



Blackledge River Habitat Restoration Project

Success Stories

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Connecticut Department of Environmental Protection, 79 Elm Street, Hartford, CT 06106-5127
— Gina McCarthy, Commissioner



Streambank Erosion Before Restoration

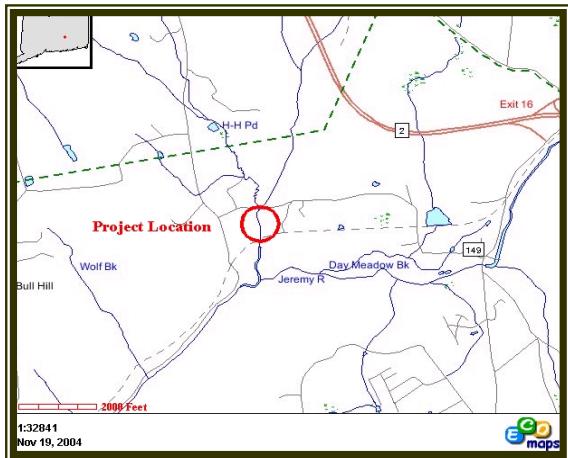


Streambank After Restoration

**Lower Blackledge River
Colchester, CT**

Introduction

The Connecticut Department of Environmental Protection (CT DEP) completed a stream habitat restoration project within the lower Blackledge River in Colchester. The DEP Wildlife Division's



Wetland Habitat and Mosquito Management (WHAMM) Program carried out the project utilizing special equipment to minimize construction-related disturbances. CT DEP staff and Biohabitats, Inc., the ecological restoration consulting firm that designed the project, provided construction management. The project took 6 weeks to complete and withstood high flows due to 4 inches of rain from the remnants of Hurricane Ivan. CT DEP staff were extremely pleased that the project passed its first test, functioning exactly as designed.

Environmental Problems

Approximately 710 feet of streambank along the lower Blackledge River had experienced channel instability and erosion. Channel instability was traced back to large flood events in 1973 and 1982. The 1982 flood was particularly large, causing severe streambank erosion and significant quantities of sandy and coarse soils to deposit downstream within the Blackledge River and Salmon River. Within this stretch, an area approximately 440 feet in length had been severely eroded causing a collapse of the streambank and degradation of instream and riparian resources. Channel abandonment and island formation also resulted in a dramatic shift of the stream channel. This shift in concert with

the lack of an extensive and stable streambank root system contributed to significant erosion and stream sedimentation. Erosion also caused the loss of streamside vegetation critical for cooling river water temperatures and the loss of valuable deep pool fish habitats. This watercourse supports a diverse mixture of native resident stream fish as well as an excellent recreational coldwater fishery comprised of hatchery reared adult brook, brown, and rainbow trout. In addition, the Blackledge River serves as vital nursery habitat for juvenile Atlantic salmon.

The Purpose

Specific objectives and purposes of the project are as follows: restore and stabilize the streambank and channel to correct local erosion problems; restore instream aquatic resource and riparian habitat; decrease downstream sediment loading; incorporate geomorphology principles and soil bioengineering techniques in restoration design; demonstrate new technologies and methods for stream channel restoration.

The Resource and Solution

This is a comprehensive streambank stabilization, river channel restoration and fish habitat restoration project utilizing natural stream channel design methods and soil bioengineering techniques. Bioengineering is the use of living plants in combination with non-living plants and inorganic materials to rapidly revegetate and stabilize streambanks to naturally restore stream ecosystems.

Restoration design was based upon placing the subject reach of the river back into dynamic equilibrium, (condition where erosion/deposition are in balance) to effectively transport water and sediment. Approximately 440 linear feet of streambank was stabilized with a boulder rock toe up to the two-year storm elevation, erosion control fabric and live branch layering. At the top of the streambank, an upland vegetated riparian zone was restored with a variety of plants to establish a mixed hardwood/softwood forested riparian zone. A boulder J-hook structure was installed to deflect streamflow away from the stream bank and towards the stream's centerline. Several tree and

rootwad structures were installed along the streambank to not only protect streambanks from erosion but to provide much needed large woody debris cover habitat for the resident fish community. Deep pool habitat was restored alongside the outside bank more than 200 feet in length.



Installation of tree/rootwad complex to provide for erosion control and fish habitat

Funding

Funding for this project was provided by the following sources:

- US Environmental Protection Agency and DEP 319 Nonpoint Source Pollution Program
- Connecticut River Watershed Supplemental Environmental Project (SEP) funds coordinated by the DEP
- US Environmental Protection Agency 104(b)(3) Wetlands Demonstration Grant
- Connecticut Conservation Fund

History

The CT DEP annually stocks the Blackledge River with over 6,300 adult brook, brown and rainbow trout. Opening season for fishing in the Blackledge River is the 3rd Saturday in April until the last day in February. Public access is from River Road in Colchester, located a short distance upstream. The project is also located a short distance upstream of the Airline Trail State Park

(a multi-use recreational trail), thus trail users will be able to observe the project.

Future Plans

During the spring of 2005, dormant willows and dogwood plantings will be installed using a technique called brush layering to provide added stability of the streambank and to jumpstart restoration of the streamside riparian zone. The public is advised not to walk on streambank areas that are being restored with vegetation.

Since 1995, the CT DEP has successfully completed several habitat restoration projects in Eastern Connecticut, including work at the Hop River, Coventry/Columbia, Railroad Brook, Bolton, Willimantic River, Tolland/Willington, Stony Brook, Montville, Merrick Brook, Scotland and Moosup River, Plainfield.

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