Great Lakes Fish and Wildlife Restoration Act

FINAL Project Report Template

*Indicates required content

***Project Title:** Brook Trout Habitat Protection and Restoration in the Salmon Trout River Watershed, Marquette County, Michigan

***Project Sponsor:** Keweenaw Bay Indian Community, Natural Resources Department, Mr. Todd Warner (906) 524-5757 Ext. 13, twarner@kbic-nsn.gov

***FWS Agreement Number:** 30181-9-G031

***Principal Investigator(s):** Superior Watershed Partnership, 2 Peter White Drive, Presque Isle Park, Marquette, Michigan 49855, (906) 228-6095.

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Study Objectives:
The objectives of the proposed project include:

1. Reduce sediment contribution to brook trout habitat in the lower Salmon Trout River
2. Control sediment and improve passage for fish and aquatic organisms at a priority crossing of the upper Salmon Trout River

Description of Tasks:

Task 1: Coordinate project partners: Advisory Council members, corporate and private landowners, contractors, etc.

Activities: Completed coordination with project partners, the Michigan State Historic Preservation Office and Michigan Department of Natural Resources and Environment, private landowners, and contractors.

Task 2: Develop site plan(s) and state and county permit applications.

Activities: Completed site topographic survey, final design plans, and Michigan Department of Natural Resources and Environment permit application for the crossing replacement.

Task 3: Implement site improvements: Murphy's Creek and road/stream crossing (construction).

Activities: Replaced a priority road crossing of the Salmon Trout River. Specific activities included:

- Obtained clearance for construction “no historic properties affected” from the State Historic Preservation Office.

- Finalized design plans and obtained MDNRE permit (No. 10-52-0053P) for crossing replacement. A Marquette County Soil Erosion and Sediment Control permit was not required.

- Installed temporary bypass culvert in order to complete excavation/installation work under dry conditions and prevent sediment from entering the stream during construction.

- Removed failing timber structure. Existing bridge characteristics: Length of span (upstream/downstream): 18 feet; Width of span (bank to bank): 10 feet. Structure consisted of original corduroy structure installed in the 1940s with multiple layers of timbers that had been placed over the top. The waterway opening above streambed (approx. 29 square feet) was severely impeded by falling timbers. The timbers also blocked passage for native fish (brook trout).

- Installed new bottomless culvert. New culvert characteristics: One bottomless arch culvert (13’10” span x 5’5” rise x 31.5’ long) spanning the stream channel and designed for HS-25 loading (to accommodate logging trucks). Material: aluminum, estimated life span: 50 years; Total structure waterway opening above streambed: 45 square feet. The culvert was constructed with a curve to fit a bend on the upstream side of the crossing.

- Completed site work (grading) on road approaches, installation of 6 road turnouts/storm water detention areas including two turnouts on the east approach and three on the west approach, site stabilization including seeding and mulching of disturbed and bare soil areas, and installation of riprap on upstream and downstream culvert embankments and road approach turnouts.

Photo 1 Looking upstream at existing timber bridge (before).

Photo 2 Looking downstream at new culvert during construction.

Photo 3 Looking at upstream section of new culvert during construction.

Photo 4 Looking upstream at new culvert outlet after construction.

Photo 5 Looking downstream at new culvert inlet after construction. Note: A native brook trout (10-12”) was observed passing through the culvert immediately after construction.

Photo 6 Example of erosion on road approaches before improvements.

Photo 7 Looking southeast at road approaches immediately after improvements.

Photo 8 Close up of road turnouts/drainage basins installed on road approaches.

Activities: Implement improvements to Murphy's Creek to reduce sediment input to the lower Salmon Trout River. Specific activities included:

- Conducted field investigations and data collection in Murphy's Creek. The upper reaches of Murphy's Creek were delineated using GPS/GIS software to determine length of stream reaches, slope and elevation. Completed photographic documentation stream channels in upper reaches and bank erosion sites.
- Installed six log check dam structures and one log revetment in the upper reaches of Murphy's Creek to reduced velocity and dissipate energy in steep gradient sections of stream and increase deposition of bed-load materials.

