the next steps for meeting the goals and outcomes of the Watershed Agreement leading up to and beyond 2025. The PSC is to report back to the Executive Council at our 2023 annual meeting with recommendations on how to best address and integrate new science and restoration strategies leading up to 2025. At our 2024 annual meeting, the PSC is to prepare recommendations that continue to address new advances in science and restoration, along with a focus on our partnership for going beyond 2025.”
- **PURPOSE OF BEYOND 2025 SMALL GROUPS:**
 - Guide the Beyond 2025 Steering Committee in thinking about, discussing, and ultimately forming recommendations around crosscutting, high-level topics that have arisen in the EC Charge and partnership reports.
 - Draft recommendations, based on full Steering Committee feedback, for integration into the Steering Committee’s final product.
 - Considerations: Small and nimble enough for meeting and planning; inclusive enough to reach experts outside of SC, like GIT and AC members. Overall makeup should encourage silo-breaking and diversity of viewpoint.
- **HIGH LEVEL TOPICS:**
 - Climate Change → Leads: Breck Sullivan (STAR/USGS) & Bo Williams (EPA)
 - Healthy Watersheds → Lead: Jeff Lerner (GIT4)
 - Clean Water → Leads: Jill Whitcomb (PA DEP), Lee McDonnell (EPA), & Joe Wood (GIT3)
 - Shallow Water Habitats → Leads: Gina Hunt (MDNR) & Brooke Landry (MDNR)
 - People → Lead: Julia Wakeling (DC)
- **OVERARCHING QUESTIONS:**
 - **Vision:** *What do we want to hand to the next generation? What does success look like?*
 - **Value:** *What are we doing that works? What could be improved? What changes would help us attain our vision?*
 - **Vanguard:** *What idea is transformational for the future of the Bay and its watershed? What would it take to implement that idea?*
- **CROSS-CUTTING CONSIDERATIONS:**
 - **Climate:** *How does climate change interact with your recommendations?*
 - **Living Resources:** *Does your recommendation maximize living resource response?*
 - **People:** *Will this recommendation more effectively center people in the Bay efforts in the future?*
 - **Cross-Program Coordination:** *How can coordination be strengthened by this recommendation?*
- **PROPOSED STEERING COMMITTEE TIMELINE:**
 - **Feb. 2024:** Hold 2-day symposium
 - **Mar. –Apr. 2024:** Adopt small group recommendations; draft steering committee product
 - **May – Jun. 2024:** Solicit public feedback
 - **Jul. 2024:** Revise and affirm Steering Committee recommendations
 - **Aug.–Sept. 2024:** Seek approval from MB and PSC
 - **Oct. 2024:** Present to and request approval from Executive Council
- **HOW TO BE INVOLVED:**

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- **Now through February 2024:**
 - *Through your representatives on the steering committee*
 - *During Small Group outreach*
 - Clean water → Water Quality GIT
 - Climate Change → STAR Meetings
 - Shallow Water Habitats → Wetlands, Stream Health, and Fish Habitat
 - *By volunteering your expertise to small groups*
- **March through April 2024:** Provide feedback during the drafting period
- **May through June 2024:** Provide feedback during public comment period
- **COMMENTS/QUESTIONS:** **If you have any additional questions or comments, please contact Anna Killius (AKillius@chesbay.us).**
 - **Faren Wolter:** The Partnership Impact Model (Mickel & Goldberg, 2018; [LINK](#)) is a great framework for building and assessing partnerships.
 - **Kevin Du Bois:** I'm still struggling to understand what the proper forum is to discuss natural resources goals and outcomes that may need to be amended (besides forests and wetlands). Examples: broadening the on-track oyster outcome to include mussels and clams and addressing the inability to meet SAV goals due to climate impacts of water temp and storm flows and sediment delivery.
 - **Kevin Du Bois:** Please add me to the Shallow Water small group for future participation.
 - **ACTION: Gina will follow-up with Kevin re: the Shallow Water small group.**
 - **Kristin Saunders:** I concur that equitable consideration continues to be a challenge. I think we should really arm the members of the steering committee who work on all the other outcomes to continue to push for this point in the conversations going forward in February and into next year.
 - **Kristin Saunders:** I remember Mike Slattery's philosophy a few years ago that we should aim for a minimum necessary healthy habitat to counterbalance the total maximum daily load. If we can look at identifying the minimums needed to support terrestrial and aquatic living resources AND people, we may get some traction in a holistic way.
 - **Sarah McDonald:** I am curious if there are discussions on terrestrial habitat goals beyond 2025.
 - **Katie Brownson:** I think we are going to try to have those terrestrial habitat discussions in the healthy watersheds group. The Healthy Watersheds Small Group just started meeting yesterday and many habitat considerations will play out in that group.
 - **Denise Clearwater:** Recommendations to implement ecosystem crediting could result in more equitable consideration of living resources.
 - **Kristin Saunders:** You are correct, and our STAC report on ecosystem services is in draft form coming out in December and speaks to that very point.
 - **Michael Roberts:** Has there been consideration of having Budget and Finance as a high-level workgroup?
 - **Anna Killius:** We didn't have any proposals for a budget/finance specific group, but budget-related recommendations may come out of any small group.

