

Society of Women Environmental Professionals (SWEP)

Final Grant Completion Report

By

Eightmile River Wild & Scenic Coordinating Committee c/o Lyme Land Conservation Trust December 2015

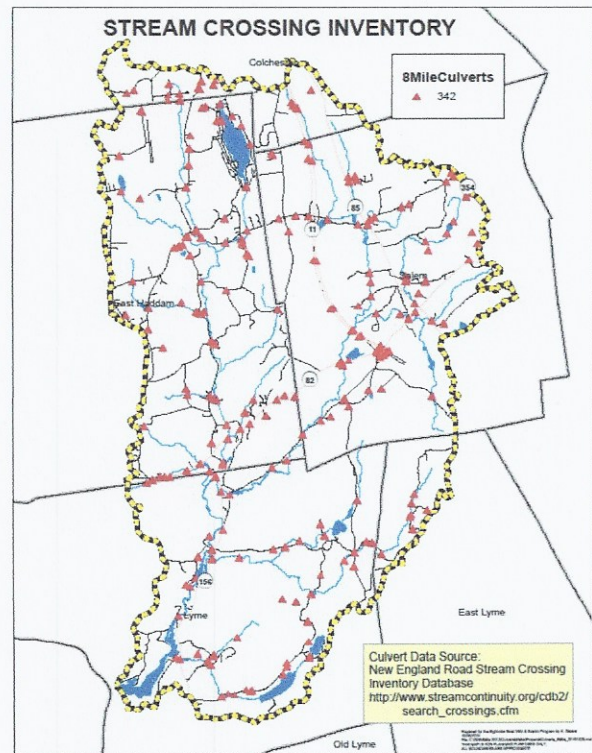
On behalf of the Eightmile River Wild & Scenic Coordinating Committee (ERWSSC), I am pleased to submit this final report concerning grant funding received from SWEP during 2015. A total of \$1,920.00 was received to complete a road culvert mapping project in the Eightmile River Watershed.

The Watershed

The Eightmile River Watershed is approximately 62 square miles and covers portions of 5 separate towns, Salem, East Haddam, Lyme, Colchester and East Lyme. It was the 12th River System to be designated by Congress as a Wild & Scenic Partnership River. This designation is a reflection of the outstanding natural resources of the Eightmile River Watershed as well as the commitment of the watershed towns and local Land Trusts and other organizations to protect local resources.

The Problem

Our local rivers, streams and brooks are nature's highways for fish, amphibians, reptiles and other terrestrial wildlife. We are well aware that dams can be major obstacles for critter movement, but road and driveway crossings can also be hurdles for passage. Pipes that are too long, too steep or where the water runs too fast or is too shallow, all present challenges for movement, particularly for fish. Fish need to move to spawn, for food and to escape to areas of cooler water when temperatures are high and streamflow is low. Many road culverts or pipes were originally installed to simply pass water as efficiently as possible, resulting in conditions that are just not fish-friendly. In the Eightmile River Watershed there are 342 stream crossings shown in public right of ways. Sixty-seven of those crossings have no or little data available and needed to be field located and evaluated.



The Solution

The good news is that as these road culverts are being replaced we can often fix problems to restore passage. The best fish-friendly designs are the ones that mimic the undisturbed channels above and below the pipe being replaced. Ideally, open bottom crossings are best. Where closed pipes are needed however, using a wider pipe that allows some exposed streambank and burying the pipe to create a natural bottom with a design that maintains the natural stream depth is also a good solution.

Since fish-friendly designs are closer to natural conditions they also function better in larger storm events, keeping our roads safer and reducing expensive repairs. Collecting field data on the missing crossings and uploading the data to an on-line database means that each culvert can be evaluated to prioritize resources for infrastructure retrofits.

The SWEP Grant

The \$1,920 grant that ERWSCC received allowed the Committee to partner with Three Rivers Community College-Department of Environmental Engineering to hire two students to complete



L to R: P. Young (ERWSCC), A. Irving (ERWSCC), A. Tisdale (SWEP), C. Karlson (SWEP), R. Smith (ERWSCC), D. Kahn-Bureau (TRCC), F. Mastroluca (TRCC) and B. DesRoche (TRCC)

data collection for the watershed. Sixty-seven culvert points had no data or very limited data, making identification of passage issues and retrofit ranking impossible. With the exception of culverts crossing RT 11, where data collected needs to be done by Conn-DOT due to safety considerations, the remaining points all needed to be located in the field and appropriate data collected.

