Protecting Brook Trout for the Benefit of Watershed Residents

Brook trout are a valuable species to the Chesapeake Bay watershed, providing social, economic, and ecological benefits to residents. Designated as the state fish in New York, Pennsylvania, Virginia, and West Virginia, brook trout play an important part in the natural heritage of the watershed. Brook trout are highly prized by recreational anglers who spend millions of dollars annually on related goods and services, including travel, that directly benefit local and state economies.

The presence of brook trout indicate healthy waters as they rely on clean, cold headwater stream habitat for survival. They are particularly sensitive to changes in water temperatures (preferring waters under 68°F) and to human actions impacting land use. Increases in impervious surface, tree clearing, and water impoundments can warm stream temperatures above 68°F, leading to stress on and possible death of brook trout populations. Brook trout are also very sensitive to sediment deposits, which degrade habitat and smother eggs in spawning nests built in the gravel of streams.

As they are just one of the many species that inhabit headstream waters, the protection of brook trout also safeguards additional fish habitat. Adopting certain brook trout habitat protection practices, like streamside and agricultural buffer plantings, can also benefit other priorities like water quality and stream health.

*If brook trout are present in your area, you have a unique location that is worthy of conservation and attention.*

Best Management Practices with Brook Trout in Mind

Best management practices (BMPs) are designed to improve water quality and achieve the Chesapeake Bay TMDL, but many of these same measures may enhance brook trout habitat as well. Incorporating the protection of Brook Trout habitat into project design does not necessarily require large changes. With deliberate planning, you can maximize your water quality investment by implementing practices that result in the improvement of brook trout habitat and added ecosystem value. The chart below highlights current BMPs that experts have rated based on the value a BMP provides to several Chesapeake Bay Program (CBP) outcomes. **Comparing across multiple CBP outcomes demonstrates how a BMP can provide co-benefits to more than one outcome.** However, case-by-case evaluation of co-benefits is recommended.
Best Management Practice | Brook Trout | Habitat and Biodiversity | Stream Health | Fish Habitat | Healthy Watershed | Forest Buffer | Tree Canopy
---|---|---|---|---|---|---|---
Agricultural Forest Buffer | 4.5 | 4 | 4 | 4.5 | 4 | 5 | 4.5
Streamside Forest Buffer | 4.5 | 4 | 3 | 4.5 | 3 | 5 | 5
Forest Conservation | 4 | 5 | 4 | 4 | 5 | 3.5 | 5
Agricultural Stream Restoration | 3 | 3 | 5 | 3 | 1 | 1 | 0
Agricultural Stream Access Control with Fencing | 3 | 2 | 1 | 1.5 | 1 | 1 | 1

*Values were taken from the [Quantification of BMP Impact on the Chesapeake Bay Program Management Strategies](https://www.chesapeakebay.net/education-and-resources/quantification-of-bmp-impact-on-the-chesapeake-bay-program-management-strategies) survey by Tetra Tech and are based on the best professional judgment of subject matter experts. Appendix E. Final Impact Scores evaluates BMP effects on outcomes on a scale of +5 (very beneficial) to -5 (very harmful). This table shows select BMPs that scored a 3 or higher for the Brook Trout Outcome, however, not all of these BMPs would merit the score of +3 for all projects. Closer evaluation of project site designs, including those from BMPs shown in the above table, is warranted when interpreting these scores. More information on brook trout and the outcome’s guiding documents can be found at the Chesapeake Bay Program’s Habitat Goal Implementation Team webpage.

**Guiding Principles for Phase III Watershed Implementation Plan**

**WIP Development**
- Know where your brook trout populations exist (use EBTJV Spatial Tool, State Identified Priority Brook Trout Sub-watershed, contacts listed below).
- Recognize and consider existing stressors: Extent of agriculture, mining, and impervious surface in the watershed, water impoundments, impassable dams/culverts and brown trout competition (use USFWS Fish Habitat Tool, NAACC and Chesapeake Dam Prioritization links below).
- Reduce impacts to brook trout: Design and implement BMPs to reduce impervious surface, avoid/minimize creating permanent pools, increase forest buffers, consider brown trout competition when planning in-stream work, protect groundwater sources (consider streamside wetland restoration) and reduce blockages to fish passage. Avoid BMPs that may increase stream temperature or high velocity flow events.

**WIP Implementation**
- Capitalize on co-benefits: Choose water quality BMPs that also protects other fish habitat, stream health and healthy watersheds. Streambank stabilization, access control fencing, floodplain reconnection and off-stream watering systems improve fish habitat and reduce sedimentation and phosphorus loading.
- Engage partners: Collaborate with federal and state agencies, elected officials and NGOs to share resources, help identify watersheds and streams important to brook trout, and incorporate conservation efforts into your WIPs (use contacts listed below).
Tools and Resources

- **Eastern Brook Trout Joint Venture Spatial Tool**: Includes information on the extent of Brook Trout habitat and habitat status.
- **State Identified Priority Brook Trout Sub-watersheds**: Includes description, HUC12 codes, and map.
- **USFWS Fish Habitat Decision Support Tool – Chesapeake Bay Brook Trout Assessment**: Includes information on Brook Trout habitat stressors and future habitat quality change.
- **North Atlantic Aquatic Connectivity Collaborative (NAACC)**: Includes information, maps, and a regional database on road-stream crossings (bridges/culverts).
- **Chesapeake Fish Passage Prioritization Tool**: Includes map and information on dams.

Contacts for More Information about Brook Trout in Your Jurisdiction

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<tr>
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