

**Assessment of Eastern Brook Trout Joint Venture Priorities Addressed
by Fish Habitat Conservation Projects, 2006-2012**



Eastern Brook Trout
JOINT VENTURE
A Fish Habitat Partnership

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April 21, 2013

Background

In an effort to ensure the Eastern Brook Trout Joint Venture's (EBTJV) Conserving the Eastern Brook Trout: Action Strategies (Conservation Strategy) is current, relevant, and realistic and is representative of the pertinent data and information that is now available; the EBTJV Steering Committee tasked the EBTJV Coordinator with completing a comprehensive review of the Conservation Strategy and recommending components in need of revisions. The Conservation Strategy (November 2011) review summary and recommendations report was provided to EBTJV Steering Committee on March 12, 2013 and the report's recommendations were subsequently approved during a conference called held on March 19, 2013.

Among the review report's recommendations were a number that focused on determining the level at which EBTJV fish habitat conservation projects being funded by the U.S. Fish and Wildlife Service's (FWS) National Fish Habitat Action Plan (NFHAP) budget appropriations, were addressing priority focus areas identified in the partnership's Conservation Strategy (Appendix I). The EBTJV's conservation priorities are:

- Increasing recreational fishing opportunities for wild brook trout;
- Protecting the "best of the best" habitat that supports existing, healthy wild brook trout populations;
- Improving and reconnecting adjacent habitats that have a high likelihood of supporting stable wild brook trout populations;
- Focusing on critical wild brook trout spawning and early life history habitat in sub-watersheds classified as Intact;
- Preserving genetic diversity of wild brook trout populations; and,
- Conserving unique wild brook trout life history strategies (i.e. lacustrine populations, large river populations, and coastal populations).

Assessment Overview

The following is an overview of the EBTJV priorities targeted by fish habitat conservation projects that received funding from the FWS NFHAP budget appropriations between 2006 and 2012.

Subwatershed Classification and Priority Scores

Among the funded fish habitat conservation projects analyzed, 29% were implemented in subwatersheds (6th level Hydrologic Unit) classified as Intact, 50% occurred in Reduced subwatersheds, 9% took place in Extirpated subwatersheds, and 12% of the projects were carried out in subwatersheds where the classification was not identified (Figure 1).

Where the subwatershed priority ranking could be determined (45% of the funded projects assessed), the numeric scores ranged from a low of 0.10 to a high of 1.66 (Figure 2). The average subwatershed priority score among these projects was 0.91. For Intact subwatersheds the priority scores ranged from 0.66 to 1.66 with an average score of 1.41 (Figure 3). The priority scores for Reduced subwatersheds ranged from 0.10 to 1.66 with an average score of 0.55 (Figure 4).

Enhancement of Recreational Fishing Opportunities for Wild Brook Trout

Sixty-six percent (66%) of the funded fish habitat conservation projects assessed indicated the conservation outcomes would result in enhanced recreational fishing opportunities, whereas 17% of the projects didn't list this as an expected project benefit, and it couldn't be determined whether or not recreational fishing opportunities would be affected by 17% of the projects.

Brook Trout Habitat-Related Priorities

None of the funded fish habitat conservation projects assessed had conservation actions focused on protecting the "best of the best" brook trout habitat. Seventy-two percent (72%) of the fish habitat conservation projects entailed improving and reconnecting adjacent brook trout habitat by eliminating fish passage barriers (Figure 5). Thirty-four (34%) of the fish habitat conservation projects expected to improve brook trout spawning habitat, while 20% included a focus on enhancing the early life history habitat needed to sustain wild brook trout populations.

Brook Trout Population-Related Priorities

Twenty percent (20%) of the funded fish habitat conservation projects assessed included efforts aimed at preserving or enhancing the genetic diversity of wild brook trout populations. Among the unique brook trout life history strategies (lacustrine, large river, and coastal populations) identified as EBTJV conservation priorities, 5% of the fish habitat conservation projects targeted lacustrine brook trout populations, while <2% were focused on large river and coastal populations, respectively.

