Chesapeake Bay Program
Science. Restoration. Partnership.

Brook Trout Outcome

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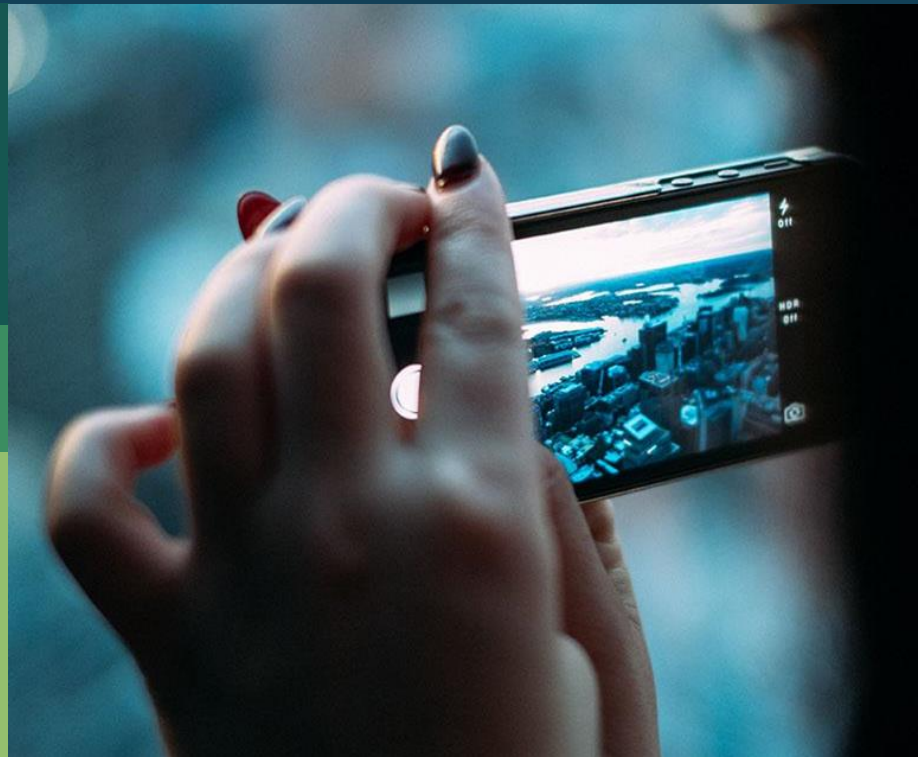
Brook Trout Action Team Lead

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.*

What We Want



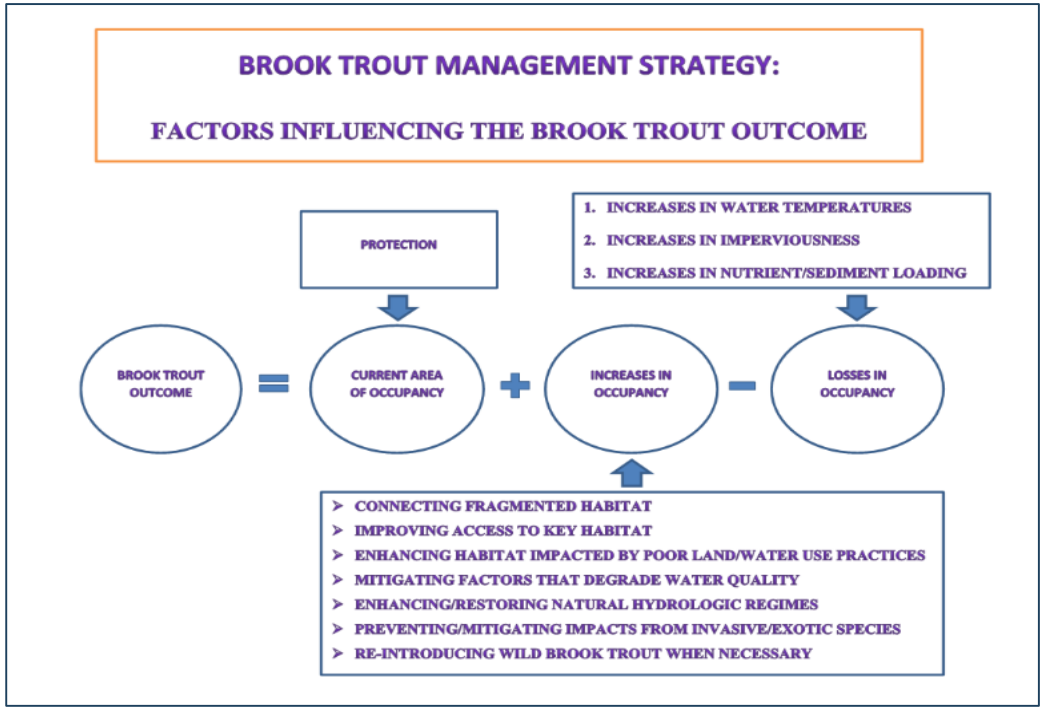
Identify the ask(s) to the Management Board up front! Use a picture to illustrate your point.

