

# Moving Fish Forward: Demolishing Dams & Upgrading Culverts

Neil Shea  
PIE-Rivers Annual Meeting  
December 4<sup>th</sup>, 2025



**IPSWICH RIVER**  
WATERSHED ASSOCIATION

# Parker, Ipswich & Essex River Watershed Implementation Plan Update

## 2025-2027



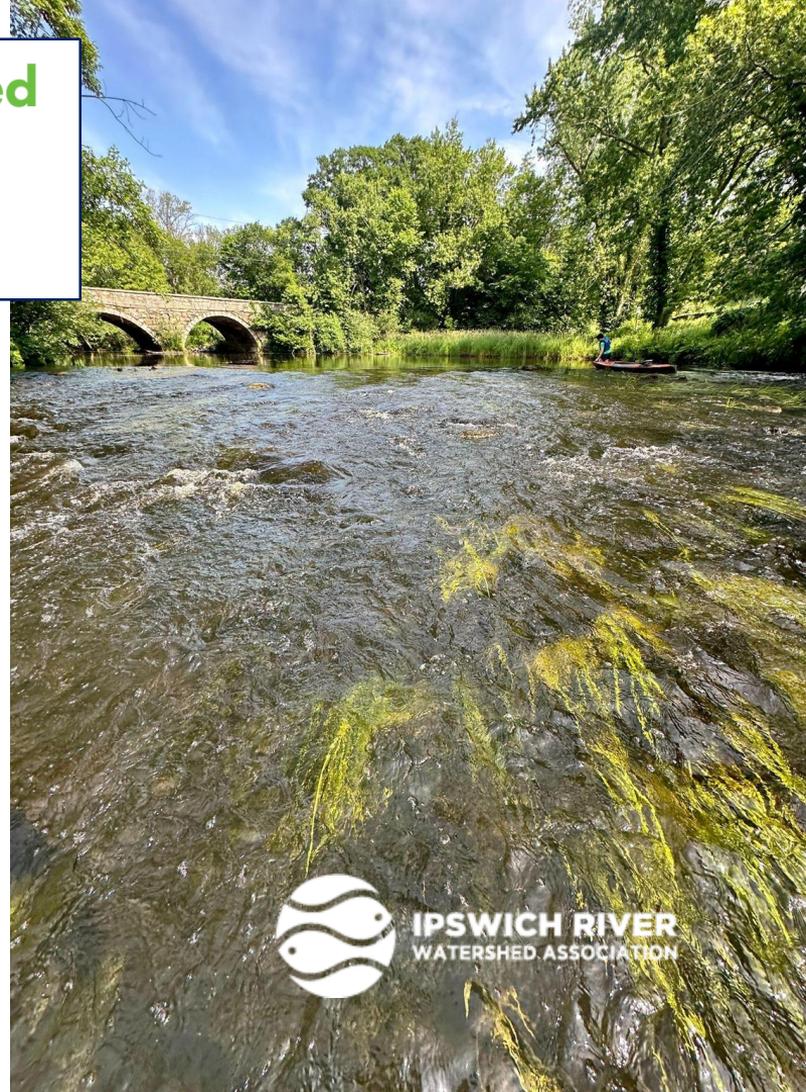
### River & Stream Continuity

Support municipal and non-municipal owners in upgrading barriers to improve habitat continuity, increase flood resiliency, and restore floodplains.

**Objective:** Support municipal and non-municipal owners in upgrading barriers to improve habitat continuity, increase flood resiliency, and restore floodplains.

➔ Remove Migration & Flow Barriers

➔ Restore Priority Degraded Habitat



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WATERSHED ASSOCIATION

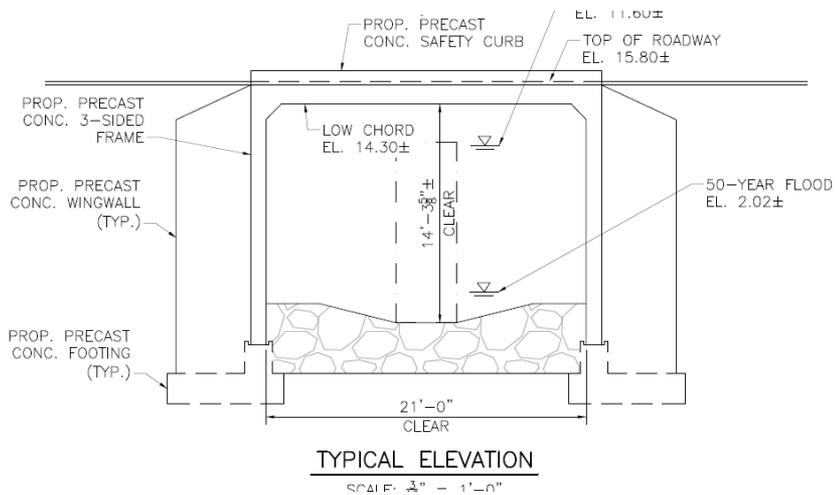


## New and updated barrier assessments

Collecting, organizing, and analyzing data on barriers in the region to inform up-to-date prioritization

## Bundled project designs

Packaging projects together at an early design phase to maximize project advancement opportunities



What's been going on...