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- **Kristin Saunders:** There is a Budget and Finance workgroup under GIT 6 and they will likely be poised to support any budget/finance questions or recommendations that come out of the other small groups.
- **Michael Roberts:** I'm glad to hear that the Budget and Finance Workgroup is included – I've been a participant with that group before. There is significant value in their participation in Beyond 2025. Presently some state funding programs are geared only towards water quality infrastructure and fail to account for full water quality benefits of habitat restoration and nonpoint source projects and thus fail to fund them under their existing eligibilities.
- **Pam Mason:** Budget is critical! We need a process other than the GIT funded efforts and STAC workshops to provide funding support to collaborative work.

09:40 – COMPREHENSIVE EVALUATION OF SYSTEM RESPONSE (CESR) PANEL & DISCUSSION:

Presenter: Denise Wardrop (CRC)

- **CESR REPORT:** https://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/CESR-Final-update-2023-11-27-155925_bflx.pdf
- **CESR REPORT EXECUTIVE SUMMARY:** <https://www.chesapeake.org/stac/wp-content/uploads/2023/05/CESR-Executive-Summary.pdf>
- **FINDING:** Existing implementation actions to reduce nonpoint sources of nutrients are insufficient to achieve the TMDL.
 - **IMPLICATION:** There are opportunities to further reduce nutrients from nonpoint sources, but changes to programs and policies need to be considered.
- **FINDING:** Preliminary analyses suggest that nutrient load reductions have not produced the expected level of improvement in estuary water quality, and this response gap is particularly pronounced in the Bay's deep channel.
 - **IMPLICATION:** Additional nutrient reductions will improve water quality, but water quality criteria may be unattainable in some regions of the Bay under existing technologies.
 - **IMPLICATION:** Opportunities to prioritize our efforts to attain water quality standards so that we can achieve the largest possible benefit to living resources.
- **FINDING:** Significant enhancement of living resources can be achieved through additional management actions without complete achievement of water quality standards across all habitats.
 - **IMPLICATION:** The legal requirements of the Clean Water Act (the water quality goal) divert attention away from considering multiple means of improving living resources (support of aquatic life as the designated use) as articulated in the Chesapeake Bay Watershed Agreement.
 - **IMPLICATION:** Opportunities exist to adjust approaches to prioritize management actions that improve living resource response.
- **FINDING:** The Chesapeake Bay Program's current portfolio of adaptive management processes is inadequate to address the uncertainties and response gaps described in the report.
 - **IMPLICATION:** Expanding the scope of adaptive management could address critical uncertainties and response gaps.
- **ACHIEVING TMDL:**