1

Setting the Stage:

What are our assumptions?

Logic Behind Our Outcome



Following the Decision Framework

Gaps

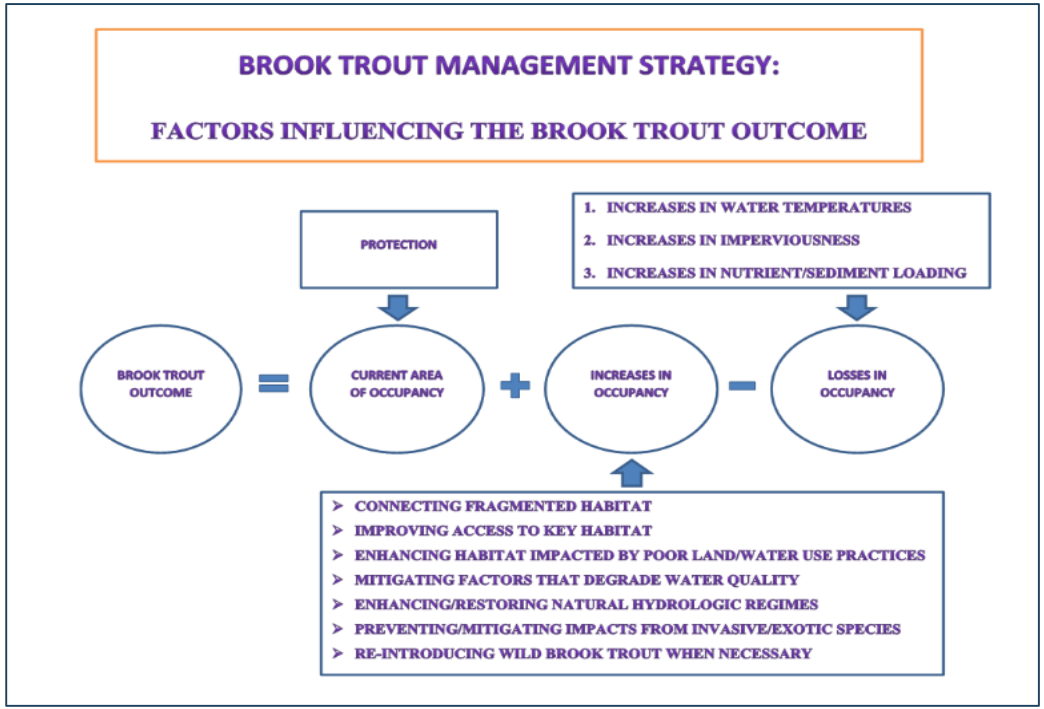
1. S&T – How do changes in land use/climate/stressors affect Brook Trout?
2. S&T – Monitoring/funding
3. Legislative/Public Engagement - Creative or innovative ways to incentivize private landowner participation

