

Yarmouth's Royal River Fishways

Frequently Asked Questions

What are fishways? A fishway is a structure built to facilitate movement of fish over or around dams and other barriers (NOAA). Fishways incorporate a series of pools that fish ascend by swimming against a current, with places to stop and rest along the way. The flow of water into a fishway is managed to provide optimal flows during periods of migration, and the flow out of a fishway is engineered to attract fish to the entrance. The ability of different fish to utilize a fishway varies, so modern fishways are carefully designed and managed to pass targeted species.

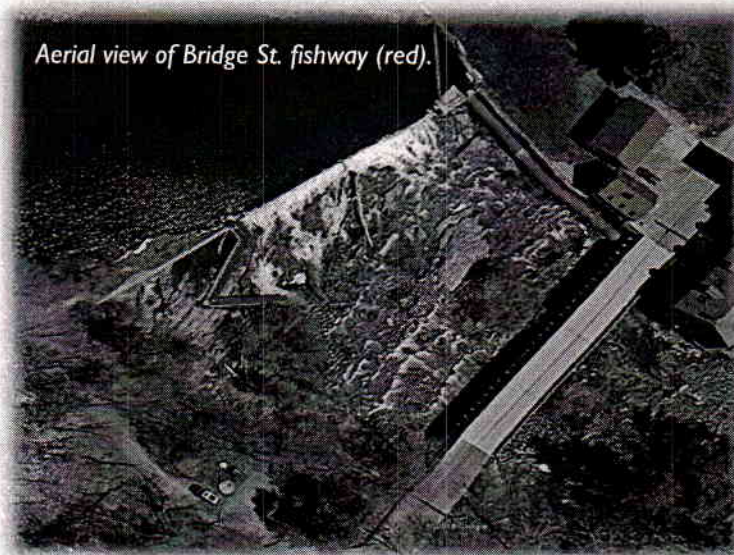
Where are Yarmouth's fishways?

Yarmouth has two Denil fishways. Denil fishways consist of a sloping rectangular concrete

channel with closely spaced wooden baffles on the sides and bottom. The first fishway up from the harbor is on Bridge St. dam a quarter mile above Rte. 1, and the second is on East Elm St. dam, about half a mile further upstream. Each is located on river right (facing downstream), and can be viewed from Royal River Park.



The fishway at Bridge Street Dam.



Aerial view of Bridge St. fishway (red).

Who built the fishways, and why?

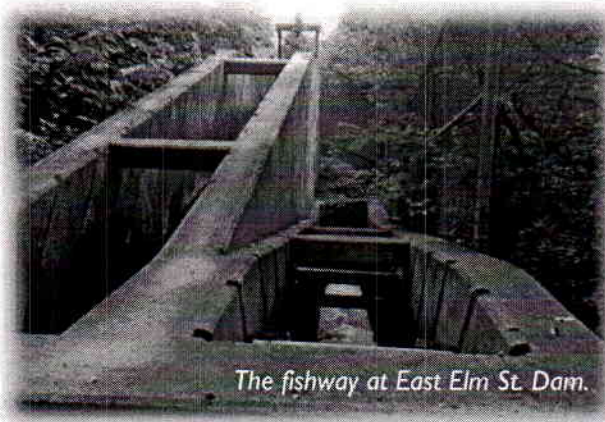
The Town, working with the Maine Dept. of Marine Resources (DMR), constructed the Bridge St. fishway in 1974 and the East Elm St. fishway in 1979. The Town owns both dams. The fishways were retrofitted onto the dams to allow native migratory fish such as alewife, blueback herring & shad to access critical spawning and rearing habitat as part of efforts to restore these fisheries in State waters and the Gulf of Maine. The fishways were also intended to benefit sea-run trout.