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- **FINDING:** nonpoint source programs are not generating the scale of reductions needed to achieve TMDL.
- **TWO CHALLENGES:**
 - Nonpoint source programs not generating the scale and type of adoption/behavior change needed to meet TMDL (“Implementation Gap”).
 - Nonpoint source programs may not be as effective as expected in producing nutrient reductions (“Response Gap”).
- Based on the CAST model estimate, there has been <6M lb. reduction achieved in nonpoint source N Load reductions achieved since TMDL (2009).
- **BMP EFFECTIVENESS:** How/how much have changes and intensification in agriculture production and imported nutrients affected quantifying BMP effectiveness?
 - Over the past 30 years, the number of animal units has increased. During this time there has been a 4x increase in the number of BMPs installed in the watershed.
 - **NET RESULT:** TN loads are increasing over time.
- **OPPORTUNITIES TO IMPROVE NONPOINT SOURCE PROGRAM EFFECTIVENESS:**
 - Shift emphasis on Outcomes
 - Improved targeting
 - Outcome-based incentives (“pay for performance”, “pay for success”)
 - Additional emphasis on Mass Balance
- **ACHIEVING WATER QUALITY STANDARDS:** findings show that Bay water quality is improving but the magnitude of the improvement appears to be lagging expectations.
- **WHY DO WE HAVE RESPONSE GAPS?**
 - Climate change: warming, sea level rise, precipitation
 - Tipping points and associated feedbacks: features that make Bay changes not always immediately available
- **ACHIEVING WATER QUALITY STANDARDS:**
 - Implications: water quality criteria may be unattainable in some regions of the Bay under existing technologies.
 - Implications: opportunities to prioritize our efforts to attain water quality standards to achieve greater benefit to living resources.
- **LIVING RESOURCE RESPONSE:** The impact of water quality improvements on living resources depends on where water quality improvements occur, antecedent conditions, and impact varies across species.
 - Implications: potential to increase the impact on living resources from our water quality and restoration investments.
- **PANEL DISCUSSION QUESTION 1:** *If you had one thing that you took from CESR that you think a Workgroup or GIT could work to flesh out, what would it be?*
 - **Bill Dennison:** we often talk about how shallow the bay is, and while this is true, what’s even more important is how big the shoreline is. Despite their environmental importance, these shorelines have not been monitored due to difficulties in accessing these areas. Greater effort needs to be made to survey and monitor these areas.
 - **Kenneth Rose:** Make a plan to analyze the TMDL and other actions and their impact to habitat and other resources. There is currently a huge lack of these evaluations pertaining

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to habitat, so greater work needs to be focused here. Read through the supplemental materials of the CESR Final Report to see more specific recommendations on this.

- **Jeremy Testa:** when we look at the TMDL, it's usually a downstream perspective, when the truth is that it's not always that linear. It's important to consider that nutrients flow in both directions within the estuary. Progress moves both ways!
- **Kirk Havens:** CESR emphasizes that everyone is working on these efforts using a "learning while doing" mindset, so it's important to understand the actions taken by the GITs/Workgroups, even we don't fully understand all of the implications. We're learning as we go – it's all about adaptive decision-making.
- **Andy Miller:** Recommended reading Chapter 6 ("Findings & Implications") of the CESR Final Report. CESR emphasized the importance in communicating the broader purpose of our efforts. The message that we conveyed in Ch.6 clearly defines a path forward that each group can take.
- **PANEL DISCUSSION QUESTION 2: *What do you think the definition of shallow water should be?***
 - **Jeremy Testa:** There's a lot of ways that shallow water can be defined. These are places where there are key habitats that are likely to be restorable (e.g., SAV recolonization), and a lot of these restoration efforts could potentially positively impact the greater estuary.
 - **Kirk Havens:** The places where the water and the habitat come together, and more importantly, where the community is. This includes tidal and nontidal areas, especially those that intersect with communities.
 - **Bill Dennison:** Need to consider climate change scenarios, as today's shorelines won't be the future shorelines when accounting for sea level rise. We must think about definitions in both current and future timeframes.
 - **Andy Miller:** When talking about shallow water, we need to remember that the majority of the bay is considered shallow water, with the exception of the deep channel.
 - **Kenneth Rose:** I see four potential ways to define shallow water habitat:
 1. A Legal definition (e.g., California delta).
 2. Where you think you're going to have impacts (this helps monitor expectations of places that will be most responsive to restoration work).
 3. Gear type needed for sampling/monitoring (e.g., beach seines survey 0-3m in depth).
 4. Evaluation of monitoring data to see where there is a common discontinuity in density as you move offshore.
- **PANEL DISCUSSION QUESTION 3: *What are people not focusing on in the report, that you wish got more attention?***
 - **Jeremy Testa:** I'd like to amplify the notion that we're not calling for the abandonment of the TMDL.
 - **Andy Miller:** There's a lot of CESR that is very popular with folks, I'd like to bring more attention to more of the "unpopular" topics as those are still important/worth pursuing. Significant changes need to be made and it's going to be hard, but it's worth doing.
 - **Bill Dennison:** I'm worried that people are interpreting CESR as calling the Bay Program as a failed effort. This is entirely false and goes against the intent of CESR. Our goal is to

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put into context this movement and emphasize the importance of adaptive decision-making.