Management Approaches

Identify and Communicate Priority Focal Areas for Brook Trout Conservation (1, 3)

- Target and conserve wild brook trout populations in subwatersheds with best potential for sustaining resiliency
- Communicate "best of the best“ patches

Logic Behind Our Outcome



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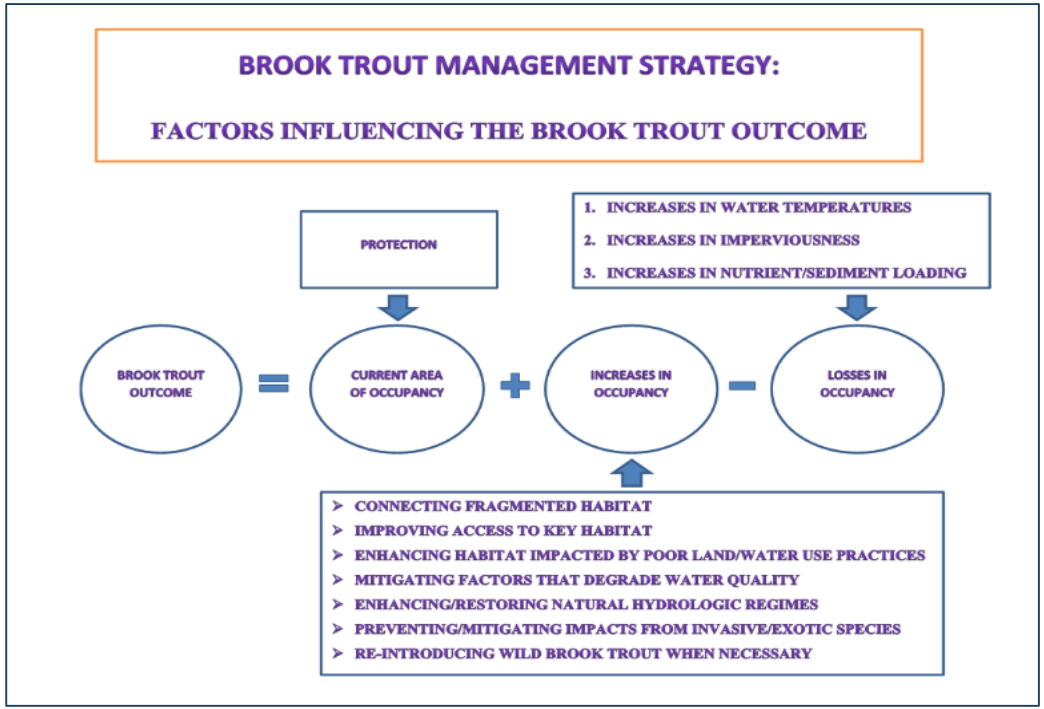
Management Approaches

Consider Climate Change and Emerging Stressors in Determining Restoration Priorities (1, 2)

- Add predictive layer for acid mine drainage-impacted streams and unconventional oil and gas (UOG) development
- Consider impact of invasive species on brook trout habitat
- Implement Trout Unlimited's (TU) Home River Initiatives

