

Protecting, Enhancing and Restoring Aquatic Places in the Northeast

Reconnecting rivers and communities

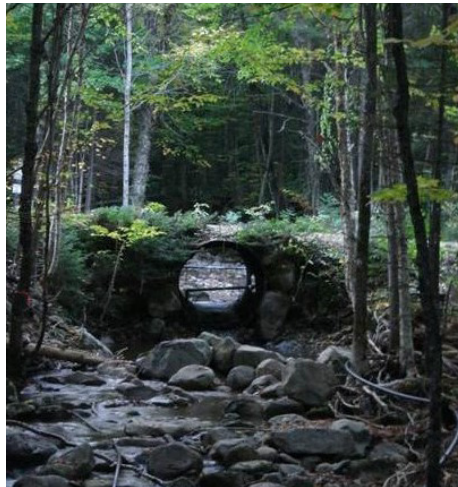
The Situation

Hundreds of thousands of road-stream crossings and dams have changed the flow of water, reducing connectivity between rivers, wetlands and oceans across the United States¹. These often prevent fish such as American shad or lake sturgeon from reaching places they need to grow and survive. Catastrophic flooding and damage to property also has been made worse by this lack of aquatic connectivity.

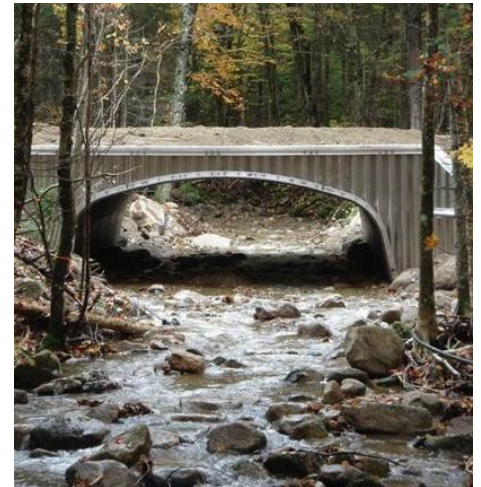
The highest density of dams and road crossings in the country is in the northeastern United States with an average of 7 dams and 106 road-stream crossings per 100 miles of stream².

The Solution

Road-stream crossings that are designed to enable fish to move freely are more likely to survive extreme weather events and flooding caused by tropical storms while also benefiting fish and anglers. And a fish-friendly approach is far cheaper than the price of road failure after being destroyed by flooding³. Removing certain dams greatly reduces risks of human fatalities, and restoring aquatic connectivity helps maintain water quality, resulting in reduced water treatment costs.



An under-sized road-stream crossing (culvert) on Long Mountain Brook in NH blocked fish movement most of the time, and was causing erosion during high flows with possible road failure. The new road crossing now passes water during high rain events and allows fish to freely move up and down the river all year round.



Eastern Brook Trout Joint Venture.

Engineering that is designed to protect the environment protects our homes and our roads, making our communities safer places to live.

What We are Doing to Help

Since 2009, we and our partners from Maine to West Virginia have removed or replaced over 375 barriers to fish passage, connecting nearly 2700 miles and 15,000 acres of rivers and wetlands to fish movement⁴.

Economic and Social Benefits

Our efforts will contribute \$1.5 billion in economic value to Americans every year, through increased tourism and recreation, improved water quality, protecting human safety, and protecting public and private property⁵.

When it comes to results relative to funding, our federal programs are extremely efficient. Our partners matched the Service's contribution at nearly 5:1, contributing \$56.1 million to the Service's \$12.5 million to restore aquatic connectivity and protect our communities across the Northeast⁴.

Restoration Powered by Partners

Partnerships effect positive change on large and small landscapes.

The Penobscot River Restoration Project (www.penobscotriver.org) highlights the success our partnerships achieved across a large landscape - New England's second largest watershed. Restoration efforts resulted in a win-win outcome for the resource,



Small dams like this one on the Chubb River in NY block fish migration, can be dangerous to people and during flooding, represent a potential hazard to downstream property.



Veazie Dam on the Penobscot River in Maine was removed in 2012.



Penobscot River is opened to sea-run fish for the first time in over 200 years.

Bridget Besaw/Penobscot River Restoration Trust

the hydro-electric industry and the public.

Removal of the lower two dams and bypassing of a third opened nearly 1000 miles of the Penobscot River to endangered Atlantic salmon and shortnose sturgeon, and other sea-run fish in Maine. Energy production was increased at six remaining dams, while the public enjoys recreation on portions of the river that haven't flowed unencumbered for two hundred years.

Replacing undersized culverts that were impassable to native brook trout in remote areas of the Shaver's Creek watershed in Pocahontas County, WV required assistance from a very unique partner - the Cass Scenic Railroad, one of the last remaining steam-powered locomotive trains in the U.S. The project, led by the West Virginia Division of Natural Resources with funding assistance from the Service, re-connected over 12 miles of river to fish and will increase recreational fishing in the area.

Economic and Social Benefits

Each mile of river opened so fish can move freely, can contribute over \$500,000 in social and economic benefits once fish populations are at their full productivity⁵. Restoring connectivity and designing our waterways to withstand flooding promises long-lasting ecological, cultural, recreational and economic benefits for the American people.

References:

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2. Anderson, M.G. and A. Olivero Sheldon. 2011. Conservation Status of Fish, Wildlife, and Natural Habitats in the Northeast Landscape: Implementation of the Northeast Monitoring Framework. The Nature Conservancy, Eastern Conservation Science. 289 pp.
3. Gillespie et al. 2014. Flood Effects on Road-Stream Crossing Infrastructure: Economic and Ecological Benefits of Stream Simulation Designs. Fisheries 39 (2): 62-76.
4. USFWS FIS and Habits Databases.
5. Charbonneau, J. J. and J. Caudill. 2010. An Assessment of Economic Contributions from Fisheries and Aquatic Resource Conservation. Division of Economics, U.S. Fish and Wildlife Service. 42 pp.

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What's good for fish is good for the
American people

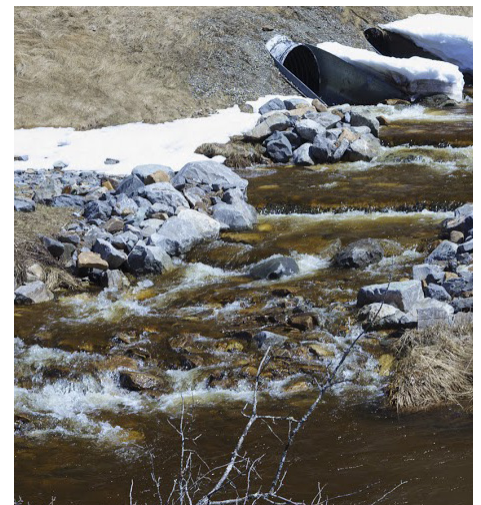
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1 800/344 WILD
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This culvert on Oats Run in Pocahontas County, WV had been blocking brook trout from moving throughout their historic range.

Steve Brown/WVDNR



Oats Run now flows freely after replacing culverts and restoring natural stream design.

Steve Brown/WVDNR