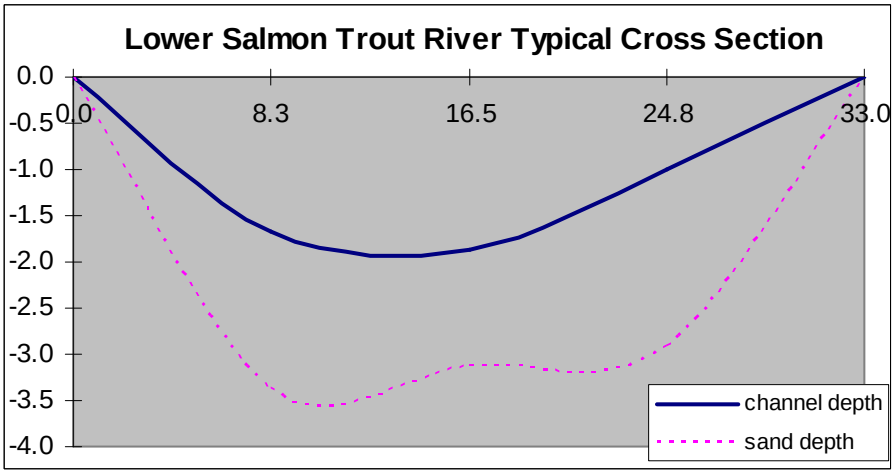
Task 4: Conduct post-BMP field evaluations at lower river sites.

Activities:

- Conducted in-stream surveys in the lower Salmon Trout River at 4 previously established sites. Adopt-a-Station protocol was used to characterize physical stream characteristics including stream width, water depth, sand depth, and substrate conditions.
- In-stream surveys of the lower Salmon Trout River included data collection at 4 sites rather than the 8 sites that were proposed. Data collection at 4 sites was determined to be sufficient for evaluating the large sand plume moving down the river (approx. 2 miles of stream).

Photo 9 Head of sand plume moving downstream in the Salmon Trout River.
Photo by Dr. Casey Huckins, Michigan Technological University, July 13, 2007.

Figure 1 Typical cross section profile of the lower Salmon Trout River



Task 5: Prepare final report and closeout documents.

Activities: Prepared final progress and financial reports and project closeout documents.

Obstacles: No obstacles or issues of concern. Project agreement was extended to December 2010 to accommodate the permitting process and a decision by project partners to postpone in-stream work during the fall of 2009 to protect spawning fish (brook trout).

Major findings and accomplishments:
The project resulted in the following measureable outcomes:

- Restored over 5 miles of stream habitat for fish and aquatic organisms in the Salmon Trout River by removing a barrier to fish passage (crossing structure).
- Reduced an estimated 73 tons of sediment input to the Salmon Trout River from the road approaches at the priority road/stream crossing site. The USFWS Coastal Program (Ted Koehler, Ashland FWCO) was a partner on the project and Coastal Program funds (not included as project match) were leveraged to complete road approach work, making this a cooperative demonstration project.
- Installed six log check dam structures and one log revetment in the upper reaches of Murphy's Creek to reduced velocity and dissipate energy in steep gradient sections of stream and increase deposition of bed-load materials
- Established baseline data for long-term evaluation of coaster brook trout habitat in the lower Salmon Trout River including documentation of physical stream characteristics and sediment loading.
- Increased awareness and participation by corporate and private land owners and other stakeholders.

Management implications of your work:
The project significantly furthered the habitat restoration goals of the Salmon Trout River Section 319 Watershed Management Plan developed by the Superior Watershed Partnership and approved by the State of Michigan and EPA (July 2007). The project also furthered the

objectives of the Lake Superior Lakewide Management Plan (LAMP) and the goals of the Lake Superior Binational Program (US and Canada).

Additional restoration work needed and/or areas for future research:
This GLFWRA grant funded the completion of two projects prioritized in the Salmon Trout River Watershed Management Plan. Over the last decade, the SWP has completed restoration work at over twenty similar high priority sites. With annual inventory and monitoring, the plan is updated each year and remaining sites are re-prioritized. Currently there are approximately 10 high priority sites that require additional restoration work and still need funding. The state of Michigan has conducted ongoing research and monitoring that has documented a 70% increase in adult Coaster Brook Trout populations linked in part to these prioritized restoration projects (see outreach below).

List of presentations delivered and outreach activities:
This project and other SWP restoration projects in the Salmon Trout River watershed have received significant regional, state-wide and Great Lakes attention. This work was recently featured in the State of the Great Lakes 2010 report published by the State of Michigan. In addition, SWP have provided information and made numerous presentations regarding the project updating local conservation organizations (TU, TNC, Conservation Districts, etc.), state and federal agencies (MDNRE, USACE, etc.) and related corporate and business stakeholders.

***Include relevant pictures or images associated with the project:**
Project photos, data, etc. are provided as supporting documents.

Geographic region project occurred in or effects:
The project sites are located in the Salmon Trout River Watershed (Dead-Kelsey HUC: 04020105), Marquette County, Michigan. Project Coordinates: Crossing Replacement: 46.776, -87.889; Murphy's Creek: 46.831, -87.786; Lower River: 46.849, -87.799.

***List of reports and peer-reviewed papers completed or in-progress:**
N/A