QUARTERLY PROGRESS MEETING – August 2019
Chesapeake Bay Program

Brook Trout

Stephen Faulkner
U.S. Geological Survey
Chair, Brook Trout Workgroup

Through the Chesapeake Bay Watershed Agreement*, the Chesapeake Bay Program has committed to…*

Goal: Vital Habitats

Outcome: Restore and sustain naturally reproducing brook trout populations in Chesapeake headwater streams with an eight percent increase in occupied habitat by 2025.

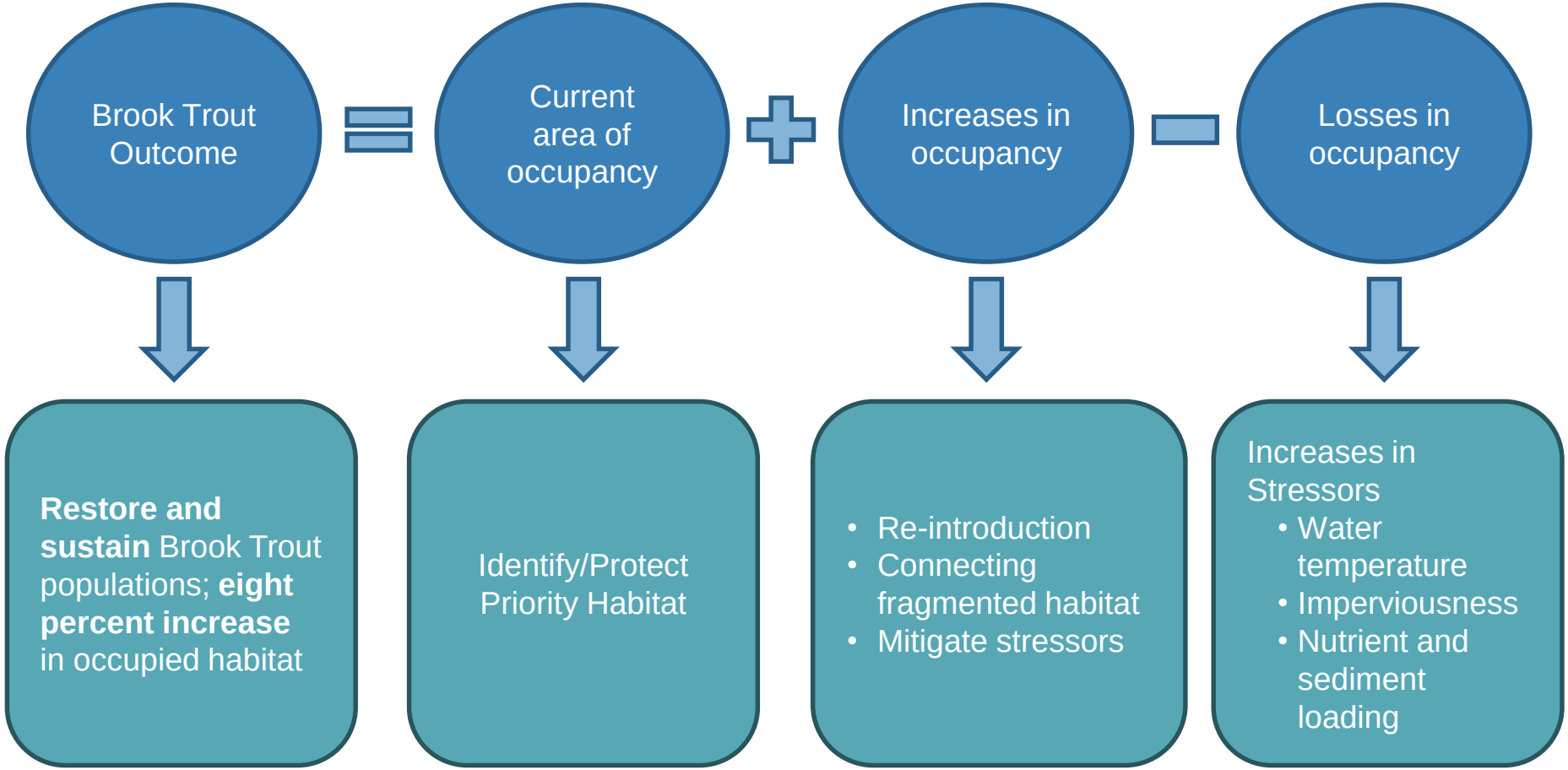
How You Can Help

Summary:

- Not on the track to achieve outcome.
- Great successes, but scientific and programmatic challenges remain.
- Need help with monitoring, communication, and coordination.