State-Level Objectives

The EBTJV Conservation Strategy (November 2011) lists twelve (12) common state-level objectives derived from the individual brook trout plans developed by partner states (Appendix II). The number of these common state-level objectives addressed by the funded fish habitat conservation projects assessed ranged from one (1) to eight (8) per project while the average was approximately two (2) per project (Figure 6). Eighty-two percent (82%) of the fish habitat conservation projects were aimed at maintaining or restoring natural hydrologic regimes (common state-level objective 8), followed by 54% that dealt with mitigating factors that degrade water quality (common state-level objective 7) and 35% that included targeting non-game species in conjunction with brook trout (common state-level objective 12) (Figure 7).

Discussion and Recommendations

Understanding there were issues with readily accessing subwatershed priority scores developed for protection, enhancement, and restoration actions during the earlier years the EBTJV was recruiting fish habitat conservation project proposals, it's not surprising that only 45% of the funded projects assessed listed the priority score for the targeted subwatershed. However, there has been a substantial improvement in identifying the priority score of subwatersheds where fish habitat conservation projects are being implemented as 85% of the projects funded since 2010 identified the applicable subwatershed priority score.

- Recommendation: If possible, use the fish habitat conservation project's location coordinates and determine the corresponding subwatershed priority score for funded projects where this information is missing (n=32). Undertaking this task would also allow the subwatershed classification to be determined for the seven (7) funded fish habitat conservation projects that are missing this type of information.

Although two-thirds of the funded fish habitat conservation projects indicated recreational fishing opportunities for wild brook trout would increase as a result of the actions being implemented, there were no corresponding metrics described that would quantify the level of the increases. This is an important measure for gauging progress towards achieving the EBTJV's vision of having "healthy cold water aquatic systems that support fishable brook trout populations throughout their historic range in the eastern portion of the U.S." Quantifying the increased level of recreational fishing opportunities for wild brook trout is also important from a socioeconomic perspective since it can be used to demonstrate positive impacts to local economies resulting from increased angler expenditures and job growth.

- Recommendation: Add language to the fish habitat conservation project application form that asks applicants who indicate their project will increase recreational fishing opportunity for wild brook trout, how the increase will be measured.
- Recommendation: Explore whether monitoring effective breeding population size (N_b) responses to conservation actions could be used as a surrogate for more direct measurements of changes in angling effort.

It's not surprising the FWS NFHAP funded fish habitat conservation projects have not been aimed at protecting the "best of the best" brook trout habitat as FWS NFHAP Policy 717 FW 1 (dated March 26, 2009) describes ineligible expenses as including realty costs (e.g., lease or purchase interest in real property or to make rental or other land use incentive payments to landowners). While there has been a strong focus among the funded fish habitat conservation projects on reconnecting adjacent brook trout habitat, projects targeting brook trout spawning and early life history habitat are occurring at a lower intensity level.

- Recommendation: Develop a process for tracking brook trout habitat protection efforts that are being completed with use of other types of funding sources and through land conservation organizations.
- Recommendation: Add specific questions to the fish habitat conservation project application form that solicit responses from the applicants about whether their proposed conservation actions will improve brook trout spawning and early life history habitat.

While conserving brook trout genetic diversity has received some attention by the funded fish habitat conservation projects, little has been done with regards to conserving unique wild brook trout life history strategies.

- Recommendation: Highlight the need for conservation actions that focus on lacustrine, large river and coastal populations of wild brook trout as part of the RFP announcement released during the next several funding cycles.
- Recommendation: Add a question to the fish habitat conservation project application form that asks whether the proposed conservation actions will conserve: wild brook trout genetic diversity, lacustrine, large river, or coastal populations of wild brook trout.

All of the common state-level objectives identified in the EBTJV Conservation Strategy have been addressed by one or more of the funded fish habitat conservation projects. The objectives (1, 2, 4, and 6) receiving the least amount of focus can be expected since they primarily focus on implementing protection-related strategies.

