

## **NRD Project Annual Performance Report**

**Reporting Organization:** Housatonic Valley Association (HVA)  
**Project Name:** Furnace Brook Fish Ladder Restoration  
**Project Location:** Cornwall Bridge, Connecticut  
**Cooperative Agreement #:** F12AC00302  
**Period of Agreement:** August 2013 – December 2017  
**Dates covered by this Report:** Project start – March 31, 2015

### **Project Objectives:**

To restore fish passage through the structure carrying Route 4 over Furnace Brook in Cornwall Bridge

### **Project Goals:**

Project goals were not established.

### **Project Tasks:**

#### **PHASE I: Design, Permitting, and Baseline Monitoring**

##### **A. General Project Administration**

HVA will assume the role of project administrator and will oversee all aspects of the project, including management of related funds, obtaining necessary landowner permissions and permits, serving as a liaison to the general public, and reporting progress to partners and funders.

*Progress Made Towards Project Objectives: This task is complete.*

##### **B. Pre -construction monitoring**

HVA, in cooperation with staff from DEEP Inland Fisheries Division and volunteers from the Housatonic Fly Fishermen's Association, will develop a monitoring protocol to determine the success and efficiency of passage at the site by wild and stocked brown trout during the fall migration period (anticipated to be mid-October through late November). HVA will also recruit and coordinate volunteers for a monitoring effort to occur prior to fishway repair, and for three years following fishway repair.

*Progress Made Towards Project Objectives: This task is complete.*

##### **C. Fish Ladder Design Development**

Subcontract with qualified firm to complete baseline data collection and mapping at the site, including topographic, bathymetric and wetland surveys and hydrologic analyses. Utilizing baseline data, a design to repair the damaged fishway will be prepared.

*Progress Made Towards Project Objectives: This task is complete.*

##### **D. Solicit and incorporate feedback on the design from stakeholders and the public**

*Progress Made Towards Project Objectives: This task is complete.*

**E. Prepare Construction estimates and obtain required permits and permissions for construction activities**

*Progress Made Towards Project Objectives: This task is complete.*

**F. Prepare a bid package to solicit cost estimates for construction of the fishway repair**

*Progress Made Towards Project Objectives: This task is complete.*

Notes:

Draft bid specs/contract developed by Princeton Hydro. HVA with assistance from legal counsel finalized bid specs. Bid specs mailed directly to 18 contracting companies pre-selected in consultation with project partners. Bids mailed last week of June. Pre-bid meeting held 7/8/2015. Bid package/RFP and list of pre-selected contracting companies are enclosed. Review team was assembled (CT-DEEP, Princeton Hydro, TU, HVA) in anticipation of proposal review, ranking and consultant selection, however only one bid was received and most of this work was not necessary. Bid received was put forward by River Logic Solutions LLC. Bid was well within budget, firm has an outstanding reputation, and review team members signed off on the bid so consequently bid was accepted. Executed contract enclosed.

**PHASE II: Construction, Site Restoration and Post-Construction Monitoring**

**A. Complete additional design components for Phase I**

*Progress Made Towards Project Objectives: This task is complete.*

Notes:

\$10,031 added to Phase I Task C. In practice the \$3760 designated for “permitting assistance” under the Phase II Co-Op agreement was used for additional construction supervision, and was added to Phase II Task C.

**B. Implement construction of fishway restoration**

- 1. Mobilization/demobilization**
- 2. Erosion/sediment control, dewatering**
- 3. Repair existing fishway, masonry, baffles**
- 4. Site restoration**

*Progress Made Towards Project Objectives: This task is complete.*

Notes:

Materials specified by project engineer changed from Denil baffles to Alaska Steeppass after Award Modification was approved (8/12/2013), resulting in a \$17,060 difference in materials cost. Duration of construction was extended for approximately 10 days longer than anticipated due to difficulties with excavation related to the hardness of the bedrock channel, as well as changes to the design of the fishway entrance requested by CTDEEP Fisheries staff during construction site visit that required additional excavation. This resulted in additional costs beyond the estimate for construction for contractor. The final bill from River Logic was still well within Princeton Hydro’s Probable Cost estimate however, and those savings helped defray some of the additional materials cost. We ended up over budget for Phase II Task B by \$8,280.