Logic Behind Our Outcome



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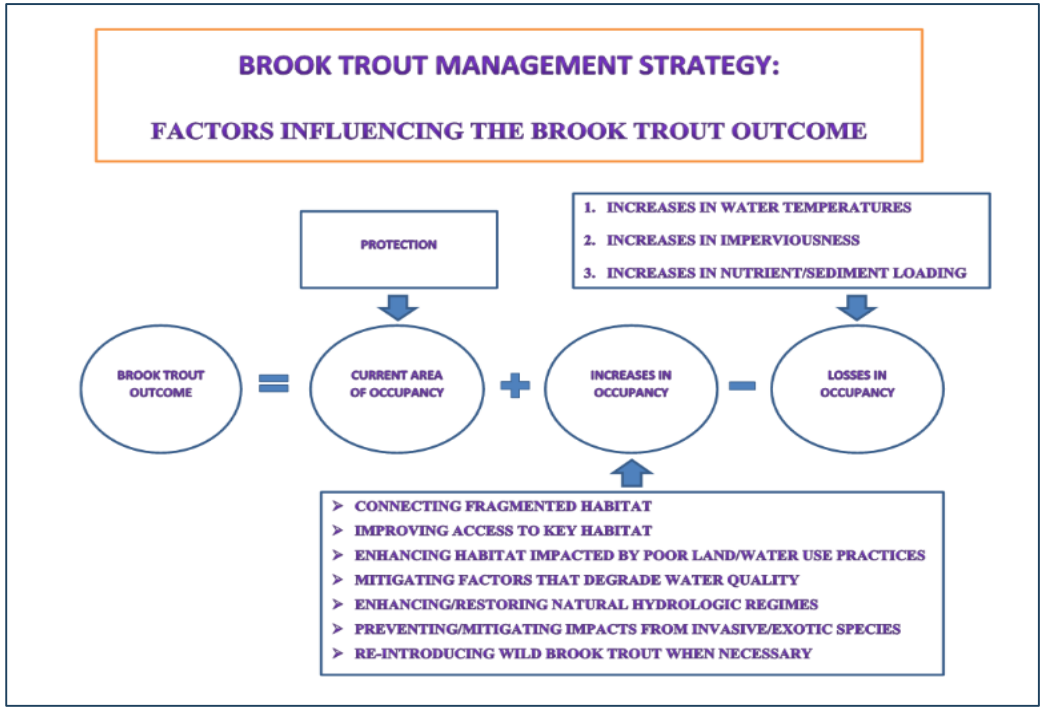
Management Approaches

Refine and Apply Decision Support Tools (DST) (1, 2, 3)

- Apply pilot decision support tools to target stream restoration projects
- Host dialogue on varied brook trout angling regulations across states and in National Parks
- The Chesapeake Bay Commission will work collaboratively with the Bay Program partners to identify legislative, budgetary and policy needs

Logic Behind Our Outcome



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1. S&T – How do changes in land use/climate/stressors affect Brook Trout?
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Management Approaches

Continue/Expand Brook Trout monitoring efforts (1, 2, 3)

- Continue assistance to states in monitoring brook trout occupancy and develop indicator using this data
- Collect genetic information as potential census method for determining population viability and long-term restoration success

2

Progress:

Are we doing what we said we would do?

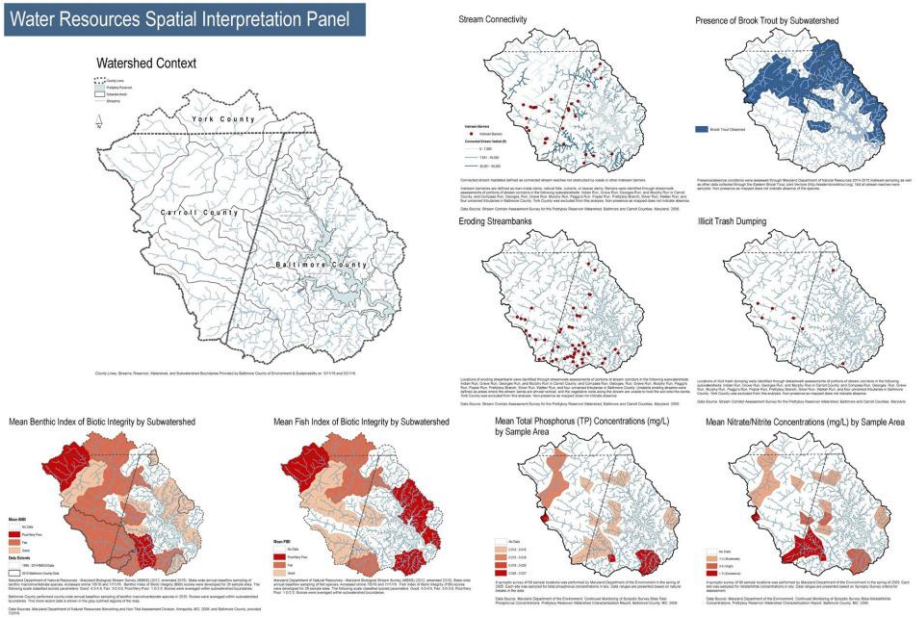
What is our progress?

