

# Simulated Barrier Stops Bighead Carp

The electric barrier may effectively stop Asian carp from entering Lake Michigan, according to preliminary research results. In the early stages of an Illinois-Indiana Sea Grant-funded study, researchers found that more than 99 percent of bighead carp were deterred by a simulated electric barrier modeled after the actual one.

Using fish raceways to do controlled experiments, John Chick and Mark Pegg of the Illinois Natural History Survey are testing the potential effectiveness of the present electric barrier in stopping Asian carp. Two species of Asian carp, bighead and silver, are migrating closer to the actual barrier site, located in the Chicago Sanitary and Ship Canal near Romeoville, Illinois, and have been spotted as close as 25 miles from Lake Michigan.

Thus far in the study, there were 381 attempts by bighead carp to pass through the simulated barrier—379 times the fish turned around. Only one fish went through the barrier, and in fact, did it twice. “This was a smaller carp, which was not surprising. Smaller fish are less susceptible to the electric current,” said Pegg. These tests were done for six continuous hours per day for three days.

Chick and Pegg will also test whether other types of barriers can effectively stop the bighead carp. They will experiment with “fish guidance systems” that use sound and a “wall of bubbles.” “We will test the effectiveness of these technologies and then try them in combination. Perhaps the fish can become used to one or the other, but in combination, they may prove successful,” added Pegg.

Asian carp, which have grown to 50 pounds in U.S. waters, were brought here for use in aquaculture in the 1970s, and escaped into the Upper Mississippi River System. The populations of these species have increased dramatically in some areas.

“They consume zooplankton, which all fishes typically feed on in their juvenile stages, so bighead carp have the potential to adversely affect every species of fish in the Mississippi River and Great Lakes,” said Pegg. To assess this threat, Chick and Pegg will study the impact of bighead carp on the food supply of native fish.

The researchers will sample fish in a number of contiguous backwater and side-channel habitats in the Illinois and Mississippi Rivers where the bighead carp congregate with native filter-feeding fishes. They will examine the diet of these fish and measure the availability of zooplankton.

“These data may provide an understanding of the potential effects of bighead carp on the aquatic communities and fisheries of the Great Lakes,” said Pegg.



*Amy Heberlein, who has provided summer help for Chick and Pegg's research project, holds a bighead carp. These carp can grow to 50 pounds in the U.S.*