

## **Spatiotemporal variation and abiotic influences in Asian carp reproduction in large river tributaries**

Daniel Roth, Indiana Department of Natural Resources, Eastern Illinois University

Jordan Pesik, Eastern Illinois University

David H. Wahl, University of Illinois

Robert E. Colombo, Eastern Illinois University

148<sup>th</sup> Annual Meeting of the American Fisheries Society, August 19-23, 2018, Atlantic City, New Jersey

Oral Presentation

Invasive Asian carps of the genus *Hypophthalmichthys* pose significant ecological risks to ecosystems throughout much of the Midwestern United States. These two species, Bighead and Silver Carp, have spread extensively throughout many large rivers including the Illinois and Wabash River basins. Monitoring reproduction and early life stages of these fishes is critical in identifying factors that promote their spread into novel ecosystems. The goal of our study was to monitor abundance of early life stages of Asian carps in major tributaries of the Illinois and Wabash Rivers using a multi-gear approach. From March through October of 2016, we sampled larval fish and eggs using both active and passive ichthyoplankton nets, and quatrefoil light traps. We found considerable variation in occurrences of Asian carp larvae and eggs among tributaries over wide spatial, temporal, and environmental ranges. Most notably, the highest abundance of Asian carp was detected in the lower 30 miles of the Little Wabash River, from April through September. Abundance of larval Asian carp varied by gear type and developmental stage, indicating selectivity between life stages. Logistic regression analyses showed rising discharge promoted the occurrence of Asian carp early life stages, likely representing a reproductive cue for these species. Further investigation is necessary to identify additional factors driving larval Asian carp abundance in large-river tributaries on an annual basis. Identification of these factors in the introduced ranges of these species offers insight into the likelihood of invasion to novel ecosystems, such as the Great Lakes and the Upper Mississippi River. Ultimately this may allow research and prevention efforts to be allocated to habitats of highest vulnerability, thereby protecting the ecological and economic resources they possess.