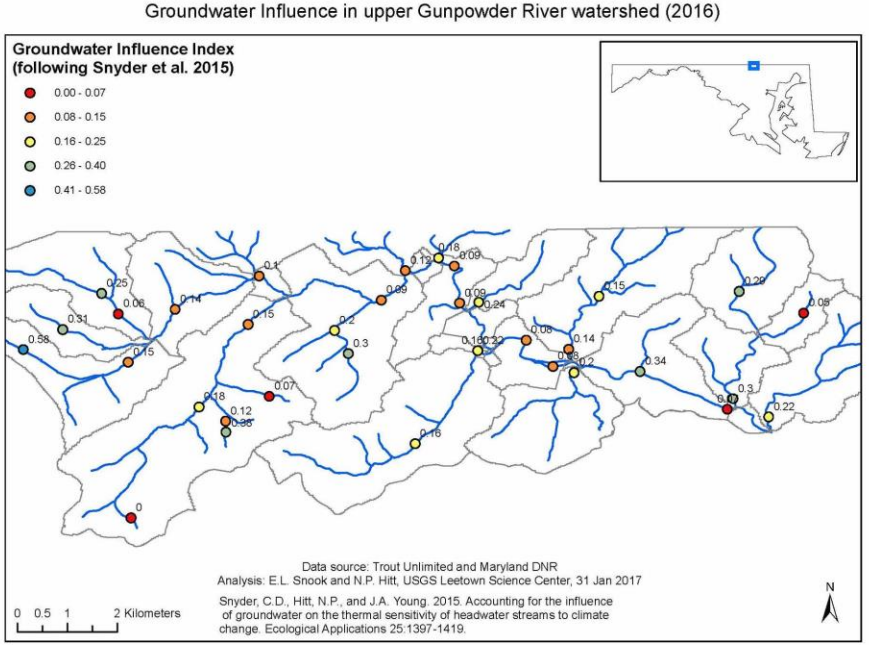
Identify and Communicate Priority Focal Areas for Brook Trout Conservation (1, 3)

- NY, PA, MD, VA, and WV have all identified at least two priority Brook Trout patches for conservation actions
- Coordinating with partners (EBTJV, AppLCC, NALCC, WVU, USGS, TU) on the development/application of spatially explicit DST
- Working with Healthy Watersheds, other GITs on overlay maps/cross-GIT mapping
- MD DNR and TU are finalizing a “best of the best” story template

What is our progress?

Upper Gunpowder Falls Brook Trout Conservation Partnership





What is our progress?

Consider Climate Change and Emerging Stressors in Determining Restoration Priorities (1, 2)

- Updated CB Brook Trout occupancy model to higher 1:24K scale and include UOG effects in Upper Susquehanna River Basin
- Distributed recent USGS-CBP research results documenting greater detrimental effects of higher stream temperatures on brook trout when brown trout are present
- Working with relevant partners on updated GIS layer of AMD-impacted streams
- Working with TU on updating Home River Initiative/other restoration projects

What is our progress?

Refine and Apply Decision Support Tools (1, 2, 3)

- Working with partners (EBTJV, AppLCC, NALCC, WVU, USGS, TU) on the development/application of spatially explicit DST

- Summary document on brook trout angling regulations across states and in National Parks

What is our progress?

