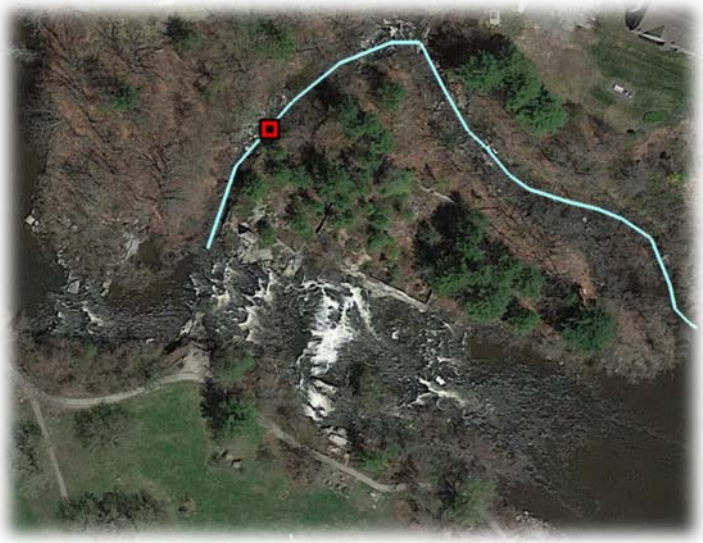
Royal River Rolling Stones Project

Factory Island Back-Channel, Yarmouth - 2012

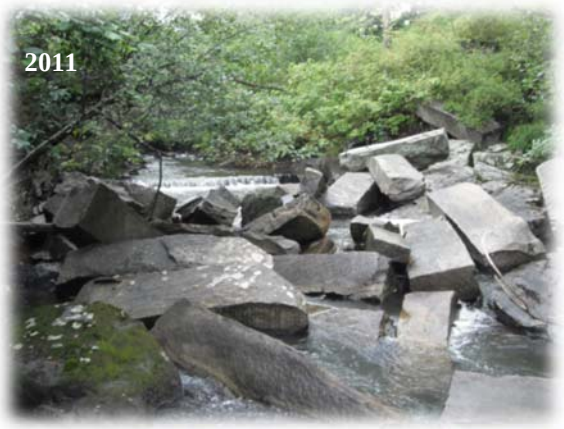
Project Partners: Maine Rivers; Project SHARE; Town of Yarmouth; Casco Bay Estuary Partnership; U.S. Fish & Wildlife Service; Gulf of Maine Coastal Program

Purpose: To improve fish passage in the Royal River between the Bridge St. Dam and the East Elm St. Dam, where a remnant mill structure spanned the back-channel around Factory Island. The structure had been pinned to the channel bottom using metal rods and concrete, creating vertical breaks in the channel bottom that blocked fish movement. When the structure collapsed sometime between 2008-2011, it left over two dozen large granite blocks strewn throughout the channel, further impeding the movement of fish. The project aimed to clear the channel of these blocks by moving them to the riverbank.

Approach: Under the leadership of Maine Rivers, and with funding provided by Casco Bay Estuary Partnership, the Town hired Project SHARE to direct use of a Grip Hoist to move dozens of 6,000 lb. granite blocks. Volunteers hand-cranked the Grip Hoist over several days, moving the blocks an inch at a time until they were out of the channel.



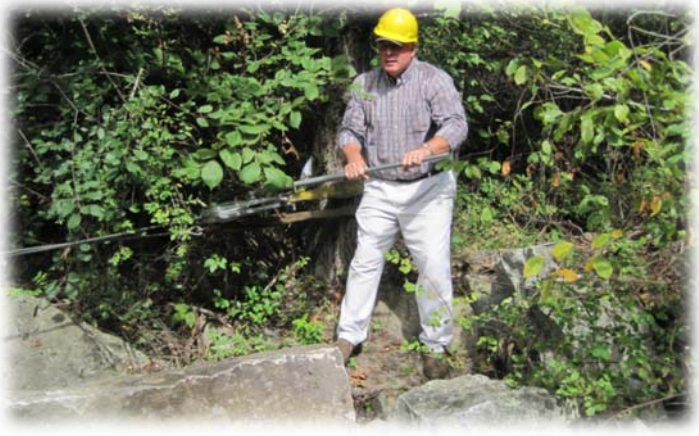
Aerial view of back-channel (blue) and project location (red). Royal River Park is shown at the bottom of the image.



The structure over Factory Island back-channel in 2008 (top), 2011 (middle), and 2012 (bottom).

(over —>)

Steve Koenig (l) of Project SHARE and Jed Wright (r) of USFWS.

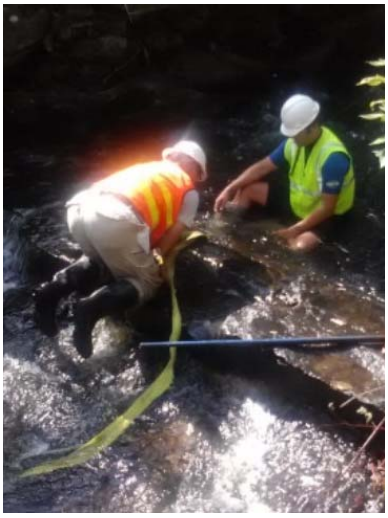


Yarmouth Town Manager Nat Tupper takes a turn on the Grip Hoist.

Outcomes: Through collaboration, ingenuity, and hard work, a small but determined team was able to clear the Factory Island back-channel of obstructions over the course of three days. In the process, they:

- **Moved an estimated 70 tons** of rectangular granite blocks;
- **Improved fish passage in the .9 mile section** of the Royal River between Bridge St. Dam and East Elm St. Dam, to a condition that likely has not been seen for at least a century;
- **Sustained momentum for addressing other fish passage issues** in the Royal River watershed;
- **Demonstrated a cost effective and efficient approach** to river restoration; and,
- **Attracted widespread media coverage** showcasing the river's importance to local communities.

Next steps: While the project resulted in important steps forward for river restoration, questions remain about the ability of targeted fish to navigate this reach of the Royal River, which is characterized by the steep cascade of ledge at Middle Falls. Reports and memos from private consultants and agency experts make clear that more work is needed to inform next steps within this reach of the river. Questions include:



The team discovered—and successfully removed—several blocks that were affixed to the bottom and caused an abrupt break in the channel profile.

- **What additional improvements would be needed to optimize fish passage in the back-channel** for targeted migratory fish, including river herring, shad, brook trout and brown trout? In a 2017 memo, the U.S. Fish and Wildlife Service suggested that with additional minor enhancements, the back-channel could be passable for targeted species.
- **Will existing flow conditions attract migratory fish to the back-channel?** River herring & other migratory fish typically rely on strong flows of water to guide upstream movement. Since flows are presumed to highest in the main channel and over Middle Falls, fish may not utilize the back-channel in sufficient numbers to rebuild local populations.
- **Was the river modified during construction of the historic Forest Paper Company mill?** Historic documents show that river herring, shad and salmon were present in the Royal River. There is general consensus among biologists that in its current state, the Falls may pose a barrier to some fish some of the time. Mill construction typically altered the course, banks, and channel of rivers to better harness flows. River alterations could have made Middle Falls less passable for fish, and more difficult for restoration efforts. If the Falls were modified, focused work to provide fish passage may be warranted.

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