

May 11, 2017 Quarterly Progress Review Meeting Follow-up: Summary and Elaboration on Recommended Adaptations and Actions

June 9, 2017

Background: At the May 11, 2017 Quarterly Progress Review Meeting, the Management Board heard presentations from six Watershed Agreement Outcome leads on the results of their adaptive management review, including recommended adaptations and actions for Management Board consideration. One of the common comments received after the meeting was that many of the recommended adaptations and actions were not specific enough, nor received early enough, for Management Board action during the May 11 meeting. In response, following are summaries of the challenges identified by the Outcome leads during their review, recommended adaptations and actions presented during the May 11 meeting and, in some cases, greater specificity and background.

The following four outcome groups did not present during the June Management Board meeting and will present during the July 13 meeting. This information is being provided to the Management Board in the hope that it will allow for preparation by Management Board members in advance of the July 13 meeting and lead to more meaningful discussion and decisions.

Fish Habitat Outcome

Outcome: Continually improve effectiveness of fish habitat conservation and restoration efforts by identifying and characterizing critical spawning, nursery and forage areas within the Bay and tributaries for important fish and shellfish, and use existing and new tools to integrate information and conduct assessments to inform restoration and conservation efforts.

Challenges:

- Lack an effective mechanism to communicate fish habitat priorities to CBP partners and the local community
- Lack a defined measure of progress
- Lack a direct connection between fishery managers and habitat decision makers

May 11, 2017 Recommended Adaptations and Actions:

- Incorporate fish habitat into the Phase III Watershed Implementation Plans
 - Prioritize Best Management Practices (BMPs) that address water quality and habitat
 - Serve as a metric of progress

June 9, 2017 Additional Information and Specificity

Who is an active participant on the Fish Habitat Action Team?

Active members are defined as members who have participated in at least one call/meeting since June 2016. We have 17 active members and 17 interested parties. Interested parties receive team emails, but have not participated in a meeting in the past year. There are 17 members on the Fish Habitat Action Team (including team staff). Without team staff, there are only 12 active team members. The following members are on the Fish Habitat Action Team:

Fish Habitat Action Team Member	Organization
Bruce Vogt (Fed-based in MD) <i>GIT Coordinator</i>	NOAA Chesapeake Bay Office
Donna Bilkovic (VA)	Virginia Institute of Marine Science
Edna Stetzar (DE)	DE Department of Natural Resources and Environmental Control
Emilie Franke (Fed-based in MD)	ERT/NOAA Chesapeake Bay Office
Geoffrey Smith (PA)	PA Fish and Boat Commission
Gina Hunt (MD) <i>Chair</i>	MD Department of Natural Resources
Kara Skipper (MS-based in MD) <i>Staffer</i>	Chesapeake Research Consortium
Jennifer Greiner (Fed-based in MD) <i>Coordinator</i>	Fish and Wildlife Service
Julie Devers (Fed-based in MD)	Fish and Wildlife Service
Lisa Havel (Multi-state-based in VA)	Atlantic States Marine Fisheries Commission
Margaret McGinty (MD)	MD Department of Natural Resources
Mary Fabrizio (VA)	Virginia Institute of Marine Science
Matthew Ogburn (Fed-based in MD)	Smithsonian Environmental Research Center
Paige Hobaugh (MS-based in MD) <i>Staffer</i>	Chesapeake Research Consortium
Peter Tango (Fed-based in MD)	U.S. Geological Survey
Rachael Maulorico (VA)	VA Marine Resources Commission
Tom Ihde (MD)	Morgan State University Estuarine Research Center

Jurisdictions represented in the total membership include MD, DE, VA, WV, and PA.

Active Membership



Active State Membership



■ D.C. ■ DE ■ MD ■ NY ■ PA ■ VA ■ WV ■ Fed-Total ■ Multi-State Total

What additional organizations would be beneficial to have on our team?