Data then needed to be uploaded to the North Atlantic Aquatic Connectivity Collaboration (NAACC) database, a thirteen state partnership for mapping of road crossings.

Training & Activities

In order to collect field data, the students were trained by CT DEEP Fisheries Staff, completed on-line training, and were field supervised by the ERWSCC Program Director. By the end of the project the two students were certified as Lead Observers under the NAACC protocol, which is transferrable to all thirteen states.



Fern Mastroluca taking field measurements of a corrugated road culvert

Activities included field locating culvert inlets and outlets, many times in heavy underbrush, taking measurements and pictures to complete the NAACC data sheet, uploading data to the NAACC site and reviewing material with ERWSCC Program Director and DEEP Fisheries Biologists. While some of the data collected was relatively straight forward, length and width of pipes for example, other evaluations such as identifying passage barriers and determining bankfull width restrictions, required more in-depth evaluation.

A copy of one of the data sheets is attached at the end of this report. This data will allow local

town departments to identify which culverts are particularly vulnerable to large storms and which ones could also be better fish highways.

In all, the students completed evaluations for all the missing 67 crossing points on the map and also updated older crossing data submittals that were either in error or had a previous rating of moderate to severe rankings for barrier passage.

With the exception of some of the crossings that need to be completed on RT 11 by ConnDOT, there is now a complete data set for the Eightmile River Watershed for crossings in the public right-of-way.

Outreach Material

Several posts at various stages of this project were made on the *Eightmile Wild & Scenic River Facebook Page* with appropriate credit given to SWEP. Link to facebook page below. <https://www.facebook.com/Eightmile-Wild-Scenic-River-Watershed-170379183001385/>



Bobbi DesRoche evaluating passage barriers at culvert inlet

In addition a feature story on this grant project will be included in the ERWSCC annual newsletter, due out in January, again with appropriate credit given to SWEP and grant.

Since this project was also part of a student independent study class, an interactive presentation was completed by the students has been included on the Eightmile Wild & Scenic River website. <http://eightmileriver.org/>

Data is available for viewing through the NAACC website at www.streamcontinuity.org/cdb2

Grant Funds Accounting

One hundred percent of the grant funds were used to support the two students for training, field work and data upload. A break-down of expenditures on a monthly basis is included below.

SWEP Grant--\$1,920.00			
Date	Payment To	Amount	Remaining
7/30/2015	Bobbi DesRoche	\$194.50	\$1,725.50
7/30/2015	Fernanda Mastroluca	\$184.50	\$1,541.00
9/1/2015	Bobbi DesRoche	\$187.50	\$1,353.50
9/1/2015	Fernanda Mastroluca	\$187.50	\$1,166.00
10/1/2015	Bobbi DesRoche	\$320.50	\$845.50
10/1/2015	Fernanda Mastroluca	\$290.00	\$555.50
11/2/2015	Bobbi DesRoche	\$177.50	\$378.00
11/2/2015	Fernanda Mastroluca	\$177.50	\$200.50
12/10/2015	Bobbi DesRoche	\$100.25	\$100.25
12/10/2015	Fernanda Mastroluca	\$100.25	0

ERWSSC contributed funds for travel expenses and the Program Director's time. In addition, State Fisheries Biologists contributed time for this project for training, student certification as Lean Observers and field verification of a representative sample of work.

Next Steps

Working with State Fisheries Biologists, NAACC representatives and local municipal officials, ERWSSC will work to set up priority retrofit targets with the goal of restoring fish and wildlife passage. This includes outreach support for use of database, identifying key retrofit crossings, and support in seeking further funding for municipalities for infrastructure improvements.

Partners

ERWSSC would like to recognize and thank the following organizations that made completing this project possible:

- Society of Women Environmental Professionals
- Three Rivers Community College
- CT DEEP Inland Fisheries Division
- North Atlantic Aquatic Connectivity Collaboration

Questions

Questions or requests for additional information can be directed to Patricia Young, Program Director for the Eightmile Wild & Scenic River Watershed, via phone at (860) 345-8700 or email at pyoung@eightmileriver.org.

