Telemetry Data to Evaluate Passage of Migratory Fish in the Pawcatuck River

By Kelly Addy and Seaver Anderson
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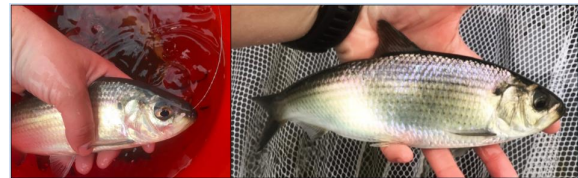
Monitoring Fish Passage on the Pawcatuck River

Coastal waters of New England were once abundant with seasonal migrations of fish species that rely on access to both fresh and saltwater systems. Since the Industrial Revolution, these waters witnessed significant declines in fish populations in part due to migration barriers created by dams. Through this project, we monitored fish passage on the Pawcatuck River in Rhode Island after a series of dam removals and construction of technical fishways and nature-like fishways. We documented the extent of diadromous fish (Alewife and American Shad) migration up the river with a primary focus on the role of different types of passageways on migration success and a secondary focus on furthering understanding of the site-specific habitat preferences of the two species within the Pawcatuck River network.

Telemetry Data Collection

In collaboration with USGS and US Fish & Wildlife, Future of Dams students and staff installed telemetry equipment (VHF and PIT systems) at seven locations along the Pawcatuck River (from downstream to upstream) in the spring of 2018:

Alewife (Alosa pseudoharengus) captured and released during tagging event. Photo on the left shows a VHF tagged Alewife with the tag antenna visible in the photo. Photo credit: P. Paton.

- Former White Rock Dam (recent dam removal)
- Potter Hill Dam (technical fish ladder)
- Bradford nature-like fishway
- Cronan Landing Dam (low height)
- Lower Shannock nature-like fishway
- Horseshoe Falls Dam (technical fish ladder)
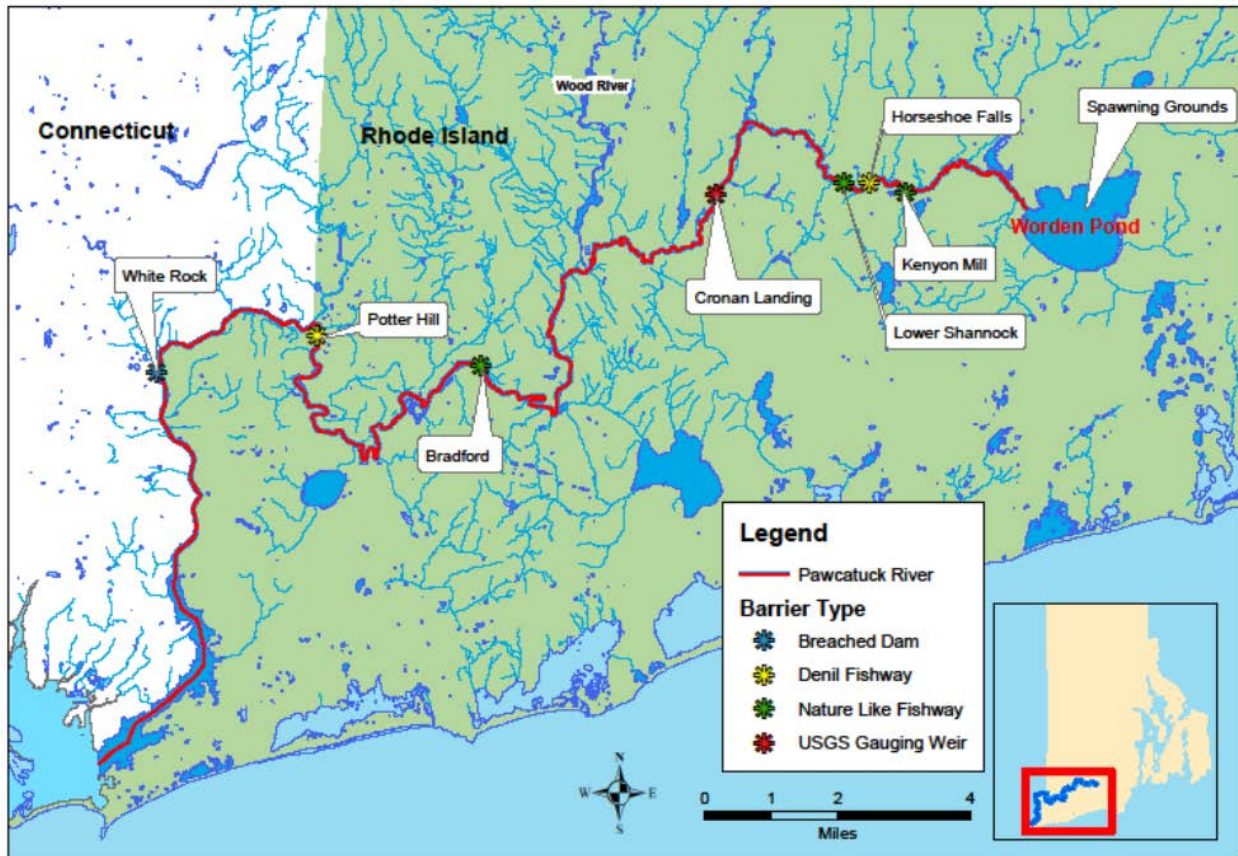- Kenyon Mills nature-like fishway