Learn

What have we learned in the last two years?


Brook Trout Outcome
=
Current area of occupancy
+
Increases in occupancy
–
Losses in occupancy
Restore and sustain Brook Trout populations; eight percent increase in occupied habitat
Identify/Protect Priority Habitat
• Re-introduction
• Connecting fragmented habitat
• Mitigate stressors
Increases in Stressors
• Water temperature
• Imperviousness
• Nutrient and sediment loading

Successes and Challenges

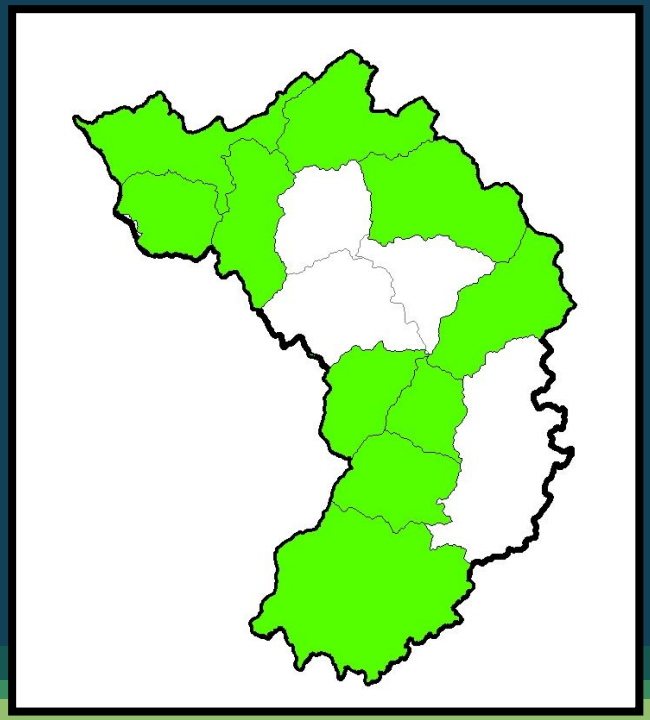
Science

- Stream water temperature remains the best predictor of brook trout occurrence (multiple models)
- Can’t measure everywhere, so model temperature, evaluate drivers: % Forest/riparian cover, % imperviousness/agriculture, groundwater upwelling
- Managers need information at decision-relevant scales, generally highest resolution possible

