2019 Cooperative Summer Field Training Program

🟠 **Project Title**:		Variation in zooplankton productivity in Lake Huron
🟤 **Project Scientists:**		David Bunnell
🔵 **USGS Center:**		Great Lakes Science Center
🟣 **Location:**		Ann Arbor, Michigan

Project Description:

Background Information:
In 2017, federal agencies invested considerable resources to intensively sample Lake Huron to improve understanding of spatio-temporal variation in primary and secondary productivity. Over the past 20 years, the lake has been undergoing oligotrophication which is believed to contribute to lower biomass and productivity of its fisheries. But the oligotrophication trends are based on data collected only in April and August from the main basin of Lake Huron. In 2017, USGS and EPA conducted monthly sampling from April through August not only in the main basin but also at 4 sites in North Channel and 9 sites in Georgian Bay. For each sampling event, chlorophyll, zooplankton, and larval fish were sampled.

Objectives:
The primary goal is to analyze zooplankton data (that have already been processed) to describe spatiotemporal variation in biomass and productivity. We hypothesize the zooplankton densities will be higher in the North Channel sites, where chlorophyll a was at least twice as high as the other sites. The secondary goal is to pair the zooplankton data with estimates of larval rainbow smelt growth rates (also already completed). These analyses will inform water quality and fishery managers as to whether primary and secondary production are influencing fish recruitment.

Intern Tasks:
The Intern will primarily conduct analysis of ecological data that have already quality assured and controlled. To diversify the experiences, the Intern will also be given the opportunity to participate on at least one large vessel research cruise and examine some of the zooplankton samples in the laboratory.

Expected Outcomes:
Quantitative analyses is a critical tool set for ecologists. Given the relatively short nature of the internship, our focus will be on analyses of ecological data that have important management implications. The Intern will better understand some of the difficulties and challenges associated with analyzing large, ecological data sets. The Intern will also be given the opportunity to participate in a peer-reviewed manuscript that

summarizes the variability of zooplankton in Lake Huron, and its linkages to fish recruitment.

Details for Matching:

Type of Project: Office Work

Project Discipline: Ecology, Fisheries

Project Start Date: Mon Jun 03 2019 00:00:00 GMT-0400 (EDT)

Project Duration: At least three months, up to 6 months

Level of Physical Demand: Level 8-1: The work is sedentary. Typically, the employee may sit comfortably to do the work. However, there may be some walking; standing; bending; carrying of light items such as papers, books, or small parts; or driving an automobile. No special physical demands are required to perform the work.

GIS Training: ESA

Special Skills and Interests: Interests in aquatic ecology, specifically in food-web or fisheries ecology. Programming experience with R (or similar software) is desirable.