

Housatonic River Basin Natural Resources Restoration Project  
Natural Resources Trustee SubCouncil for Connecticut  
Request for Supplemental Information (RSI)  
INSTRUCTIONS

**PART A: SPONSOR AND PROJECT SUMMARY FORM**

Please read "Request for Supplemental Information (RFI) OVERVIEW" and this document,  
"Request for Supplemental Information (RSI) INSTRUCTIONS" before completing this form.

Part A must be completed using this "Sponsor and Project Summary Form"

**SPONSOR INFORMATION**

**Type of Entity** Check the box that best describes the sponsor.

- |   |  |
|---|--|
| <input type="checkbox"/> Private individual                 | <input type="checkbox"/> Municipal government    |
| <input checked="" type="checkbox"/> Non-profit organization | <input type="checkbox"/> Corporation or Business |
| <input type="checkbox"/> State government                   | <input type="checkbox"/> County government       |
| <input type="checkbox"/> Federal government                 | <input type="checkbox"/> Academic Institution    |
| <input type="checkbox"/> Tribal government                  | <input type="checkbox"/> Other (explain)         |

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**Authorized Representative of Sponsor**  
Housatonic Valley Association, Inc. (HVA)

**Name**  
Caprice G. Shaw

**Title**  
Water Protection Director

**Address**  
150 Kent Road, PO Box 28

**City**                      **State**                      **Zip**  
Cornwall Bridge, Connecticut 06754

**Phone**  
(860) 672-6678

**Email**  
cshaw@hvatoday.org

**Contact Person (if different from Authorized Representative):**

**Name**

**Title**

**Address**

**City**                      **State**                      **Zip**

**Phone**

**Email**

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RECEIVED  
JUN 20 2007  
INLAND FISHERIES

**Project Name** Provide a brief working name:

Fishway repair and riparian vegetation restoration, Cornwall.

**Project Location**

Attach an 8.5 x 11-inch map or copy of an aerial photograph showing project location and extent. Include pertinent topographic and geographic information, a scale, and north arrow.

State(s), Municipality/ies: Cornwall Bridge, CT

Longitude for approximate center of project area:

73 degrees 22' 09.56"W

Latitude for approximate center of project area:

41 degrees 49' 07.09"N

**NOTE:** If a specific location(s) has/have not been selected yet, include in Part C a narrative describing how project location(s) will be selected.

**Restoration Priority Category** See Appendix C of these Instructions for Restoration Priority Category Descriptions

**Primary Category.** Check the restoration category that is the primary goal of the project. Check one box.

- Aquatic Natural Resources Restoration/Enhancement
- Riparian & Floodplain Natural Resources Restoration/Enhancement
- Restoration/Enhancement of Recreational Uses of Natural Resources

**Secondary Categories.** Check all relevant boxes.

- Aquatic Natural Resources Restoration/Enhancement
- Riparian & Floodplain Natural Resources Restoration/Enhancement
- Restoration/Enhancement of Recreational Uses of Natural Resources

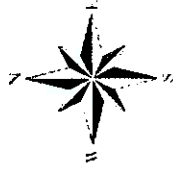
**List Specific Injured Natural Resources and/or Impaired Natural Resource Services to Benefit from Project**

Resource: Furnace Brook is a class B/A tributary of the Housatonic River that provides thermal refuge and critical spawning habitats for trout that the Housatonic River can not provide.

Problem: Recent bridge work (2004) created a one to two-foot drop, and required construction of a fishway. The bottom of the fishway was irreparably damaged in the Spring 2006 flooding, and must be repaired with a permanent and stable fixture. Same flooding damaged riparian vegetation along the shoreline. With repair of this fishway, trout will be able to access this critical spawning habitat that will encourage naturally reproducing populations.

# Furnace Brook Fish Ladder Restoration

Cornwall, CT



## Legend

Furnace Brook

1 inch equals 150 feet





## **PART B. PROJECT ABSTRACT**

Housatonic Valley Association (HVA) proposes repair of the Furnace Brook (Cornwall Bridge) fishway and surrounding vegetative buffer. Furnace Brook is a class B/A waterway suitable for recreation, including fishing. It provides thermal refuge for trout in summer from warm Housatonic River waters. In the fall, trout migrate into Furnace Brook to reach spawning areas that the Housatonic River can not provide.

A Connecticut Department of Public Health pamphlet notes that PCBs are absorbed by fish such as trout, and high-risk persons such as pregnant women should have only one trout per month if caught in Furnace Brook. Now this already weakened fish population is challenged by another man-made barrier: a fishway and surrounding shoreline that were damaged by past high flooding storm events.

The project goals are that (1) trout and fish species can reach historic spawning grounds in Furnace Brook and (2) the water in the vicinity of the fish ladder is cool enough for trout and their food sources.

In this three-year project, the fishway will be repaired to withstand 100-year floods, and a native riparian plant buffer will be created on the surrounding shoreline. For three years during spawning season, the fish surmounting the fishway will be counted (number and species). With implementation of this project, many-fold more trout will reach spawning grounds encouraging naturally reproducing populations and trout species will benefit. The shoreline buffer will be monitored to ensure strong roots by Year 3. Homeowner approval is granted, and HVA will work with DEP Inland Fisheries Department on design and construction of the fishway and fish monitoring protocol.

## **PART C. PROJECT NARRATIVE**

### **1.0 GENERAL DESCRIPTION**

#### **1.1 Project Goals and Objectives**

The primary project goals are that (1) trout and fish species can reach historic spawning grounds in Furnace Brook and (2) the water in the vicinity of the fishway is cool enough for trout and their food sources. The objectives for each goal are, respectively, repair of the fishway and restoration of riparian vegetation to shade the surrounding area. Specific measures are follows.

**Objective 1-**Improve the damaged section of the fishway by installing a stronger permanent structure that blends into the environment, yet can handle the force of strong currents.

#### **Project Benefits/Measures:**

##### Process Measures:

- The Connecticut Department of Protection Inland Fisheries Division (IFD) fishway will create replacement design in Year 1, before the fall run of brook and brown.
- Bids will be requested from mason to construct lower fishway piece in Year 1.
- IFD will create a monitoring protocol for the fishway. The plan will include one temporary fish trap at the upstream end to measure fish use of the fishway.
- Fishway repaired in Year 2, before the fall run of brook and brown trout.

##### Program Measure:

- In Year 2, more naturally reproducing and stocked trout will reach the spawning area than in the "broken fishway" years. The daily numbers of fish trapped should rise and fall with the timing of the fall run during mid-October through late November. By Year 3, we anticipate increase success in brook and brown trout migration upstream from Year 1.

