

**Great Pond Tributary Culvert Replacement, Little Cards Brook, Franklin, Maine**

**Project Location (State, County, Town, Congressional District):** Maine, Hancock, Franklin, 2

**Congressional District of Project:** 2

**Congressional District of Applicant:** 2

**NFHP / EBTJV Funding Requested:** \$24,000

**Total Project Cost:** \$48,000

**Total Federal Matching:** \$5,000

**Total Non-Federal Matching:** \$19,000

**Applicant:**

Project Officer: Megan Facciolo

Organization: Hancock County Soil and Water Conservation District

Street: 185 State Street, Suite B

City, State, Zip: Ellsworth, ME 04605

Telephone Number: 207-667-8663

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**U.S. Fish and Wildlife Service Sponsoring Office:**

Project Officer: Scott Craig

Fish and Wildlife Service Office: Maine

Street: 403 Hatchery Road

City, State, Zip: East Orland, Maine 04431

Telephone Number: 207 469-6701 ext. 226

Fax Number: 207 469-6725

E-Mail Address: Scott\_Craig@fws.gov

**USFWS FONS Database Project Number:** 53371-2015-393

**Coordination Completed with Sponsoring U.S. Fish and Wildlife Service Office (Check One):**

**Yes** June 30, 2015 **Date Coordination Began**

**No**

## **I. PROJECT DESCRIPTION, SCOPE OF WORK, AND PARTNER INFORMATION**

### **A. Project Description**

This project will replace an undersized and failing stream crossing on Little Cards Brook, a wild brook trout water. The present crossing consists of “hanging” culverts that are full passage barriers to fish and other aquatic organisms. In addition the culverts are incorrectly sited and direct the water flow into the downstream bank which has become severely undercut from the force of the water and is a significant source of sedimentation to both the stream and Great Pond.

The culvert and the sediment flowing through it were identified as a high impact, priority site by the 2014 Great Pond Watershed Survey conducted by the Franklin Great Pond Association with the assistance of the Hancock County Soil and Water Conservation District. Great Pond is also a confirmed alewives habitat and improvements to the water quality would benefit this valuable fishery. The crossing will be replaced with a >1.2 bankfull width (USFWS estimated at 5.5 ft), open bottom structure designed to allow passage at all flows. This will result in opening up 1/4 mile of cold water brook trout habitat and prevent further sedimentation of the stream and the pond. The Franklin Great Pond Association will provide education and outreach and Scott Craig of the US Fish and Wildlife Service will provide monitoring of the stream both during and after construction. This project is a great partnership between Federal and State agencies, local non-profit organizations, and private landowners.

### **B. Proposed Methods (Max Characters: 350)**

The project will use an open bottom arch culvert to replace the existing multiple round culvert stream crossing. This new design will follow Stream Smart practices by having a natural bottom and exceeding the 1.2 times the bank full width requirements. It will also be designed to handle a 100 year storm event based on Cornell Extreme Weather Data.

### **C. Project Timeline**

January-May 2016 - Engineering design and securing permitting

January-April 20, 2016 - Tree cutting (timing follows endangered species act for long-eared bats)

May-June 2016 - Securing contractor and ordering structure

July 15-September 30, 2016 - Construction window (timing follows endangered species act for Atlantic salmon)

October 2016 - Reporting

### **D. Proposed Accomplishment Summary (Max Characters: 500)**

This project will restore access to Little Cards Brook for fish and other aquatic organisms and restore the ecological function of this stream. It will also fix a chronic sedimentation problem that is detrimental to the health of the stream and Great Pond.

### **E. State the Importance of the Project to the Resource (Max Characters: 350)**

This project will result in improved access over Little Cards Brook and enhancement of native brook trout habitat. It will also remediate a chronic sedimentation problem that impacts the stream and alewives habitat in Great Pond.

### **F. Problem and Specific Cause of the Problem (Max Characters: 350)**

The existing culverts impair the passage of fish and aquatic life in two ways:

1) The culverts are "hanging culverts" on the outlet side and are almost a foot and half above the stream bottom. This blocks fish passage and prevents other aquatic organisms from passing through the culverts. 2) The upstream entrance of the culverts are clogged with sediment and blocked by accumulated branches and debris because the diameter of the culvert is not large enough.