Continue/Expand Brook Trout monitoring efforts (1, 2, 3)

- Coordinating with partners (EBTJV, AppLCC, NALCC, WVU, USGS, TU) on summarizing and updating monitoring data

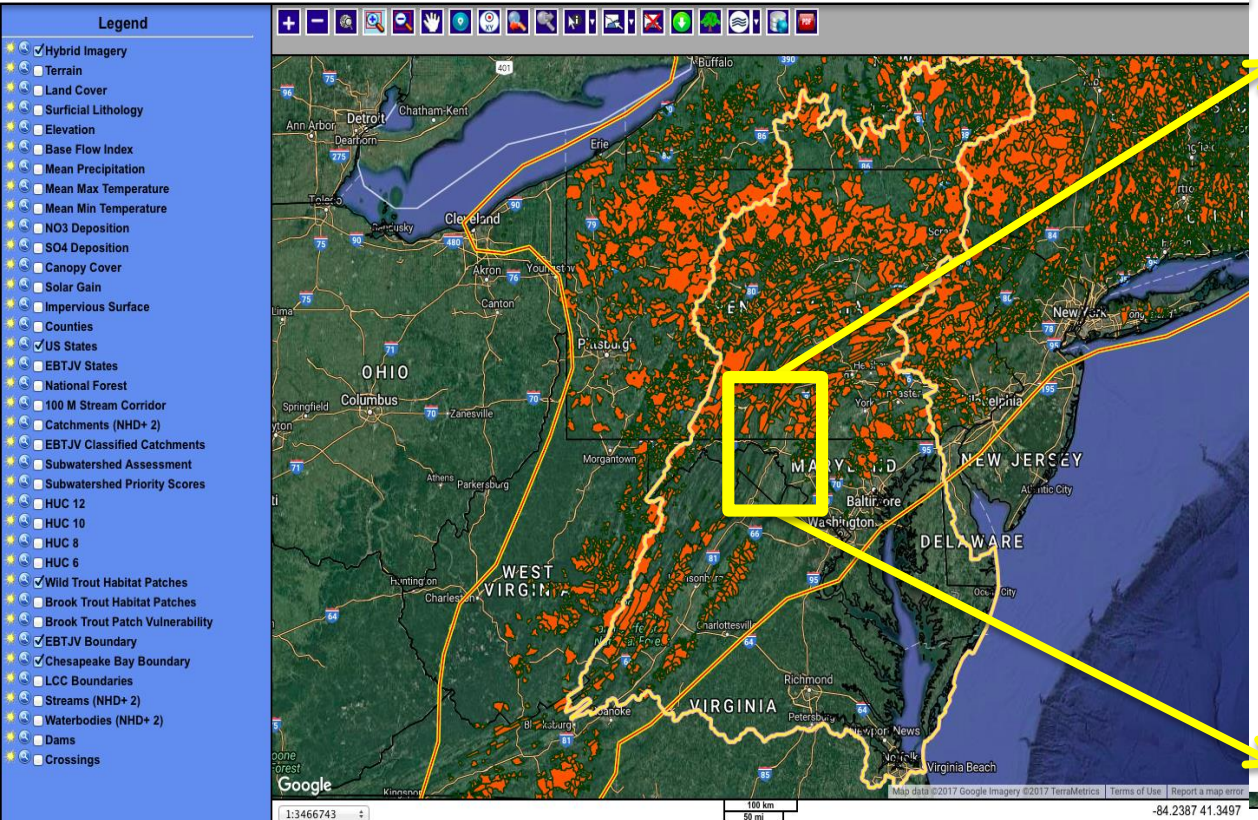
- Evaluating genetic information as potential census method for determining population viability and long-term restoration success