**Objective 2-**Restore eroded riparian shoreline near the fishway with native plantings. The native plantings will also shade the water during summer months.

#### **Project Benefits/Measures:**

##### Process Measure:

- Shoreline restoration of the fishway area's approximately 15-30 feet damaged by heavy and frequent 2006 storm water runoff and increased flow from Furnace Brook.

##### Program Measure:

- Water temperature in this immediate area, by Year 3, should be cooler due to vegetation. A baseline measurement will be taken before plantings are installed.

**Objective 3** Monitor use of the fishway, using volunteers.

#### **Project Benefits Measures:**

##### Process Measure:

- At least 6 volunteers (members of fishing organizations and local community) recruited and trained by the Housatonic Valley Association (HVA). Volunteers conduct monitoring of the fishway between mid-October through late November annually.
- In publicity to recruit volunteers (newspaper articles, etc.), the public will be made aware of the need for assistance for fish that must surmount man-made barriers in order to spawn.

##### Program Measure:

- Data from monitoring fish trap (see Objective 1).

**Objective 4-**Monitor and maintain a stable shoreline around the fishway, using volunteers.

#### **Projects Benefits/Measures:**

Process Measure:

- Recruit and train volunteers to monitor and maintain shoreline stability (HVA).
- In publicity to recruit volunteers (newspaper articles, etc.), the public will be made aware of the need to reduce non-point-source pollution and erosion, in order to keep healthy aquatic habitats.

Program Measure:

- By Year 3, roots of new plantings can withstand spring flooding.

**Objective 5 Long-term Measures of Success**

Project Benefits/Measures:

Process Measures:

- Annual fishway monitoring during the grant period will be performed by volunteers according to IFD protocol.
- Annual fall monitoring of water temperatures will be done by volunteers during the grant period.

Program Measures:

- By Year 3, we anticipate an increase of brook and brown trout from Year 1 to successfully migrate upstream.
- By Year 3, roots of new plantings can withstand spring flooding.

**1.2 Project Scope and Project Implementation Plan**

*Description of Current Conditions:*

Furnace Brook is a class B/A waterway suitable for recreation, including fishing. It is stocked with trout by the IFD. Furnace Brook provides thermal refuge for trout as the warmer summer months make the Housatonic River water temperatures unlivable for trout. In the fall, trout migrate into these cold tributaries for spawning. Historically, Furnace Brook has provided suitable habitat for trout spawning and the rearing of young.

The Connecticut Department of Public Health, in a pamphlet based on their 2006 Fish Advisory, notes that PCBs are absorbed by fish such as trout, and therefore high-risk persons such as pregnant women are advised to have only one trout per month if caught in Furnace Brook. The potentially harmful effects of PCBs on fish include impaired reproductive, endocrine, and immune system function, increased lesions and tumors, and death.<sup>1</sup> In addition, PCBs are bioaccumulating in aquatic species, raising the risk of exposure and accumulation to other species including wildfowl, reptiles and other land mammals.

This already weakened fish population is now challenged by another man-made barrier to survive. During 1992, Connecticut Department of Transportation (CTDOT) submitted a permit application (IW-91-136) with the Department of Environmental Protection Inland Water Resources Division (DEP IWRD) for bridge repair work on Route 4 that crosses Furnace Brook. The bridge repair work included patching deteriorated concrete as well as resurfacing the base with an additional two inches poured concrete. The IFD identified that the current bridge design, with a one- to two-foot vertical drop, obstructed fish from moving upstream in Furnace Brook. Therefore, the IFD required that a fish passage be constructed underneath the bridge.

On March 5, 1995, CTDOT submitted to DEP IWRD and IFD plans for a fishway and met with the abutting property owner Ms. Joanne Wojtusiak. On March 25, 1995, DEP reviewed and approved fishway plans. CTDOT installed the fish passage underneath the bridge to aid migrating trout. The

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<sup>1</sup> NOAA: *Fall 2001 status report on the Hudson River Natural Resource Damage Assessment*, to be found on the Web at <http://www.darrp.noaa.gov/northeast/hudson/pdf/hrfish.pdf>

fishway proved successful, but heavy river currents from seasonal storms damaged the downstream end of the fishway. During August 1995, the IFD made the first of many modifications to the base of the fishway. However, by summer 2006, the IFD noted that the "hand fixes" weren't long-lasting: a more permanent fix was needed. Also, the last few years' hurricane storms eroded the banks and stripped vegetation from the shorelines.

*Desired Future Conditions/Project Scope:*

Future Conditions:

- (1) Trout will again be able to reach their historic spawning areas, encouraging naturally reproducing trout of a variety of species.
- (2) Water temperatures at the fishway will be adequate for trout survival and ideal for temperature-sensitive aquatic macroinvertebrate species, an essential food source for the trout.

Project scope:

- Design, construct, and install the replacement piece for the damage fishway, under DEP supervision. The permanent structure will be able to withstand current flows from record precipitation events such as 100-year floods.
- Design, construct, and install a fish trap to monitor the effectiveness of the fishway, under DEP supervision.
- Organize and train volunteers to monitor the fish trap.
- Check fish trap and record fish (both numbers and species of fish), during the spawning season.
- Provide shoreline stabilization and restoration for areas damaged along the banks surrounding the fishway area. Due to erosion from high-flood events, mature deciduous trees are uprooting. In this phase, existing trees will be reinforced to allow roots to regain stabilization.
- Replant shorelines surrounding the fishway with native riparian plantings to provide shade to cool stream water in the fishway area, using volunteers. Contract for professional landscaping with heavy equipment as needed.
- Organize and train volunteers to monitor the success of the fishway.
- Report to IFD problems with the fishway integrity during the spawning season.
- Organize and train volunteers to monitor shoreline plantings after the spring flood season.

a. Project Implementation Plan:

HVA will function as the project lead and sponsor. HVA will administer project budget; keep the project on schedule; organize, recruit and supervise volunteers; conduct public outreach; supervise professional crews and components of implementation (e.g., monitor fish traps and plantings).

The IFD will function as the project sponsor and developer of the fishway design, fish trap and post monitoring protocol and procedures by volunteer monitors.

Ms. Joanne Wojtusiak is the project sponsor and landowner. Ms. Wojtusiak will allow access to install the fishway and to restore the bank and stabilize the trees on her side of the river.