In addition the culverts are incorrectly sited and direct the water flow into the downstream bank which has become severely undercut from the force of the water. This has led to sedimentation of both the stream and Great Pond. The sedimentation severely impacts the quality of habitat for the native brook trout. This polluted runoff contains soil and nutrients such as phosphorus that are detrimental to the water quality of the stream and Great Pond.

**G. Objective of the Project with Reference to the Problem** (Max Characters: 350)

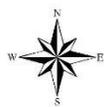
Replacement of the existing culverts with a natural bottom crossing, properly sized for the stream, with correctly installed erosion and sedimentation control Best Management Practices to allow passage at all flows and eliminate the sedimentation problem.

**H. Partner Information**

<b>Partner Name</b>	<b>Contribution In-Kind</b>	<b>Contribution Cash</b>	<b>Federal or Non-Federal</b>	<b>Partner Category</b>	<b>Role of Partner</b>
Hancock County Soil and Water Conservation District	\$4,000		Non-federal	Quasi-State Agency	Project Management, Permitting, Engineering
US Fish and Wildlife Service	\$5,000		Federal	Federal Agency	Data collection, monitoring
Great Pond Road Association	\$3,000	\$1,000	Non-federal	Local Organization	Construction, labor, and materials
Project SHARE	\$4,000		Non-federal	Non-profit Organization	Technical design and construction
Franklin Great Pond Association	\$1,000		Non-federal	Local Organization	Education and Outreach on the project
Private Landowners	\$5,000	\$1,000	Non-federal	Private Landowners	Non-technical construction, materials, equipment

## II. MAP OF PROJECT AREA

### Little Cards Brook



0 0.2 0.4 0.8 Miles

Legend	
	HC Towns
	Streets

### III. PHOTOGRAPH(S) OF PROJECT AREA



Hanging culvert stream view



Upstream view during storm event

**1 B. Budget Table Example**

Partner Name	Partner Category *	Activity of Partner **	Budget Category** *	EBTJV NFHAP Request	Non-Federal Contribution		Federal Contribution		Total Contribution	Acres/Miles Affected
					In-Kind	Cash	In-Kind	Cash		
Hancock County Soil and Water Conservation District	Quasi-State Agency	Overall Project Management	Administration/Technical Services		\$3,000				\$3,000	
		Permitting	Administration/Technical Services		\$1,000				\$1,000	
		Engineering	Technical Services	\$3,500						
		Arch culvert and installation	Construction labor and materials	\$20,500						.25 miles
US Fish and Wildlife Service	Federal Agency	Onsite Construction Assistance	Technical Services				\$4,000		\$4,000	
		Electrofishing and monitoring	Technical Services				\$1,000		\$1,000	
Great Pond Road Association	Local organization	Non-technical construction	Construction-Labor		\$3,000				\$3,000	
		Non-technical construction	Construction Materials			\$1,000			\$1,000	
Project SHARE	Non-profit Organization	Technical design and construction help	Construction-Labor		\$4,000				\$4,000	

Partner Name	Partner Category *	Activity of Partner **	Budget Category** *	EBTJV NFHAP Request	Non-Federal Contribution		Federal Contribution		Total Contribution	Acres/Miles Affected
					In-Kind	Cash	In-Kind	Cash		
Franklin Great Pond Association	Local organization	Education and Outreach	Education and Outreach		\$1,000				\$1,000	
Private Landowners	Private Landowners	Non-technical construction	Construction- labor		\$2,000				\$2,000	
		Non-technical construction	Construction- equipment		\$3,000	\$1,000			\$4,000	
Total Contribution				\$24,000	\$17,000	\$2,000	\$5,000		\$24,000	

\*Partner Categories - Federal Agency, State Agency, Local Government, Conservation Group (Local), Conservation Group (National), Native American Tribe, Private Landowners, Corporations/Businesses

\*\*Activity - Acquisition, Fish Ladder, Dam Removal, Culvert Removal, Restoration, Monitoring

\*\*\*Budget Categories – Administration/Technical Services, Construction Material, Construction Labor, Equipment, Contractual, Travel, Supplies, Other.