- **Kenneth Rose:** We're not proposing a replacement of what's being done – instead we're expanding and augmenting, rather than replacing.
- **Kirk Havens:** I agree with Andy, it's important that we have in place the managers and policy makers that can begin implementing the adjustments/work that the GITs/Workgroups call for.
- **COMMENTS/QUESTIONS:** **If you have any additional questions or comments, please contact Denise Wardrop (dhw110@psu.edu).**
 - **Faren Wolter:** Socio-ecological systems require systems thinking and systems solutions!
 - **Chris Guy:** Is the CAST model as the driver of the Bay program a problem? Should we replace CAST with a model focused on Living resources?
 - **Denise Clearwater:** This is worth discussion and consideration.
 - **Genevieve LaRouche:** Yes, based on this information, we should build on and improve CAST by including living resources.
 - **Kristin Saunders:** Right now, it seems that CAST is a planning tool AND accountability tool used to document the achievement of TMDL. When CESR says focus on outcomes rather than counting practices, how does STAC envision that could happen?
 - **Scott Heidel:** TMDLs are based on numeric criteria. Delisting of waterbodies is based on attainment of aquatic life standards including IBIs. We are starting to compare two different things.
 - **Alicia Berlin:** Aquatic life does not equate to all living resources - it seems that these terms are being used synonymously. I want to caution us on this as we move forward.
 - **Kristin Saunders:** Kirk's emphasis on that nexus of water/land/people for shallow water is really important if we don't intend to alienate the non-tidal areas (it also has implications for funding and how it is allocated).
 - **Genevieve LaRouche:** I agree that examples of tactics would be helpful.
 - **Lori Maloney:** Expanding and augmenting require more funding - are we talking about increasing funding requests? Or is this more about fine tuning the allocation of resources so we aren't spending so much on those upward arms of the response/funding curve.

10:40 – OUTCOME-SPECIFIC BREAKOUT GROUP DISCUSSIONS & REPORT OUTS:

- Following the presentations on Beyond 2025 and the Comprehensive Evaluation of System Response (CESR), meeting attendees were divided into outcome-specific breakout groups, one for each of the six Habitat GIT Outcomes: Black Duck, Brook Trout, Fish Passage, Stream Health, Submerged Aquatic Vegetation (SAV), and Wetlands.
- Attendees were asked the following two questions:
 1. *How would you move to an outcome-based approach to meeting the TMDL? Is there a relationship between your outcome and the TMDL that could be modeled or measured?*
 2. *Given the findings of CESR what should your workgroups begin to focus on, or do differently? What limitations do you see that need to be addressed to change your approach and/or focus?*

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- Responses were recorded using Jamboard and the summary of these results can be found in [*APPENDIX A \(p. 23-27\)*](#).
- Following the breakout group session, each Outcome Lead had the opportunity to provide a brief report out on topics discussed.

11:50 – MEETING WRAP UP:

- Thank you to the USGS Leetown Research Laboratory for hosting the meeting and for providing a riveting and in-depth tour of the facility following today's meeting.
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Chesapeake Bay Program

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APPENDIX TO THE MEETING MINUTES

APPENDIX A: Beyond 2025 Breakout Discussion – JAMBOARD RESULTS

Following a presentation on Beyond 2025 and Comprehensive (CESR) on day 2 of the meeting, attendees were divided into outcome-specific breakout groups to answer two Jamboard questions. The following responses have been exported and edited for clarity.

BROOK TROUT OUTCOME

QUESTION 1: How would you move to an outcome-based approach to meeting the TMDL? Is there a relationship between your outcome and the TMDL that could be modeled or measured?

