

**Project Title:** Eastern Brook Trout Joint Venture Coordination and Operations FY14

**USFWS Agreement #:** F14AS0012

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**Interim Report Performance Period:** 6/2/2014 – 12/31/2015

**Objective A:** Establish a list of catchments where anthropogenic fish passage barriers and poor management of riparian and in-stream habitat are identified as the primary threat to conservation of wild Brook Trout.

Accomplishments:

The Eastern Brook Trout Joint Venture (EBTJV) initiated a pilot process with the [Chesapeake Bay Program](#), to establish priority catchments for Brook Trout conservation actions. The EBTJV Coordinator led a team that was tasked with drafting a [Management Strategy](#) aimed at achieving the Brook Trout outcome described in the [Chesapeake Bay Watershed Agreement](#) signed in June 2014. Brook Trout catchments located within the Chesapeake Bay watershed were assigned one of three priority levels based on its subwatershed priority score ([Hanson et al. 2014](#)), patch classification ([Hudy et al. 2013](#)), and Habitat Quality Index (HQI) score ([Martin et al. 2012](#)). Allopatric Brook Trout patches that occur in and around current Brook Trout strongholds, which are defined as being located in subwatersheds with a priority score  $\geq 0.79$ , were assigned priority Level 1 since these catchments offer the best potential for sustaining wild Brook Trout populations by increasing habitat connectivity. Priority Level 1 allopatric Brook Trout patches occurs in 146 Chesapeake Bay subwatersheds; 77 of these subwatersheds are located in Pennsylvania, 65 are in Virginia, 3 are in West Virginia, and 1 is in Maryland. Allopatric Brook Trout patches that occur in subwatersheds having priority scores  $< 0.79$ , but have  $\geq 60\%$  of their subwatershed's catchments with an HQI  $\geq 0.50$ , were given a Level 2 priority because they possess habitat that exhibits good potential for attaining favorable conditions when stressors are lessened. Priority Level 2 allopatric Brook Trout patches occur in 238 Chesapeake Bay subwatersheds; 152 of these subwatersheds are in Pennsylvania, 44 are in New York, 22 are in Virginia, 14 are in Maryland, and 6 are in West Virginia. Allopatric Brook Trout patches that occur in subwatersheds having priority scores  $< 0.79$  and have  $< 60\%$  of their subwatershed's catchments with an HQI  $\geq 0.50$  are considered as a Level 3 priority. Priority Level 3 allopatric Brook Trout patches occur in 216 Chesapeake Bay subwatersheds; 82 of these subwatersheds are in Pennsylvania, 68 are in New York, 32 are in Virginia, 21 are in West Virginia, and 13 are in Maryland.

The EBTJV completed its range-wide [assessment](#) of Brook Trout at the catchment scale in September 2015, which resulted in 271,949 catchments being classified based on the presence/absence of salmonid species. Patches were then identified using the catchment classification data. A patch is defined as a group of contiguous catchments occupied by wild Brook Trout. Patches are not connected physically because of the presence of dams, warm water

habitat, and/or invasive species and are also assumed to contain genetically isolated Brook Trout populations. There are 9,991 patches identified across the EBTJV’s geographic range, occupying a total area of 161,615 km<sup>2</sup> (Table 1). Sixty-one percent of the patches were classified as Allopatric Brook Trout, while 22% were classified as Brook Trout Sympatric with Brown Trout, 4% were classified as Brook Trout Sympatric with Rainbow Trout, and 13% were classified as Brook Trout Sympatric with Brown Trout and Rainbow Trout. These classified catchments and patches are currently being analyzed in more detail to determine priority Brook Trout conservation focal areas and to revise the partnership’s Brook Trout conservation strategies.

Table 1. Eastern Brook Trout Joint Venture patch classification data.

<b>Patch Classification Code</b>	<b>N</b>	<b>Sum of Patch Area (km<sup>2</sup>)</b>	<b>Mean Patch Area (km<sup>2</sup>)</b>
1.1	6,130	109,142	17.9
1.2	2,225	43,474	19.5
1.3	370	6,049	16.3
1.4	1,266	2,950	24.1
<b>Totals</b>	<b>9,991</b>	<b>161,615</b>	<b>16.8</b>

- 1.1 Allopatric Brook Trout
- 1.2 Brook Trout Sympatric w/Brown Trout
- 1.3 Brook Trout Sympatric w/Rainbow Trout
- 1.4 Brook Trout Sympatric w/Brown Trout & Rainbow Trout

**Objective B:** Collaborate with the Chesapeake Bay Program to establish a pilot program that further tests a wild Brook Trout monitoring framework that uses patch based metrics in conjunction with a sampling design that combines fixed annual sentinel patches and a rotating panel design for other patches.