Based on our current focus on shoreline hardening and impervious surface impacts on fish habitat and the need for communication with local planners, it would be advantageous to have the following organizations included on our team:

- Watershed Implementation Plan Leads (i.e. MDE)
- Virginia Marine Resources Commission (Shoreline Permitting)
- Delaware Office of State Planning Coordination

- Pennsylvania Department of Community and Economic Development
- Maryland Department of Planning
- National Coastal Zone Management Staff
- County and Local Planning Staff
- Virginia Association of Soil and Water Conservation Districts
- Chesapeake Bay Program Communications Team Member(s)
- Local Government Advisory Committee Member(s)
- Citizen Advisory Committee Member(s)

Why are we requesting the management board to “Incorporate fish habitat into the Phase III Watershed Implementation Plans?”

Watershed Implementation Plans (WIPs) were developed to improve water quality in the Chesapeake Bay by creating a road map and accountability framework that Bay jurisdictions can use to achieve nutrient and sediment reductions. These plans not only incorporate the latest data on estimated sediment and nutrient loads from different source sectors, but also establish a method of communicating and guiding counties/localities in environmental restoration and conservation efforts.

The Fish Habitat Outcome aims to inform fish habitat conservation and restoration efforts. However, there is currently no method to educate and inform fish habitat to partners and stakeholders. WIPs on the other hand, have established an effective and efficient means of reaching counties and localities in the Chesapeake Bay Watershed. While there are other methods to reach localities and counties outside of the WIP, it would not prove to be as efficient and broad. Without the WIP process, counties and localities would have to sift through information from multiple sources when making a BMP decision.

Integrating fish habitat considerations into WIPs demonstrates adherence to the EPA’s Interim Expectations for the Phase III Watershed Implementation plans, which states that the “EPA also encourages state and local jurisdictions to consider the corollary benefits of BMPs that are targeted for implementation. Corollary benefits are those that not only result in water quality improvements but could address other 2014 Chesapeake Bay Watershed Agreement Outcomes.” An added benefit of the suggested process to integrate fish habitat considerations into the WIP is to help local communities see tangible value in BMP implementation. Increased and healthier fish populations resulting from improved habitat may increase public support and understanding of WIPs.

What is the relevant factor influencing?

Government Agency Engagement at the Federal, State and/or Local Levels: Public and local government understanding, multiagency coordination and the permitting process. Lack an effective mechanism to communicate fish habitat priorities to CBP partners and the local community.

Partner Coordination: lack of public understanding of habitat loss

Scientific and Technical Understanding: Impacts of fish habitat on fisheries production. Lack of information and understanding on species in their habitats and identifying habitat areas. Lack a direct connection between fishery managers and habitat decision makers.

What are the existing things in place?

Communicating through the WIP process would be part of a new communication strategy for the team. We do not have a communication strategy at this time. We have some materials that can be provided now and others that would be developed in this next work plan.

1. *Estimation of BMP Impact on Chesapeake Bay Program Management Strategies Matrix*- This matrix can be used by local government to assess the impact BMPs will have on CBP's management strategies, including fish habitat. This matrix is intended to show the co-benefits and relative impact on additional goals that are important to the locality from nutrient and sediment load reduction BMPs. This work is done and can be provided to the localities now. It could open communication with the locality and fish habitat experts that help them determine which BMPs are most beneficial given their habitat condition and why.
2. *BMP Impact List Best Suited for Specific Habitat Conditions*- Fish habitat considerations vary geographically across the Bay Watershed and for each of our partner jurisdictions. In order to refine the suite of BMPs that benefit fish habitat, the Fish Habitat Action Team will develop a list of Best Management Practices (BMPs) best suited for four habitat conditions identified in the Fish Habitat Management Strategy:
 - a) Tidal Saltwater nearshore
 - b) Tidal Saltwater subtidal
 - c) Non-tidal cold upstream waters
 - d) Non-tidal warm water

These lists would be provided to localities/counties to guide their BMP selection process in a manner that incorporates corollary fish habitat benefits into local site-specific restoration and conservations projects. Individual jurisdictions could select fish habitat BMPs from the document list that best represents habitat conditions in their locality/county. This work will be done in the next work plan

3. *Impervious Surface and Hardened Shoreline Stress*- To guide our progress moving forward, the Fish Habitat Action Team has identified two priority stressors to fish habitat: 1) percent impervious surface in a watershed, and 2) percent hardened shoreline. Both stressors have resulted in negative impacts on fish habitat, fish abundance and biodiversity. The Fish Habitat team will develop documents that educate and encourage action in counties and localities related to the impacts of these stressors. In addition to providing increased fish habitat value, impervious surface and hardened shoreline improvements can offer numerous co-benefits to other outcomes under the Chesapeake Bay Watershed Agreement such as blue crab, oyster, forage, wetlands, water quality, citizen stewardship, protected lands, climate, healthy watersheds, and SAV.