- Measuring buffer planting progress relevant to gains in brook trout occupied habitat. GIT Funded tracking tool
- Reducing stream access to livestock (i.e., fencing/exclusion)
- Science need: does AMD remediation also meaningfully reduce nutrients and sediment in addition to metals?
- Promoting soil health BMPs in MEB/BKT priority watersheds (e.g., soil infiltration, runoff reduction, carbon sequestration)
- Target Brook Trout Patches to achieve > 70% Forest cover (also riparian buffer outcome)
- Reducing sediment/erosion runoff from dirt and gravel roads in BKT/headwater streams
- Utilize MEB watersheds layer in conjunction with TU Brook Trout Portfolio mapping (stronghold and persistent patches). Utilize Fencing, crossings, and Riparian Buffer BMPs.
- Identify additional overlap with other WG/GITs (e.g., healthy watersheds, buffers, stream health)

QUESTION 2: Given the findings of CESR what should your workgroups begin to focus on, or do differently? What limitations do you see that need to be addressed to change your approach and/or focus?

- Full scale buffer and fencing in BKT strongholds with MEB priorities
- CESR focuses on bay "proper", focus could be shifted towards Headwater streams & local communities
- Starting at the top and working down to the bay is logical in that it produces continuous connected habitats instead of discrete points that are improved
- Please communicate (and allocate funding) for headwaters work for its own benefit and not necessarily tied to TMDL - this helps pull in many people who we need buy-in from

FISH PASSAGE OUTCOME

QUESTION 1: How would you move to an outcome-based approach to meeting the TMDL? Is there a relationship between your outcome and the TMDL that could be modeled or measured?

- Join forces with other workgroups...stream restoration

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- Our workgroup provides direct habitat restoration to aquatic species. Removal of barriers through dam removal and improving stream crossings restores aquatic communities.
- James River used to be loaded with herring and shad. Non-tidal areas that support the diadromous fish aren't as affected by high nutrient loads.
- I don't really see a connection here. If anything, dam removal is sometimes seen as negatively affecting TMDL goals.

QUESTION 2: Given the findings of CESR what should your workgroups begin to focus on, or do differently? What limitations do you see that need to be addressed to change your approach and/or focus?

- We should note that we consider the effects of passive sediment downstream before we do it. Bloede Dam for example.
- We need to make sure regulators don't inhibit our ability to remove blockages because of TMDLs. Blockages are not natural and sediment should be allowed to move downstream.
- We typically prioritize areas for fish passage that have better water quality. The better the water quality is for fish, the more likely our fish passage efforts will improve habitat for fish.
- I don't think the findings of CESR will change how we select or prioritize fish blockages.

STREAM HEALTH OUTCOME

QUESTION 1: How would you move to an outcome-based approach to meeting the TMDL? Is there a relationship between your outcome and the TMDL that could be modeled or measured?

- There are already metrics for stream health to meet other agreement goals. These could be equated to water quality.
- Pose this question to others (e.g., full stream health GIT; scientists especially those who authored CESR) to help us figure out what outcomes we should target...
- Focus on land use changes/zoning/other policy as well since this impacts our overall outcomes
- Adding outcomes based on people (maybe acceptance or movement to action for behavior change) and/or economic outcomes (more \$ from fisheries)...
- Policy linked to NPDES credits – nudge MS4s and others to use more habitat metrics (not just Bay Agreement other policies in state/local gov't)
- WV DEP - what if we measured all streams that we take off 303d list (using own state resources to meet bio criteria) but not worried about the location of the stream as it's related to Bay triblets/T-zone streams - which ones are those, exactly? What actions do they need?
- Consider also credit for existing monitoring & findings that streams are still in fairly good condition
- Out of the box actions that can improve stream health (e.g., stream culvert replacement).

QUESTION 2: Given the findings of CESR what should your workgroups begin to focus on, or do differently? What limitations do you see that need to be addressed to change your approach and/or focus?

- Credit is only given for modeled nutrient and sediment reductions. Credits for improving habitat should be included.

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- For biology, we could dive into metrics within the BIBI and/or other functional measures, we do have a fish assessment from work with the FHAT, and there is work in the USGS being done on "abiotic" indicators like geomorphology and specific conductance
 - Expand restoration database, analyses, and report to include projects beyond TMDL focused. It missed things like AMD restoration
 - Mapping effort or new conversation for areas on the borders of fresh/saltwater.... since CESR mentions the inputs at estuary boundary
 - Soil sampling to prioritize sites (more P/N etc., here so we can prioritize restoration here).
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SUBMERGED AQUATIC VEGETATION (SAV) OUTCOME

QUESTION 1: How would you move to an outcome-based approach to meeting the TMDL? Is there a relationship between your outcome and the TMDL that could be modeled or measured?