## Tidal and freshwater barrier upgrades

Implementing critical projects that improve aquatic connectivity



## Dam removals!

Restoring some of the most impacted river reaches in the region

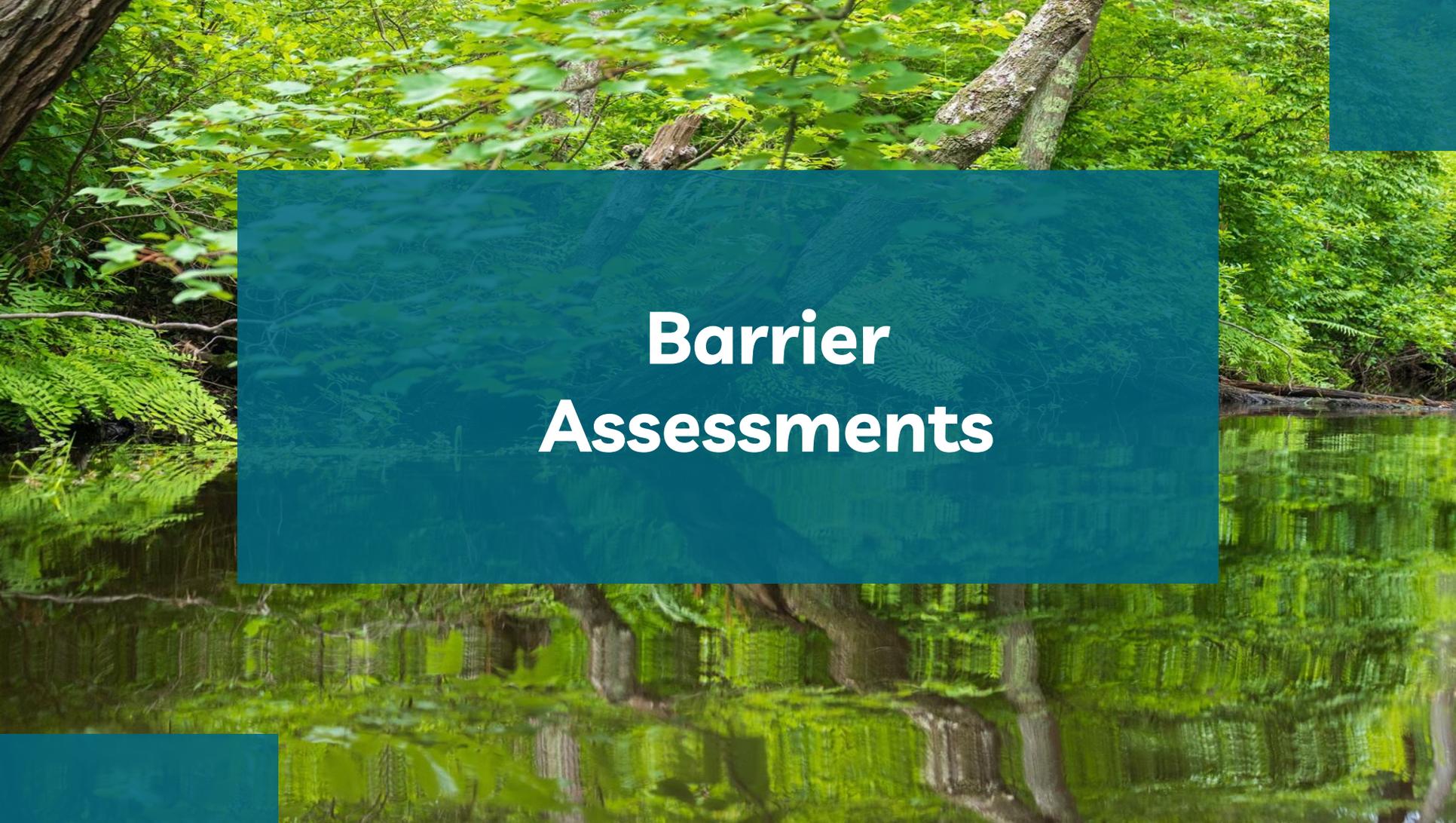
What's been going on...



## Fish population and habitat assessments

Collecting, organizing, and analyzing data on barriers in the region to inform up-to-date prioritization

What's been going on...

A lush green forest scene with a stream and a teal overlay. The background shows a dense forest with various green leaves and tree trunks. A stream flows through the forest, reflecting the surrounding greenery. A large teal rectangular overlay is centered on the image, containing the text "Barrier Assessments".

