

4 MINUTE READ

Coonamesett River



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Falmouth, Massachusetts, United States

Removing legacy dams to improving fish passage and habitat. The Coonamesett River is a small spring-fed stream on Cape Cod, Massachusetts, that flows south through Falmouth into Vineyard Sound. The Wampanoag people have used the river as a herring fishery since time immemorial, and European settlers used it similarly since the seventeenth century. Cranberry farming has also been part of the fabric of Cape Cod for over 150 years. A long history of mill construction and cranberry cultivation caused declines in fish populations and degradation to aquatic habitat. In the 1970s, the Town of Falmouth acquired more than 81 hectares of bottomlands and uplands, with the intention of using some for conservation and some for organic cranberry farming. Following a geomorphic assessment, topographic survey, sediment analysis, and hydraulic model development, a series of design alternatives was developed. They included the removal of one of the dams on the river, the restoration of one bog to historical channel and wetland conditions, the replacement of two undersized culverts, and the rerouting of flows around another dam.

Construction was completed in 2020, with design work continuing on the upper Coonamessett River.

Article Cover: Aerial view of the bog shows the remeandered channel as it empties into Vineyard Sound. The river was historically an important herring run. The restored channel is deeper and narrower to provide cooler water for brook trout. (Photo by Inter-Fluve)

Producing Efficiencies

In the 1800s, some farmers began intentionally spreading sand over their cranberry bogs after noticing that harvests improved when the wind blew sand across their crops. The practice quickly spread across Cape Cod, making the area synonymous with cranberries in American culture but damaging river habitat. The sand prevented native plant growth and resulted in a wider, shallower channel. Excavating the sand, nearly a meter deep in places, improved habitat by making the river deeper and cooler. Potential sediment removal complications and costs were avoided by placing the excavated sand on adjacent hillslopes, where it provides nesting habitat for turtles.

Using Natural Processes

Large root wads placed along the newly restored riverbank help stabilize the channel and extend underwater to provide colder, sheltered areas for fish. Over time, the flow of water will form deep pools around the large wood structures, further enhancing fish habitat. As these structures naturally decay, insects will eat the roots, providing a food source for brook trout. Scientists studying the wetlands have noticed the emergence of native plants from seeds likely buried for centuries and exposed to rain and sunlight by project construction. Over time, these native plants will complement the large wood structures and native riparian plantings, adding further complexity to the ecosystem.





A system of raised boardwalks provides recreational access to the bogs while allowing fish passage. Previously, the river had been routed through a series of culverts.

(Photo by Inter-Fluve)

Broadening Benefits

Removal of the legacy dams on the Coonamesett River and restoration of the associated floodplain and wetlands have several benefits, the most immediate being improved fish passage. Just a year after construction, herring (*Alosa* sp.) were migrating up the river, likely for the first time in over 300 years in an area historically used as a herring fishery. The restored channel's deep pools and cooler water provide habitat for brook trout (*Salvelinus fontinalis*), a species once found in the river and prized by anglers. And removing in-stream barriers, replacing undersized culverts, and restoring wetlands will help protect neighboring communities against flooding, especially as sea levels rise.



A school of herring was spotted in the river just a year after construction.

(Photo by Inter-Fluve)

Promoting Collaboration

Some residents saw the proposed restoration as a major loss for Cape Cod, famous for its cranberries for over 150 years. Early in the feasibility

process, there was a farmer still harvesting in two of the bogs. This led to design alternatives that included fish passage improvements while maintaining active farming in those two bogs. By the time the lower bog was constructed, the farmer no longer found it viable to farm organically (as required by the Conservation Commission) and had stopped, which allowed for the full restoration of the two additional bogs. Despite some remaining community opposition, most residents had already begun enjoying the paths and restored ecology of the lower bog.



Sand excavated from the bog was used to create turtle nesting habitat alongside newly constructed ponds.

(Photo by Inter-Fluve)

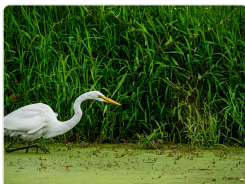


A new road crossing replaced three undersized pipes.

(Photo by Inter-Fluve)

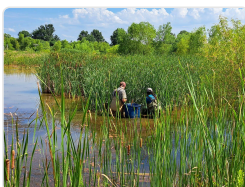


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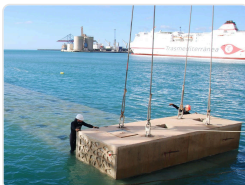
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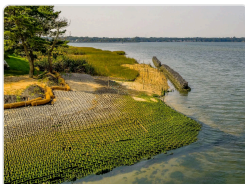
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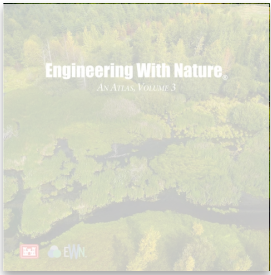
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