- SAV is already an outcome-based approach to meeting the TMDL. We're a clearly visible indicator of WQ improvements.
- Improving the shallow water model to reflect the linkage between water quality/TMDL/nutrient reductions and SAV abundance and distribution.

QUESTION 2: Given the findings of CESR what should your workgroups begin to focus on, or do differently? What limitations do you see that need to be addressed to change your approach and/or focus?

- Expand direct SAV restoration
 - Break down the smokestacks in the H-GIT; to me, CESR response will require integration, so the current structure of this GIT is not conducive to effective response
 - Continue to focus on expanding shallow water monitoring at all scales/tiers
 - Also need data on unvegetated areas to inform models and compare to SAV habitat functions
 - Holistic monitoring of the shallows
 - Limitation: Long-term sustainable funding!!!
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WETLANDS & BLACK DUCK OUTCOMES

QUESTION 1: How would you move to an outcome-based approach to meeting the TMDL? Is there a relationship between your outcome and the TMDL that could be modeled or measured?

- I would stop focusing on the TMDL credits and instead focus on water quality outcome targets which should include buffer zones and utilization of proven standards.
- NWI could summarize the existing wetland data in the watershed by type (emergent, forested, scrub) and acreage. The data is old in many parts of the bay but the best there is.
- An ecosystem-based modeling approach that links the water quality, aquatic life, and other ecosystem services that wetlands provide.
- Taking a tiered approach to TMDL, local TMDL sets priority and by addressing it the larger Bay TMDL goals should receive credit.
- Care needs to be taken when trying to improve degraded wetlands and understanding broader historic alterations that control the degraded environment.

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- What happens if we establish a local wetland loss TMDL?
- Need the science to quantify wetland contribution to nutrient/other TMDLs reduction
- Historic alterations are the driving constraint on wetland recovery/reestablishment, the alterations contribute to the TMDL but the focus is on treating the symptoms not source.
- PA wetland program sees the only way to begin closing the gap on the wetlands goal is to couple it with other living resources such as stream health.
- Citizen/community science monitoring could bring more attention to WQ hot spots and link to establishing local champions too
- ~50% of federal threatened and endangered species are wetland dependent. Tying wetland to T&E responsibilities might allow tapping into federal funds
- Consistent water quality testing within communities and targeting hot spots for pollution might be a good way to evaluate and solve water quality issues along tributaries.
- PA has found that historic alterations of our watersheds are the dominant constraint on resource recovery, TMDL has no real bearing on these constraints.

QUESTION 2: Given the findings of CESR what should your workgroups begin to focus on, or do differently? What limitations do you see that need to be addressed to change your approach and/or focus?

- Value should be attributed to habitat improvements in addition to modeled nutrient and sediment reductions.
- More incentive like a crediting system would bring more results and voluntary action.
- Identification of wetlands and working on improving wetland habitats through grant funding and protection would be good priorities.
- Setting some wetland conservation standards to follow and enforcement would also be good similar to the FCA in MD.
- Stop using the term maximize living resources for TMDL targets, ecosystem restoration approach allows optimal gains to be made without compromising ecosystem benefits.
- Reevaluating watershed plans in the standards of the EPA 9 minimum elements is a good foundation for establishing guidelines in communities.
- How to overcome the implementation gap that exists. There isn't sufficient incentives for adoption of wetland practices for smaller landowners
- Reference recommendations from STAC wetland crediting workshop...
- CESR provides a justification for focusing more on habitat and living resources. Wetlands are considered the ultimate biodiversity hotspot (IUCN and peer review)
- More emphasis/research is needed on targeting where we get the habitat and optimize the TMDL benefit.
- There would be value in creating a waterbird/fowl community composition index that overlays wetland restoration priority areas as a reflection of habitat functionality
- Data on wetland migration corridors to limit development would be a priority for me.
- Establishing local champions is critical for sustainability of projects already in place. This is where the public education comes into play. A wetland PR campaign would also be good.
- Creating and supporting Public, private, non-profit partnerships at smaller scales that focus on targeting & implementation of projects based on science and modeling.