Contracted services included in this proposal includes a mason to create the permanent fishway from the IFD design and installation of that design, and professional landscape crews, if large equipment is necessary, to restore the shoreline and install the fishway.

b. and c. Project Schedule and discussion: The following is an estimated timeline for implementing this project.

**Project Time Line**

2nd quarter Fiscal Year (FY) 2009 (Sept – Oct 2008)



1. DEP to design fishway and fish trap.
2. HVA to request and review bids from landscapers to do the heavy shoreline restoration.

3rd quarter FY09 (Jan – Mar 2009)

1. DEP designs complete.
2. DEP and HVA to request and review bids from masons to construct new lower fishway and fish trap.
3. HVA hires landscaper.
4. HVA announces plan and volunteer opportunity via local media.
5. HVA recruit volunteers.

4th quarter FY 09 (April – June 2009)

1. HVA recruits volunteers.
2. Improvements (gradient, remedies for erosion) to the shoreline will be implemented—with volunteers and professional crews.
3. Landscaper begins restoration of grading.
4. HVA to supervise shoreline restoration volunteers and other volunteers to work on other river projects until fishway is in place.
5. HVA to supervise volunteers monitoring water temperatures above (in spawning areas) and below the fishways (where trout and other species may leave the main stream during low water, seeking lower temperatures).

1st quarter FY 10 (July –Sept 2009)

1. Installment fishway during low flow and low water level events (July 2009).
2. HVA to supervise plantings by volunteers, plants to be in place before winter sets in.
3. HVA maps plantings, to measure survival through next spring's flood waters.
4. Temperature monitoring continues.

2nd quarter FY10 (Oct –Dec 2009)

1. HVA to train and monitor volunteers to monitor fish trap (monitoring will take place from Oct 1st – Dec 1st), according to DEP's procedures and protocols.
2. HVA collects data from fish trap monitoring and shares with the IFD, the Funder, and other interested parties.
3. HVA removes fish trap for winter season.

3rd quarter FY10 (Jan –Mar 2010)

1. HVA contacts volunteers, ascertaining who will return and if new volunteers are needed.

4th quarter FY10 (Apr –Jun 2010)

1. Volunteers will monitor the integrity of the fishway (does it need any repairs etc.).
2. HVA reinstalls fish trap.
3. HVA refreshes volunteers on procedures and protocols.
4. HVA supervises the volunteer monitoring of fish traps.
5. HVA supervises the shoreline team monitoring of the vegetation added last season.
6. HVA supervises monitoring of water temperature.

1st quarter FY11 (Jul –Sep 2010)

1. HVA supervises the volunteer monitoring of fish traps and the state of the fishway.
2. HVA supervises the shoreline team monitoring of the vegetation added last season.

3. HVA assesses shoreline vegetation, and if necessary, supervises volunteers to add new or replacement vegetation to shoreline.
4. Water temperature monitoring continues.

2nd quarter FY11 (Oct – Dec 2010)

1. HVA to train and monitor volunteers to monitor fish trap (monitoring will take place from Oct 1st – Dec 1st), according to DEP's procedures and protocols.
2. HVA collects data from fish trap monitoring and shares with the IFD, the Funder, and other interested parties.
3. HVA removes fish trap for winter season.

3rd quarter FY11 (Jan –Mar 2011)

1. HVA contacts volunteers, ascertaining who will return and if new volunteers are needed.

4th quarter FY11 (Apr –Jun 2011)

1. Volunteers will monitor the integrity of the fishway (does it need any repairs etc.).
2. HVA reinstalls fish trap.
3. HVA refreshes volunteers on procedures and protocols.
4. HVA supervises the volunteer monitoring of fish traps.
5. HVA supervises the shoreline team monitoring of the vegetation.
6. HVA supervises monitoring of water temperature.

1st quarter FY12 (Jul –Sep 2011)

1. HVA supervises the volunteer monitoring of fish traps and the state of the fishway.
2. HVA supervises the shoreline team monitoring of the vegetation.
3. HVA assesses shoreline vegetation. By now, the shoreline vegetation should be well rooted and able to withstand spring floods.
4. Water temperature monitoring continues.

2nd quarter FY12 (Oct – Dec 2011)

1. HVA to train and monitor volunteers to monitor fish trap (monitoring will take place from Oct 1st – Dec 1st), according to DEP's procedures and protocols.
2. HVA collects data from fish trap monitoring and shares with the IFD, the Funder, and other interested parties.
3. HVA removes fish trap for winter season.

d. Property Access Agreements: Ms. Joanne Wojtusiak who is an equal partner in this project has agreed to allow accessing to her property which is necessary to insert the new constructed piece for the damaged fishway and to install riparian plantings along the shoreline in this area. Attached is Ms. Wojtusiak letter of commitment.

e. Regulatory Approvals: Once plans are finalized for the fishway replacement piece, HVA will contact the Department of Transportation, Department of Environmental Protection Inland Water Resource Division, and Cornwall Inland Wetlands Commission for permit need determination.

## **2.0 EVALUATION CRITERIA NARRATIVE**

### **2.1 Relevance and Applicability of Project**

#### **2.1.1 Location of Project**

The attached site location map (Figure 1) shows the location of the fishway repair location, on the Furnace Brook a tributary of the Housatonic River in northwest Connecticut. The location is at the Connecticut Department of Transportation bridge on Route 4 (Bridge #:01932).

#### **2.1.2 Natural Recovery Period**

Currently, trout species do not have access to critical spawning habitat located upstream on Furnace Brook due to the damaged fishway. There is no natural recovery period for this problem.

The shorelines of the fishway areas on Furnace Brook cannot provide shade to cool water, as vegetation has been stripped by recent storms. Haphazard re-growth of shoreline vegetation will include invasive plants. Growth of vegetation tall enough to provide many hours of shade during summer (i.e., trees) is not guaranteed in that haphazard re-growth. Thus, there is no natural recovery period for the right kind of shade vegetation in the spawning area.

#### **2.1.3 Sustainable Benefit**

The long-term sustainable benefits are:

1. Restoration of existing-trout populations to historic-trout habitat.
2. Encouragement of naturally reproduced trout.
3. Reduction of eroded sediment generated within the fishway area discharging to the Housatonic River.

Through implementation of the monitoring plan outlined in Section 2.2.4 this project would provide ongoing, sustainable ecological benefits. Monitoring during the grant period will

- Record trout marked by the IFD as well as unmarked trout of any species that have successfully ascended the fishway.
- Examine the fishway for effectiveness. IFD will be notified if maintenance required.
- Examine the shoreline plantings to ensure long-term success.

