



Brook Trout Indicator

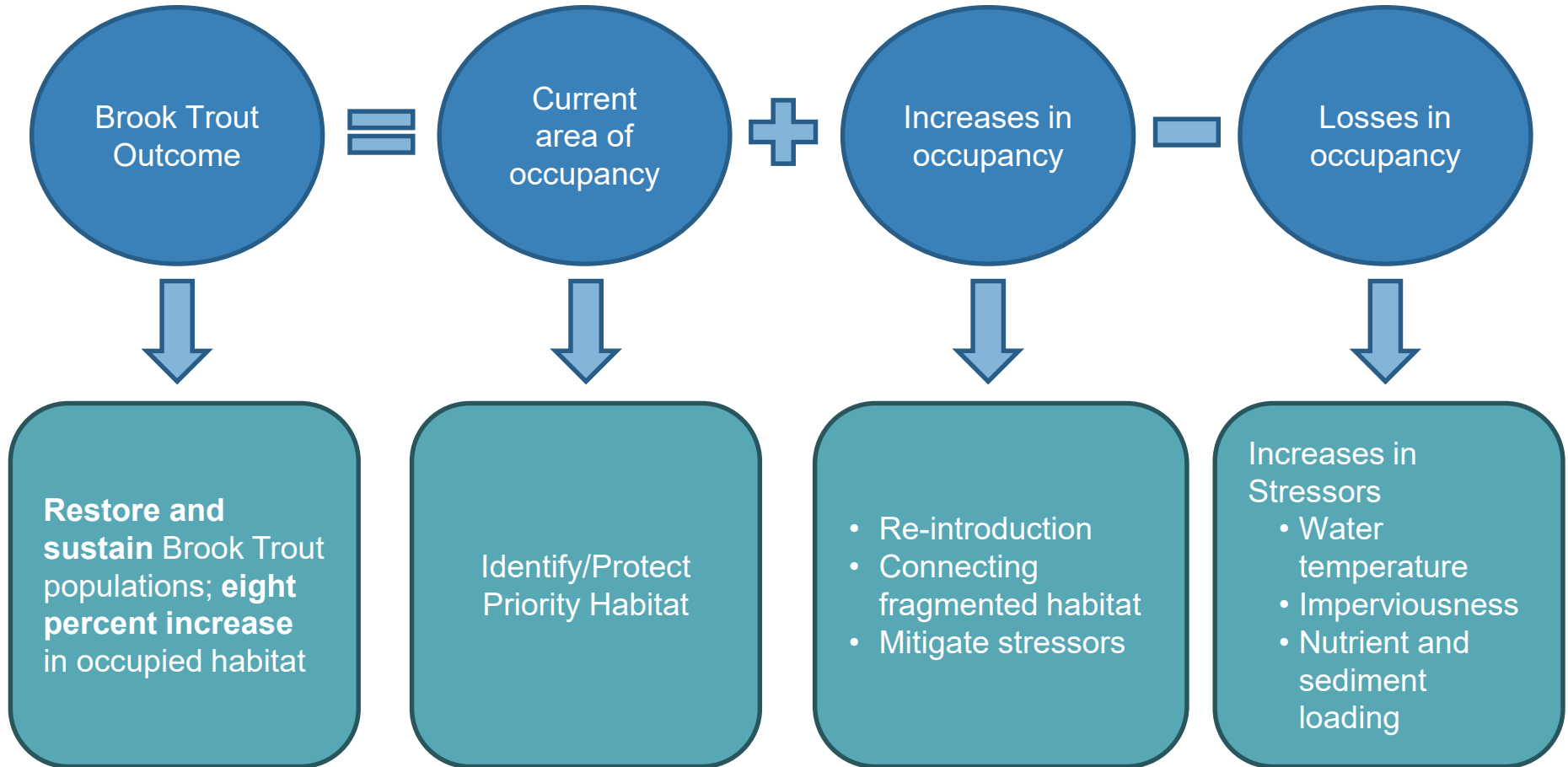
*Stephen Faulkner, USGS
Brook Trout Action Team Coordinator
October 10, 2018*

Through the Chesapeake Bay Watershed Agreement, the Chesapeake Bay Program has committed to...

