

Day 1

RECEIVER PLACEMENT



April 2019

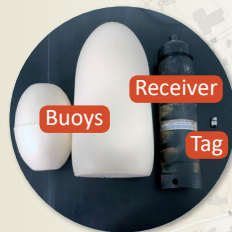
It was a chilly morning in early April when we placed the receivers. Our starting location was the dam between the Upper and Lower Mystic Lakes. The river herring, specifically Alewife, start spawning in April and we wanted to ensure we would be ready when they came through. We partnered with UMass Amherst and the Massachusetts Division of Marine Fisheries (DMF).

Once everyone had arrived, we divided up the receivers and set out in our canoe while DMF went off in a motor boat. We rigged up our receivers with weights and a buoy on them so that they would not move but we would still be able to find them in the fall without diving under the water to retrieve them. We had three people in our canoe - one person steering us, one placing the buoys, and I sat in the middle of the canoe noting down the coordinates of the receiver placement at each location.

From the dam at the Lower Mystic Lake, we drove down to just before the Mystic River goes into the lake and placed a buoy in the stream there. We continued north placing buoys in several locations in Winchester and Woburn. Many of the locations were challenging to access because there are not places where people would normally enter the water so there was no easy access. Luckily, we were all agile enough to carry the canoe and equipment down embankments and not fall in, which would have been mighty nippy!

FIELD NOTES FROM MIT SEA GRANT RESEARCH INTERN

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23 ACOUSTIC MONITORING RECEIVERS

Acoustic receivers were strategically placed by stream entrances and up- and downstream from man-made fish passage structures in:

- Upper Mystic Lake **9**
- Lower Mystic Lake
- Central Falls
- Wedge Pond
- Horn Pond
- Earhart Locks



When a fish with an acoustic tag swims by, the receivers will pick up a ping documenting data on:

- Location
- Date and time
- Tag ID number



Meaghan and Matt Devine, UMass Amherst researcher

MIT Sea Grant created a bathymetric map of Upper Mystic Lake using depth data from the Massachusetts DMF to plan receiver placement.

Day 2 ACOUSTIC TAGGING

MyRWA, MA DMF and DCR work with MIT Sea Grant and other partners on research and outreach activities.
EPA Grant No. CE96173901
MassBays National Estuary Program

May 2019

The day we tagged the river herring was not the most ideal weather conditions. It was a cool and rainy day and we had been waiting for a couple weeks for the temperature to be consistently warm enough that the river herring would be active. The day did not start out promising, when we got to the dam at the Mystic lakes there was someone checking the ladder for river herring and there had not been any sightings that morning. We decided to forge ahead hope that they would start showing up soon. We set up a tagging station by the boat launch consisting of a canopy, a table, a cooler and tubing to keep water running over the fish during the insertion of the tag, a holding pen, and recovery bucket just off shore for pre and post tagging.

We worked with the Massachusetts Division of Marine Fisheries (DMF) and they made the decision to give it an hour or two to see if we had any movement at the ladder. The four DMF employees watched at the fish ladder for schools of fish coming through. We waited for a bit watching ducks and cormorants on upper mystic lake and all the sudden there was movement at the dam and the DMF team was catching the river herring with dip nets and placing them in buckets to bring over to the holding area. We placed a small number of fish into a surgical holding basin (a cooler with tubing) at the table we'd set up and put the rest in the holding pen sitting in the water. Ben Gahagan from DMF was the lead and performed all operations.

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We only kept fish over a certain length and in good health to increase the chance we would get data from them. We used a black plastic container as a recovery bucket to see if the river herring were well enough to swim off after being stitched up. It was fascinating to watch the river herring in the holding pen change to black to camouflage themselves in the water. We all watched on as Ben performed the procedure on the river herring, but assisted several times when rogue river herring escaped the cooler. We successfully tagged thirty river herring with acoustic transmitters and had zero procedural mortality, which was very exciting. We hope to collect a lot of good data from these river herring in the fall.

