Eastern Brook Trout Joint Venture
Completed Project Report Form

Project Title: EBTJV/NFHAP Carloe Brook ME Fish Passage Restoration

- **Location:** T27ED BPP Washington County, Maine
- **Lat / Long Coordinates:** -67.68 45.07
- **Sponsor:** Maine Forest Service
- **Completion Date:** August 12, 2011
- **Partners involved:** Wagner Forest Management, US Fish and Wildlife Service Maine Fisheries Resources Office and Gulf of Maine Coastal Program.
- **Project costs:**
  1. Total cost: $42,000
  2. Non federal amount: $18,200
  3. Federal amount: $23,800
- **Final Funding:**
  NFHAP Funding Through EBTJV: $21,000
  Total Federal Contributions: $23,800
  Total Non-Federal Contributions: $18,200
- **Action strategy implemented in the project (according to EBTJV range wide, regional, or state level habitat strategies).**
  This project addresses Regional Habitat Objectives: 1 – Maintain the status of 477 Northern subwatersheds classified as Healthy; 2 – Strengthen brook trout populations in 20 Northern subwatersheds classified as Healthy; 7 – Validate the predictive status model by contributing toward the assessment of 700 Northern predicted status subwatersheds.
- **Priority score of the sub-watershed where the project took place.**
  Protection of a 1.63 “best of the best” subwatershed (230467).
- **Describe any additional species of greatest concern or the state wildlife action plan listed habitat conservation goal(s) supported by the project.**
  American eel has been petitioned to be listed under the Endangered Species Act and are found within the project area.
- **Description: project objective(s):**
The project replaced an undersized and failing stream crossing on Carloe Brook a major tributary to Clifford Lake that has wild brook trout. This stream crossing currently limits passage for trout and other aquatic organisms. The current crossing is also a significant sediment source due to improper construction and overtopping. The crossing will be replaced with a 1.2 bankfull open bottom arch culvert (15ft wide) designed to allow passage at all flows.

- **Methods used:**
  New crossing was designed using stream simulation techniques to ensure proper sizing and placement of the new structure. A 1.2 x bankfull width open bottom arch culvert replaced 5 undersized and damaged round culverts.

- **Project outcomes: Describe outcomes and whether or not the objectives were met. If not why? What lessons were learned?**
  Project restored natural stream function at a highly degraded stream-road crossing.

- **What is the Brook trout population response to the project outcome?**
  All aquatic organisms now have unhindered access upstream and downstream.

- **If applicable, what is the number of stream miles and or acres of brook trout habitat?:**
  This project opened 3 miles of stream habitat.

- **If applicable what is the number of stream miles and or lake/pond acres of brook trout habitat gained access to as a result of removing a fish barrier. Include the # of fish barriers removed?**
  One stream-road crossing

- **If applicable, what is the number of stream miles and or lake or pond acres of brook trout habitat with sediment, phosphorous, or nitrogen inputs that were rehabilitated to within 25% of natural or other desired levels such as numeric state water quality criteria?**
  This project opened 3 miles of stream habitat.

*******Please include before and after photos of the project with a photo release form and appropriate credit line for the photos.*******
Looking upstream to Old Culverts (n=5).

Looking upstream to new 15 ft wide Open Arch. Aug 12, 2011

Photo Credits- Bob Cousins (Old Crossing) Keith Kanoti (New Crossing)
Water Temperature of Carloe Brook (above road) in summer 2011.
Lo
ngitudinal Profile- Pre Project.
<table>
<thead>
<tr>
<th>Bankfull Dimensions</th>
<th>Flood Dimensions</th>
<th>Materials</th>
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</thead>
<tbody>
<tr>
<td>14.5 ( x\text{-section area (ft.sq.)} )</td>
<td>23.0 ( W \text{ flood prone area (ft)} )</td>
<td>--- D50 (mm)</td>
</tr>
<tr>
<td>13.6 ( \text{width (ft)} )</td>
<td>1.7 ( \text{entrenchment ratio} )</td>
<td>--- D84 (mm)</td>
</tr>
<tr>
<td>1.1 ( \text{mean depth (ft)} )</td>
<td>--- ( \text{low bank height (ft)} )</td>
<td>31 ( \text{threshold grain si} )</td>
</tr>
<tr>
<td>1.6 ( \text{max depth (ft)} )</td>
<td>--- ( \text{low bank height ratio} )</td>
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<tr>
<td>14.4 ( \text{wetted perimeter (ft)} )</td>
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<td></td>
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<tr>
<td>1.0 ( \text{hyd radi (ft)} )</td>
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<tr>
<td>12.8 ( \text{width-depth ratio} )</td>
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Channel cross section at location 219.8ft (Reference Area). Blue line= Bankfull, Red Line Flood Prone Elevation