- Recommendation: Add a listing of the common state-level objectives as part of the RFP announcement released during each funding cycle and modify the fish habitat conservation project application form so that applicants can specifically identify which of these objectives are being addressed by the proposed project.

The EBTJV's fish habitat conservation project solicitation approach and the criteria the partnership has developed for ranking project proposals are firmly grounded by its priorities, as demonstrated by the degree to which the assessed projects are addressing these priorities. Nevertheless, the collective process is implicit in the way it identifies the EBTJV conservation priorities rather than explicit.

- Recommendation: Incorporate a list of the EBTJV's conservation priorities as part of the RFP announcement released during each funding cycle and modify the fish habitat conservation project application form so that applicants can specifically identify which of these conservation priorities are being addressed by the proposed project.

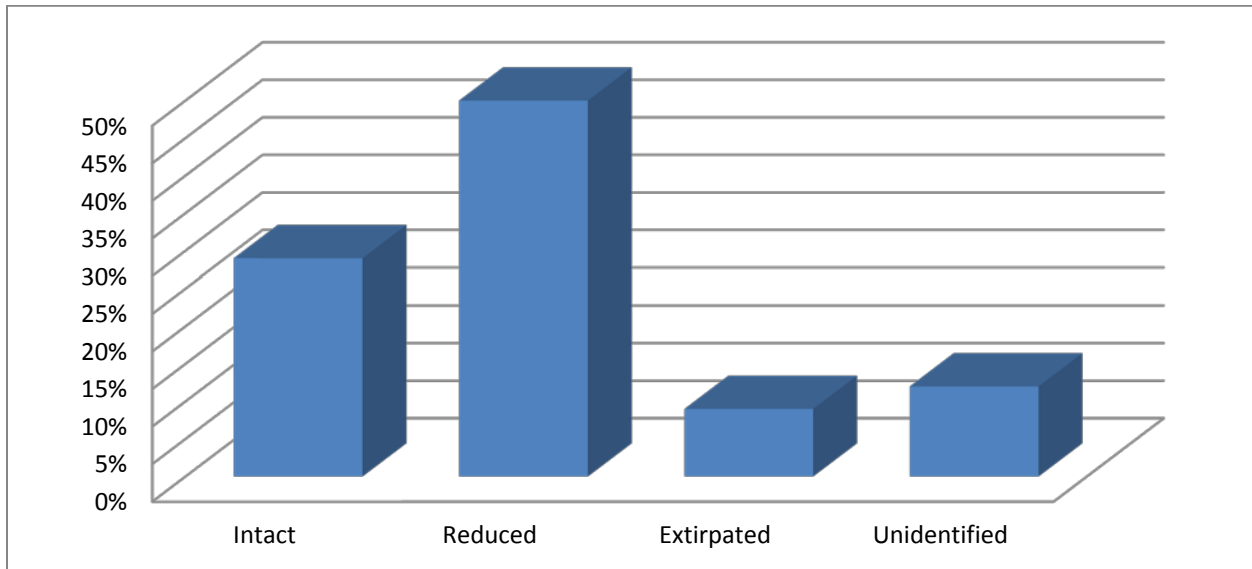


Figure 1. Percent distribution of funded fish habitat conservation projects by subwatershed classification, 2006-2012.