**NOTE: This is not a Federal Grant program and therefore does not exclude non-federal match used here from being matched to other Federal Grant sources to leverage funds for the project.** Indicate if partnering contributions are in-kind or new cash. NFHAP requests should illustrate how the dollars will be spent and by what organization. Overhead such as utilities, office space, and salary to prepare applications and develop partnerships will not be funded with NFHAP funds and should not be a line item or built into the project. Activities that directly relate to completion of the project such as travel and salary to do design work let and/or monitor contracts are allowable expenses with NFHAP funds but should not constitute more than 10% of the funding request. For more information on the use of NFHAP funds, please see <http://www.fws.gov/policy/717fw1.html>.

## V. EVALUATION QUESTIONS

**1. Please provide the GPS Coordinates for the project using UTM NAD 83.**

557,551 4,939,134

44.603244, -68.274786

**2. Please list the type of project (protection, enhancement, restoration; see definitions in the Appendix).**

Restoration that will enable fish passage and re-establish in-stream habitat.

**3. Are brook trout currently present at the project site or in the project stream? If not, were brook trout historically present? Is the habitat known to be suitable for restoration/reintroduction of brook trout?**

Brook trout are currently present in the project stream and were found during electrofishing by Scott Craig of the US Fish and Wildlife Service. The habitat is suitable for increased populations above and below the project site.

**4. Please describe how the project will provide for the expansion or improvement of existing habitat?**

The project will remove a passage barrier that currently limits access to Little Cards Brook. It will also improve habitat by reducing the sedimentation problem in the stream and lake.

**5. Does the project include a protection component? Is the project footprint located on private or public land? Is the land currently protected? Does the project include land purchase or easements as match?**

The project is located in a public right-of-way on private land. The land is not protected by easements and the project does not include land purchases or easements.

**6. What percentage of the watershed above the proposed project is protected in perpetuity?**

None of the watershed directly above the project is protected by an easement, but it is nearly 100% forested with excellent riparian shade trees. The land at the head of the stream as well as most of the watershed, is in the Tree Growth program. Also, approximately  $\frac{3}{4}$  of a mile of the Great Pond shoreline, and the associated backland, is protected by a conservation easement.

**7. List the specific EBTJV habitat objectives addressed by the project and describe how the project will contribute towards them (refer to the list of EBTJV habitat objectives in the Appendix).**

Increasing access to Little Cards Brook by improving passage and habitat at the proposed crossing replacement site will contribute the following Regional Objectives:

1. Maintain the status, or no net less, of subwatersheds classified as Intact.
2. Strengthen brook trout populations in subwatersheds classified as Intact.

**8. State which, if any, EBTJV conservation priority the project addresses (refer to the list of EBTJV conservation priorities in the Appendix):**

This project addresses the following EBTJV conservation priorities:

1. Increase recreational fishing opportunities for wild brook trout

2. Protect the “best of the best” habitat that supports existing, healthy wild brook trout populations
3. Improve and reconnect adjacent habitats that have a high likelihood of supporting stable wild brook trout populations
4. Focus on critical wild brook trout spawning and early life history habitat in sub-watersheds classified as Intact
5. Preserve genetic diversity of wild brook trout populations

**9. State which, if any, of the EBTJV common state-level objectives are being addressed by the project (refer to the list of EBTJV common state-level objectives in the Appendix):**

This project addresses the following EBTJV common state-level objectives:

1. Improve protection of brook trout resources.
2. Maximize brook trout habitat and water quality protection through state and federal agencies.
7. Mitigate factors that degrade water quality.
8. Maintain or restore natural hydrologic regimes.
11. Utilize state, federal and private programs that support watershed stewardship programs in systems containing brook trout.
12. Partner with organizations on projects that involve nongame species, migratory birds, and brook trout.

