Project Title

Restoring Connectivity in Sunday River & Martin Stream Watersheds, Riley Twp & Turner, ME EBTJV

Project Location (State, County, Town, Congressional District)
Maine, Oxford County, Riley Township
Congressional District of Project: ME 2
Congressional District of Applicant: ME 2
Maine, Androscoggin County, Turner
Congressional District of Project: ME 2
Congressional District of Applicant: ME 2

NFHAP / EBTJV Funding Requested: $36,360

Total Project Cost: $72,722

Total Federal Matching: 0

Total Non-Federal Matching: $36,362

Applicant:
Project Officer: Susan Gammon
Organization: Androscoggin Valley Soil and Water Conservation District
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U.S. Fish and Wildlife Service Sponsoring Office:
Project Officer: Scott Craig
Fish and Wildlife Service Office: Maine Fishery Resources Office
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City, State, Zip: East Orland, ME 04431
Telephone Number: (207) 469 6701 x226
EMail Address: Scott Craig @fws.gov

USFWS FONS Database Project Number: 53371-2012-374

Coordination Completed with Sponsoring U.S. Fish and Wildlife Service Office (Check One):
X Yes 7/15/12 Date Coordination Began
_____ No

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

A. Project Description: Sub-watersheds of the Androscoggin River contain some of the finest intact and healthy brook trout habitat in the State of Maine. This project will enhance brook trout habitat and populations in a total of six miles in two sub-watersheds, Sunday River and Martin Stream, that are a priority of the Maine Department of Inland Fisheries & Wildlife (IF&W) and EBTJV.

In this wide-ranging project, the Androscoggin Valley Soil and Water Conservation District (AVSWCD) proposes to: 1) Restore brook trout habitat in approximately four miles of mainstem and tributaries of the Sunday River, an EBTJV healthy and intact sub-watershed (sub-watershed #230895 intact rated 1.66), by removing a log driving dam that is the top restoration priority; 2) Develop plans to restore additional priority sites from the 2011 barrier assessment; 3) Conduct a fish passage survey in the Martin Stream sub-watershed (EBTJV #230894 intact rated 1.61) to identify, map and prioritize barriers for future connectivity restoration; 4) Replace culverts at two sites that block fish passage in Lively Brook, a Martin Stream tributary, opening more than two miles to brook trout movement. This project is aligned with EBTJV objectives.

The Sunday River site is in Riley Township located in the State of Maine's Mahoosuc Unit managed by the Maine Bureau of Parks and Lands. Dam removal will be done by IF&W and ARWC. Both Lively Brook sites are owned by the Town of Turner. They will install all culverts, with AVSWCD and IF&W supervision.

Partners
Partners include the Androscoggin River Watershed Council (ARWC), Androscoggin Valley Council of Governments (AVCOG), Town of Turner, Maine Department of Inland Fisheries & Wildlife (IF&W), Maine Department of Conservation – Bureau of Parks and Lands (BPL), Oxford County Soil and Water Conservation District (OCSWCD), Trout Unlimited, and volunteers.

B. Proposed Methods (Max Characters: 350)
AVSWCD will contract with ARWC to coordinate work within the Sunday River sub-watershed and the Town of Turner for culvert replacement. A hydrologic study and engineering design will be needed for culvert replacements. A barrier survey using current protocol in the Martin Stream sub-watershed will be done and restoration priorities established**.**

C. Project Timeline
Site pre-construction assessment will be done by IF&W in 2013**.** Planning has started and estimates for the Lively Brook replacement projects and the Sunday River dam removal have been prepared. Preliminary work, including designs, permitting and hydrological studies, will be completed in the summer of 2013, if funded.

AVSWCD (through ARWC) will coordinate IF&W removal of the dam which will open an estimated four miles of mainstem and tributary streams in the Sunday River

headwaters to brook trout movement and migration. The Town of Turner will replace undersized, hanging culverts with appropriately sized, properly placed structures at Lively Brook Site 1 (Plains Road) and Site 2 Tidswell Road. A single span may be used instead of multiple culverts at either of these locations. Construction is weather and flow-dependent. Replacement projects and dam removal will take place when water levels are lowest, typically in late summer or fall. Projects will be completed and inspected prior to November 30, 2013, if possible.

Monitoring at the Sunday River and the Lively Brook Sites 1 & 2 will continue for a minimum 2-year period after construction.

