

2019 Cooperative Summer Field Training Program

● Project Title:	A test of sterile male release to control invasive sea lamprey in the Great Lakes
● Project Scientists:	Nicholas S. Johnson
● USGS Center:	Great Lakes Science Center
● Location:	Hammond Bay Biological Station, Millersburg, MI

Project Description:

Background Information:

Sea lamprey control is the foundation of the Great Lakes fishery valued at \$7 billion U.S. dollars annually, because if left uncontrolled, invasive sea lamprey ravage valuable fish stocks in their parasitic stage. Sea lamprey are controlled by using dams to limit access to spawning habitat and by applying pesticides to kill larval sea lamprey in streams, but alternative control tools are desired. Therefore, we are conducting an experiment to determine if the release of sterilized male sea lamprey that mate with female sea lamprey can reduce reproduction and hence, serve as an alternative control tool.

Objectives:

Determine if the release of high ratios of sterile to normal males in a watershed with low adult density reduces larval abundance, larval distribution, and lampricide treatment frequency.

Intern Tasks:

The intern will learn a diverse skill set and work with managers and researchers from USGS, U.S. Fish and Wildlife Service, Department of Fisheries and Oceans in Canada, and the Great Lakes Fishery Commission. Specifically, the intern will help evaluate the efficacy of sterile male release by:

- (1) Determining the abundance of wild sea lamprey in experimental streams by deploying sea lamprey traps and conducting a mark-recapture survey.
- (2) Releasing sterile males in experimental streams and estimating the ratio of sterile males to unsterile males.
- (3) Locating spawning sea lamprey and collecting embryos from their nests. The viability of sea lamprey embryos collected will be evaluated by microscopic inspection.
- (4) Estimate the abundance, length frequency, and spatial distribution of larval sea lamprey by electrofishing.

Expected Outcomes:

The student will learn a wide array of field skills commonly used in fishery ecology. Furthermore, the student will work as a part of an interdisciplinary team of scientists and managers - commonly interacting with USFWS, Department of Fisheries and Oceans Canada, and the Great Lakes Fishery Commission. I do my best to empower interns such that they become fully responsible for data collection, data preservation, and assist with summarizing results/drafting reports. Former interns have been co-authors on peer-reviewed manuscripts and went on to graduate school. In a 15 week period, the intern is exposed and participates in nearly every aspect of our work - project planning, field work, data collection, data analysis, and reporting.

Details for Matching:

Type of Project: Field Work

Project Discipline: Ecology

Project Start Date: Mon May 06 2019 00:00:00 GMT-0400 (EDT)

Project Duration: 15 weeks

Level of Physical Demand: Level 8-2: The work requires some physical exertion such as long periods of standing, walking over rough, uneven, or rocky surfaces; recurring bending, crouching, stooping, stretching, reaching, or similar activities; or recurring lifting of moderately heavy items. The work may require specific, but common, physical characteristics and abilities such as above-average agility and dexterity.

GIS Training: ESA

Special Skills and Interests: Experience or course work in aquatic ecology or fisheries. Experience working in rivers. A fishing or hunting background is useful because we are setting and maintaining traps to capture sea lamprey.