**10. What is the EBTJV subwatershed number (6<sup>th</sup> level Hydrologic Unit), and associated classification and priority score for the proposed project?**

- **Subwatershed #** = 230706
- **Subwatershed Status Classification** (Intact, Reduced, Extirpated; terms are defined in the Appendix) = Intact
- **Subwatershed Priority Score** = 1.51
- **Subwatershed Map Used** = ME

**11. Will the completed project benefit any federally listed threatened or endangered species or Service priority species (refer to the list of Service priority species for Region 4 and Region 5 in the Appendix)?**

This project is located within the Gulf of Maine (GOM) Atlantic Salmon Distinct Population Segment (Federal Register 2009).

The following Service priority species will benefit from the project:

- *Salvelinus fontinalis*, Brook Trout
- *Alosa aestivalis*, Blueback Herring
- *Alosa pseudoharengus*, Alewife
- *Anguilla rostrata*, American Eel
- *Salmo, salar*, Atlantic Salmon, GOM DPS

**12. Will the completed project benefit any state listed threatened or endangered species or species of greatest conservation need?**

This section of the lake at the mouth of the stream, is listed by the Maine Natural Areas Program as a *Rare Plant/Natural Community* for “Rare/Important Plants” as part of a critical sandy lake-bottom habitat. The proposed project would greatly reduce the sedimentation of this state-listed valuable habitat.

**13. Will the project provide or enhance connectivity to or within an intact subwatershed?**

This project will provide connectivity in an intact subwatershed. This is the only stream-road crossing in this cold water tributary, and its located only 21.5 m above Great Pond. When the barrier culvert is replaced, Brook trout will have unhindered access to much higher quality spawning and rearing habitat.

**14. What are the root causes of the watershed degradation and which of these are addressed by the project?**

The primary cause of degradation to the stream and the Great Pond watershed is nonpoint source runoff and the sedimentation it causes. This project will greatly reduce the sedimentation issue at this site, which is listed as a high impact site identified in the 2014 Great Pond Watershed Survey.

**15. Describe the plans for project effectiveness monitoring and evaluation (i.e. measuring the project’s success in meeting its goals/objectives).**

The perched and grossly undersized barrier culvert is the primary threat to brook trout in this cold water refugium tributary. USFWS biologists electrofished this stream on Aug 25, 2015 and the only species collected was Brook Trout. USFWS Biologist, Scott Craig, will continue to monitor this wild native brook trout population after the culvert is replaced with an open bottom structure.

**16. Describe the expected effect on the brook trout population. To what degree will the project strengthen the brook trout population status?**

Replacing the crossing structure on Little Cards Brook with an open bottomed structure with >1.2 times the bank-full width span, will continue to allow and improve access for wild eastern brook trout. Improving this crossing will increase the wild brook trout status in Little Cards Brook especially in periods of high flows when the increased velocity through the current two smaller culverts makes it impossible for trout to access even at burst speeds. Improvement of this crossing structure will significantly help increase trout numbers. It will also help terrestrial organisms move along the riparian zone under the road.

**17. Please describe the long term benefit of the project and provide an estimate of the length of time the project is expected to be effective. If a plan for long term maintenance is necessary to maintain project benefits, please describe it.**

Bottomless arch structures of the type proposed have an estimated life span of 50-75 years. Arch type culverts require occasional inspection to ensure there are no blockages and the footing armor is still in place. The Great Pond Road Association will provide monitoring and maintenance of this crossing once it is completed.

**18. Does the project address, support or build upon existing action plan(s) (e.g. state fish & wildlife, watershed protection, water quality improvement, land or water-use plan(s), or other regional plan(s))?**

This project will address a problem site listed in the Great Pond Watershed Survey Report (2015) and the Great Pond Watershed-based Protection Plan (2015).

**19. Are there competitive non-native or invasive fish species within the watershed with access (no barrier) to the proposed project? Are other strains of brook trout, non-native salmonids or other exotics stocked at the proposed site or will they have access following project completion?**

Largemouth bass were stocked in Great Pond in 1994 and alewives were stocked in 2002, 2003, 2004, and 2008

([http://maine.gov/ifw/fishing/lakesurvey\\_maps/hancock/images/great\\_pond.pdf](http://maine.gov/ifw/fishing/lakesurvey_maps/hancock/images/great_pond.pdf)). This tributary contains a resident wild (non-stocked) Brook Trout population that according to US Fish and Wildlife, is not threatened by bass in the lake. The lake also has a native population of anadromous River Herring and American eel. After completion of this project, sea-run brook trout will also be able to utilize this cold water tributary.