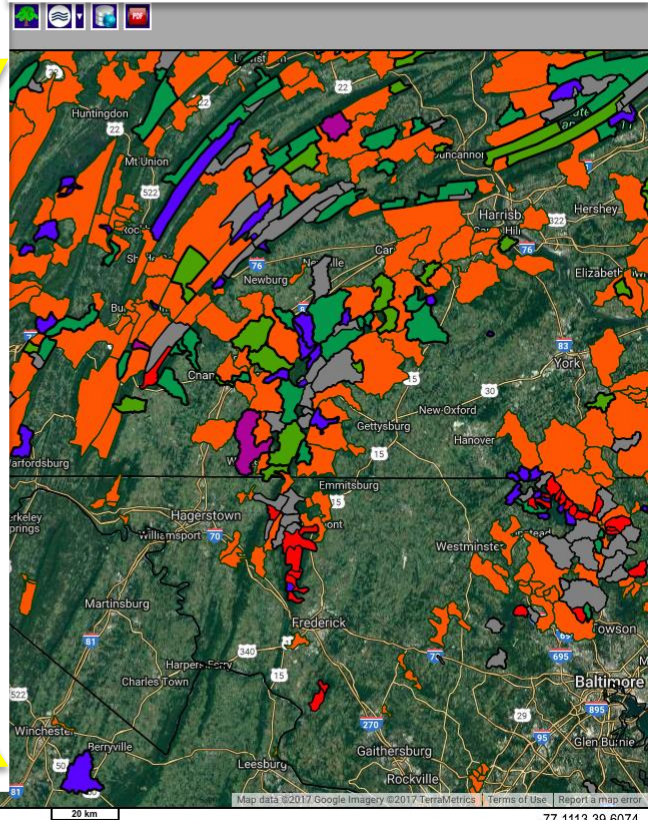
Are we on track?

Baseline - EBTJV 2015 Assessment

- Wild brook trout occupy 33,200 km^2 of habitat in the Chesapeake Bay watershed, including the streams they share with brown and/or rainbow trout (sympatric).
- Baseline - Wild brook trout only (allopatric) streams - 13,500 km^2 of allopatric or “” streams, which are comprised of 990 separate patches, or groups of contiguous catchments.
- Outcome - 14,600 km^2/79 patches of habitat occupied only by wild brook trout serves as our restoration goal.
- Progress Indicator - EBTJV five-year brook trout census

Are we on track?





Analysis

Discussion Question 2: Which actions were most critical in progress thus far?

- Achieving greater coordination and consensus among conservation partners
- Integrating the best available science into DST and guide restoration decisions
- Identifying and prioritizing “best of the best” areas within each state for both brook trout habitat conservation and restoration.
- Influencing Factors:
  - Scientific and Technical Understanding: Geographical focus areas, Refinement and coordination of use of decision support tools, Climate Change
  - Legislative Engagement: Policy maker awareness of Brook Trout issues
  - Partner Coordination: Coordinate with able partners to target ideal habitat for on the ground restoration.

Analysis

Discussion Question 3: Which management actions will be the most critical to your progress in the future?

- Identifying key decision-makers at federal, state, local levels to educate, engage
- Better coordination between DST and on-the-ground practitioners, projects
- Stronger engagement, participation among the partners
- Monitoring restoration progress/success
- Better cross-GIT goal coordination

3

Challenges:

Are our actions having the expected effect?

Challenges

Discussion Question 4: What scientific, fiscal or policy-related developments or lessons learned (if any) have changed your logic or assumptions about your Outcome?

- Unique challenges using the volunteer approach
- Recognizing state-specific needs
- Applying broad-based knowledge to local-level restoration projects
- Limited monitoring
- How to better articulate the non-TMDL benefits in a way that motivates partners to action without resorting to the TMDL stick
- Connect the drivers-stressors affecting corollary benefits based on science to conservation/restoration actions that benefit multiple outcomes.

4

Adaptations:

How should we adapt?

Based on what we've learned, we plan to…

Discussion Question 5: What (if anything) would you recommend changing about your management approach at this time?