An inventory of fish passage barriers will be conducted within the entire Martin Stream sub-watershed beginning in August 2013 and ending in the fall of 2013. Field experienced team leaders will use the Maine Stream Crossing Survey Manual protocol to identify barriers and prioritize replacement needs to enable planning for future habitat restoration projects, leading to enhancement and protection of resources in the high value watershed. Barrier prioritization and GIS mapping will be completed by the end of December 2013. The completed barrier inventory, prioritization and report will be delivered to watershed towns, local planning agencies, partners and EBTJV by the end of June 2014.

Outreach and public notification of the barrier inventory and replacement projects via press releases, newsletters, websites and personal contact will be completed within one month of EBTJV funding.

ARWC will work with the Town of Newry, state agencies and private landowners, as needed, to develop plans and agreements for restoring fish passage at two additional barrier sites that were identified in the 2011 barrier assessment (EBTJV Agreement #53371-A-G002A). It is anticipated this work will start in January 2013 and continue for the following six months. Engineering designs for these two sites will be prepared by AVCOG.

A search for future funding to complete priority projects will be on going, as will public education about the issues and importance of maintaining, enhancing and protection of fish habitat.

This timeline depends on availability of funding.

D. Proposed Accomplishment Summary (Max Characters: 500)
Re-establishing connectivity in the Sunday River and in Lively Brook will renew brook trout movement and migration to about 6 miles of river & stream, enhancing habitat and protection of existing wild brook trout within the sub-watersheds. The barrier inventory will provide information to prioritize barrier removal in the Martin Stream sub-watershed. Obtaining commitments for additional removal projects in the Sunday River sub-watershed will further enhance the watershed.

E. State the Importance of the project to the Resource (Max Characters: 350)
"Tributaries provide critical summer refuge and access to suitable spawning and juvenile habitats. The mainstem of the streams and the tributaries play vital roles in the survival of resident wild brook trout. Efforts to maintain habitat and connectivity are top priorities to protect this outstanding resource." [i]

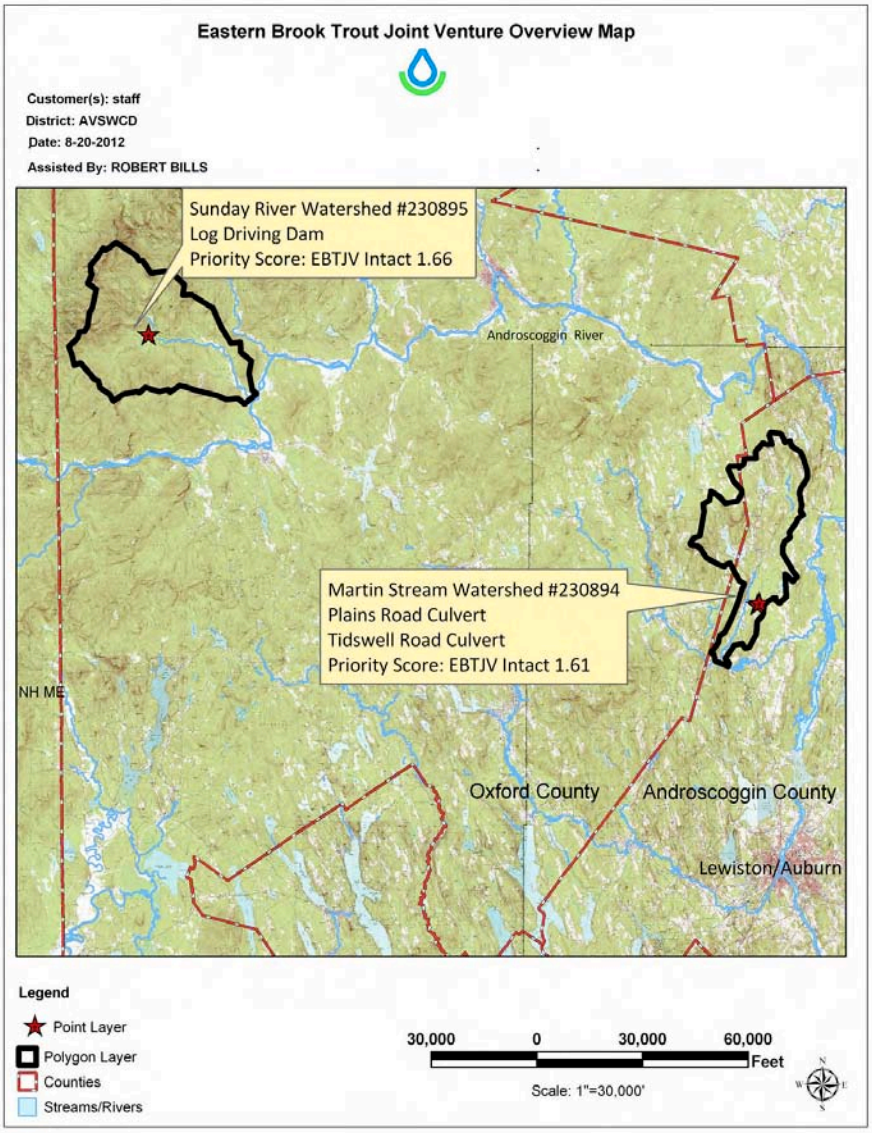
F. Problem and Specific Cause of the Problem (Max Characters: 350)
Undersized and improperly set culverts in Lively Brook and a log driving dam in the Sunday River have blocked fish passage, impounded backwater and caused degradation of water quality and increased temperature at all three sites.