#### **2.1.4 Magnitude of Ecological Benefits**

This project will result in an observed improvement in the number of trout reaching their spawning areas. It would directly benefit the aquatic, riparian and recreation resources that have been injured by the release of PCBs from the GE facility located upstream. The already weakened fish population is now challenged by another man-made barrier to survival: a damaged fishway. When this project is complete, trout will have access to critical spawning areas.

Another challenge is loss of vegetation, due to storm damage, that provided thermal refuge for fry. Replanting the shoreline with native riparian species shades and thus cools the fishway area for fish and aquatic macroinvertebrates, a food source for trout and other fish species

Replanting also stabilizes the banks to prevent further erosion and sedimentation in Furnace Brook and the Housatonic River. This vegetative shoreline buffer will reduce the amount of surface runoff from Furnace Brook that discharges into the Housatonic River. This equates to an overall improving water quality for aquatic macroinvertebrates and other aquatic habitats.

With stabilized and naturally reproducing trout species, specifically trout, the IFD may reduce the amount of stocked trout that is needed for the Housatonic River. That \$3 per stocked trout could be used to restore other impaired fishways in other parts of the state.

### **2.1.5 Magnitude of Recreational Benefits**

Providing access to critical spawning habitat for trout and other fish species will encourage a great population of naturally reproducing fish. This will improve recreational fishing on the Housatonic River in Northwest Connecticut.

## **2.2 Technical Merit**

### **2.2.1 Technical/Technological Feasibility**

The project proposes repairing and strengthening of a fishway and restoring shoreline vegetation. These tasks are not novel. With NRD funding, permission already granted by the landowner, and HVA's ability to monitor all aspects of the project, this is well within HVA's expertise to bring to a successful conclusion.

The design will be developed by the DEP's IFD, which have the required expertise. IFD has designed many successful fishways in the state as well as many years of experience with design specifications that will attract fish to use this fishway in a natural setting.

To construct and install the fishway will require retaining a contracting service. IFD will actively seek bids and evaluate for the appropriate contractor based on experience and expertise. This proposal may include a professional landscaping contractor if large equipment is needed to restore the shoreline and install the lower fishway piece.

IFD will also design and provide a fish trapping device and monitoring protocol that will be installed in the fishway and used by volunteers. IFD has designed many successful fish traps. IFD will train HVA on fish trap protocol and provide HVA with a list of instructions for making sure the fishway is effective. See Section 2.2.4 for a complete monitoring and evaluation methods for this proposal.

HVA will oversee the installment, manage financial funds, recruit and train volunteers, monitor fish traps and notify IFD on fishway status, report monitoring data to IFD and Funders. HVA has many years experience with coordinating volunteers to conduct sampling events throughout the watershed. HVA has over 150 volunteers from Massachusetts to the Long Island Sound and along the Tenmile River in New York State. HVA currently provides the most data for the Connecticut Department of Environmental Protection Rapid Bioassessment in Wadeable Streams by Volunteer Monitors including data from 20 tributaries of the Housatonic, Naugatuck, and Tenmile Rivers.

### **2.2.2 Adverse Environmental Impact**

Adverse Environmental Impacts resulting from this project would include the change in the physical habitat within the stream channel within the footprint of the proposed extension.

### **2.2.3 Human Health and Safety**

Human health and safety concerns for contracted workers and organized volunteers include all elements when working in an outdoor environment, including poison ivy and other infectious plants, disease carrying ticks and varmints, mishandling of tools, weather, high water levels, fall conditions, and falling overhead snags. In addition, there are also individual health issues such as dehydration, exhaustion and allergic reactions. Before every volunteer event, HVA will conduct a "Tailgate Safety Speech" identifying field hazards, go over tool safety and the buddy system including what to look out for if a



volunteer is in trouble. All volunteers will sign in and sign a waiver that will require them to list a contact person to call in case of emergency and any medical conditions that could jeopardize their safety. Each volunteer event will have a first aid kit, available water and local authorities will be notified in advance.

#### **2.2.4 Measurable Results**

As discussed in Section 1.1, measurable objectives and goals include:

- Shoreline restoration of the fishway area's approximately 15-30 feet that was damaged by heavy and frequent 2006 storm water runoff and increased flow from Furnace Brook.
- Integrate the removal of invasive species and the establishment of native riparian species into the design. In places that require grading, biostabilization, or BMP installation that will result in ground disturbance, invasives will be replaced by natives that are known to provide wildlife habitat and shoreline stabilization functions.
- Amount of fish using the fishway will be recorded. At present, conditions at the fishway preclude fish use. It is anticipated that usage will be increased with repair.
- The IFD will continue with its long standing and historic annual monitoring of the Furnace Brook and Housatonic River fish population.

Preconditions including water temperatures and fish use will be documented before installation of fishway and shoreline improvements. HVA and volunteers will be trained according to IFD's monitoring protocol to collect data on fish use after fishway is installed. Volunteers will record daily the number of trout collected in the fish trap from October 1<sup>st</sup> through December 1<sup>st</sup> for Years 2 and 3. Recorded fish use data will qualify the integrity of the fishway replacement verifying that trout are able to reach critical spawning areas upstream on Furnace Brook.

Volunteers will be trained by HVA to monitor water temperatures after shoreline plantings are in place as well as track plant survival for the next years. Water temperature data will qualify the effectiveness of the shoreline buffer to cooling surrounding water temperatures.

Problems observed during monitoring events include: low trout numbers in fish trap, warmer water temperatures from baseline conditions, and high rate of plant mortality. Fish monitoring data will be reported to IFD and if data reports that the fishway is ineffective, IFD will investigate and make necessary changes to correct the problem of the fishway. Problems with shoreline plantings will be addressed with a professional landscaper and replacement plants will be added in the following years.

Volunteer monitoring of the fishways coordinates with the IFD goals and objectives to monitor the success of removing barriers to fish migration. IFD staff monitor fishway usage throughout the state however it is difficult or time consuming to get to all fishways each year. By training volunteers to monitor the Furnace Brook fishway, this would save considerable time and resources of IFD staff and add in their effort to monitor other locations.

Volunteer involvement with restoring and monitoring shoreline buffers is consistent with HVA's goals to protect water quality entering into the Housatonic River. Shoreline buffers are essential for improving water quality by cooling water temperatures and filtering polluted runoff, which has been documented by the Environmental Protection Agency as the number one source of pollution entering our waterbodies. In addition, HVA conducts shoreline assessments with volunteers documenting areas along the Housatonic River and its tributaries that could use improvements such as installing a shoreline buffers. This project can be used as an example to promote shoreline buffers to other riverside owners throughout the Housatonic Watershed by showing the success of this project and its benefit to trout and other species.