Stream Continuity Database

This is the database used as part of the Stream Continuity Project coordinated by the University of Massachusetts Amherst. Data collected using the old Stream Continuity protocols may be entered into this database until September 1, 2015. Data collected using the new North Atlantic Aquatic Connectivity Collaborative (NAACC) protocols should not be entered here but in the new NAACC database (<https://63.134.242.172/cdb2>). Until the mapping functions are incorporated into the NAACC database you can use the Stream Continuity database to view and download crossings for use in assessments.

[Search Crossings](#) | [Login](#)

General Information for Road-Stream Crossing

Crossing Code: **xy4143034072336580 (not approved)** Aquatic Score: **0.87**
 Terrestrial Passability Score: **0.5**
 (Data entry not checked)



[DSCN14122.JPG](#)



[DSCN14141.JPG](#)



[DSCN14101.JPG](#)



[DSCN14111.JPG](#)

Coordinator: Patricia Young (last login: 07-15-2015)

Crossing Code: xy4143034072336580

First entered: 07-15-2015

Stream/River: East Branch of Eightmile

StreamID: No data

Road: Trail off Rt 156

Town: Lyme, CT

Date observed in field: 07-15-2015

Last updated: 07-15-2015

NHD-HUC8 Watershed: Lower Connecticut

Observer: Patricia Young

Location: Trail across from 607 Rt 156

Flow condition: Typical low-flow

GPS: Lat: 41.43034 , Long: -72.33658

GPS to crossing distance (meters): 0.0

NY ID: No data

Photo IDs: No data

Phone: 860-345-8700

Email: pyoung@eightmileriver.org

Road/Railway Characteristics:

Road Surface:

Unpaved

Road Type:

1-Lane Road

Comment:

No data

Crossing/Stream Characteristics (during generally low-flow conditions)

Crossing type:	Bridge
Condition of crossing:	Fair
Does the stream at the crossing contain fish?	Yes
Is the stream flowing (in the natural channel)?	Yes
Crossing span:	Mild Constriction
Scour pool:	None
Crossing alignment matches stream?	Yes (flow aligned)
Comment:	No data

Standard of this stream crossing is estimated as: MINOR BARRIER

Culvert/Bridge Cell Characteristics:

Total Number of Culverts: 1

This is culvert number 1 for this crossing:

Length of stream through structure : L = 16.6 Feet

Inlet structure type: Bridge with Abutments

Inlet dimensions (feet): A = 21.3; B = 7.4; C = 0; D = 0;

Inlet water depth (inches): 2 Measured

Inlet drop (inches): 0 Measured

Inlet openness ratio: 9.49518072289

Outlet structure type: Bridge with Abutments

Outlet Dimensions (feet): A = 21.2; B = 6.8; C = 0; D = 0;

Outlet water depth (inches): 2 Measured

Outlet drop:

a. Culvert bottom to water surface (inches): 0 Measured

b. Culvert bottom to stream bed (inches): 0 Measured

c. With an outlet drop, check one: No drop

Outlet openness ratio: 8.6843373494

Structure embedded?

Crossing substrate?

Internal features?

Physical barriers to fish and wildlife passage:

Describe any barriers:

Is there a clear line of sight through the structure?

Does the structure provide dry passage suitable for use by terrestrial wildlife?

If yes, what is the maximum structure height in the portion that offers dry passage?

Comments:

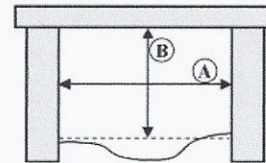
Water depth matches that of the stream?

Water velocity matches that of the stream?

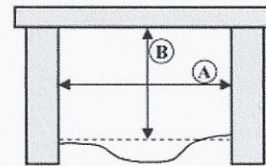
Crossing slope matches of the stream:

Armored streambed at outlet?

Inlet structure:



Outlet structure:



Not embedded

Comparable

None

None

No data

Yes

No

No data

No data

Yes (comparable)

Yes (comparable)

Yes (comparable)

None

[Search Crossings](#)