G. Objective of the Project with Reference to the Problem (Max Characters: 350)
The objectives are to reconnect the Sunday River mainstem to its tributaries and Lively Brook to Martin Stream, identify and prioritize additional barriers in the Martin Stream sub-watershed and to obtain formal agreements with additional Sunday River landowners to ensure future additional barrier removal.

H. Partner Information

Partner Name	Contribution In-Kind	Contribution *Cash*	Federal or Non-Federal	Partner Category	Role of Partner
AVSWCD		$2000		Quasi-state	Administration Barrier Survey
ARWC	$3940	$1000	Non-Federal	Local Conservation Group	Barrier Survey Sunday River Coordination, Outreach & Planning
OCSWCD	$200		Non-Federal	Quasi-State	Barrier Survey
AVCOG	$10,000		Non-Federal	Regional Council	Engineering designs for removal of barriers at 2 additional Sunday River sites
Maine IF&W	$3,600		Non-Federal	State Agency	Participate in removal of Sunday River log driving dam and Lively Brook culvert replacement
Town of Turner	$750	$14,000	Non-Federal	Local Government	Removal and replacement of culverts on Lively Brook
Trout Unlimited	$872		Non-Federal	National Conservation Group	Volunteers Barrier Assessment

II. MAP OF PROJECT AREA



III. PHOTOGRAPH(S) OF PROJECT AREA

Submitted separately

IV. PROJECT BUDGET TABLE

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		
AVSWCD	Quasi-state	Project Admin.	Personnel	$3200		$800			$800	
		Barrier Survey, Data Input	Personnel	$4800		$1200			$1200	
		Mileage (300@50)	Travel	$150						
		GIS mapping	Other	$1000						
		Supplies	Other	$300						
ARWC	Local Cons. Group	Barrier Survey, Planning	Contract Personnel	$3760	$940	$500			$1440	
		Dam Removal Coordination	Contract Personnel	$1400	$600				$600	
		Outreach, Planning Future Sites	Contract Personnel	$5600	$2400	$500			$2900	
		Mileage (1000@.50)	Travel	$500						
OCSWCD	Quasi-state	Barrier Survey	Contract Personnel	$800	$200				$200	
		Mileage (200@.50)	Travel	$100						
AVCOG	Regional Council	2 Sunday River Engineering Designs	Other		$10000				$10000	
IF&W	State Agency	Monitoring, dam removal	Const., Other		$3600				$3600	4+ miles of stream
Town of Turner	Town	Culvert Replacement	Contract	$14750	$750	$14000			$14750	2+milesof stream
Trout Unlimited Volunteers	Local Cons. Group	Barrier Survey	Other		$872				$872	
Total Contribution				$36,360	$19,362	$17,000			$36362	6+miles of stream

*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 - Equipment, Construction, Contractual, Personnel, Travel, Supplies, Other.

V. EVALUATION QUESTIONS

1. **Please provide the GPS Coordinates for the project using UTM NAD 83.**
   Lively Brook Site 1: 400143.37E, 4906052.36N
   Lively Brook Site 2: 399951.18E, 4905946.03N
   Sunday River Site 0347260E, 4929331N

2. **Please list the type of project.**
   Fish Passage, Barrier Inventory

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?**
   Wild brook trout are currently present at all project sites and habitat is suitable for restoration.