What is the gap? And why is it a gap?

The gaps are information/data gaps and a lack of public and local planners understanding. This gap in understanding has means that land use and WQ improvement actions are being taken without full consultation with experts on the impacts to fish habitat. There is currently no method to educate and inform fish habitat to partners and stakeholders. Land use decisions affect fish habitat, but we do not have a mechanism to reach the local planners and leaders that make the land use decisions.

What are the options?

Management Board Ask: Incorporate fish habitat into the Phase III Watershed Implementation Plans

- Prioritize Best Management Practices (BMPs) that address water quality and habitat
- Serve as a metric of progress

WIPs have established an effective and efficient means of reaching counties and localities in the Chesapeake Bay Watershed. While there are other methods to reach localities and counties outside of the WIP, it would not prove to be as efficient and broad. Without the WIP process, counties and localities would have to sift through information from multiple sources when making a BMP decision.

Integrating fish habitat considerations into WIPs demonstrates adherence to the EPA's Interim Expectations for the Phase III Watershed Implementation plans, which states that the "EPA also encourages state and local jurisdictions to consider the corollary benefits of BMPs that are targeted for implementation. Corollary benefits are those that not only result in water quality improvements but could address other 2014 Chesapeake Bay Watershed Agreement Outcomes."

The Fish Habitat Outcome can also provide buy-in from localities to the BMPs and WIP process. Fish habitat and fish resources are socially appealing and provide economic benefits. Integrate fish habitat considerations into the WIP is to help local communities see tangible value in BMP implementation. Increased and healthier fish populations resulting from improved habitat may increase public support and understanding of WIPs.

We recommend that Management Board members:

1. Work with the WIP lead in your jurisdiction on a commitment to include fish habitat information in the WIP communication plan. We can meet with the lead agency staff to discuss materials and approach.
2. The HUC12 watersheds identified at the May 11th Management Board Meeting are areas having the greatest potential of providing multiple outcome benefits. These watersheds will be the focus of a fish habitat communication pilot project. The project will be to directly contact localities in each identified watershed to work on a process to integrate fish habitat considerations into their planning and BMP selection process. We will need help identifying the local contacts in your jurisdiction for the watersheds identified in the communication pilot project.

Pilot Project. The HUC12 watersheds identified at the May 11th Management Board Meeting are areas having the greatest potential of providing multiple outcome benefits. These watersheds will be the focus of a fish habitat communication pilot project. The project will be to directly contact localities in each identified watershed to work on a process to integrate fish habitat considerations into their planning and BMP selection process.

Fish Passage Outcome

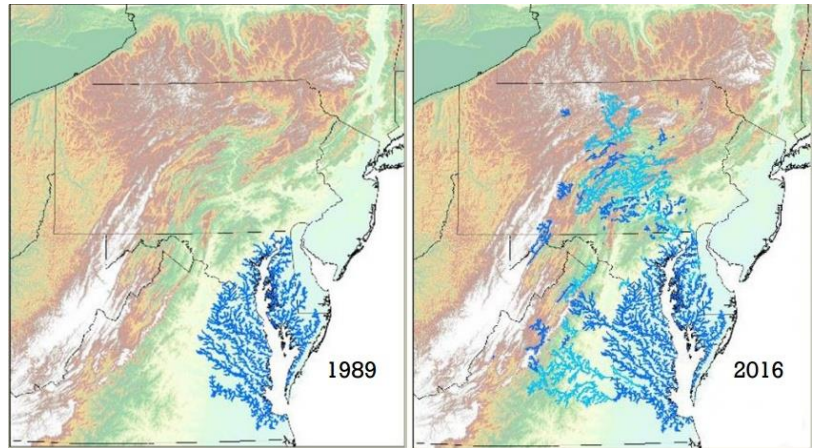
Outcome: By 2025, restore historical fish migratory routes by opening 1,000 additional stream miles, with restoration success indicated by the presence of Alewife, Blueback Herring, American Shad, Hickory Shad, American Eel and/or Brook Trout.