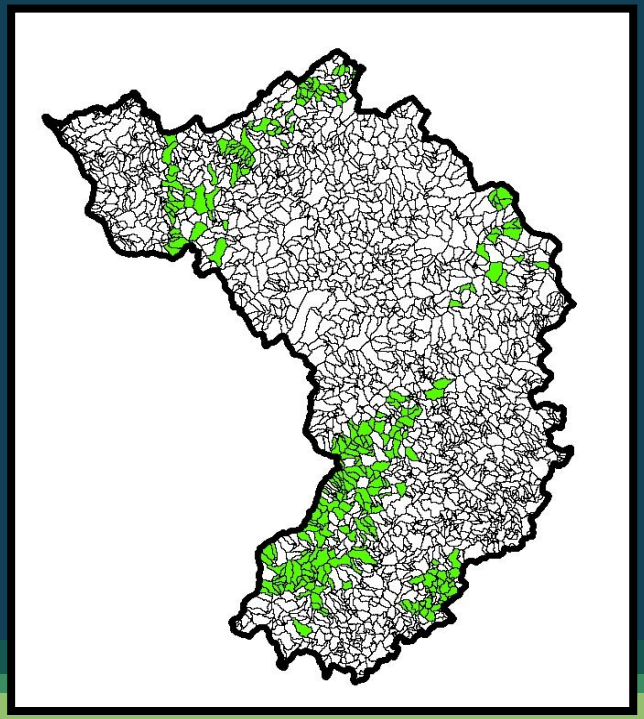
Scale Effects

Brook Trout Occupancy

Watershed (HUC10): 76% of watersheds



Catchments (HUC14): 11% of catchments

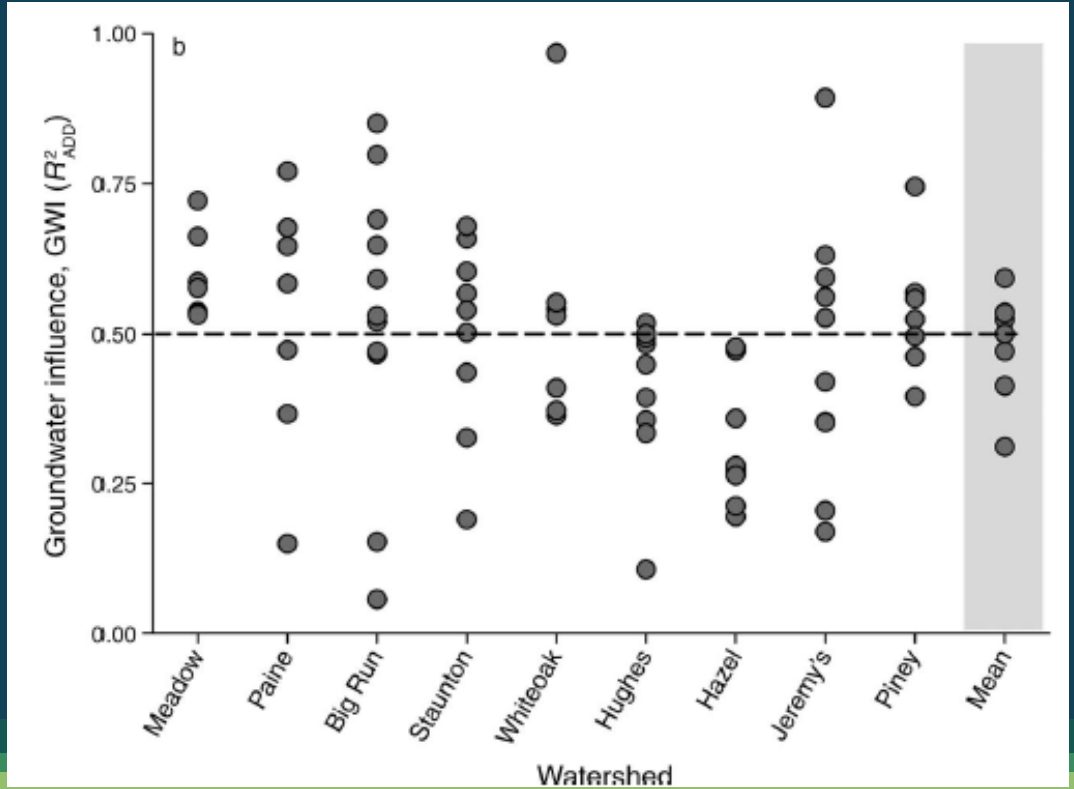


Adapted from Hudy et al. 2013

Scale Effects

Brook Trout Habitat

Fine-scale groundwater influence on stream temperature



From Snyder et al. 2015

Successes and Challenges

Program

- Full implementation of work plan actions hampered by limited resources, personnel
- Most successful actions are those most closely aligned with state/federal agencies, NGOs program priorities
- Work on priority components (e.g., genetics, metrics, reporting tool) is moving forward, but slowly