4. **Please describe how the project will provide for the expansion or improvement of existing habitat?**
   Habitat will be improved by re-establishment of connectivity and reduction of sedimentation to waters. Fragmentation will be reduced or eliminated and trout will have free access to coldwater tributary habitats**.** Removal of these barriers will open up more than six miles to brook trout colonization, movement and migration. The project will result in the expansion of existing brook trout habitat and populations.

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 protects existing habitat by reducing degradation of water quality and ensuring fish passage at all sites. The project itself does not include land purchase or easements, however, all sites are on public land. The Sunday River site is in the Mahoosuc Unit managed by BPL. In the 2011 Western Mountains Region Management Plan, the Sunday River was designated as a "Wildlife Dominant Riparian Zone".[ii] This consists of 330'-wide setbacks from each bank in which motorized uses and timber harvesting are restricted to benefit wildlife, including brook trout. In addition, the Sunday River in the Mahoosuc Unit is listed as "Visual Class I", BPL's most restrictive visual class, which means a natural appearance must be maintained along the river banks and in the 330' riparian zones.

6. **What percentage of the watershed above the proposed project is protected in perpetuity?**
   The Martin Stream sub-watershed total drainage area is 23,680 acres. The Androscoggin Land Trust preserves 262 acres on Pleasant Pond (Martin Stream sub-watershed); They are in the process of purchasing and/or negotiating conservation easements on approximately 114 acres in the Town of Turner, within the Martin Stream Sub-watershed. The Town of Turner has development restrictions in resource development areas (no new building in all floodplain areas), shoreland zoning and rural districts. The Town of Livermore also has shoreland zoning and resource development area restrictions. Shoreland zoning extends 250 feet from the high water mark of water bodies. USDA/NRCS has Conservation Stewardship Plans on approximately 8500 acres of farmland. Percentage of preserved lands within the Martin Stream

sub-watershed is currently less than 10% of the focus area, if shoreland zoning acres, resource development area acres and USDA Conservation Stewardship Plan acres are not included. The Sunday River, at and above the project site, is in the Mahoosuc Unit, managed by the Maine BPL. Although the agency allows some carefully managed timber harvesting in lower elevations, fully 100% of the Sunday River upstream from the project site, and its headwater tributaries, is protected from commercial and residential development in perpetuity.

7. **List the specific regional EBTJV habitat objectives addressed by the project and describe how the project will contribute towards them.**
   This project addresses the following objectives from the EBTJV Conservation Strategy:
   The project contributes toward regional habitat objectives #1 and #2 in the 2011 update of "Conserving the Eastern Brook Trout: Action Strategies" by increasing opportunities for brook trout colonization, movement and migration.

8. **State which, if any, EBTJV priority the project addresses:**
   The entire project meets EBTJV priority 2, Habitat Protection. Under 2.1, Strategy 2, it states: "Identify barriers to fish passage and re-establish habitat connectivity where possible." The Sunday River drainage protects "best of the best" habitat and supports a healthy, self-sustaining population of brook trout although current access to the upper watershed is blocked by the remnant log driving dam. The project will improve and re-establish connectivity in high quality habitat within both sub-watersheds. The Martin Stream barrier inventory is a necessary part of future projects, identifying and prioritizing barriers to fish passage.

9. **What is the EBTJV subwatershed number and associated priority ranking for the proposed project?**
   Martin Stream Sub-watershed # 230894 Priority Score =1.61 Map = Best for Protection
   Sunday River Sub-watershed #230895 Priority Score =1.66 Map = Best for Protection

10. **Will the completed project benefit any federally listed threatened or endangered species?**
    Martin Stream Sub-Watershed is within the boundaries of the Gulf of Maine Distinct Population Segment of Atlantic salmon and designated critical habitat. [iii]

11. **Will the completed project benefit any state listed threatened or endangered species?**
    None

12. **Will the project provide or enhance connectivity to or within an intact subwatershed?**
    Yes. The project will enhance connectivity within both sub-watersheds, listed as intact by EBTJV.