Challenges:

- Private owners not willing to remove dams
- Overall shrinking pool of dam removal projects due to workgroup success! Low hanging fruit is gone, difficult, more costly dam removal projects remain
- Lack of resources

May 11, 2017 Recommended Adaptations and Actions:

- Dam removal incentive programs
 - Ex. Tax deductions for dam owners that opt to remove dams that produce significant ecological benefits
- State dam safety offices to consider ecological harm/impacts due to dam failure in addition to public safety concerns
 - Better coordination within state agencies to encourage removals when appropriate



June 9, 2017 Additional Information and Specificity

Workgroup Membership

The Fish Passage Workgroup currently has 27 active members (regularly participate in calls) including team staff.

Fish Passage Workgroup (FPWG)	
Members:	Affiliation:
Jennifer Greiner (Coordinator)	US Fish and Wildlife Service (Federal)
Mary Andrews (Chair)	National Oceanic and Atmospheric Administration (Federal)
Kyle Runion (Staff)	Chesapeake Research Consortium (NGO)
Jose Barrios	US Fish and Wildlife Service (Federal)
Mark Bryer	The Nature Conservancy (NGO)
Nancy Butowski	MD Department of Natural Resources (State)
Jim Cummins	Interstate Commission on the Potomac River Basin (Federal/State)
Sandra Davis	US Fish and Wildlife Service (Federal)
Julie Devers	US Fish and Wildlife Service (Federal)
Sheila Eyler	US Fish and Wildlife Service (Federal)
Ashleigh Huber Fountain	US Army Corps of Engineers (Federal)
Ben Hutzell	US Fish and Wildlife Service (Federal)
Ben Lorson	PA Fish and Boat Commission (State)
Serena McClain	American Rivers (NGO)

Steve Minkkinen	US Fish and Wildlife Service (Federal)
Marian Norris	National Park Service (Federal)
David O'Brien	National Oceanic and Atmospheric Administration (Federal)
David O'Neill	National Fish and Wildlife Foundation (NGO)
Matthew Ogburn	Smithsonian Environmental Research Center (Research)
Angie Sowers	US Army Corps of Engineers (Federal)
Albert Spells	US Fish and Wildlife Service (Federal)
Rich Starr	Ecosystem Planning and Restoration (Private)
Jim Thompson	MD Department of Natural Resources (State)
Anne Timm	US Forest Service (Federal)
Alan Weaver	VA Department of Game and Inland Fisheries (State)
Howard Weinberg	University of Maryland Center for Environmental Studies (Research)
Adam Wright	Department of Defense (Federal)

More refined Recommended Adaptations and Actions

- a. The Fish Passage Workgroup asks that the Management Board assist in creating incentive programs for dam removal. For example, an incentive program could include tax deductions for dam owners that opt to remove dams that produce significant ecological benefits.
- b. The Fish Passage Workgroup asks that the Management Board recommend that state dam safety offices consider ecological harm/impacts due to dam failure in addition to public safety concerns. The encouragement of dam removals could be made easier through state agency coordination (e.g. State Highway Administration, Department of Environment and Dam Safety).

Fish Passage Outcome

By 2025, restore historical fish migratory routes by opening 1,000 additional stream miles, with restoration success indicated by the presence of Alewife, Blueback Herring, American Shad, Hickory Shad, American Eel and/or Brook Trout.