# Barrier Assessments

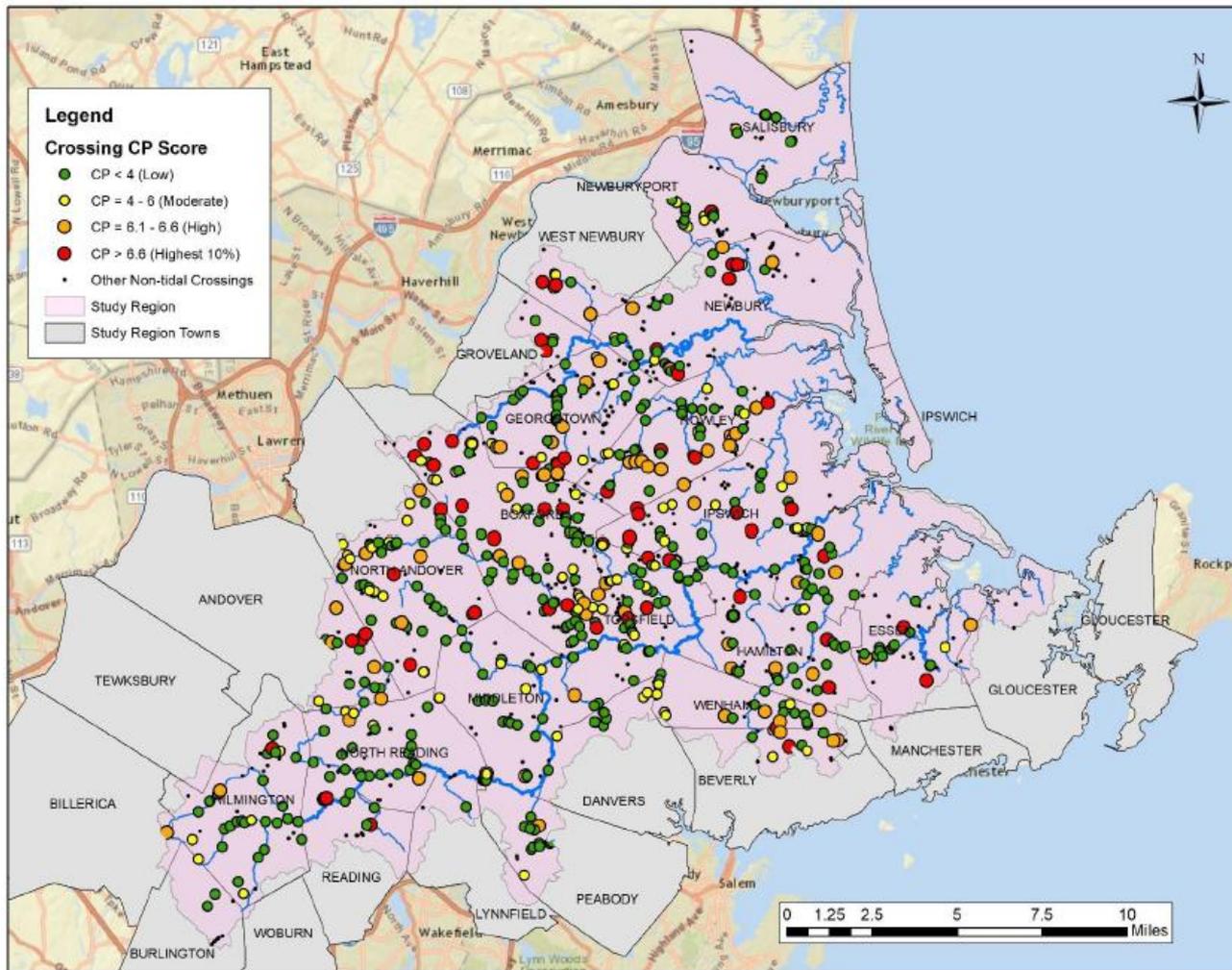


Figure 10. Map of the Great Marsh study region showing non-tidal road-stream crossings prioritized by Crossing Priority (CP) score.

**Bid Request**  
Various Sites, MA  
**Culvert Assessments**

TO: Category 1 Ecological Restoration Technical Service Master Agreement Vendors

FROM: Anthony Lucivero, Massachusetts Division of Ecological Restoration

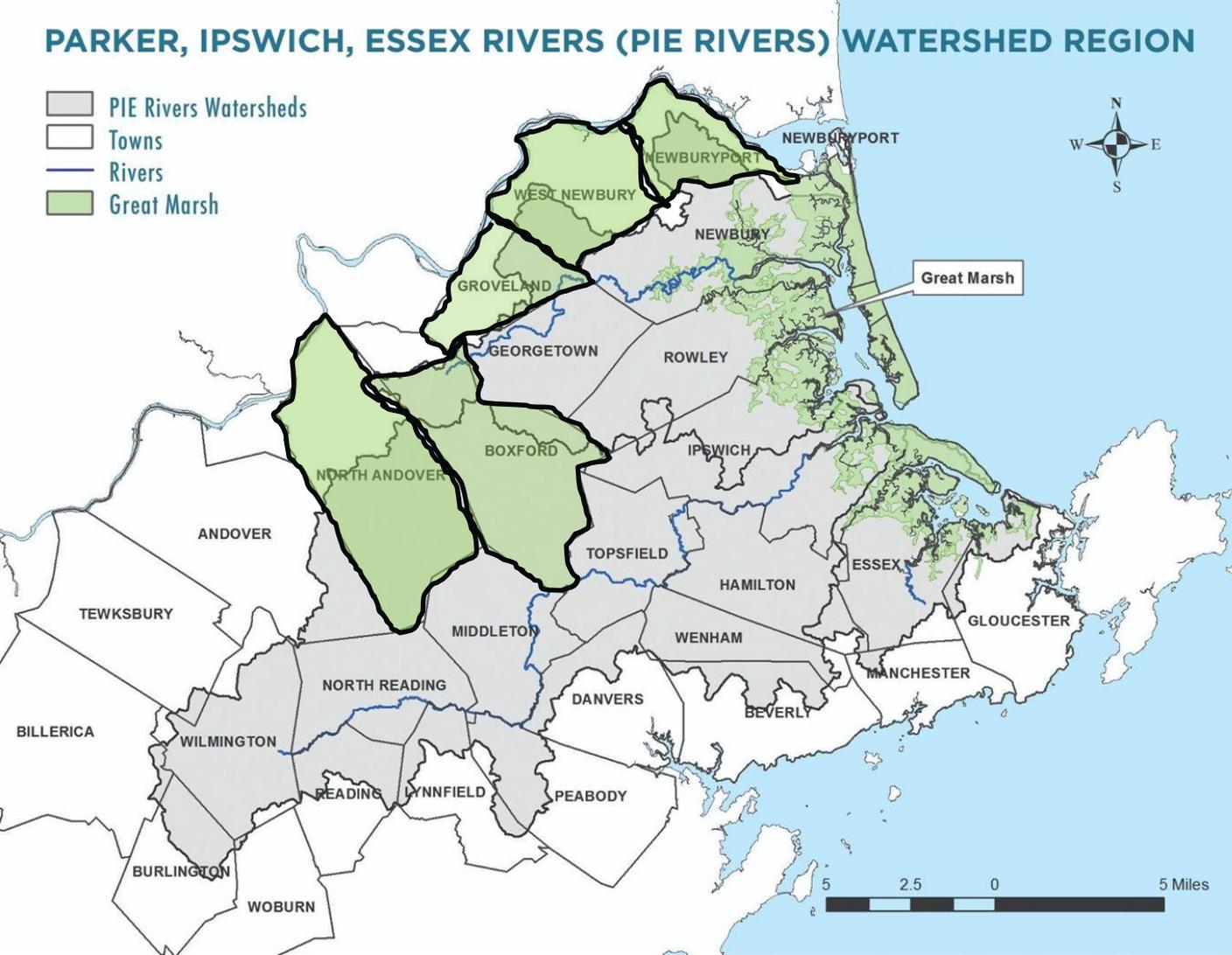
RE: ECOLOGICAL RESTORATION TECHNICAL SERVICE MASTER AGREEMENT/RFR ID # DER 2019-01