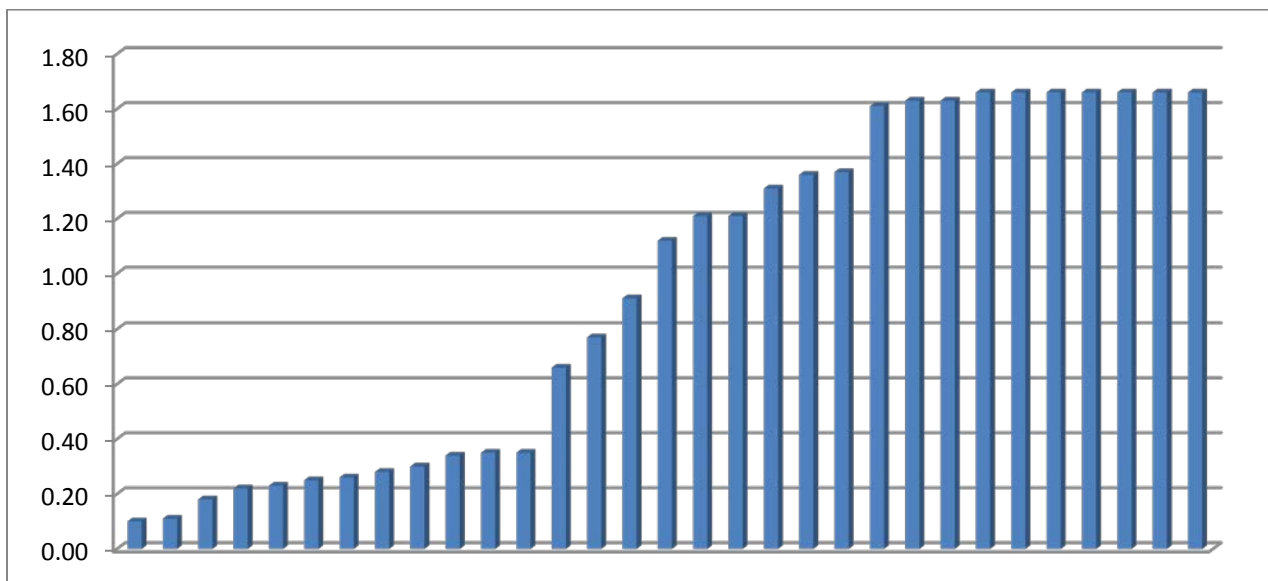


Figure 2. Range of subwatershed priority scores (average = 0.91) associated with funded fish habitat conservation projects, 2006-2012.

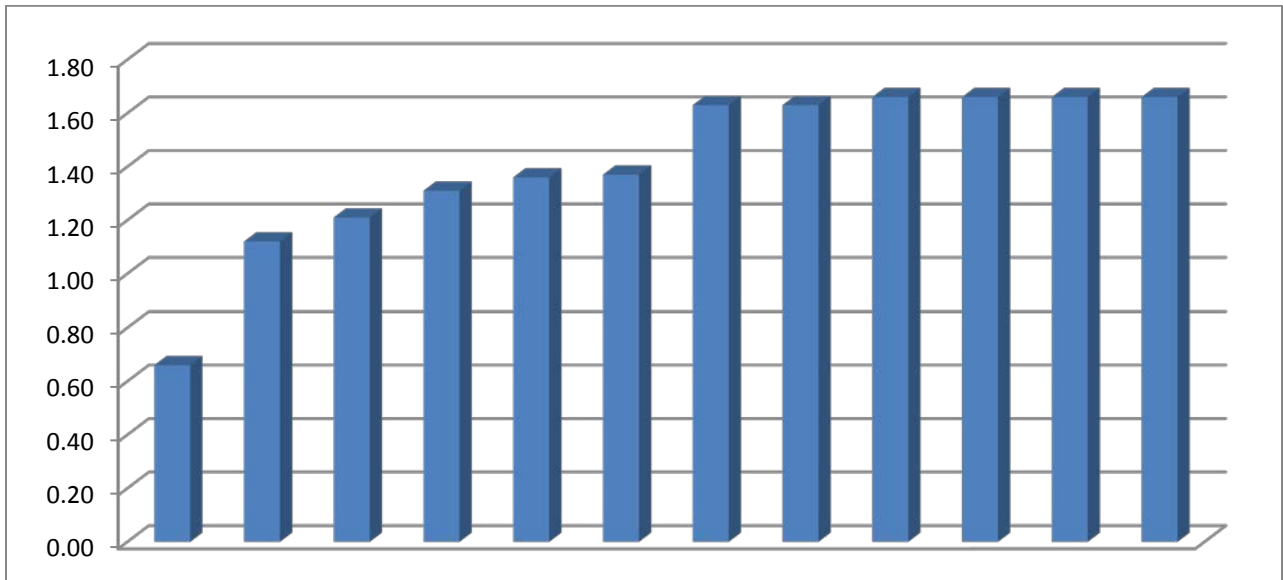


Figure 3. Range of Intact subwatershed priority scores (average = 1.41) associated with funded fish habitat conservation projects, 2006-2012.