    In 2011, ARWC conducted a barrier inventory of brook trout passage in the Sunday River and Bear River Watersheds (EBTJV Agreement #53371-A-G002A). 141 sites were examined including culverts, bridges, fords and the remnants of log driving dams. In the winter of 2011-12, ARWC prioritized the sites for restoration and entered data in a database compatible with IF&W and USFWS statewide efforts. The #1 priority site from this inventory is the remnant of a log driving dam on the mainstem of the Sunday River. ARWC, IF&W, and BPL have

discussed and refined removal options, beginning in October 2011 and continuing to the present**.**

"Martin Stream is regionally known as a quality wild brook trout stream. Despite being in a valley with extensive and varied agricultural and residential development, the stream consistently produces 12-14 inch brook trout. While brook trout utilize the main channel of Martin Stream opportunistically, the cool waters of the tributaries provide critical summer refuge, and access to suitable spawning and juvenile habitats. Both the main stem of the stream and the tributaries play vital roles in the continued survival of the resident population of brook trout. All efforts to maintain respective habitat qualities and connectivity should be top priorities to protect this outstanding resource".[iv] Lively Brook provides thermal refuge, foraging and juvenile habitat for the brook trout fishery in the Martin Stream sub-watershed. Re-connection of existing brook trout habitat in Lively Brook will enhance and protect resources of the high quality Martin Stream habitat. Though listed as intact, current information for the Martin Stream sub-watershed indicates that is now a reduced watershed. [v] The barrier inventory will identify all barriers within the Martin Stream sub-watersheds.

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

Fragmentation of mainstem rivers and streams and sedimentation to the streams are root causes of watershed degradation in the area. Both are addressed by the project.

14. Describe the plans for project monitoring and evaluation.

IF&W will monitor the Lively Brook project during construction at sites for compliance with best management practices and permitting guidelines. In addition, IF&W will evaluate and monitor post-construction habitat and fishery responses for a minimum of 2 years after construction (three years including the construction year). IF&W will electro fish the sites pre- and post-construction to evaluate if the treatments allow fish passage and habitat connectivity. Sampling will be single pass presence\absence sampling with a backpack electrofishing unit over reach lengths of 60 meters upstream and 60 meters downstream of the culverts. One sampling event will occur prior to construction, and monitoring will continue for at least two years after construction is complete.

IF&W will monitor the Sunday River site for two years after project completion. ARWC also will monitor the site on an annual basis. Monitoring can include geomorphic assessment and photo-documentation to gage river response to dam removal, and population studies to determine brook trout response.

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

Expectations are that trout will increase in number and quality. Fish will have access to more habitats, thermal stress will be reduced, and water quality will improve. The project is expected to enhance the brook trout population by re-establishing connectivity within both sub-watersheds and allow colonization of presently fish-less streams in the Sunday River headwaters. The status of the brook trout population in this sub-watershed is

already intact and healthy; the project will protect and strengthen this top-notch designation.

16. 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.

The long-term benefit in both sub-watersheds is re-connection of habitat. Culvert replacements in Lively Brook will conform to fish passage requirements. Life expectance and effectiveness is in excess of 25 years before replacement will be necessary. Long-term maintenance will be needed. The Town of Turner will inspect them regularly, clean out as needed, and replace when necessary. The town will also maintain riprap protection at the inlets and outlets and ensure that shoulders do not erode. The town will sign a long-term maintenance plan and agreement to do repairs and replacement as needed prior to construction. Any replacements will also be required to be compatible with fish passage. Once the remnant log driving dam is removed in the Sunday River, the project is expected to be effective in perpetuity. Once equilibrium is restored (by natural river processes) after dam removal, no long-term maintenance will be needed.

17. Are other strains of brook trout, salmonids, or exotics present in the proposed watershed? Do stockings of other strains of brook trout, salmonids, or other exotics occur, and if so, where does the stocking take place with respect to the project site (in HUC, in HUC but below barrier, or in adjacent HUCs)?

Brook trout is stocked above the dam (dam located at outlet) in Pleasant Pond 2.2 miles upstream from Lively Brook Site 1 and 2.3 miles upstream from 2. Lively Brook is the outlet (dam location) of Pleasant Pond. Brettuns Pond, 8.5 miles upstream from Site 1 and 8.4 miles upstream from site 2, is stocked with Brook and Brown Trout. Martin Stream is the outlet of Brettuns Pond. The Nezinscot River is stocked with Brown and Brook Trout below the dam in Turner, .87 miles downstream from the Lily Pond Outlet.. Martin Stream is a tributary to the Nezinscot River. Crystal Pond, 1.33 miles downstream from Site 2 and 1.5 miles downstream from Site 1 is stocked with Brook and Brown Trout. Smallmouth Bass are present in Martin Stream.

Smallmouth Bass are present in the lower reaches of the Sunday River but have not been found higher up in the sub-watershed at the project site. Only Brook Trout have been found in the vicinity of the project site.[vi] Rainbow trout have been found in the lower Sunday River sub-watershed. Their numbers decline further up in the sub-watershed near to project site.[vii]

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

Planning and permitting for the Lively Brook culvert replacements has started. Permitting for culvert replacement may not be needed, depending on final design.