DATE: November 4, 2024 (Updated November 19, 2024)



# PARKER, IPSWICH, ESSEX RIVERS (PIE RIVERS) WATERSHED REGION

- PIE Rivers Watersheds
- Towns
- Rivers
- Great Marsh

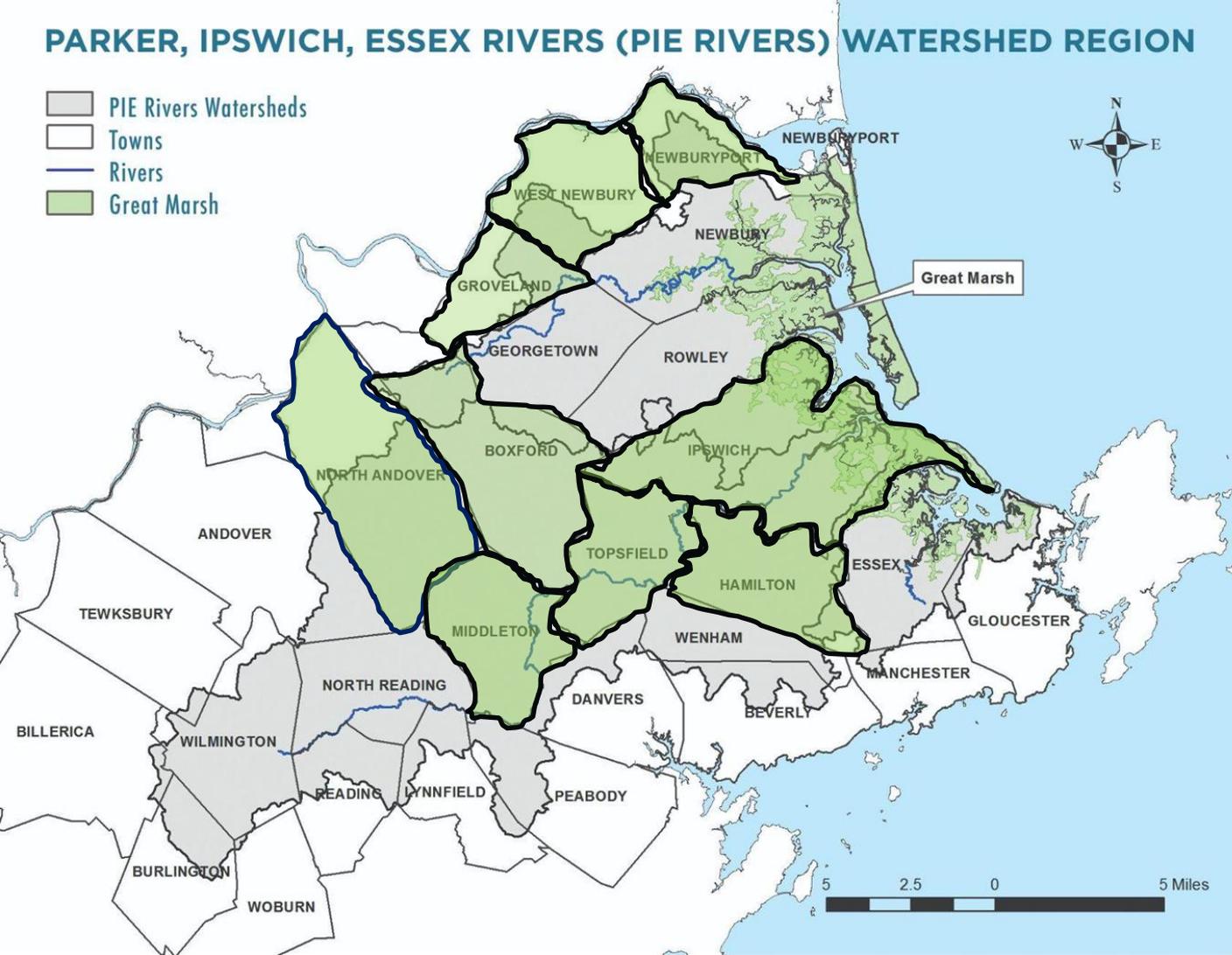


# Barrier Assessments

| Priority No. | Location (Road, Stream, xy code)  | Combined aquatic impassability & connectivity restoration score | Condition score | Photo  |
|--------------|---|---|-----------------|--|
| 1            | Main St, Unnamed Stream,<br><a href="#">xy4272918271077607</a>          | 0.749   | Critical        |   |
| 2            | Middleton Rd, Crooked Pond Brook,<br><a href="#">xy4264221270992266</a> | 1.24  | Poor            |  |

