



Narrative Analysis

BROOK TROUT OUTCOME AUGUST 15, 2019

The narrative analysis summarizes the findings of the logic and action plan and serves as the bridge between the logic and action plan and the quarterly progress meeting presentation. Based on what you learned over the past two years from your successes and challenges, you will describe whether the partnership should make adaptations or change course.

Use your completed pre-quarterly logic and action plan to answer the questions below. After the quarterly progress meeting, your responses to these questions will guide your updates to your logic and action plan. Additional guidance can be found on [ChesapeakeDecisions](#).

1. Examine your red/yellow/green analysis of your management actions. What lessons have you learned over the past two years of implementation?

The efforts of the Brook Trout Workgroup over the past two years have been dispersed across the multiple actions identified in the Work Plan. Full implementation of action activities continues to be hampered by limited resources and personnel available to carry out those actions. We have had the most success in those areas that have been well-funded by partners and actions that are conducted by state/federal agencies as part of their specific programs. We used a recently developed brook trout occupancy model to quantify the impacts of unconventional oil and gas development on brook trout and the importance of groundwater at the stream-reach scale. Work on priority components (e.g., genetics, reporting tool) has advanced, but more slowly than we would like. We have had limited success with cross-GIT collaborations, engagement with CBP teams related to identifying and communicating with local decision makers.

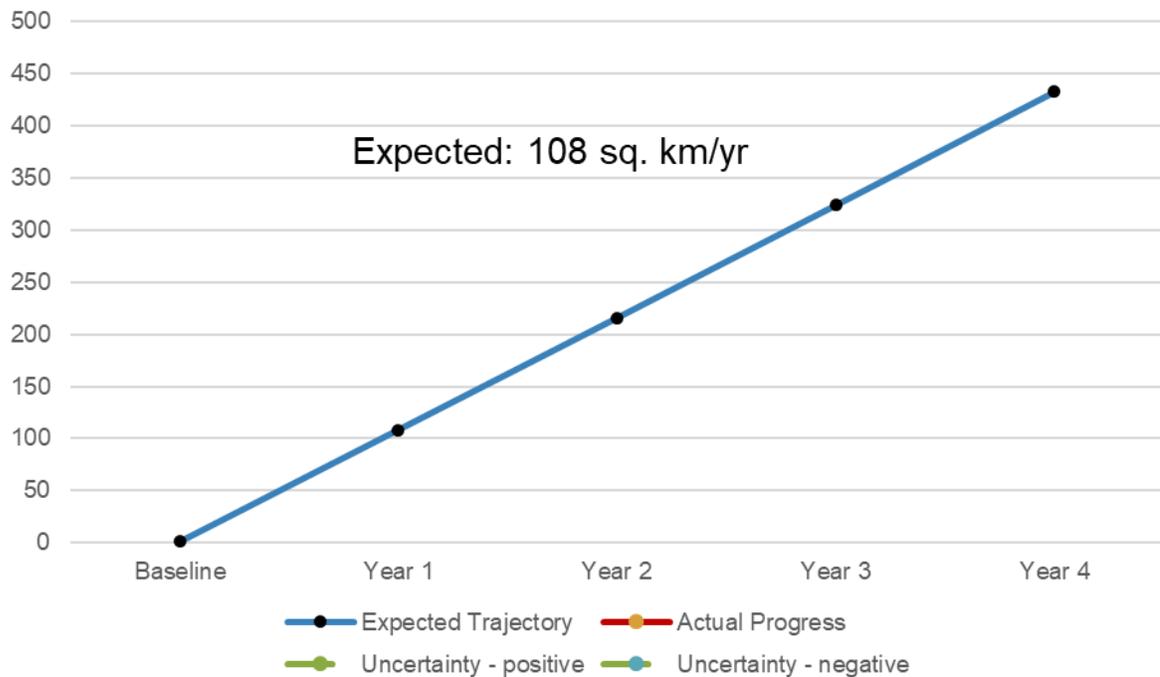
We have identified a need to develop additional metrics to quantify conservation actions that substantially contribute to maintaining current high quality brook trout habitat. While restoration is important, those projects are often resource limited and opportunistic. Most of the Brook Trout Workgroup members spend significant time and resources protecting existing habitat from loss and this is not currently captured in our outcome metrics. Additional priority information gaps related to brook trout genetics, fine-scale groundwater impact on stream temperatures, and limitations in the data related to the brook trout metric were identified.

2. Regardless of how successful your short-term progress has been over the past two years, indicate whether we are making progress at a rate that is necessary to achieve the outcome you are working toward. The example graph below illustrates this concept.

