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Investigating the impact of invasive Asian carp on river otter diet and the native fish communities of Indiana

Sarah E. Meronk, Casey Day, Elizabeth Flaherty, and Patrick Zollner
Department of Forestry and Natural Resources, Purdue University

ABSTRACT

Invasive Asian carp (i.e., bighead and silver carp, *Hypophthalmichthys molitrix* and *Hypophthalmichthys nobilis*), threaten native fish populations in Midwestern United States freshwater ecosystems. These species are primarily planktivorous, experience rapid growth rates, and have enhanced predator avoidance traits resulting in a competitive advantage over native fish species. The success of Asian carp may also threaten higher-level predators by altering prey availability, potentially causing a change in predator behavior and diet. Since the coinciding river otter (*Lontra canadensis*) reintroduction and Asian carp invasion in Indiana's waterways in 1995, no studies have investigated the impact of Asian carp on higher-level predators. Our objective is to determine the role of Asian carp in the diet of a top predator in Indiana's waterways, the North American river otter. To determine the impact of Asian carp in otter diet, we will be conducting diet analyses through two methods: gross fecal analysis and stable isotope analysis. We will compare otter diet in a carp-invaded watershed to the otter diet in a carp-free watershed. We are collecting scat at 2 different locations along the carp-invaded Tippecanoe River: Prophetstown State Park, YMCA Camp Tecumseh and 2 different locations in non-carp invaded waterways: Chain'O Lakes State Park and Pigeon River Fish and Wildlife Area. We hypothesize that river otters will select against invasive Asian carp in preference for native species, with which they have coevolved. This result would indicate an increase in predation pressure upon already reduced native fish populations, as well as a reduction in fitness of the predator from limited prey availability. If otters do prefer Asian carp, they may serve as an effective bio control for Asian carp while also creating a positive public perception of otters.

KEYWORDS

Invasive, native, Asian carp, river otter, diet,