# PARKER, IPSWICH, ESSEX RIVERS (PIE RIVERS) WATERSHED REGION

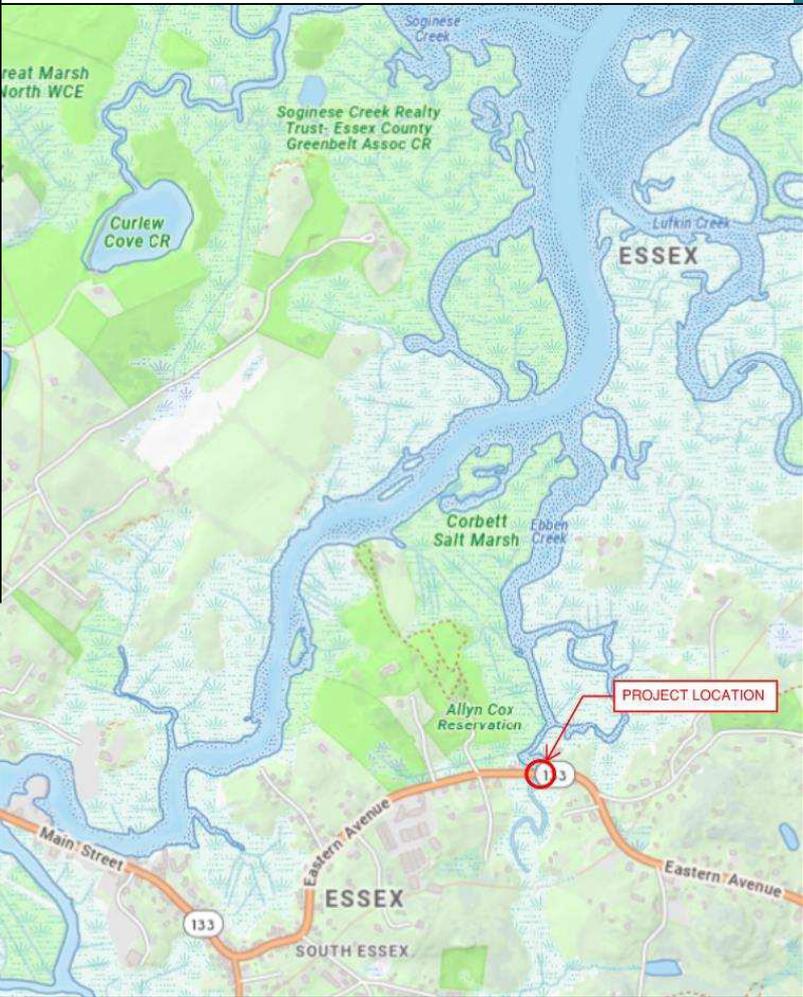
- PIE Rivers Watersheds
- Towns
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- Great Marsh



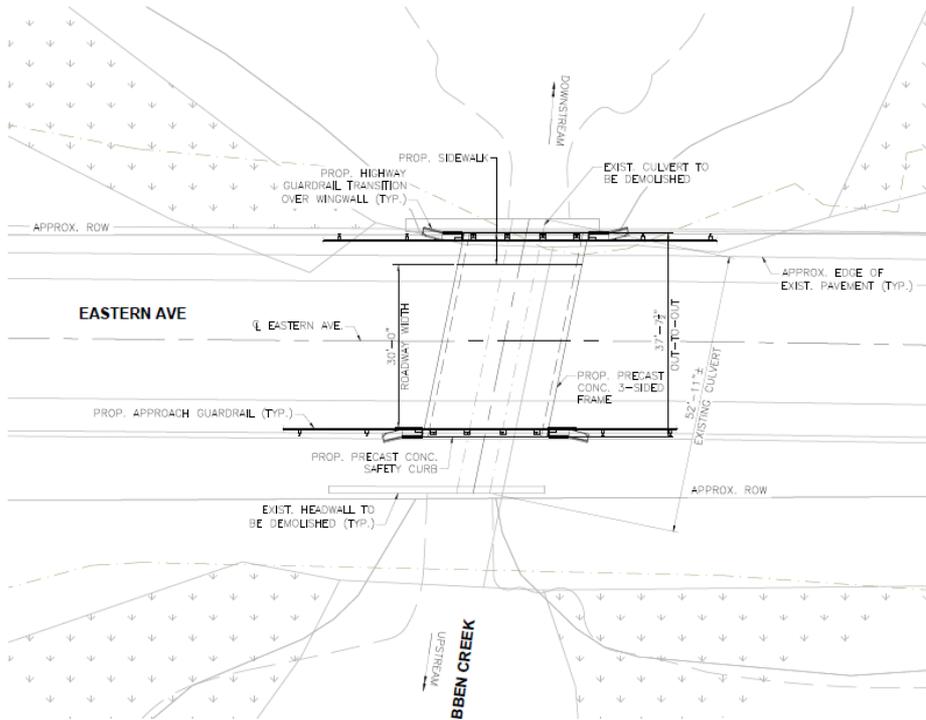
A lush green forest scene with a stream and a teal overlay. The background shows a dense forest with various green leaves and tree trunks. A stream flows through the lower part of the image, reflecting the surrounding greenery. A large, semi-transparent teal rectangle is overlaid in the center, containing the text "Project Designs".