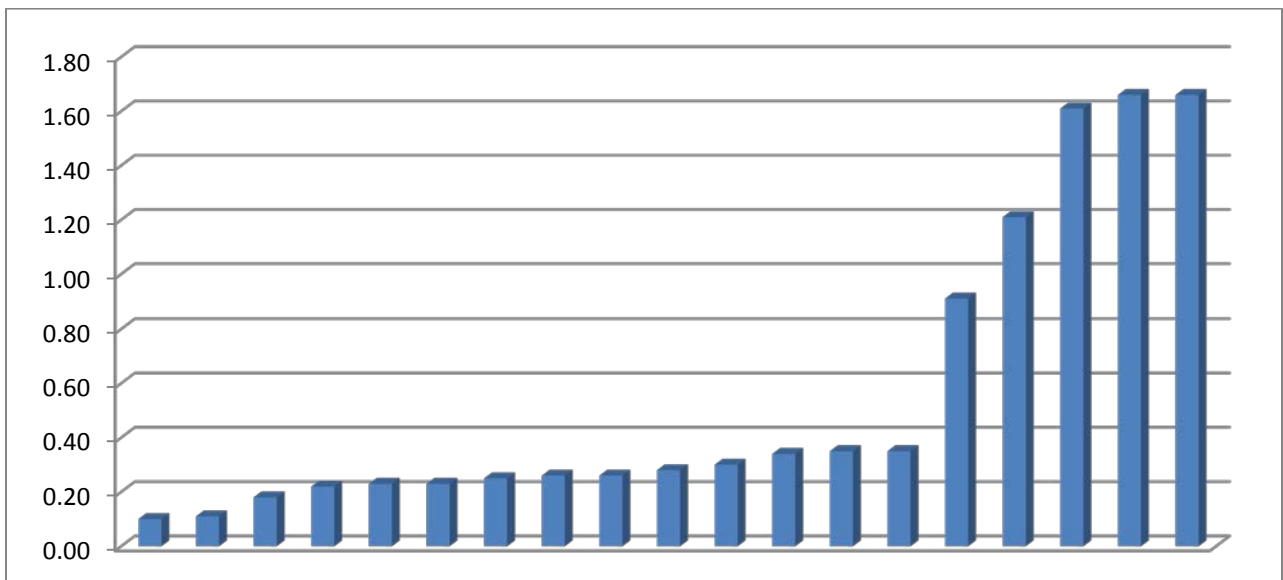


Figure 4. Range of Reduced subwatershed priority scores (average = 0.55) associated with funded fish habitat conservation projects, 2006-2012.