Goal: Brook Trout Outcome



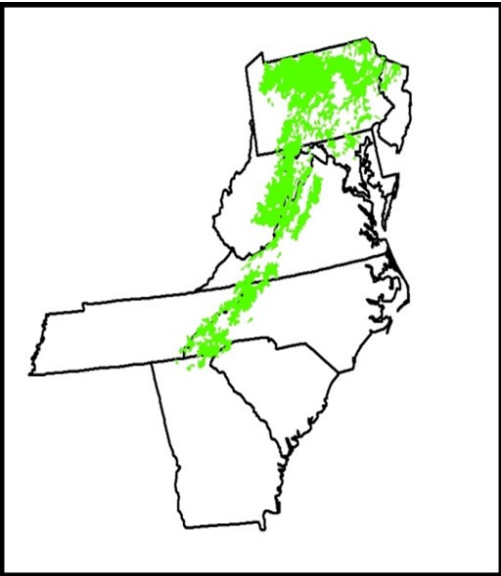
Outcome: *Restore and sustain naturally reproducing Brook Trout populations in Chesapeake Bay headwater streams, with an eight percent increase in occupied habitat by 2025.*



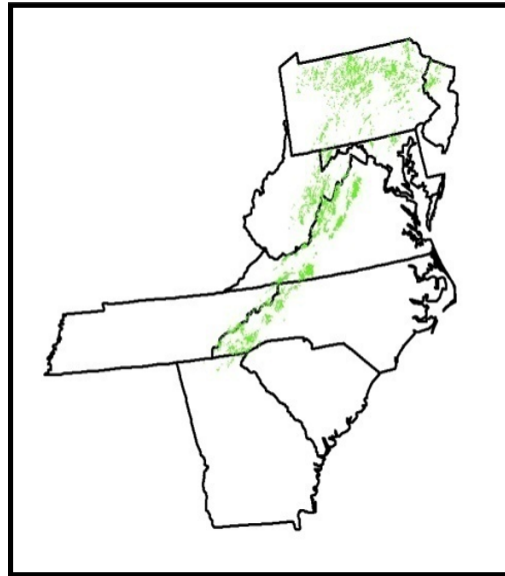
Data Set and Source

- **States typically conduct annual census of reproducing trout collected at the stream-reach scale**
- **Temporal - Goal is to sample all known populations at least once every five years**
- **Spatial - Data can be summarized at the watershed (HUC10), subwatershed (HUC12), and catchment (HUC14) scales**

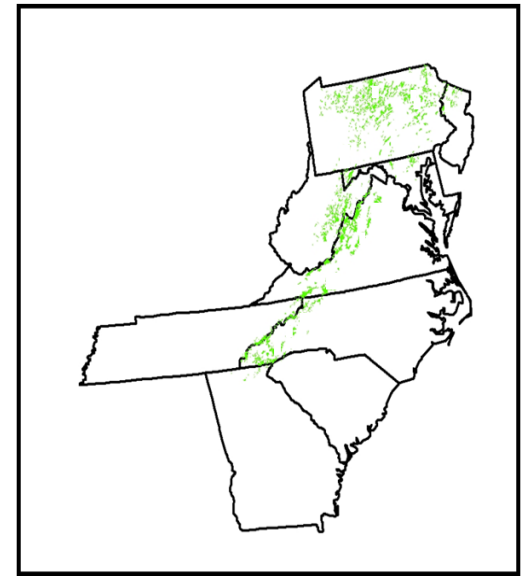
Watershed (HUC10): 52% of 808 watersheds - “Brook trout are still found in half of their range”



Subwatershed (HUC12): 32% of 3,804 subwatersheds - “Brook trout are still found in nearly a third of their range”