# Project Designs



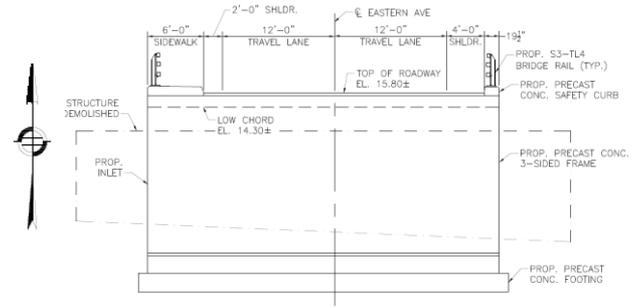


# Project Designs



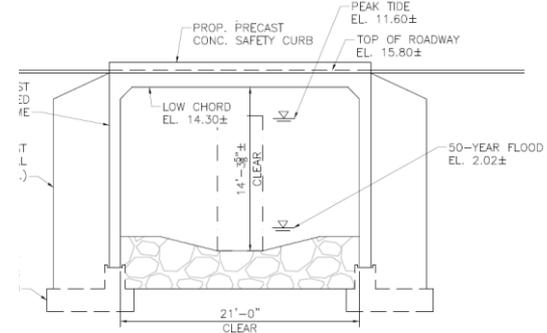
**GENERAL PLAN**

SCALE:  $\frac{1}{4}'' = 1'-0''$



**TYPICAL LONGITUDINAL SECTION**

SCALE:  $\frac{1}{8}'' = 1'-0''$



**TYPICAL ELEVATION**

SCALE:  $\frac{1}{16}'' = 1'-0''$

A lush green forest scene with a stream and a teal overlay. The background shows a dense forest with vibrant green foliage and tree trunks. A stream flows through the lower part of the image, reflecting the surrounding greenery. A large, semi-transparent teal rectangle is centered over the image, containing the text "Barrier Upgrades".

# Barrier Upgrades

## Georgetown Road

### Georgetown Rd

This project completed in 2025 in Boxford upgraded an actively failing stone culvert crossing of Pye Brook. The new culvert is appropriately sized to convey high flows from storm events and provide safe passage for fish and wildlife.



BEFORE



AFTER

## Orchard Street

### Orchard St

This project completed in 2025 in Newbury upgraded a tidal crossing of Cart Creek, a tributary to the Parker River. As a tidal crossing, the new culvert had to be sized to effectively convey two-way flow and anticipated higher tides as a result of climate change.



BEFORE



AFTER

# Barrier Upgrades

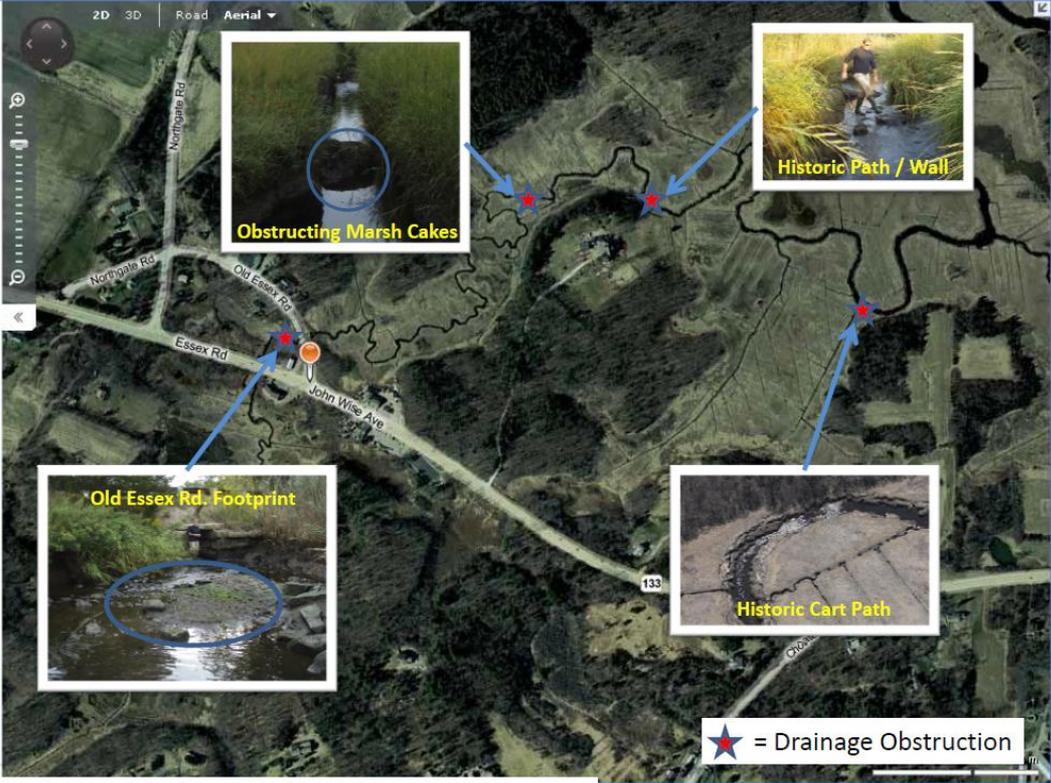


Figure 4: Location of drainage obstruction within the Upper Castle Neck River

A lush green forest scene with a stream and a teal overlay. The background shows a dense forest with vibrant green foliage and tree trunks. A stream flows through the lower part of the image, reflecting the surrounding greenery. A large, semi-transparent teal rectangle is centered over the image, containing the text "Dam Removals".

