

Space use of resident and migratory fishes in the lower Boardman River before installation of a selective fish passage facility

Position: Contract Fishery Biologist, Great Lakes Fishery Commission

Job Description: In 2017, the Great Lakes Fishery Commission began a long-term (~10y) fish population and movement monitoring project on the lower Boardman River located in Traverse City, Michigan using Dual-frequency Identification Sonar (DIDSON), radio telemetry, and RFID passive integrated transponder (PIT) telemetry. The DIDSON system was fully deployed in 2017 and a data collection and analysis procedure has been developed. A portion of the radio and PIT telemetry systems were installed in 2017 and data collection will begin in 2018. The contractor will be responsible for assisting with the installation and operation of all three systems, data collection and storage, and analyzing DIDSON and telemetry data to: (1) estimate fish relative abundance, movement phenology, and identify environmental correlates of fish movement; (2) establish an understanding of baseline movement trends and habitat preferences of targeted fish species above and below the Union Street Dam; and (3) develop in collaboration with the Great Lakes Acoustic Telemetry Observation System (GLATOS; <https://glatos.glos.us/>), an acoustic telemetry proposal to support FishPass. Operation of the telemetry systems will include installation, assisting Michigan Department of Natural Resources and Grand Traverse Band of Ottawa and Chippewa Indians crew to sample and tag fish, weekly manual tracking of fish, and general maintenance of power supply and data recovery. The contractor will complete the research objectives below.

Research Objectives:

- DIDSON – Using established procedures:
 - Assess stream entry for desirable fishes and invasive sea lamprey and stream exit timing for iteroparous fishes.
 - Evaluate environmental triggers of stream entry and exit.
 - Determine whether stream entry is independent among fish species.
 - Evaluate fish activity at different times of day (e.g., midday, midnight, dusk, and dawn).
 - Determine peak moment periods for various size classes of fishes.
- Telemetry
 - Determine the longitudinal space use of individuals in the lower Boardman River.
 - Identify the rate that individuals enter the project site and their lateral (cross-channel) distribution.
 - Manually track and quantify habitat use of individuals below (and possibly above) Union Street Dam.
 - Identify the encounter rate to the existing Union Street Dam fish ladder.
 - Determine if site approach rates, spatial distributions, and dam encounter differ among species, life stages, environmental conditions, and site use (i.e. recreational boating and fishing).
 - Work with GLATOS (<https://glatos.glos.us/>) to generate a proposal for FY2019 to incorporate acoustic telemetry into the Boardman River monitoring and assessment plan.

Qualifications

- M.Sc. in biology, ecology, aquatic engineering, or related discipline.
- Experience designing, implementing, and maintaining telemetry systems in urban settings.
- Experience with acoustic telemetry an asset.
- Experience working on the water via boats or wading.
- Ability to work independently, remotely, and in all inclement conditions.

Start Date: May 1, 2018

Term: 1-year with possible 1-year extension pending performance.

Rate: \$21.59 per hour (GS8, step 1)

How to apply: Send a letter of interest, curriculum vitae, and contact information for 3 references to Daniel Zielinski, Computational Engineer (dzielinski@glfc.org)