Factors Influencing

1. Community/**Landowner Willingness**, Legislation to **Incentivize** or Mandate Barrier Removal Projects
2. Funding
3. **Understanding the Ancillary Benefits of Dam Removal** (Policy Makers, Dam Owners and Local Government)
4. Target Species Populations in Decline Region-wide (unmanageable)
5. Selecting Most Cost-Effective Projects for Implementation

Related Actions

1. Project Development via Incentive Programs
2. Coordinate dam removal activities with the state Dam Safety Programs
3. Continue dam removal activities in the Chesapeake Bay

Challenges/Gaps

- Private owners not willing to remove dams (prefer the aesthetic of the dam, cost)
- Overall shrinking pool of dam removal projects due to workgroup success! Low hanging fruit is gone, difficult, more costly dam removal projects remain
- Lack of resources (lack of state, federal funding)

Refined Asks

1. The Fish Passage Workgroup asks that the Management Board assist in creating **incentive programs** for dam removal. For example, an incentive program could include tax deductions for dam owners that opt to remove dams that produce significant ecological benefits.
 - a. Do state legislatures need to pass funding bills to provide funds? If yes, can MB members influence that? Or does their agency have current funding to provide incentives.
2. The Fish Passage Workgroup asks that the Management Board [educate] recommend that state dam safety offices consider ecological harm/impacts due to dam failure in addition to public safety concerns. The encouragement of dam removals could be made easier through state agency coordination (e.g. State Highway Administration, Department of Environment and Dam Safety).

Protected Lands Outcome

Outcome: By 2025, protect an additional two million acres of lands throughout the watershed – currently identified as high-conservation priorities at the federal, state or local level – including 225,000 acres of wetlands and 695,000 acres of forestland and highest value for maintaining water quality

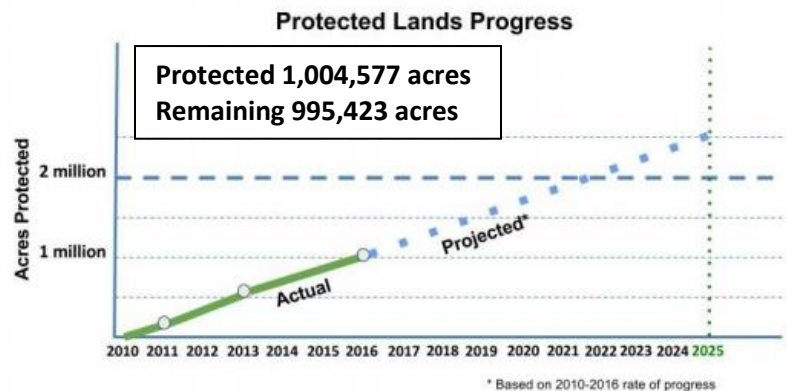
Challenges:

- Changing federal funding climate for land protection
- Impact on state and local revenues from changing federal funding
- Support for funding land protection varies based on economy and understanding of long-term goals

May 11, 2017 Recommended Adaptations and Actions:

- Support and effectively credit land conservation in the updates to the Bay models and Total Maximum Daily Load (TMDL) by creating strong incentives going forward for:
 - The placement of science appropriate BMPs on permanently protected lands, and
 - The permanent protection of large landscapes of resource lands from conversion in combination with other possible measures

The following represents a possible framework for thinking about options to achieve crediting of conservation in upcoming Chesapeake Bay model updates and beyond. These options might create



incentives or financing for conservation a number of years in the future.

Crediting Conservation Relative to the TMDL and Bay Model Summary Points

Disclaimer: The following notes are the opinions of Peter Claggett, Research Geographer with the U.S. Geological Survey at the Chesapeake Bay Program Office. The ideas discussed are an outgrowth of working on this issue for several years but they have not been vetted through the many organizations engaged on this issue. They also do not represent any official position of the U.S. Geological Survey.