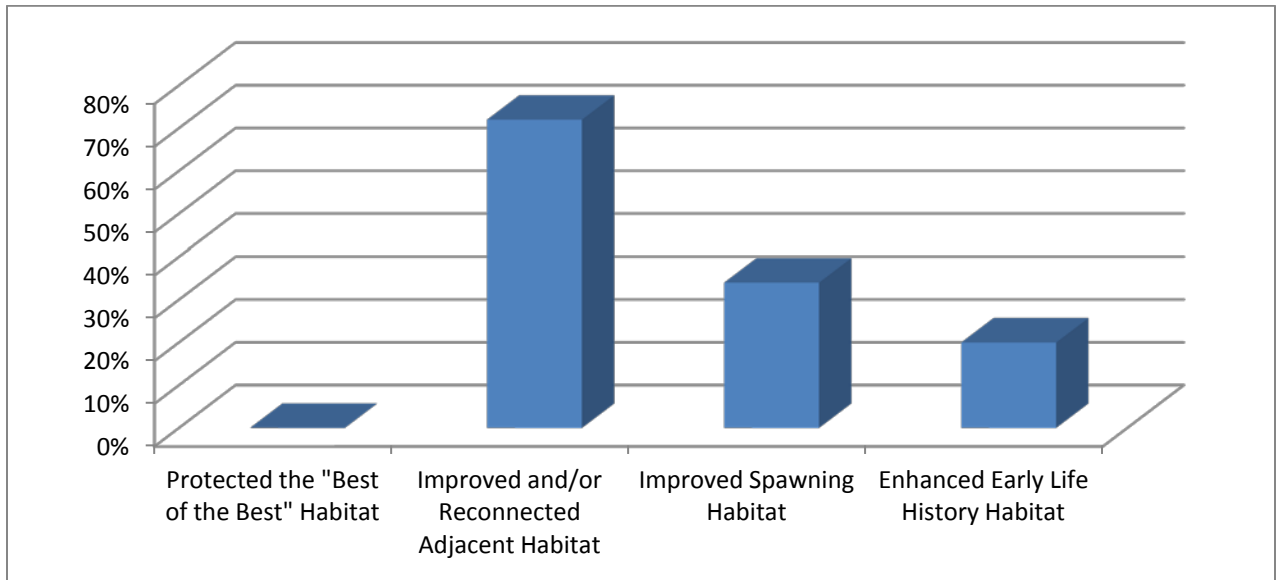


Figure 5. Percent distribution of habitat-related priorities addressed by funded fish habitat conservation projects, 2006-2012.

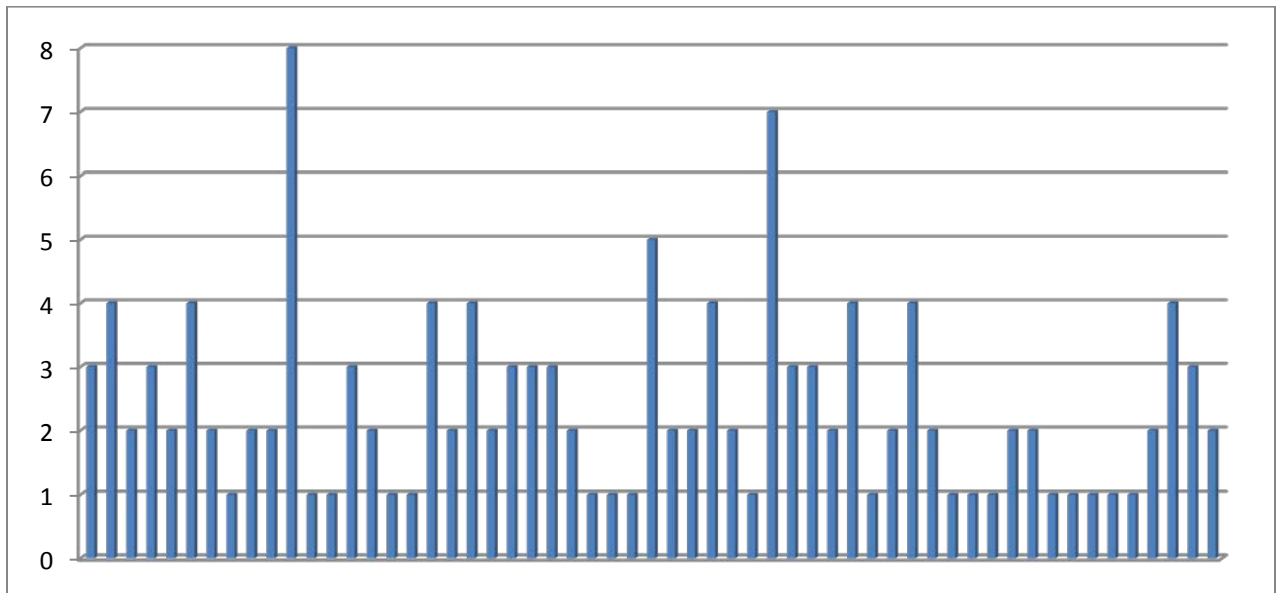


Figure 6. Number of common state-level objectives addressed per funded fish habitat conservation project (average = 2), 2006-2012.