## **2.3 Project Budget**

### **2.3.1 Relationship of Expected Costs to Expected Benefits**

With the implementation of this project, trout living in the Housatonic River will be able to reach critical spawning areas upstream in Furnace Brook that are necessary for successful natural reproduction. It is anticipated that the number of naturally reproducing trout will increase after the fishway repair. As native species are able to spawn successfully, they will increase with respect to the introduced brown-trout species stocked by the state annually. This will increase the recreational and environmental value of Furnace Brook. The cost benefit of increasing naturally reproducing brown trout will aid the state's fish stocking program where less money will be needed to supply trout to the Housatonic River. In addition, increasing naturally reproducing trout will benefit the state's natural resource and overall benefit the local area tourism, fishing and recreation communities.

### **2.3.2 Implementation-Oriented**

This project is totally implementation. This is not a planning proposal.

### **2.3.3 Budget Justification and Understanding**

A full description of budget justification and understanding is provided in Part D Project Budget Narrative.

### **2.3.4 Leveraging of Additional Resources**

Additional resources provided for this project includes IFD staff time donated as an in-kind monetary match totaling \$24,000 and volunteer labor of a total estimate of 564 hours at the value of \$23.90 per hour (calculated by Independent Sector for 2005 for the state of Connecticut) as an in-kind monetary match of \$13,480. The total in-kind monetary match is approximately \$37,480.

### **2.3.5 Comparative Cost Effectiveness**

The HVA is not aware of any similar project proposal brought before the Connecticut Subcouncil to secure NRD funds to repair the Furnace brook fishway.

## **2.4 Socioeconomic Merit**

### **2.4.1 Community Involvement and Diversity**

HVA organizes approximately 150 stream team volunteers throughout the Housatonic Watershed who are monitoring water quality and shoreline conditions. Additionally, HVA stream team volunteers conduct restoration activities including numerous river cleanups, riparian plantings, and meeting with local commissions and community leaders to raise awareness of impairments observed along the river.

HVA will recruit volunteers to do monitoring of the fish traps and riparian plantings at the subject site through local media and the internet. This will raise awareness about the importance of fishways which allow access to man-made barriers that are needed for trout to reach critical spawning habitat on Furnace Brook that the Housatonic River can not provide. In addition, participants will learn more about riparian plantings and how critical a shoreline vegetative buffer is needed to maintain suitable temperatures for trout.

### **2.4.2 Adverse Socioeconomic Impacts**

This project will not cause any traffic disruptions and loss of access to Furnace Brook and the Housatonic River, therefore HVA is unaware of any adverse socioeconomic impacts resulting from this project.

### **2.4.3 Coordination and Integration**

The project is consistent with IFD objectives to remove barriers to fish migration. Naturally reproduce trout will provide a wild stock to Furnace Brook and the Housatonic River. IFD reports that wild trout populations are important renewable resources that add quality and diversity to Connecticut's trout stream fisheries.

### **2.4.4 Public Outreach**

HVA will recruit (through local and regional press) and train volunteers according to the IFD protocol to monitor fish traps. In addition, volunteers will be trained on riparian planting protocol from the Adopt-A-Buffer Toolkit by the Delaware Riverkeeper Network, September 2003 for implementing shoreline stabilization and maintenance. Data collected from fish traps will be shared with IFD, property owner, Funders, volunteers and project supporters and invited to an end of monitoring season "Thank You" party.

## **2.5 Applicant Implementation Capacity**

### **2.5.1 Technical Capacity of Applicant and Project Team**

HVA was founded in 1941 by western CT residents concerned with the future of the Housatonic River and its surrounding lands, the Housatonic Valley Association (HVA) is the oldest non-profit, citizens' watershed protection organization in the U.S. HVA is the only non-profit organization dedicated solely to protecting the natural character and environmental health of the Housatonic River and its entire 2,000-square-mile watershed, which stretches from the Berkshires of western MA, through western CT and a small part of eastern NY, to Long Island Sound. HVA works to achieve this mission through community assistance, research, education, and advocacy. HVA employs five full time staff and ten part time staff.

HVA's program staff is experienced in initiating and completing projects with grants from federal (e.g., EPA) and state agencies, and from private foundations.

### **HVA's current programs and accomplishments include:**

**I. The *Water Protection Program*** monitors and works to improve the quality of rivers and wetlands.

Related projects include:

- *Watershed Watch* responds to environmental threats and citizen requests for help throughout the watershed. For example, HVA continues to advocate for meaningful PCB contamination cleanup in of the Housatonic River and environmentally sound hydropower operations that affect 70 river miles.
- *Volunteer Stream Teams* survey shoreline conditions on about 60 miles of Housatonic River and five tributaries so far in Massachusetts, Connecticut and New York. *Volunteer Water Quality Monitoring Teams* test river water for chemical and other pollutants, and use benthic macroinvertebrate counts as broad health indicators on 40 miles of the river and three major tributaries—so far.
- *River Instream Flow Stewards*, a partnership launched in 2003 with the Massachusetts State Riverways Program for citizen instream-flow monitoring for local/state river management decisions.

**II. The *Land Protection Program*** protects watershed lands by crafting and accepting conservation land use easements, improving local land use regulations, and providing technical support to land trust and community groups. Related projects include:

- *Litchfield Hills Greenprint* The Housatonic Valley Association and the Trust for Public Land have begun a three-year Greenprint initiative, a land use plan that will be created and launched by a broad range of community members and stakeholders, who will use it to

leverage significant new funding and land-use tools for open-space land protection in the 20-year window of opportunity.

- *The Housatonic RiverBelt Greenway* aims to protect open space, public access, and cultural sites along the entire 149-mile Housatonic River. HVA is active in 14 of the 29 river-front towns; played a primary role in permanent protection of 1,800 acres of river corridor land between Kent and Sharon through easement and acquisition by the National Park Service for the Appalachian Trail, and has protected 15 new miles of riverfront in the last five years. The Geographic Information System (GIS) combines computer mapping with a natural resource database and creates community partnerships that use GIS technology to create managed-growth scenarios for rural/semi-rural areas.

### **III. The Public Environmental Education Program**

*HVA's Watershed Environmental Resource Center* provides hands-on environmental education and technical information on the Housatonic River watershed to thousands of people a year; especially teachers, who use the online HVA's Teacher Resource Guide. Our staff members also provide in-school programs and make numerous public presentations on environmental education.