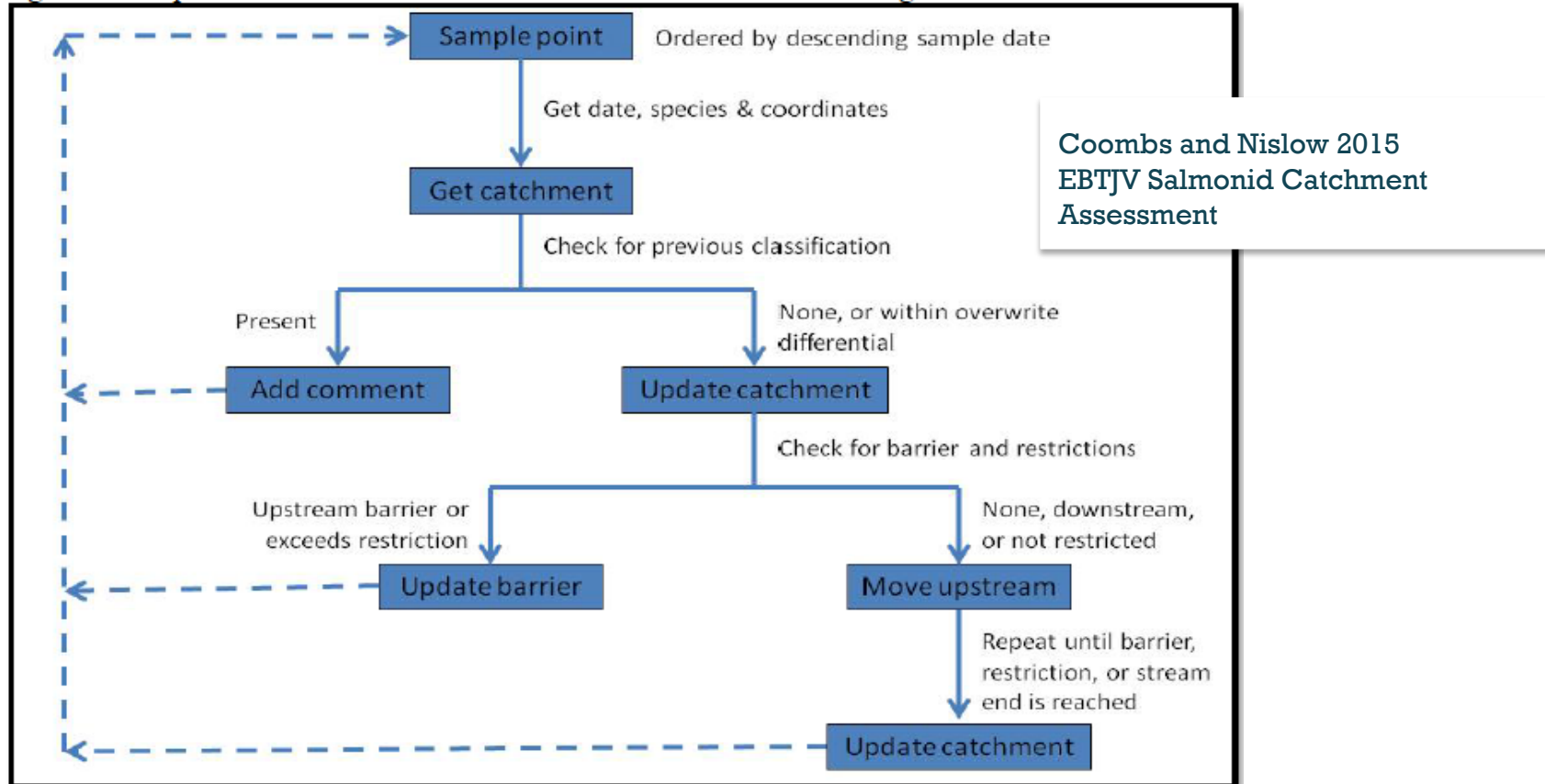
Catchments (HUC14): 14% of 132,321 catchments - “Brook trout have been extirpated from 86% of their historic catchments”