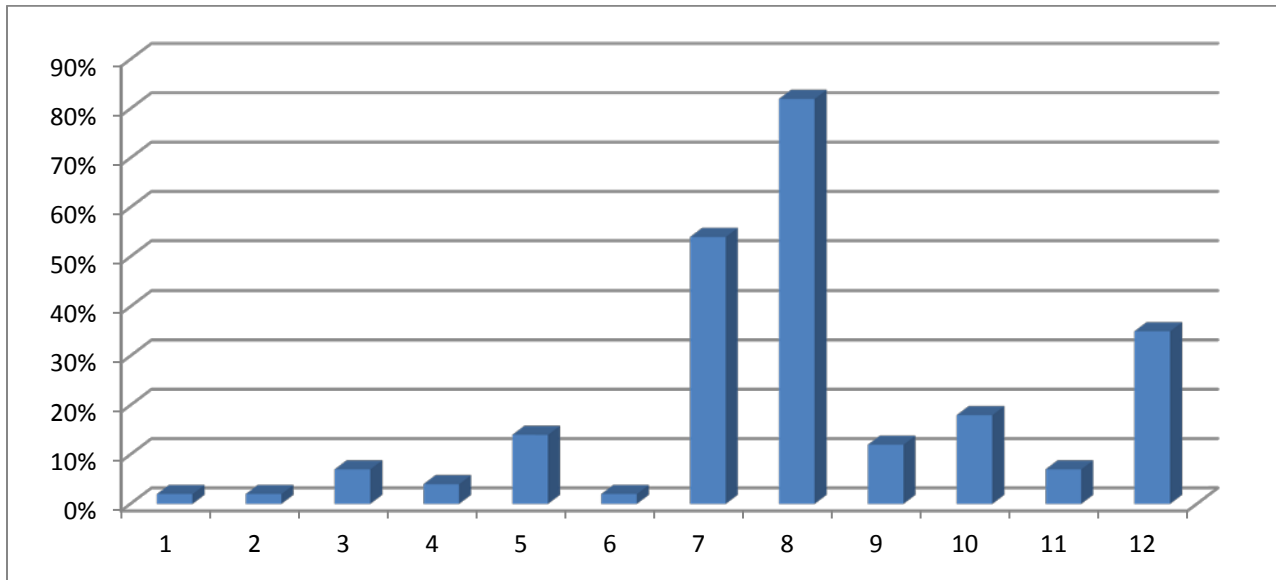


Figure 7. Percent distribution of the twelve (12) common state-level objectives addressed by funded fish habitat conservation projects, 2006-2012.

Appendix I. Selected recommendations from a review of the EBTJV Conservation Strategy.

Recommendation: Task the Conservation Strategy Subcommittee, in concert with the EBTJV Coordinator, with determining the processes being used to monitor and evaluate brook trout population responses (including increases in recreational fishing opportunities) to EBTJV-related conservation actions.

Recommendation: Task the Conservation Strategy Subcommittee, in concert with the EBTJV Coordinator, with summarizing the priority scores of the sub-watersheds where FWS NFHAP funded fish habitat conservation projects have been implemented.

Recommendation: Task the Conservation Strategy Subcommittee, in concert with the EBTJV Coordinator, with cataloging the EBTJV associated fish habitat conservation projects that have targeted critical spawning and early life history habitat in sub-watersheds classified as Intact.

Recommendation: Task the Conservation Strategy Subcommittee, in concert with the EBTJV Coordinator, with cataloging the EBTJV-related work that is being done to preserve the genetic diversity of wild brook trout.

Recommendation: Task the Conservation Strategy Subcommittee, in concert with the EBTJV Coordinator, with cataloging the work that is being done to preserve lacustrine, large river, and coastal populations of brook trout.