The Sunday River dam removal planning is underway. IF&W, USFWS and ARWC all have had extensive discussions about methodology (a grip hoist is the preferred method of removal), and IF&W personnel have toured the site. Pre-removal monitoring by IF&W has been completed. A permit will be required from the Maine Land Use Regulation Commission; initial inquiries have been made to LURC; it is anticipated that a LURC stream alteration permit will

be obtained quickly. Depending on flow and weather conditions, removal is planned for late July 2013.

19. Will public access be allowed at the project site? If so, what kinds of recreational activities are allowed – public fishing, nature trails, etc?

All sites are publically accessible to recreational anglers. The Sunday River site is on public (state) land. Public access is allowed and uses include: fishing, wading, paddling, hiking, and hunting.

20. What is the recreational quality of the potential fishery?

Very high. The Martin Stream sub-watershed is well known for quality fishing and large brook trout are regularly caught. Residential wild trout populations are present. Reconnecting the habitat will improve the quality of fishing. Recreational fishing in the Sunday River sub-watershed is important to the local economy, both at present and historically. Removing this barrier will improve the brook trout fishery. "The brook trout sport fishery on Sunday River and Jordan Brook is documented in Wilkins' Sunday River Sketches as early as 1900, when a party reportedly took 300 trout in an afternoon."[viii] Statewide, brook trout are a huge draw for anglers from all over the United States. Maine enjoys the largest intact wild brook trout population of any of the lower 48 states.[ix]

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

Outreach will be via press releases and website postings on AVSWCD, OCSWCD and ARWC websites, newsletters and other means of public notice and will reach most of the population of the watersheds. Delivery of results to the Towns and public will also be an opportunity for education about the issues and raise public awareness of the problem. It will also be publicized at ARWC's annual conference, which attracts 70-80 participants each year. In addition, the project will be publicized during ARWC's annual "Source to Sea" canoe and kayak trek. The Trek attracted more than 300 paddlers in 2012. There are no specific plans at this time to involve student groups. However, ARWC anticipates taking area students (from Telstar High School and the Gould Academy) on occasional tours of the completed project.

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

This project will improve the ability of wild brook trout to access cooler tributary waters during times of thermal stress. Climate models for Maine predict longer summer warm spells and increasing amounts of annual precipitation. By replacing the existing structures at the Lively Brook sites and removing the dam at the Sunday River site, changes in local hydrology due to climate change will be remediated in addition to increasing accessibility to coldwater habitat for wild trout.

23. 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.

By replacing the structures at the Lively Brook sites with appropriately sized and positioned structures, the Town's annual maintenance costs should be greatly reduced. In addition, improvements to the fishery in both sub-watersheds due to greater habitat accessibility by wild brook trout will ensure that they continue to be a local angling draw, benefiting the local economies. Hence, costs associated with chronic maintenance and repair will decline while additional dollars brought into the local communities by destination anglers should increase.

VI. Supporting Documentation and References:

Eastern Brook Trout Joint Venture, 2008. *Conserving The Eastern Brook Trout: Action Strategies*

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[i] Communication with Robert Van Riper, IF&W Regional Biologist

[ii] Bureau of Parks and Lands, Maine Department of Conservation, 2011. Western Mountains Region Management Plan.

[iii] National Oceanic and Atmospheric Administration (2009). "Endangered and Threatened Species; Designation of Critical Habitat for Atlantic Salmon (Salmo salar) Gulf of Maine Distinct Population Segment; Final Rule." Federal Register 74(117): 29300-29341.

[iv] Communication with Robert Van Riper, IF&W Regional Biologist

[v] Communication with Merry Gallagher, IF&W, State EBTJV Coordinator.

[vi] Bonney, F., Boucher D., and Howatt, D.,1999. Biological Survey of the Sunday River Fishery, Interim Summary Report, Series No. 99-5.

[vii] Bonney, F., Boucher D., and Howatt, D., 1999. Biological Survey of the Sunday River Fishery, Interim Summary Report, Series No. 99-5.

[viii] Bonney, F., Boucher D., and Howatt, D., 1999. Biological Survey of the Sunday River Fishery, Interim Summary Report, Series No. 99-5.

[ix] Maine Sunday Telegram, August 19, 2012. "Troubled Waters: Non-native predatory fish are taking a big bite out of Maine's brook trout habitat."