1. The anticipated fall PSC decision to use a 2025 land use for the Phase III WIPs should be based purely on whether the simulated 2025 land use is more plausible than a 2010 or 2013 land use. In support of this decision, 2025 conditions reflect the footprint of an additional 1 million people that were absent in 2010 and 2013.
2. Forecasting development to 2025 and 2040 under a range of vetted plausible scenarios will enable jurisdictions to objectively and uniformly assess the magnitude of offsets required to "account for growth" under the TMDL. Forecasting will become even more valuable to the CBP Partners post-2025 as the focus shifts from restoration to maintenance in the face of future development.
3. Without aggressive conservation, the long-term trajectory for Bay health is at risk. Understanding the relative risks of land conversion will help jurisdictions spatially target both conservation and land use planning actions.
4. Forecasting growth coupled with monitoring land use change at high-resolution and modeling nutrient and sediment loads provides the necessary framework for making informed land use and management decisions at all levels of government.
5. Modeling future growth does not supersede monitoring land use change. Modeling provides a compass bearing- needed for making strategic investments and decisions, i.e., for developing and updating WIPs. Monitoring is necessary for accountability, ensuring that the impacts of land use change are mitigated by actions. Monitoring every two years may not be feasible and even if it were, there will likely be a lag of at least a year between when progress/milestones are assessed/set and monitoring results are available due to the time needed for data processing and assimilation. The roles of modeling and monitoring land use change should be further clarified for the CBP Partners and citizens.
6. Growth in rural areas is highly uncertain- particularly when the focus is near-term 2025 and when one considers the possibility of "leakage". Discounting conservation credits based on our level of certainty will diminish them significantly- so much so that they probably won't provide much of an additional incentive to conserve land outside areas such as Montgomery County, Maryland.
7. The social/cultural/economic arguments for land conservation and smart growth need to be communicated. Smart growth is "smart" for many reasons but in the context of this issue- it is smart because it saves local governments money and preserves future options (by not developing everything now). Due to the lack of broad implementation of zoning, subdivision ordinances, and other smart growth actions, development tends to leapfrog to jurisdictions willing to forsake long-term sustainability for short-term political and fiscal benefit. As we monitor and model how the land is and will change, we need to couple these analyses with multiple metrics that quantify the value of preserving forests and farms and communicate this information to jurisdictions.

8. In the fall/winter 2017, the CBP Partners should establish an interdisciplinary group to investigate and clarify how we simulate the nutrient and sediment effects of land use change. Such a group could emerge from our planned Phase 7 strategy sessions. This issue must be addressed because to date, through Phase 5.3.2, one can logically conclude from our models that "sprawl" would be an effective BMP. This conclusion is misguided for many reasons- including scientific ones. Former CBP models did not remove BMPs from the landscape due to land use change, nor account for the concentration of manure on a shrinking agricultural land base, nor account for stream bank and bed erosion associated with increased impervious cover and stormwater infrastructure, and they assumed that all developed and agricultural lands contribute an average amount of nutrients and sediment regardless of their fine-scale landscape position and other particulars.

9. Because credits associated with avoided conversion may only be applicable in urban and suburban counties projecting significant future growth (uncertainties being too high in rural areas to generate much credit), coupling conservation with precision restoration may provide a greater incentive to conserve lands. This will be particularly important in the post-2025 era of Phase 7 and cap maintenance. Phase 7 (high-resolution, semi-distributed modeling) may enable us to vary BMP efficiencies based on placement. Accommodating future growth in some parts of the watershed will require trading to maintain the cap in an affordable manner, with rural and exurban lands serving as recipients of trades from urban areas. The credit associated with a trade could be highest if the trades involve coupling conservation with precision restoration.

Brook Trout Outcome

Outcome: Restore and sustain naturally reproducing brook trout in the Chesapeake Bay's headwater streams, with an eight percent increase in occupied habitat by 2025.

Challenges:

- Limited ability to control stressors
- Insufficient resources for partner engagement/monitoring
- Limited understanding/access to Decision Support Tools (DSTs)
- Majority of restoration opportunities are on private property
- Restoration opportunities are not equal among States

May 11, 2017 Recommended Adaptations and Actions:

- Incentives for Team Members to be more engaged and invested in the Outcome
- Pathways for communication/outreach with key decision-makers/planners to increase awareness/opportunities
- Support for cross-GIT collaboration, monitoring programs

June 9, 2017 Additional Information and Specificity

Action Team Membership

The Brook Trout Action Team currently has 17 active members (regularly participate in calls) including team staff. Each state in the Chesapeake Bay Watershed with brook trout populations have a representative on the team. Each state representative works closely with the Eastern Brook Trout Joint Venture to report conservation and monitoring activities – data which informs the Brook Trout outcome indicator.

