Quarterly Progress Meeting: Fish Habitat

Step 1: Summarize your outcome.

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

Lead and Supporting Goal Implementation Teams (GITs):
The Sustainable Fisheries and Vital Habitats Goal Implementation Teams (GIT1 and GIT2) lead the effort to achieve this outcome.

Participating Partners:
Participating partners include:

- Delaware Department of Natural Resources and Environmental Control *(State of Delaware)*
- Maryland Department of Natural Resources *(State of Maryland)*
- Pennsylvania Fish and Boat Commission *(Commonwealth of Pennsylvania)*
- Virginia Department of Game and Inland Fisheries *(Commonwealth of Virginia)*
- Virginia Marine Resources Commission *(Commonwealth of Virginia)*
- Virginia Institute of Marine Science
- National Oceanic and Atmospheric Administration Chesapeake Bay Office
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- Atlantic Coast Fish Habitat Partnership
- Atlantic States Marine Fisheries Commission
- Chesapeake Research Consortium
- Interstate Commission on the Potomac River Basin
- Local Government Advisory Committee
- Morgan State University Estuarine Research Center
- Smithsonian Environmental Research Center

Progress:
This outcome targets habitats that fish and shellfish use at critical points in their life histories. Due to the wide range of areas that comprise fish habitat and existing gaps in our understanding of which habitats offer the highest value for fish reproduction, feeding, growth, or refuge, there is no established baseline for this outcome at this time. The following work has been completed in this workplan:

a. Identified species of interest for different habitats within the tidal and non-tidal Chesapeake Bay in the Fish Habitat Management Strategy

b. TetraTech completed an analysis and literature review of habitat stressors and threats covering egg, larval, and adult life stages for 13 lesser-studied species, which inhabit different regions in the Chesapeake Bay watershed.

c. The Fish Habitat Action Team received funding for a fish habitat workshop, which will identify representative species for different habitats in the tidal and non-tidal Chesapeake Bay. Using these representative species, experts will evaluate factors influencing habitat

function and provide criteria to qualify the significance of these factors.

d. Team members synthesized a recent Smithsonian Environmental Research Center report to communicate the impacts of shoreline hardening to fish habitat on birds, benthics, crustaceans and fish
e. Maryland is using a mapping approach to identify high priority habitat for anadromous spawning areas in Maryland and will develop maps for all life stages of their target species: striped bass, white perch, yellow perch, blueback and alewife herring, American and hickory shad.
f. Delaware is working to identify spawning, nursery and overwintering habitat to support largemouth bass, American shad, and Atlantic sturgeon in the Nanticoke River drainage.
g. Compiled existing tools and datasets into an inventory.
h. Working with Chesapeake Bay Program's GIS team to identify areas of interest to the Fish Habitat Action team, which coincide with other Outcomes under the Chesapeake Bay Watershed Agreement.

Step 2: Explain the logic behind your work toward an Outcome.

The attached logic table (available as an Excel spreadsheet) explains the reasoning behind our work toward an Outcome. The table indicates the status of our management actions and denotes which actions have or will play the biggest role in making progress.

Step 3: Craft a compelling narrative.

What are our assumptions?

(1) Are you on track to achieve your Outcome by the identified date?
The Fish Habitat Outcome is focused on education and communication on fish habitat concerns and tools for conservation and restoration. This will to be achieved by 2025 but there is no metric for this outcome. Fish Habitat is closely related to many of the Agreement's goals and it is our assumption that by helping other teams and collaborating, we will be able to further the fish habitat outcome. We have started working with Chesapeake Bay Program's GIS team to identify areas of interest to the Fish Habitat Action team, which coincide with other Outcomes under the Chesapeake Bay Watershed Agreement. We are working with the Stream Health Workgroup on a Workshop in 2018. The Fish Habitat workshop will evaluate factors influencing habitat function and provide criteria to qualify the significance of these factors. The products from this workshop can be used to communicate to local government, stakeholders, and other interested parties to improve management, restoration and conservation efforts. GIT-funded oyster study conducted by VIMS will evaluate shell/habitat loss dynamics of oyster reefs on a tributary-scale. This information also should be communicated and shared with oyster restoration partners and the wider Chesapeake Bay community.

a. What is your anticipated deadline? What is your anticipated trajectory?
We do not have an anticipated deadline for achievement of our outcome as the outcome language states that we will "Continually improve effectiveness of fish habitat conservation and restoration . . ." We aim to expand our current progress and to build off of our current efforts. Our trajectory includes collecting and disseminating foundational science and research through

a communication pathway with local government and partners.

b. What actual progress has been made thus far?
Progress has been outlined above in response to Question 1.
Main Progress:

- Completing the TetraTech projects which compiled habitat threat and stressor information for several species throughout the Chesapeake Bay Watershed.
- Starting to organize a STAC Workshop which will identify priority species and evaluate habitat function in the mainstem, tidal and non-tidal Chesapeake Bay
- Bringing together agencies to discuss impervious surface implications to fish habitat
- Work by jurisdictions to improve understanding of important habitat
    - Delaware is identifying spawning, nursery and overwintering habitat that supports largemouth bass, American shad, and Atlantic sturgeon in the Nanticoke River drainage
    - Maryland is developing a mapping approach to identify high priority habitat for anadromous spawning areas for striped bass, white perch, yellow perch, blueback and alewife herring, American and hickory shad.
- Using the National Fish Habitat Partnership 2015 Inland Assessment to help inform cross-GIT mapping project (identifying areas of interest to multiple outcomes to focus efforts and inform restoration/conservation efforts)

c. What could explain any existing gap(s) between your actual progress and anticipated trajectory?

- Management prioritization and commitment
- Funding and coordination
- Lack of public understanding
- Information/data gaps

Are we doing what we said we would do?

(2) Which of your management actions have been the most critical to your progress thus far? Why? Indicate which influencing factors these actions were meant to manage.

- The TetraTech project has given the team direction in identifying and drawing connections for common threats and stressors to fish habitat
- The SERC Shorelines study has provided valuable emphasis on the stressors to tidal wetlands and the implications of those threats on the sustainability of these habitats.

(3) Which of your management actions will be the most critical to your progress in the future? Why? What barriers must be removed—and how, and by whom—to allow these actions to be taken? Indicate which influencing factors these actions will be meant to manage.

- The STAC Workshop, which is anticipated to be funded in June 2017 and conducted in early 2018, will allow us to bring together expertise and data to inform our selection of "priority species". This is a basis for further action.
- Management Approach 4, "Communicate importance of fish habitat to the general public and local community leaders by engaging in a conversation about the tradeoffs

associated with competing uses of land and water. It is essential to develop a communications strategy that educates the public and local community. This will aid in closing gaps of public opposition and lack of understanding. This action can also help by increasing public support and interest in restoration/conservation activities.

Are our actions having the expected effect?

(4) What scientific, fiscal or policy-related developments or lessons learned have changed your logic or assumptions (e.g., your recommended measure of progress; the factors you believe influence your ability to succeed; or the management actions you recommend taking) about your Outcome?

- We will need to include climate changes if we are building resiliency into our management efforts and project where investments will be most effective according to risk of climate change impacts.
- Social science should be included in communications efforts. Education of the costs of fish habitat loss.

(5) What would you recommend changing about your management approach? What new content will you include in your updated work plan?

- Create a metric to determine progress.
- Fish Habitat considerations should be included in Phase III Watershed Implementation Plans and communication.
- Engaging local communities and partners
- Be more aware of time and staff resources (including GIS)
- Translating fish habitat to for Baywide understanding/application of efforts
    i. Consistent criteria across the Bay
- Focus on hardening shorelines and impervious surface as major stressors to fish habitat and work with other Bay Program team that have these factors influencing as well.
- Work on scientific understanding with communication to decision makers and planners in mind. Making sure the science will be useful and understandable.

(6) What opportunities exist to collaborate across GITs? Can we target conservation or restoration work to yield co-benefits that would address multiple factors or support multiple actions across outcomes?

- Stream Health
    i. Collaborate with the Stream Health Workgroup and experts to select freshwater representative species and evaluate the factors influencing habitat function for these selected species (2018 STAC Workshop).
- Climate Change
    i. Work with Climate Change experts to analyze climate change impacts (including sea level rise, ocean acidification, high intensity precipitation events, temperature rise, etc.) on fish habitat.
- Healthy watersheds
    i. Work with Healthy Watershed partners to identify areas that need to be conserved and how to monitor the health of these habitats.

- Water Quality
    i. Evaluate impacts of water quality on fish habitat for representative species.

How should we adapt?

(7) What is needed from the Management Board to continue or accelerate your progress? Multiple asks of the Management Board should be prioritized where possible.

- How to incorporate fish habitat considerations in Phase 3 WIP development?
    i. Efficiency and effectiveness in messaging co-benefits
    ii. Determine how to overcome challenges in communications
        1. Package information as a service
    iii. Use shorelines and impervious surface as an example of stressors to fish habitat
- How can be improve integration of fish habitat in the CBP, teams and workgroups?
    i. Could organize into relevant groups with other workgroups/GITs
- What tools are needed by the Management?
    i. It would be helpful to develop a **logic model** to direct users to the appropriate mapping tools. There are many tools available, but it is difficult to know which are appropriate for certain tasks and decision-making processes.