Accomplishment:

The EBTJV collaborated with Chesapeake Bay Program, USDA Forest Service/UMass researchers, and State Fish and Wildlife Agency staff to implement a [patch-based method](#) for monitoring the status of Brook Trout in the five Chesapeake Bay states (MD, NY, PA, VA, and WV), which is the protocol cited in the Brook Trout [Management Strategy](#) developed for the Chesapeake Bay watershed. During the summer/fall of 2015, personnel from each of the State Fish and Wildlife Agencies sampled five Brook Trout patches within their respective states and the genetic samples collected were sent to researchers at University of Massachusetts for processing, which is currently underway.

**Objective C:** Advance an integrated education and outreach campaign that raises awareness about the plight of wild Brook Trout among anglers and outdoor/environmental reporters by developing a state of the species report and a public dashboard that measures the impact of implementing each of the partnership’s priority conservation actions.

### Accomplishments:

From January 1 to December 31, 2015, the EBTJV Coordinator posted 102 media stories about Brook Trout conservation on the [EBTJV Facebook page](#), which resulted in a total of 71,000 views. During this 12 month period the number of individuals who like the EBTJV Facebook page increased from 1,758 to 2,276.

The EBTJV Coordinator developed the partnership's nomination (Mill Creek, WV) for the [2015 NFHP 10 Waters to Watch Program](#), which was selected for inclusion in this national initiative.

The portion of the objective related to the development of a "State of the Brook Trout Report" was approved by the Fish and Wildlife Service for [modification](#) in order to provide funding and support to completing [Phase 1](#) of a [film](#) being produced that communicates the nature, value, and conservation needs of Brook Trout in the eastern portion of the U.S. The EBTJV worked with Freshwaters Illustrated to complete Phase 1 of the film production process during the fall of 2015.

**Objective D:** Collaborate with partners to complete the catchment scale assessment of Brook Trout across the range of the partnership.

### Accomplishments:

The EBTJV Coordinator and the partnership's Science Advisor worked with USDA Forest Service/UMass researchers to complete the process for analyzing Brook Trout status at the catchment scale for the northern states (CT, MA, ME, NH, NY, PA, RI, and VT). The results of this analysis were distributed to the respective States for review and feedback. The catchment data generated for the eight northern states was finalized during September 2015 and the data layers associated with the assessment have been uploaded to a web-based [Map Viewer](#).

The EBTJV worked with the North Atlantic Land Conservation Cooperative and Downstream Strategies to complete a statistical model linking present-day Brook Trout distributions at the catchment scale, to land use/land cover conditions throughout the Chesapeake Bay watershed. The outcomes from this model includes: independent measures of anthropogenic stress (urbanization, agriculture, and mining) and natural habitat quality (water temperature and precipitation), which allow for priority Brook Trout conservation areas to be identified at multiple spatial scales; predictions of likely future conditions of Brook Trout population status under a range of climate change scenarios; a [web-based decision support tool](#) that provides a user-friendly interface to examine and manipulate data and model results; an ability to query, map and download data and model results; the ability to integrate other relevant data and model products (e.g., EBTJV "patches," TNC dispersal barriers); a sophisticated, interactive optimization and ranking algorithm that allows for construction of multiple, optimized Brook Trout conservation strategies that vary depending on user-defined preferences; the ability to simulate brook trout population response to spatially-explicit changes in land use (e.g., loss of forest) or in response to restoration action within the context of current or future climate; and, the ability to download or print data or maps created within the web-based decision support tool.

**Objective E:** Convene at least one all partners meeting per year to further the goals of the partnership.

Accomplishments:

The EBTJV Steering Committee held three meetings via conference call ([March 17, 2015](#), [June 16, 2015](#), and [December 15, 2015](#)) and one in-person meeting ([September 29, 2015](#)).

The EBTJV convened a [meeting](#) of the partnership’s Steering Committee, Conservation Strategy and Science & Data committees September 28-30 2015, which was focused on establishing a framework for incorporating the results from the partnerships recently completed assessment of Brook Trout status at the catchment scale into its strategic plan.

**Financial Information:**

<b>Budget Item</b>	<b>Budgeted Amount</b>	<b>Amount Spent to Date</b>	<b>Balance Remaining</b>
<b>A) NFWF Administration:</b>			
Personnel	\$6,207.00	\$6,207.00	\$0.00
Benefits	\$2,793.00	\$2,793.00	\$0.00
<b>Sub-total</b>	<b>\$9,000.00</b>	<b>\$9,000.00</b>	<b>\$0.00</b>
<b>B) Contractual Services:</b>			
Contractor Fees	\$60,000.00	\$64,337.03	-\$4,337.03
Travel	\$10,000.00	\$6,662.97	\$3,337.03
Film Production	\$10,000.00	\$10,000.00	\$0.00
Supplies	\$1,000.00	\$0.00	\$1,000.00
<b>Sub-total</b>	<b>\$81,000.00</b>	<b>\$81,000.00</b>	<b>\$0.00</b>
<b>Totals:</b>	<b>\$90,000.00</b>	<b>\$90,000.00</b>	<b>\$0.00</b>