Brook Trout Action Team (BTAT)		
Members:	Contact:	Affiliation:
Alan Heft	alan.heft@maryland.gov	MD Department of Natural Resources (State)
David Kazyak	dkazyak@usgs.gov	US Geological Survey (Federal)
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Fred Henson	fred.henson@dec.ny.gov	NY Department of Environmental Conservation (State)
Jason Detar	jdetar@state.pa.us	PA Fish and Boat Commission (State)
Jennifer Greiner (Coordinator)	greiner_jennifer@fws.gov	US Fish and Wildlife Service (Federal)
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Matt Sell	matt.sell@maryland.gov	MD Department of Natural Resources (State)
Paige Hobaugh (Staff)	hobaugh.paige@epa.gov	Chesapeake Research Consortium (NGO)
Peter Tango	ptango@chesapeakebay.net	US Geological Survey (Federal)
Scott Scarfone	sscarfone@oasisdesigngroup.com	Trout Unlimited/Upper Gunpowder, MD (NGO)
Seth Coffman	scoffman@tu.org	Trout Unlimited (NGO)
Stephen Faulkner (Team Lead)	faulkners@usgs.gov	US Geological Survey (Federal)
Steve Perry	ebtjv.coordinator@gmail.com	Eastern Brook Trout Joint Venture (Federal)
Steve Reeser	Steve.Reeser@dgif.virginia.gov	VA Department of Game and Inland Fisheries (State)
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Tim Pokorny	tim.pokorny@dec.ny.gov	NY Department of Environmental Conservation (State)

More refined Recommended Adaptations and Actions

The Brook Trout Action Team requests that the Management Board recommend that dedicated CBP Staff/Team Members become more engaged and invested in the Outcome. Having direct support from relevant Team Members' 1st/2nd-level supervisor for the inclusion of Brook Trout Workplan development and Workplan key action participation as an element of their annual performance plan is one option. We ask that the Management Board designate CBP staff support to help develop a plan to increase communication/outreach of brook trout conservation opportunities with key decision-makers and to coordinate cross-GIT collaboration. Designating staff to concentrate on these efforts will allow for Brook Trout Action Team Members to focus on workplan key actions, resulting in better progress toward the Outcome.

Brook Trout Outcome

Restore and sustain naturally reproducing brook trout in the Chesapeake Bay's headwater streams, with an eight percent increase in occupied habitat by 2025.

Factors Influencing

1. Increases in impervious surface, sediment loading, and water temperature due to land development, roads, culverts, and unconventional oil and gas drilling
2. **Decision-maker and public awareness of brook trout issues**
3. Understanding climate change impact on stressors
4. **Monitoring**
5. Refinement and coordination of use of decision support tools

Related Actions

1. Target and conserve wild brook trout populations in subwatersheds that have best potential for sustaining resiliency
2. Communicate "best of the best" patches in context of local conservation planning
3. Continue assistance to states in monitoring brook trout occupancy and develop indicator using this data
4. Collect genetic information as potential census method for determining population viability and long-term restoration success

Challenges/Gaps

1. Limited ability to control stressors (water temperature, water quality)
2. Insufficient resources for partner engagement/monitoring
3. Limited understanding/access to Decision Support Tools (DSTs) (Partners need to be made aware of the tools and taught to use them)
4. Majority of restoration opportunities are on private property
5. Restoration opportunities are not equal among States (not very many opportunities in MD vs many more opportunities/more burden of work for PA)

Refined Asks

1. Incentives for Team Members to be more engaged and invested in the Outcome
 - a. Garnering direct support from relevant Team Members' 1st/2nd-level supervisor for the inclusion of Brook Trout Workplan development and Workplan key action participation, including increased resources for monitoring, as an element of their annual performance plan.
2. Pathways for communication/outreach with key decision-makers/planners to increase awareness/opportunities
 - a. Help to develop a list of points of contact of who at State or Local DOT/Planning Commission/DEQ needs to know what we know about priority brook trout habitat, how to prevent/mitigate stressors to protect/expand existing habitat and enhance restoration projects, etc. For example: if we know where road culverts/dams limit expanding brook trout habitat, who at DOT/Planning Commission can we work with to identify when/where there will be opportunities to replace culverts with improved designs to enhance passage. This also works as a cross-GIT goal.
 - b. Members of the Brook Trout Action Team could give presentations relevant to decision makers as a part of our communication and outreach efforts.
3. Support for cross-GIT collaboration, monitoring programs