Recommendation: Task the Conservation Strategy Subcommittee, in concert with the EBTJV Coordinator, with developing a process that tracks the progress being made towards meeting each of the State-level habitat objectives.

Appendix II. Common State-Level Objectives

1. Improve protection of brook trout resources.
 - a. Develop structured timelines for input opportunities to state and federal level resource management plans, solicit input from appropriate groups, and provide formal comments.
 - b. Include non-traditional resource “interest” groups, such as watershed enhancement organizations, organized angling groups, and land conservancies in the planning and comment process during the formation of state-level trout management plans or other management plans.
2. Maximize brook trout habitat and water quality protection through state and federal agencies.
 - a. Provide appropriate agency habitat conservation comments on all brook trout related projects that require federal or state permits.
 - b. Establish and enforce buffer requirements on all perennial streams.
3. Pursue direct land purchase or conservation easements to protect brook trout habitat.
 - a. Partner with land trusts or other conservation organizations.
 - b. Appropriate percentage of agency operating funds or license revenue towards direct purchases or conservation easements.
 - c. Use mitigation to protect trout habitat.
4. Establish land conservation easements that require the use of Best Management Practices and include the development of stewardship plans.
 - a. Develop a standard protocol/design for conservation easements.
 - b. Identify organizational structures to hold easements or property deeds.
 - c. Develop guidelines for “brook trout friendly” developments and establish a formalized certification process through the EBTJV.
 - d. Partner with developers to study watersheds to determine if brook trout protection requirements in “brook trout friendly” developments are effective.
5. Assist landowners in utilizing existing land conservation programs.
 - a. Utilize existing USDA Farm Bill programs (LIP, CREP, etc.)
 - b. Develop potential list of state-level, regional, or national land conservation programs that might be available to landowners complete with cost share requirements, deadlines, and reporting guidelines.
 - c. Partner with landowners in key watersheds that have high potential for habitat restoration (e. g., spring creeks in southwest Virginia).
6. Minimize fish stocking impacts to wild brook trout populations.
 - a. Develop stocking protocols that reduce potential impacts to wild brook trout populations.
 - b. Use triploid trout (sterile) in stocking programs.

Appendix II. (cont.)

7. Mitigate factors that degrade water quality.
 - a. Consider using direct treatment (i.e., adding lime) to improve water quality.
 - b. Establish or increase stream buffers.
 - c. Use direct stream restoration activities, such as Rosgen-type channel modification, to reduce inputs of sediment at critical areas.
 - d. Use indirect stream enhancement activities, such as riparian plantings, to stabilize stream banks and reduce inputs of sediment over a broad area.
 - e. Remediate Acid Mine Drainage (AMD) and acid deposition impacts to brook trout habitat
8. Maintain or restore natural hydrologic regimes.
 - a. Utilize active instream management and design.
 - b. Establish and maintain adequate stream buffers.
 - c. Re-establish fish passage and brook trout population re-connectivity through barrier removal (where appropriate).
9. Prevent the spread of invasive species into brook trout habitat.
 - a. Develop EBTJV-produced educational pamphlets that highlight state-level, regional, and range-wide threats from invasive species. Update annually.
 - b. Develop lists of invasives with state or federal agencies responsible for permitting aquaculture operators or distributors.
 - c. Eradicate invasive species from brook trout habitat where feasible.
10. Expand and integrate state, federal, and private programs that support riparian conservation in watersheds that support brook trout populations.
 - a. Utilize CREP, WHIP, Partners for Fish and Wildlife, and state, county, or other conservation programs. This should include efforts to integrate alternative mitigation programs when applicable.
11. Utilize state, federal and private programs that support watershed stewardship programs in systems containing brook trout.
 - a. Utilize USDA Healthy Forest Restoration Act through state forestry agencies.
12. Partner with organizations on projects that involve nongame species, migratory birds, and brook trout.
 - a. Develop a list of organizations that peripherally could support work with brook trout restoration and protection. Such groups include, but are not limited to, the American Fisheries Society, Natural Heritage program, Audubon Society, and Trout Unlimited's Back the Brookie campaign.