Alewife and American Shad were captured, tagged and released. Telemetry data were

downloaded, and site maintenance was performed two times per week. Students completed several mobile tracking trips via canoe in the river. In summer and fall of 2018, students completed QA/QC on the telemetry data. In the fall 2018- winter 2019, they assisted in analyzing and presenting the data to project partners. In March 2019, Future of Dams students and staff restarted the telemetry

Pawcatuck River Telemetry Sites

Map of Pawcatuck River study area depicting VHF and PIT telemetry stations.

stations and established additional telemetry stations along the Pawcatuck River to further the monitoring extent upstream.

While data collection is not yet finalized, preliminary PIT data indicates that Alewife (shad were not PIT tagged) were successful in moving up the Pawcatuck River in 2018. Except for one specimen American shad were not detected above the Bradford nature-like fishway. Based on transit time between Potter Hill and Bradford and mobile tracking data American shad are potentially spawning much lower in the river than expected as we do not believe this behavior is due to a tagging effect or their inability to pass Bradford. Lessons learned from year 1 will

American Shad (Alosa sapidissima) captured and released during tagging event. Photo credit: P. Paton.

guide changes in procedures in the 2019 monitoring. Final data from this monitoring of migratory fish in the Pawcatuck River will be used to improve Future of Dams (and beyond) modeling efforts and decision support tools to aid dam decisions.
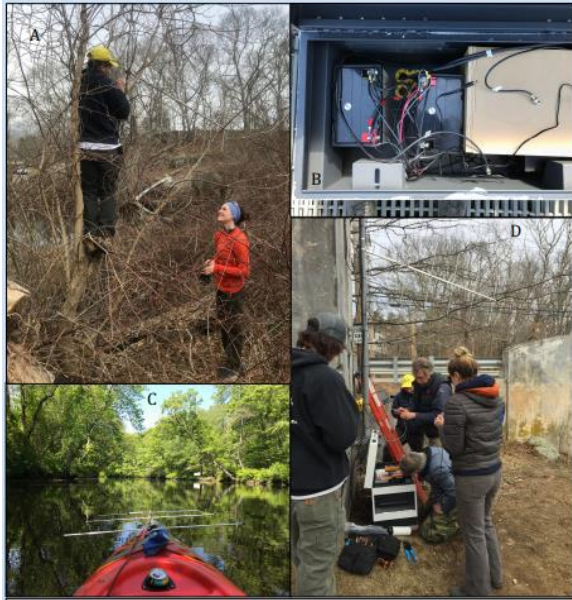
A) Installing telemetry antenna at Horseshoe Falls Dam, B) telemetry receiver station, C) mobile tracking along the Pawcatuck River, D) installation of monitoring equipment at Cronin Landing. Photo credit: E. Lundberg.

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Partners

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