#### **2.5.2 Administrative Capacity of Applicant and Project Team**

For decades, HVA has successfully managed grant-funded projects, and has satisfied funder requirements for both fiscal management and reporting. HVA's full-time Finance Director, Patience Lindholm, assists managers in the proper tracking of grant dollars. Executive Director Lynn Werner oversees project managers. Every year, HVA undergoes a fiscal audit by certified external auditors.

#### **2.5.3 Project Commitments**

**Project Manager:** Caprice Shaw, HVA Water Protection Director

**Education:** SUNY/ Plattsburgh, BA in Environmental Science; minor, Geology.

**Current responsibilities:** As HVA's Water Protection Director, she oversees the Southern Valley River Manager, Mid-Housatonic Watershed Coordinator, and the Tenmile River Manager. Caprice has been involved with river policies from the northern end of the Housatonic in Pittsfield, MA to the river mouth at Long Island Sound. She coordinates numerous volunteer stream teams for NY, as well as mid-river and southern valley sections of the Housatonic Watershed in CT and NY. She has expanded HVA's monitoring program to include biological assessment, and has organized volunteer crews for riparian plantings.

**Former experience:** Includes working with the Emergency Response Section of the State of MA Department of Environmental Protection; Coordinator of Monitoring Programs for an engineering firm; and overseeing timber crews for the United States Department of Forestry.

**Additional training:**

- CT DEP "Train the Trainer" certified for Rapid Bioassessment in Wadeable Streams by Volunteer Monitors
- NY's Hudson Basin River Watch Stream Bioassessment training,
- OSHA Health and Safety Training and EPA Emergency Response to Hazardous Materials Incidents.

**Project sponsor and developer of the fishway design and fish trap:**

Don Mysling, IFD Senior Fisheries Biologist

**Education:** UCONN, BA in Natural Resources Conservation/Fisheries Management.

**Current Responsibilities:** 25 years experience with the IFD focusing on stream habitat and restoration projects throughout western Connecticut.



Steve Gephard, Supervising Fisheries Biologist

*Current Responsibilities:* 30 years experience with fish passage design and repairs through out the State of Connecticut.

Project Sponsor and Property Owner:

Ms. Joanne Wojtusiak is the project sponsor and property owner. Ms. Wojtusiak will allow access to install the fishway and to restore the bank and stabilize the trees on her side of the river.

**3.0 LAND ACQUISITION PROJECTS**

This is not a land acquisition project.

## **Restoration Proposal from the Housatonic Valley Association Fishway Repair and Riparian Vegetation Restoration, in Cornwall, CT**

### **Site Supporting Materials: Site Photographs**

**The subject area is where the wall ends and there is a large drop off**



## PART D PROJECT BUDGET NARRATIVE AND FORMS

### **FURNACE BROOK FISHWAY: Budget Narrative**

#### **HVA PERSONNEL**

##### **Year 1:**

- Project Manager, Caprice Shaw, 5.5% Full Time Equivalent (FTE) from grant award: to obtain permits; design consults; hire landscaper; recruit, train, and oversee shoreline planting volunteers; prepare for and attend meetings; field work (shoreline vegetation, collect pre-water temperature above and below fishway before installation fishway and shoreline plantings)
- Communications Director, 0.4% FTE, for public outreach to recruit volunteers.
- Finance Director, grant funds management, 0.25% FTE.

**Total Salaries: \$3,425**

#### ***Taxes and Benefits***

17% of salaries

**Total: \$582**

#### ***Direct Costs:***

Overhead @10% of salaries and benefits

**Total: \$401**

##### **Year 2:**

- Project Manager, Caprice Shaw, 7.0% Full Time Equivalent (FTE) from grant award: recruit, train, and oversee shoreline planting volunteers; recruit, train, and oversee volunteers monitoring fish trap; map plantings for survival monitoring; prepare for and attend meetings; field work also includes (supervise fishway installation, shoreline vegetation, collect water temperatures after fishway installation and shoreline plantings, removal of fish trap after monitoring season); collect data from volunteers, tabulate in a report and submit to IFD.
- Communications Director, 0.4% FTE, for public outreach to recruit volunteers.
- Finance Director, grant funds management, 0.25% FTE.

**Total Salaries: \$4,250**

#### ***Taxes and Benefits***

17% of salaries

**Total: \$723**

#### ***Direct Costs:***

Overhead @10% of salaries and benefits

**Total: \$497**

##### **Year 3:**

- Project Manager, Caprice Shaw, 5.5% Full Time Equivalent (FTE) from grant award: gather existing volunteers and recruit new, train/refresh volunteers on monitoring fish trap protocol; prepare for and attend meetings; supervise volunteers on plant replacements; collecting water temperatures, and monitoring fish trap; collect data from volunteers and submit report to IFD, Funders, volunteers and community; removal of fish trap after monitoring season; educate public on fishways and value of streamside buffers.
- Communications Director, 0.4% FTE, for public outreach to recruit volunteers
- Finance Director, grant funds management, 0.25% FTE.

**Total Salaries: \$3,425**

**Taxes and Benefits**

17% of salaries

**Total: \$582**

**Direct Costs:**

Overhead @10% of salaries and benefits

**Total: \$401**

**IFD PERSONNEL**

**Year 1:**

- IFD, Don Mysling and Steve Gephard, design of fishway, fish trap and fish trap monitoring protocol, request bid and review bids from masons to construct new lower fishway and fish trap.

**Total: \$12,000 (In Kind Match)**

**Year 2:**

- IFD, Don Mysling and Steve Gephard, select mason to build fishway, supervise installation of fishway, make changes or improvements if there are observed problems with the fishway's function, install fish trap, train HVA staff on trap monitoring protocol, collect fish trap monitoring data from HVA.

**Total: \$7,000 (In Kind Match)**

**Year 3:**

- IFD, Don Mysling and Steve Gephard, make changes or improvements if there is observed problems with the fishway's function, collect fish trap monitoring data from HVA, end of monitoring meeting and share results.