**20. Please describe the current status of the project. Is it planned, permitted and ready to begin?**

Scott Craig, US Fish and Wildlife Service worked with Megan Facciolo, Hancock County Soil and Water Conservation District, to collect data on June 30, 2015. Using the stream data gathered, Scott put together stream stats, discharge estimates, a longitudinal profile, channel cross section, and protrusion pebble counts. This information will be used by the District Engineer to create a stamped engineered plan for the new structure. The design follows Stream Smart practices, so we will not require Local or State Permits. The Hancock County Soil and Water Conservation District and the US Fish and Wildlife Service have obtained all necessary information to be able to submit a Section 7 Biological Evaluation Form to obtain an Army Corps of Engineers permit.

**21. Will public access be allowed at the project site? If so, what kinds of recreational activities are allowed – fishing, hiking, camping, wildlife viewing, etc.?**

The project is located in a public right-of-way and fishing and wildlife viewing will continue to be allowed from the stream crossing. No fees will be charged.

**22. Will the project increase recreational fishing opportunities for wild brook trout? If so, how much will it increase and how will the increase be measured?**

The wild resident Brook Trout in this cold water tributary are subject to standard Maine Fishing regulations. Opening up this habitat by installing a proper crossing, will allow for a stronger and healthier brook trout population, which can lead to an increase in fishing opportunities.

**23. What is the recreational potential of the fishery (i.e., fish abundance, average fish size, type of accessibility for fishing)?**

A USFWS fish survey in August 2015, determined that the brook trout present appeared to be a wild (non-stocked) resident type population (Total Length 80-92 mm, Density 8-10 fish/100m<sup>2</sup>). However, since several anadromous fish species are present in Great Pond, the future possibility of a Sea-Run population of Brook Trout is possible. The barrier culvert is located only 21.5 m above Great Pond, so this restoration project (minimum of 8ft wide open bottom structure) will allow unhindered access to higher quality spawning and rearing habitat upstream. If Sea-Run brook trout colonize this stream, charr will be much larger.

**24. Describe the outreach or educational components of the project and how many individuals/students will be served.**

We plan to use this site as a demonstration stream crossing to show other private road association representatives and local municipal officials the benefits of installing proper stream crossings.

**25. If applicable, please briefly describe how this project will promote adaptation to climate change.**

This design addresses climate resiliency by following Stream Smart practices having a natural bottom and exceeding the 1.2 times the bank full width requirements. It will also be designed to handle a 100 year storm event based on Cornell Extreme Weather Data.

**26. Please explain how this project is a good investment of funds, using a quantitative approach where possible and the recreational and / or economic value of the project.**

Currently the private road association spends over \$2,000 per year on this section of road. Installing a proper crossing will create safer passage for residents, enable them to use road funds in other critical areas, and will reduce the sedimentation of the stream and the lake. The project utilizes local organizations and landowners to reduce the costs. It also will reduce the phosphorus imports to Great Pond and help maintain its valuable alewives fishery.

**SUPPORTING DOCUMENTATION:**

- **Literature Cited**
- **References to published interagency fishery or aquatic resource management plans.**

Great Pond Road Tributary Summary, by Scott Craig, USFWS Maine Resources Office

Great Pond Watershed Survey, 2015, by the Hancock County Soil and Water Conservation District and the Franklin Great Pond Association.

Great Pond Watershed-based Protection Plan, 2015, by the Hancock County Soil and Water Conservation District and the Franklin Great Pond Association.

Federal Register. 2009. Endangered and Threatened Species; Designation of Critical Habitat for Atlantic Salmon (*Salmo salar*) Gulf of Maine Distinct Population Segment; Final Rule. Vol. 74, No. 152 August 10, 2009. Pages 39903-39907.

MEGIS Data Layer for State-Protected Habitats. 2009.

Longitudinal Profile collected by USFWS and Hancock County Soil Water Conservation District