Copies of press coverage of fishway restoration enclosed.

**C. Provide Construction Oversight**

*Progress Made Towards Project Objectives: This task is complete.*

Notes:

Extended construction resulted in additional costs for both Princeton Hydro and HVA for construction oversight and support. HVA incurred \$2,719 in salary supporting the construction, a cost that was not included in Phase II Task C (this line was understood to be solely for Princeton Hydro's oversight). Princeton Hydro reported additional costs of \$5,272 beyond the \$14,649 allocated to them under Phase II Task C. As these costs are above the estimate they provided to us before construction began, they have not yet been compensated. Princeton Hydro has been an exceptional partner and has truly gone above and beyond during this project- we would like to be able to compensate them if possible.

**D. Restore Riparian Habitat**

**1. Purchase, install and water riparian plantings. Monitor for 3 years**

*Progress Made Towards Project Objectives: This task is ongoing.*

Notes:

As discussed at the project site with the FWS NRD Trustee, the site is not ideal for riparian restoration. The bank areas that are open are generally quite rocky and subject to high-energy flows and scouring; other areas are either already well vegetated or part of the adjacent landowner's existing landscape, which she is generally unwilling to modify. Riparian plantings would be difficult to establish, and would be unlikely to improve habitat or water quality in a meaningful way. We propose this funding be reallocated to cover shortfalls under other tasks.

**E. Monitor Water Quality and Fish Use of Furnace Brook for 3 years**

- 1. Gage installation**
- 2. Fish and water quality monitoring**
- 3. Volunteer coordination, training and oversight**

*Progress Made Towards Project Objectives: This task is ongoing.*

Notes:

Staff gages have been obtained but have not yet been installed. The current plan is to install the interior fishway gage when spring high flows subside, and the fishway entrance gage during summer low flow.

CTDEEP Inland Fisheries built a trap to be fished in the reconstructed fishway, and provided HVA with a draft Monitoring Plan (enclosed). We are currently working to update the Monitoring Plan based on what we learned during our attempts to fish the trap in the fall of 2014.

We concluded it was not practical to leave the trap unattended in place during the fall as the leaf load was much too heavy. We attempted to fish the trap on two consecutive days in early October, and another day in mid-November. We installed a chicken-wire fence upstream to try and catch the leaves before they entered the fishway, but this was filled up within a matter of minutes and leaves were again entering the fishway and catching in the trap. We checked the trap every 1.5 hours and found the fishway was significantly de-watered each visit after that short interval. We did find fish in the trap on one occasion, so the fishway is passable, but we also found fish holding just below the culvert outlet on most visits as the bulk of the flow had shifted out of the fishway. We plan to experiment with other leaf traps next fall, but we do not anticipate being able to leave the trap unattended for longer than a few hours at a time in the fall. Consequently we do not expect to be able to rely as much on volunteers to check the trap, as most of our volunteer base for this particular project is not local.

So far this spring flows have been too high to deploy the trap.

CTDEEP Inland Fisheries will be sampling fish at three sites upstream of the ladder in August 2015. Fish stocked in the mainstem Housatonic are tagged. We will thus be able to use the presence of tagged fish above the ladder as a measure of success.

Furnace Brook is generally an exceptional stream in terms of water quality; this is well-documented by bioassessment (benthic macroinvertebrate and fish) data from CTDEEP . We do not anticipate monitoring water quality unless it is necessary to assess some type of change in the watershed.

**F. Prepare Final Report**

1. Summarize and document fishway reconstruction, riparian restoration, volunteer efforts, water quality and fish utilization of Furnace Brook.

***Progress Made Towards Project Objectives:*** This task has not been started.

**Enclosures:**

Bid package/RFP and list of pre-selected contracting companies

Executed contract b/w HVA and River Logic Solutions

Press coverage of construction

Draft fishway monitoring plan