The outcome of restoring naturally reproducing brook trout populations with an eight percent increase in occupied habitat by 2025 is particularly challenging given that the primary drivers of brook trout habitat loss and degradation - deforestation, increases in agriculture, urbanization,

and impervious surface – continue to occur and the Brook Trout Workgroup has limited ability to directly address those factors. Restoration projects are often opportunistic: a willing private landowner with the appropriate conditions for a successful project and available funding all have to align. In West Virginia, only a small portion of the brook trout streams are located in the Chesapeake Bay Watershed and typically the highest priority opportunities are located in other areas of the state. In addition, the limited resources for brook trout in the relevant state agencies are often directed towards conservation/enhancement of existing high quality sites as these projects are often better aligned with agency goals and objectives related to recreational fisheries.

The primary data for the occupancy metric is the catchment assessment conducted every five years in collaboration with the Eastern Brook Trout Joint Venture. The next assessment is scheduled for 2020, so we won't have updated data until then, but limited information from the states suggests there has been little increase in brook trout occupancy over the last two years. However, that is likely an incomplete picture as there are also numerous brook trout conservation and restoration projects that are not currently being captured. For example, both Trout Unlimited and the National Fish and Wildlife Foundation have large programs targeting brook trout restoration in the Chesapeake Bay Watershed. This gap has been identified as a high priority for the next Work Plan. Given these conditions, we don't have an accurate measure of actual progress and uncertainty, but the limited available data indicate we are well below the target of 108 sq. km/yr.



3. What scientific, fiscal and policy-related developments will influence your work over the next two years?

New research findings related to genetics, restoration methodologies, impacts of climate and land-use change, and invasive species will be evaluated and incorporated into the next Work Plan. Advances in eDNA approaches may provide opportunities to enhance monitoring related

to fish passage/barrier removal. New information on brook trout genetics may help managers address questions related to selecting donor populations for brook trout restoration, assess/manage effective population size, determine how stocking practices influence the genetic integrity of native populations, etc. Methodologies and results of new fine-scaled fish habitat assessments in headwater ecosystems will also need to be communicated to stakeholders and managers. In addition, activities related to healthy watersheds, fish passage, and aquatic connectivity efforts are all relevant to brook trout and will need coordination to maximize their impact on brook trout habitats.

4. Based on your response to the questions above, how will your work change over the next two years?

We will continue to work with Brook Trout Workgroup members, other relevant groups (e.g., National Fish and Wildlife Foundation), and stakeholders to identify priority action items with greatest impact, science needs, and knowledge gaps. This information, along with recent scientific advances, will be used to revise our management strategy and Work Plan. We have already identified actions related to improving management-relevant genetics information and fine-scale groundwater modeling. We will develop procedures to incorporate the benefits of efforts to sustain and enhance existing high quality brook trout habitat as these efforts are an important contribution to the outcome that are not currently captured. We will also address the gaps in accurately quantifying the full range of activities conducted by other organizations such as Trout Unlimited, National Fish and Wildlife Foundation, and local groups funded through programs such as USDA conservation programs. We will work with the Management Board, STAR, and CBP staff to develop a tracking spreadsheet/tool for all partners (including NGOs) to report, store, and collate the relevant brook trout data using the same attributes/language in a single location. This is essential in order for us to adequately track progress towards outcome.

5. What, if any, actions can the Management Board take to help ensure success in achieving your outcome?

We need CBP/other staff support to help develop a communication and outreach plan and identify key decision makers. We have information now that can be provided to managers and decision makers that will address the factors causing loss of brook trout habitat. However, the Brook Trout Workgroup does not have sufficient resources or expertise to execute this component. If we can't get the best available science to the right decision makers, then our ability to increase brook trout habitat and occupancy is limited.

We need Management Board help to increase funding for both monitoring and travel support within the agencies represented on the Workgroup. We estimate that a small amount of increased funding would go a long way to improving progress on the brook trout outcome. For monitoring, \$15-20,000 per year to hire additional temporary field staff would improve the amount and accuracy of the data collected. The ability of the Workgroup to successfully execute our Work Plan and make adequate progress towards the outcome is constrained by limited participation by the Workgroup members. Given their limited funding for travel, we typically "piggy back" on a meeting where many of the members are already attending in order to convene an in-person meeting. While we do have conference calls, the in-person meeting is much more effective and productive. However, this approach has its downsides as members are not always able to add on an extra day after already being away and the energy, enthusiasm, and engagement are limited. An estimated \$1,000/yr for agency members would enable them to

fully participate in stand-alone Workgroup meeting focused on our agenda. In addition to monetary enhancements, these actions would also demonstrate the commitment the member agencies have to the Chesapeake Bay Agreement and the brook trout outcome and that this commitment begins with the leadership at the top and extends all the way through the chain of command to the Workgroup member.

We also need Management Board support for CBP staff to help develop a tracking and maintain a tracking spreadsheet/tool for all partners (including NGOs, local groups) to report, store, and collate the relevant brook trout data using the same attributes/language in a single location. This is essential in order for us to adequately track progress towards outcome. We have already begun efforts to identify all of the relevant agencies/groups engaged in brook trout conservation and restoration throughout the Chesapeake Bay Watershed and are setting up points of contact to get annual updates on their activities and achievements.