**Total: \$5,000 (In Kind Match)**

**SUPPLIES**

**Year 1:**

- Shoreline stabilization materials (landscape fabric): shovels, wheel barrow, tree stakes & lines, buckets, etc. (estimated cost \$150)
- Native plant species, for 1500 sq. feet of shoreline @ \$2.00/sq. ft. (estimated cost \$3,000)
- Hip Waders (for trap monitors) owned by HVA, **In-Kind Match \$100.**
- Miscellaneous (first aid supplies, bug spray, sunscreen, water). (estimated cost \$50)

**Total: \$3,300**

**Year 2:**

- Replacement native plant species, (estimated cost \$500)
- Hip Waders (for trap monitors) owned by HVA, **In-Kind Match \$100.**
- Miscellaneous (first aid supplies, bug spray, sunscreen, water). (estimated cost \$30)

**Total: \$630**

**Year 3:**

- Hip Waders (for trap monitors) owned by HVA, **In-Kind Match \$100.**
- Miscellaneous (first aid supplies, bug spray, sunscreen, water). (estimated cost \$30)

**Total: \$130**



## CONSULTANTS

### Year 1:

- Mason: construction of fish ladder. (\$8,000)
- Heavy equipment and operator. (\$10,000)

**Total: \$18,000**

## PERMITTING FEES

### Year 1:

- Estimated Inland Wetland Permitting fees

**Total: \$200**

## TRAVEL

The site is about two miles from the HVA office.

**Year 1:** 3 months, 3 days/wk, 2 miles round trip @ \$0.485 (IRS 2007): **Total \$35**

**Year 2: Total \$7**

**Year 3: Total \$6**

**Total Travel: \$48**

## VOLUNTEERS

### Year 1:

- Shoreline Buffer Volunteers (**In Kind**): Year 1: 4 people, 4 hours, at \$23.90 (Independent Sector for Connecticut, 2005 figure);

**Total: \$382**

- Monitor Water Temperatures at Fishway (**In Kind**): Year 1: 4 people, 3 hours, at \$23.90 (Independent Sector for Connecticut, 2005 figure)

**Total: \$287**

**Total for Year 1: \$669**

### Year 2 and 3:

- Fish Trap Volunteers (**In Kind**): 6 people, daily October-December 180 hours at \$23.90 (Independent Sector for Connecticut, 2005 figure)

**Year 2 and 3: \$4302 (\$8604)**

- Shoreline Buffer Volunteers (**In Kind**): 2 persons twice a year, 1 hour each time to check plantings after spring and fall storms.

**Year 2 and 3: \$96 (\$192)**

**Total for Year 2 and 3: \$8796**

## VOLUNTEER HOSPITALITY

Volunteer hospitality, end of season pizza: it is important to recognize volunteers, especially since they are collecting data that will be used by both HVA and state agencies.

**Year 1 and Year 2: \$100 (\$200)**

**Year 3: \$50**

**Total: \$250**

**TABLE 2. PROJECT BUDGET SUMMARY BY TASK AND FUNDING SOURCE**

<b>PROJECT TITLE:</b>	Fishway repair and riparian vegetation restoration, Cornwall.				
<b>SPONSOR NAME:</b>	Housatonic Valley Association				
<b>TASK<sup>2</sup></b>	<b>HOUSATONIC RIVER NRD FUNDS</b>	<b>OTHER CONTRIBUTIONS</b>		<b>TOTAL COST BY TASK</b>	
		<b>COMMITTED</b>	<b>NOT COMMITTED</b>		
A. Securing permits B. Design fishway	(A) 1,161	(B) 8,000		9,161	
C. Contract for fishway Construction	(D) 20,524	(C) 8,000		28,524	
D. Fishway Installation E. Shoreline stabilization F. Prepare volunteer fishtrap monitoring protocol	(E) 3,946	(F) 8,000		11,946	
G. Recruit and train volunteers	(G) 2,783			2,783	
H. Supervise and track volunteer shoreline planting and maintenance	(H) 3,457	(H) 300		3,757	
I. Supervise and track volunteer fish monitoring J. Volunteer shoreline planting event	(I) 3,457		(J) 861	4,318	
K. Volunteer monitoring fish trap event L. Annual reporting to IFD, funders, and community	(L) 1,216		(K) 8,604	9,820	
<b>TOTAL BY FUNDING SOURCE</b>	<b>5</b> 36,544	<b>6</b> 24,300	<b>7</b> 9,465	<b>8</b> <b>GRAND TOTAL</b> <b>70,309</b>	

**NOTES:** Box 5 should be the same as the Grand Total indicated in Part D Table 1. Box 6 above should match Part A, Budget Summary, Box 2. Box 7 above should match Part A, Budget Summary, Box 3. Box 8 should match Part A, Budget Summary, Box 4

<sup>2</sup> The listed tasks should correspond with information provided in the Project Implementation Plan.

**TABLE 1. HOUSATONIC RIVER NRD FUNDING ALLOCATION BY FISCAL YEARS<sup>1</sup>**

PROJECT TITLE:		Fishway repair and riparian vegetation restoration, Cornwall.			
SPONSOR NAME:		Housatonic Valley Association			
EXPENSE CATEGORY (See App. A)	FISCAL YEAR 1	FISCAL YEAR 2	FISCAL YEAR 3	FISCAL YEAR 4	
	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds	
A. SALARIES	3,425	4,250	3,425		
B. OVERHEAD AND BENEFITS	983	1,220	983		
C. CONTRACTED SERVICES	18,000				
D. SUPPLIES, MATERIALS AND EQUIPMENT	3,200	530	30		
E. TRAVEL	35	7	6		
F. OTHER (Permit Fees)	200				
G. OTHER (Volunteer Appreciation)	100	100	50		
TOTAL BY FISCAL YEAR	1	25,943	2	6,107	
			3	4,494	
<b>GRAND TOTAL (sum of boxes 1+2+3+4)</b>				<b>36,544</b>	
[This sum is the total NRD fund request and should match Part A, Budget Summary, Box 1]					

<sup>1</sup> The fiscal year is July 1 – June 30. If the proposed project will be completed in one year, fill in only the column titled "Fiscal Year 1."



**Housatonic Valley Association**  
Protecting Your Backyard  
www.hvatoday.org

*In Connecticut and New York*  
150 Kent Road  
P.O. Box 28  
Cornwall Bridge, CT 06754  
860-672-5578

*In Massachusetts*  
1828 Pleasant Street  
P.O. Box 251  
South Lee, MA 01260  
413-594-5796

**The Trustee Sub Council for Connecticut Housatonic River Basin  
Natural Resources Restoration Project  
c/o Mr. Michael Powers  
CTDEP -Inland Fisheries Division  
79 Elm Street  
Hartford, CT 06106-5127**

June 14, 2007

**RE: Letter of Commitment  
Housatonic River Natural Resource Restoration Shoreline Fish Ladder Improvement for Trout  
on Furnace Brook Proposal**

**Dear Members of the Trustee Sub Council:**

We the undersigned agree to work in partnership to repair an existing fish ladder and rehabilitate and restore shoreline vegetation that was damaged due to heavy flows during Spring 2006 flooding. As agreed, the Housatonic Valley Association (HVA) is committed to being the project lead to oversee installment, recruit and train volunteers, monitor fish traps, conduct post monitoring and provide status reports to the Department of Environmental Protection (DEP). DEP has agreed to provide expertise in the fish ladder design, fish traps and installation, fish trap sampling protocol and procedures.