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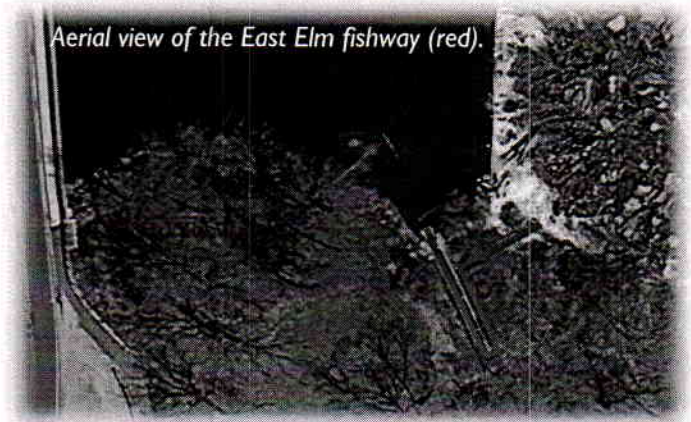
COMPILED FROM PREVIOUS STUDIES INCLUDING:

- ◆ Stantec Consulting Services. 2010. *Fisheries & Aquatic Habitat Restoration Feasibility Study*. Commissioned by Town of Yarmouth.
- ◆ Inter-Fluve, 2018. *Royal River Fishway Assessment and Cost Analysis Report*. Commissioned by The Nature Conservancy.

REPORTS AVAILABLE ONLINE AT: www.mainerivers.org/projects/royal-river and www.rrect.org



The fishway at East Elm St. Dam.



Aerial view of the East Elm fishway (red).

Who is responsible for operating and maintaining the fishways? For decades, the Town leased the fishways to DMR, who was responsible for operation and maintenance, but they have not been maintained for a decade. Management of the Bridge St. fishway is directed by terms established for the Sparhawk Mill hydropower facility by the U.S. Fish & Wildlife Service in 1985, when the Federal Energy Regulatory Commission granted an exemption from a Hydropower License under the Federal Power Act.

How effective are the fishways? The fishways are currently inoperable and in a state of disrepair; however the effectiveness issues extend beyond a simple lack of maintenance. A 2018 study by Inter-Fluve, commissioned by The Nature Conservancy and partially funded by Casco Bay Estuary Partnership, found several functional deficiencies with the fishways. Inter-Fluve concluded that the fishways are a constraint on the long-term restoration of two-way (upstream & downstream) passage for targeted fish.

Bridge St. dam fishway - In addition to needing repairs & maintenance, constraints include:

- ◆ Does not meet the current design standards for shad (too steep and narrow, with too many sharp bends)
- ◆ Lacks juvenile eel passage (for spring migration)
- ◆ Lacks intentional downstream fish passage (increasing injury/death during outmigration)
- ◆ Is inadequately sized to meet standards for anticipated run populations, and for resting pool areas
- ◆ Competes with hydropower operations at Sparhawk Mill, attracting fish to the mill outflows
- ◆ Provides insufficient attraction flow at fishway entrance, competing with flow dispersed over the ledge falls

E. Elm St. dam fishway - A complete rehabilitation would be needed to regain operability and functionality, including replacement of weirs, gates, trash racks & control structures. Additional constraints:

- ◆ Entrance is blocked with boulders, & adjacent channel requires modification
- ◆ Entrance configuration is very poor, with water flowing across the entrance
- ◆ The stop log weir is in disrepair and blocked with debris, negating its use in managing flow
- ◆ Outflow from the foundry by-pass channel forms a competing attractant flow
- ◆ Does not meet the current design standards for shad (too steep and narrow, with too many sharp bends)
- ◆ Lacks juvenile eel passage (for spring upstream migration)
- ◆ Lacks intentional downstream fish passage (increasing injury/death during outmigration)
- ◆ Inadequately sized to meet standards for anticipated run populations, and for resting pool areas
- ◆ Provides insufficient attraction flow at fishway entrance, competing with currents dispersed over the ledge



WORLD FISH
MIGRATION DAY

SATURDAY, MAY 12, 2018
ROYAL RIVER PARK, YARMOUTH

COMPILED AT THE REQUEST OF THE ROYAL
RIVER ALLIANCE BY:

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