# Dam Removals

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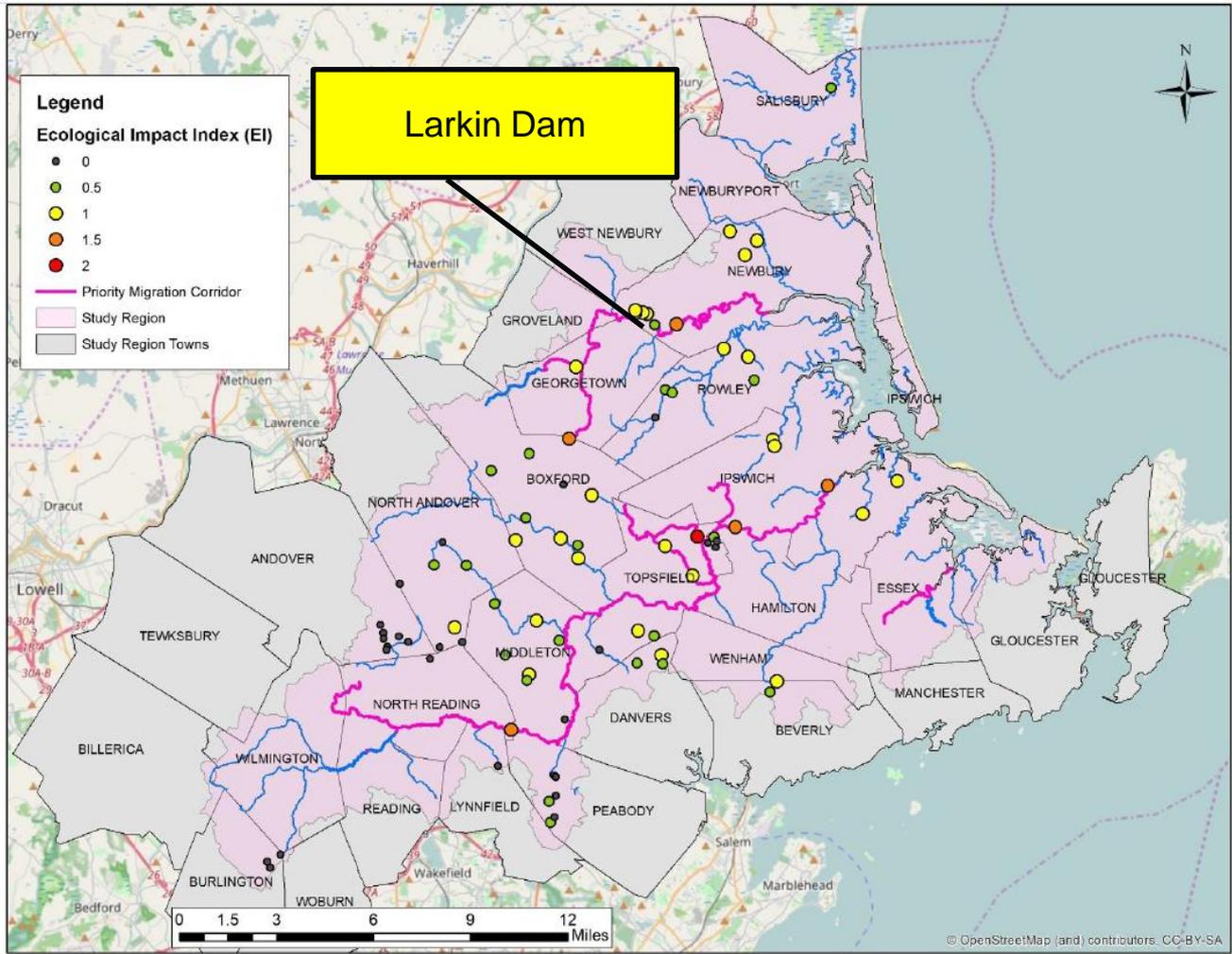


Figure 8. Map of Great Marsh study region showing dams prioritized by Ecological Impact Index scores.