HVA and DEP are fortunate to have Ms. Wojtusiak as a partner in providing access to this location for all work phases, and input on the plans.

We believe this project will restore and rehabilitate aquatic life, habitat and natural resources along the Housatonic River.

Sincerely,

Caprice Shaw  
Water Protection Director  
Housatonic Valley Association

Don Mysling  
Connecticut Department of  
Environmental Protection

Joanne Wojtusiak  
Property Owner



# HOUSATONIC RIVER COMMISSION

*"to coordinate on a regional basis the local management and protection of the Housatonic River Valley in northwestern Connecticut"*

(860) 868-7341

17 SACKETT HILL ROAD • WARREN, CONNECTICUT 06754

June 15, 2007

The Trustee Sub Council for Connecticut Housatonic River Basin  
Natural Resources Restoration Project  
c/o Mr. Michael Powers  
CTDEP –Inland Fisheries Division  
79 Elm Street  
Hartford, CT 06106-5127J

RE: Letter of Support  
Fish Ladder Repair and Shoreline Restoration, Cornwall, Connecticut

Dear Members of the Trustee Sub Council:

The Housatonic River Commission is writing to support the Housatonic Valley Association (HVA)'s proposal to repair a fish ladder on Furnace Brook that will allow trout and other fish species to access critical spawning habitat in Cornwall, Connecticut.

The Department of Environmental Protection has recognized Furnace Brook as an important spawning area as well as a thermal refuge for trout during the warmer summer months. Historically, Furnace Brook has provided suitable habitat for trout spawning and the rearing of young. Repairing the fish ladder located where Furnace Brook passes under Route 4 will provide better access to this critical habitat.

We believe this project will restore and rehabilitate aquatic and natural resources along the Housatonic River and the Housatonic River Commission voted unanimously to offer our complete support of this project.

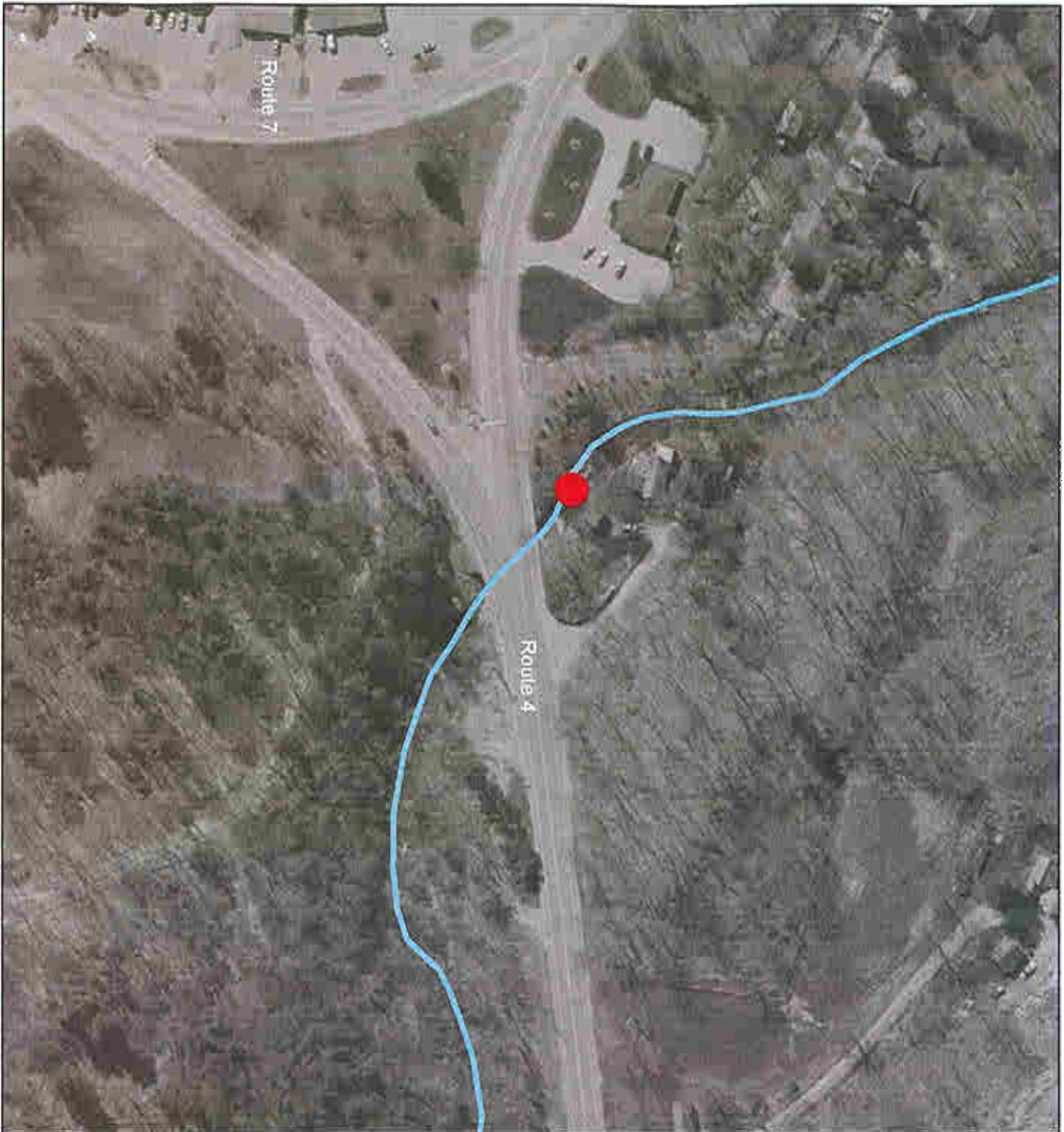
Sincerely,



Jesse Klingebiel  
Chairman Housatonic River Commission

# Furnace Brook Fish Ladder Restoration

Cornwall, CT



## Legend

 Furnace Brook

1 inch equals 150 feet