Adapted from Hudy et al. 2013

Data Analysis

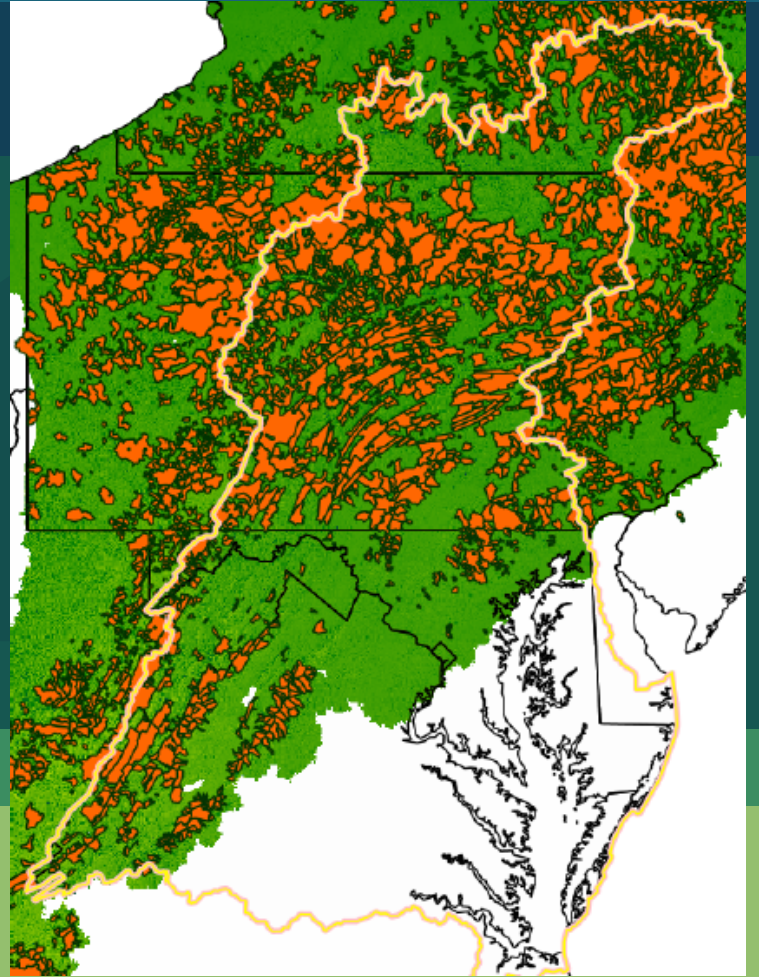
Figure 1: Simplified flowchart of the salmonid catchment assessment algorithm.



Occupied Habitat:

Baseline: EBTJV 2015 assessment estimated 13,500 sq. km of allopatric (Brook Trout only) occupied habitat bay wide.

Outcome target: Increase by 1,100 sq. km for a total of 14,600 sq km by 2025.