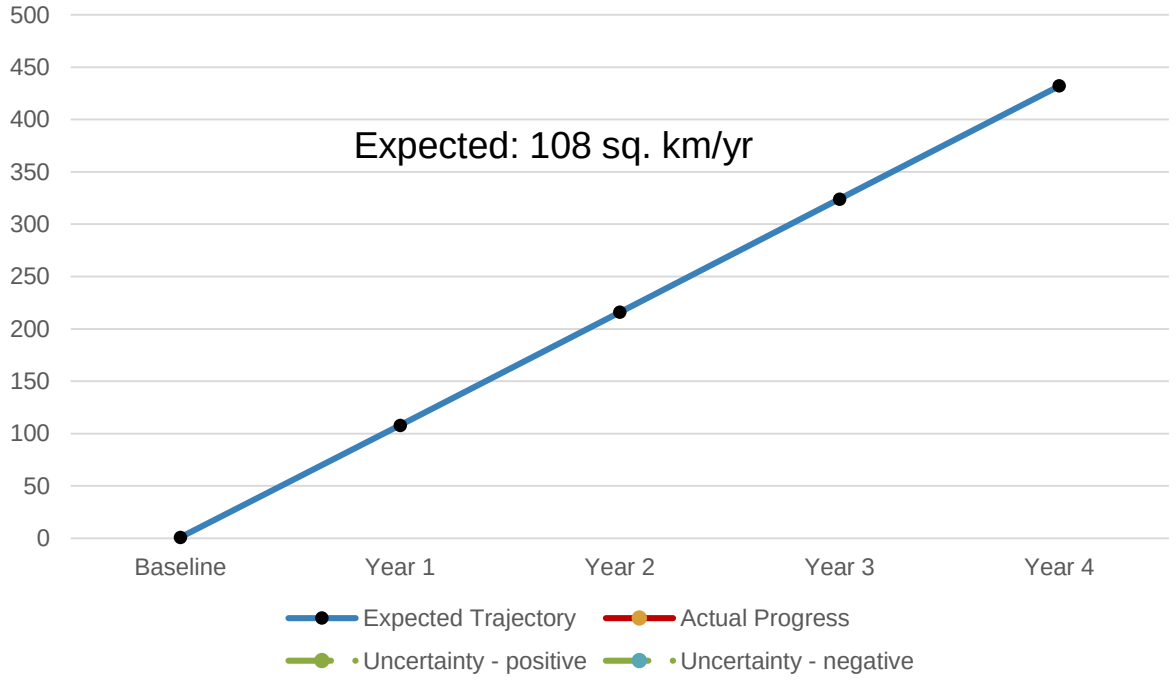
Successes and Challenges

Program

- Limited success with cross-GIT collaborations, engagement with CBP teams related to identifying/communicating with local decision makers, co-benefits.

- Need to develop additional metrics to quantify conservation actions that substantially contribute to maintaining current brook trout habitat – equally important as restoration

What is our Expected and Actual Progress?



On the Horizon

- New research findings related to genetics, restoration methodologies, impacts of climate, land-use change.
- Results of new fine-scaled fish habitat assessment
- Activities related to healthy watersheds, fish passage, aquatic connectivity efforts

A

Adapt

How does all of this impact our work?

Based on what we learned, we plan to …

- Continue to engage Brook Trout Workgroup members/NGOs to identify priority action items with greatest impact, knowledge gaps
- Develop additional metrics related to conservation/protection of existing high quality brook trout habitat

Based on what we learned, we plan to …

- Continue to address science needs related to climate impacts, genetics, habitat assessment
- Work with Brook Trout Workgroup/CBP staff to develop tracking spreadsheet/tool for all partners (including NGOs) to report progress using common metrics.

Help

How can the Management Board lead the Program to adapt?

Help Needed

Resources

- CBP/other staff support to help develop communication/outreach plan, identify key decision-makers

- 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.

Help Needed

Resources

- Increased travel funding to support full participation of Brook Trout Workgroup members
- Difficult to achieve outcome without full participation of Brook Trout Workgroup members

Help Needed

Science and Monitoring

- Increased funding to address insufficient monitoring data

- Without adequate monitoring data, cannot accurately track progress towards outcome

Help Needed

Restoration/ Conservation Tracking

- CBP staff support to help develop and maintain tracking spreadsheet/tool
- Need a single location to store and collate all brook trout data to adequately track progress towards outcome

Discussion