

# Study measures how well Asian carp prevention effort will work

January 29 2014

---

Scientists from the University of Notre Dame, Resources for the Future, and the U.S. Forest Service present their findings of the effectiveness of different Asian carp prevention barriers could be in a study published in the journal *Environmental Science & Technology*.

"Our study goes beyond just presenting barrier options by putting numbers to how effective various barriers will be, including hydrologic separation and the currently operating electric barrier system." Marion Wittmann, the paper's lead author and University of Notre Dame scientist, said.

The Notre Dame study used expert elicitation, a process of formalizing and quantifying experts' judgments to estimate Asian carp barrier effectiveness. Federal agencies such as the U.S. EPA, NASA, U.S. Army Corps of Engineers and the U.S. Department of Transportation have successfully used similar expert elicitation in support of risk analysis and decision-making on issues ranging from food safety to radioactive waste management.

Experts estimated that hydrologic separation could prevent 95 to 100 percent of Asian carp from entering the Great Lakes and an electric barrier could prevent between 85 and 95 percent of introductions. Experts were much less confident about using sounds, bubbles or strobe lights to deter the invasive fish and indicated that the failure rate could be between 80 to 100 percent for these methods, when used one at a time. However, using a combination of sounds, bubbles and strobe lights

could prevent 75 to 95 percent of Asian carp from entering Lake Michigan.

The study uses a method of expert elicitation designed by co-author Roger Cooke, senior fellow with Resources for the Future. Cooke's "Classical Method" weighs the opinion of each expert based on his or her knowledge and ability to judge relevant uncertainties.

"Our goal was to quantify uncertainty, not to remove it from the decision process," Cooke said.

On January 6 the U.S. Army Corps of Engineers (Corps) submitted to Congress the Great Lakes and Mississippi River Interbasin Study (GLMRIS) Report which outlined eight possible scenarios for preventing Asian carp passage through the CAWS. The report provided no comparative evaluation of the options, but did indicate that developing infrastructure to keep Asian carp out of the Great Lakes could take decades and cost \$15 billion or more.

"Protecting the Great Lakes from invasive species eventually comes down to understanding how effective a management strategy may be, how much it will cost and what the benefits of those options are," David Lodge, director of the University of Notre Dame's Environmental Change Initiative and co-author, said. "Here we have estimated the efficiencies of various barriers without having to wait for more barrier testing and while the fish are swimming closer to the Great Lakes."

Environmental concerns are that if the Asian carp establish themselves in the Great Lakes, they will consume food sources of other fish, decimating local species.

"An important finding of this study is that knowledgeable experts identified clear differences in the likely effectiveness of some Asian

carp prevention technologies as opposed to others," John Rothlisberger, co-author on the paper and aquatic ecologist with the USDA Forest Service, noted. "Physical separation stands out from the rest as having the least associated uncertainty and the highest probability of preventing the introduction of Asian carp into Lake Michigan."

**More information:** Paper: [dx.doi.org/10.1021/es4043098](https://doi.org/10.1021/es4043098)

Provided by University of Notre Dame

Citation: Study measures how well Asian carp prevention effort will work (2014, January 29) retrieved 11 May 2024 from <https://phys.org/news/2014-01-asian-carp-effort.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.