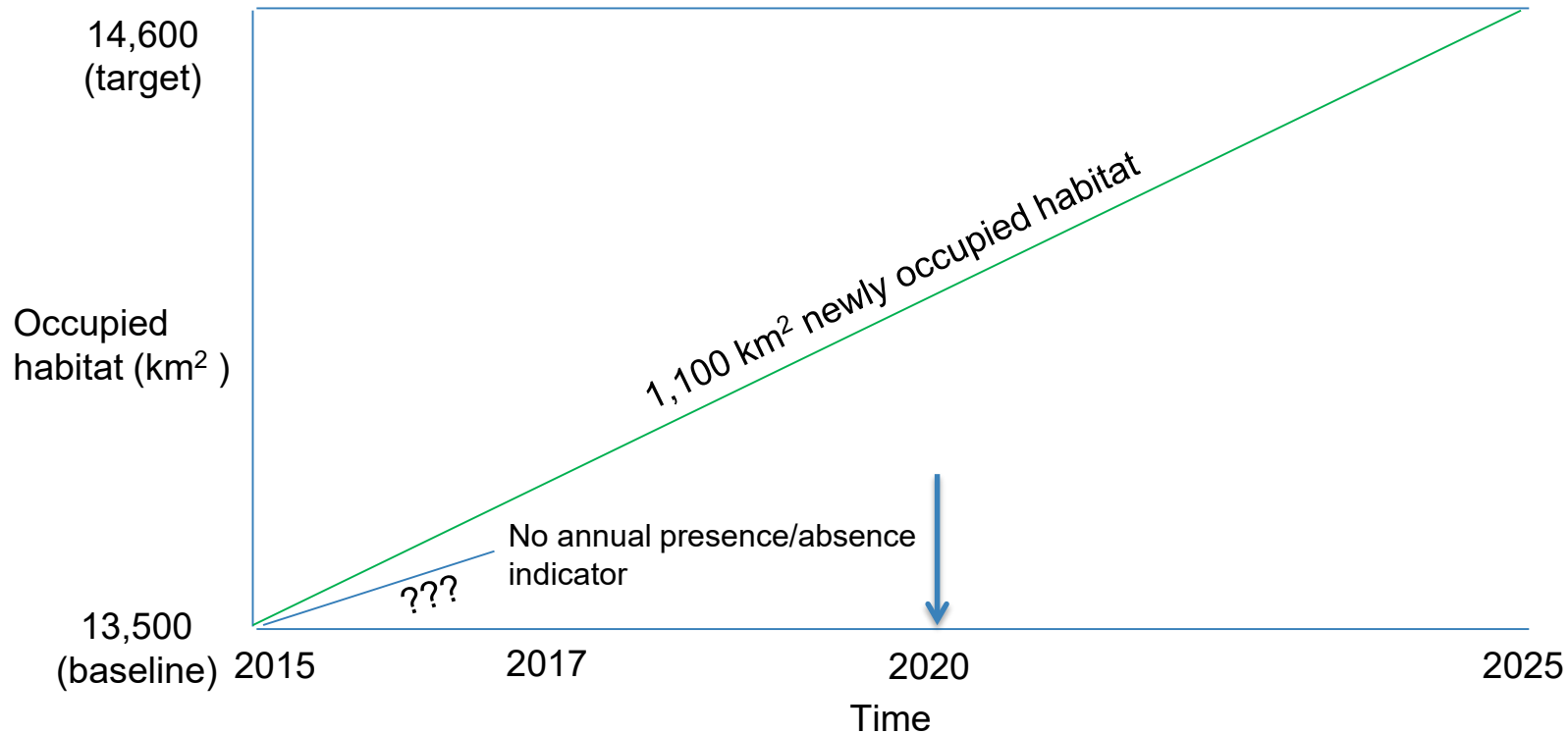
Data Quality

- **No QAPP but states have standardized methodologies for field census**
- **Detection probabilities are unknown for the majority of the state efforts, but ranged from 89 to 99 % in Pennsylvania streams (Wagner et al. 2013)**

Data Quality

- **The validation process for GIS catchment classification**
 - **each state reviews catchment layer classifications (EBTJV_Code)**
 - **confirms classification or updates based on their records (e.g., brook trout present, brown trout were stocked)**
- **Catchments were visualized and examined using GIS software**
- **Changes to the classification code had the following information written to a file:**
 - **FEATUREID of the catchment**
 - **Current EBTJV_Code**
 - **Replacement EBTJV_Code**
 - **Reason (e.g., brook trout present; brown trout stocked)**

Current Status



Additional Challenges

- **No systematic accounting of increases in brook trout occupancy resulting from NGO restoration projects (Trout Unlimited, NFWF)**
- **BTAT Work Plan - Streamline progress reporting process for partners**
 - **Canvass EBTJV, State, and NGO representatives with regard to obstacles to reporting progress/restoration tracking, possible solutions.**
 - **Develop and maintain a tracking spreadsheet for all partners (including NGOs) to report on their work using the same attributes/language**

A close-up photograph of a person's hands holding a vibrant rainbow trout in a shallow stream. The fish has a mix of green, yellow, and orange scales with dark spots. To the right, a silver fishing reel is visible on a wooden handle. The stream bed is covered in smooth, brownish rocks. A blue thought bubble with the text "Questions??" is overlaid on the left side of the image.

Questions??