- Working with Action Team partners to revise work plan to address Challenges including cross-GIT collaboration

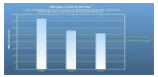
Agreement Goals and Outcomes

Sustainable Fisheries

- Blue Crab Abundance
- Blue Crab Management
- Oyster
- Forage Fish
- Fish Habitat

Vital Habitats Goal

- Wetlands
- Black Duck
- Stream Health
- Brook Trout
- Fish Passage
- Submerged Aquatic Vegetation (SAV)
- Forest Buffer
- Tree Canopy



Water Quality Goal

- 2017 Watershed Implementation Plans (WIP)
- 2025 WIP
- Water Quality Standards Attainment and Monitoring

Toxic Contaminants Goal

- Toxic Contaminants Research
  Toxic Contaminants Policy and Prevention

Healthy Watersheds Goal

- Healthy Waters

Stewardship Goal

- Citizen Stewardship
- Local Leadership
- Diversity

Land Conservation Goal

- Protected Lands
- Land Use Methods and Metrics Development
  Land Use Options Evaluation

Public Access Goal

- Public Access Site Development

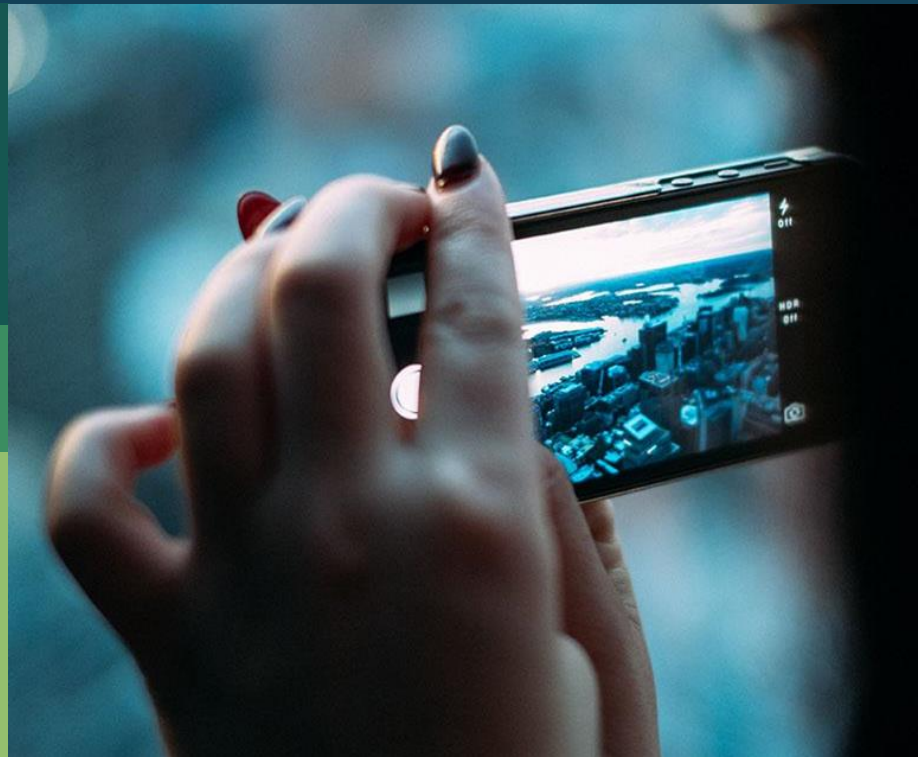
Environmental Literacy Goal

- Student
- Sustainable Schools
- Environmental Literacy Planning

Climate Resiliency Goal

- Monitoring and Assessment
- Adaptation Outcome

What We Want



- Ideas on how to create incentives for state Action Team Members to be more engaged
- Guidance on communication/outreach to key decision-makers at federal, state, local levels to educate, engage in solutions
- Support for cross-GIT collaboration

Discussion