## Dam Removals



# Dam Removals





## Larkin Dam

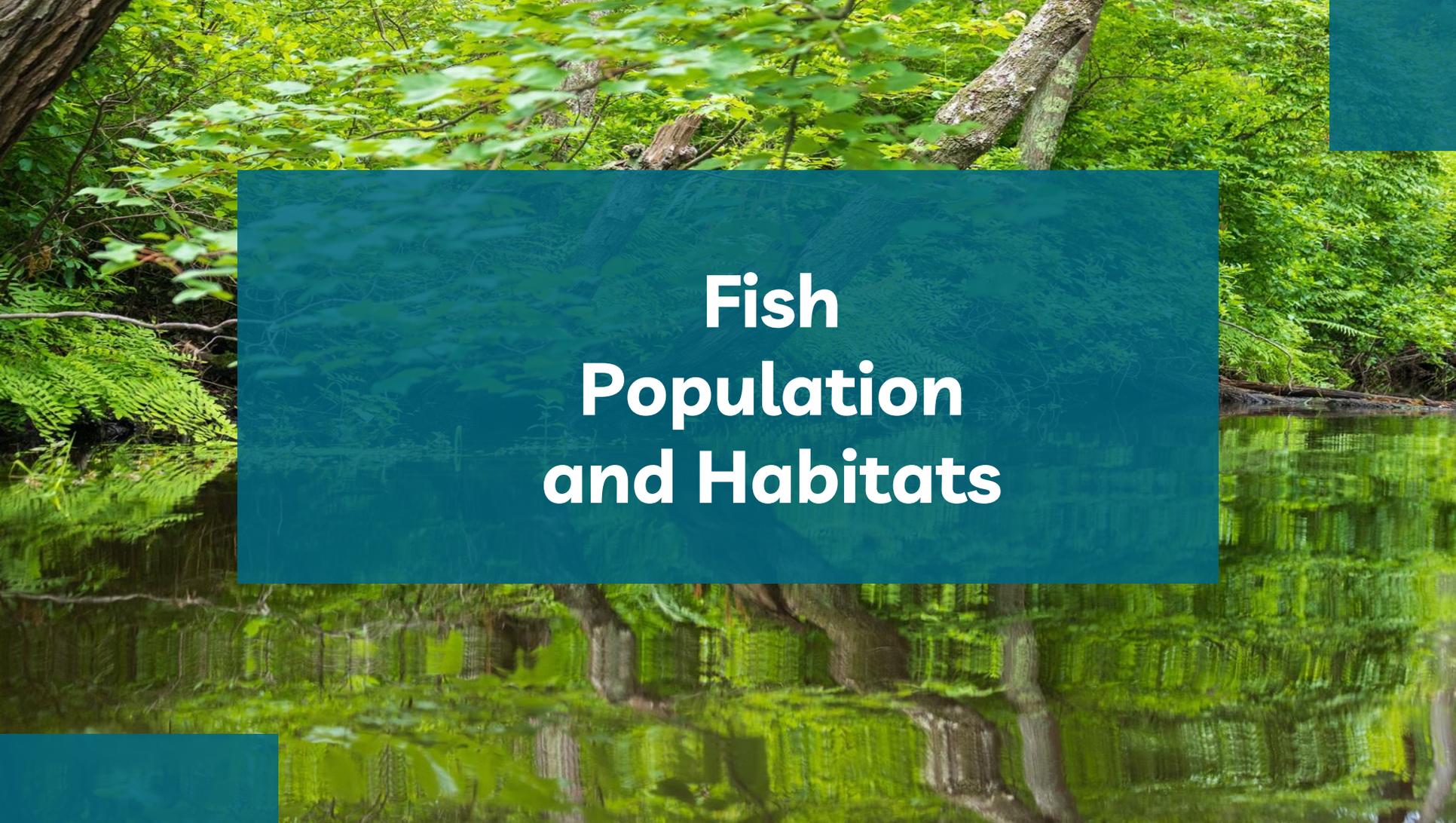
### Larkin Dam

Just breached in October 2025, this dam removal is the first mainstem dam removal in our region. This will result in improved passage for migratory fish and remove a potential hazard from the landscape.



### QUICK UPDATES:

- **Ipswich Mills Dam Removal** is progressing through permitting; received 401 WQC and ROOC. Summer/fall 2026 implementation is still a possibility
- **South Middleton Dam Removal** is still in a holding pattern due to delays with the LWSC pump station improvements



# **Fish Population and Habitats**

## IPSWICH RIVER ALOSINE HABITAT ASSESSMENT



FINAL REPORT

JUNE 30, 2025

Prepared for



Prepared by



With funding from



31 miles of mainstem and  
16 miles of tributary  
mapped for habitat  
characteristics

- Habitat type (i.e. riffle, run, pool, etc)
- Min. and max. depth
- Avg. wetted width
- Dominant substrate
- Canopy cover
- Presence of passage impediments
- WQ parameters (temp, do, etc)

Lots of beaver dams, good alewife  
pond spawning habitat, good  
spawning and nursery habitat for  
blueback, alewife, and shad



Left: Sample map taken from the plan, featuring surveyed locations of channel features, such as beaver dams.

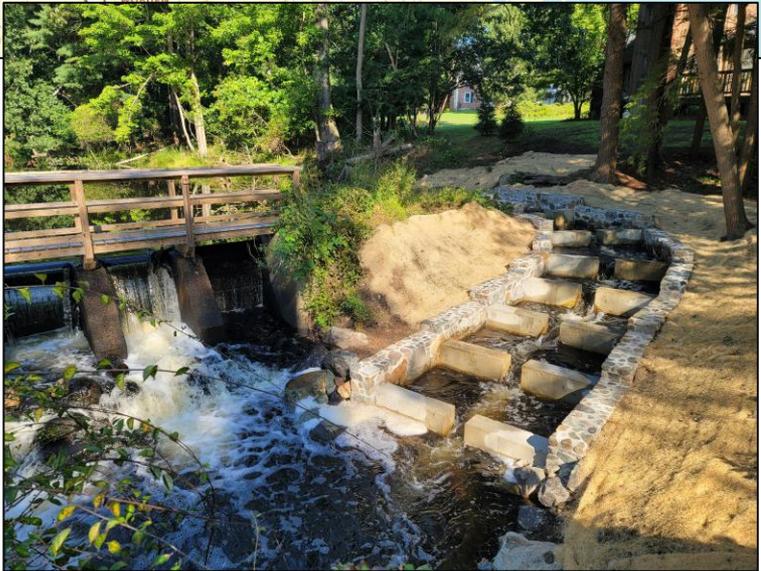
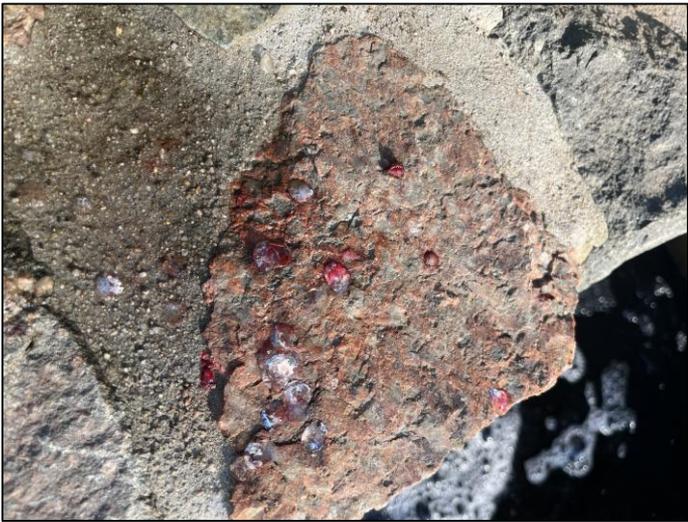


The assessment resulted in the identification of many, many beaver dams such as this one in the Miles River. This beaver dam and others like the ones to the left offer a glimpse at how effective beavers are in altering our landscape. While some beaver dams could be considered barriers, they typically provide a suite of benefits such as augmenting stream flow during summer low-flows, and providing habitat complexity.



# Fish Population and Habitats

# Fish Population and Habitats



# THANKS

Does anyone have any questions?

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