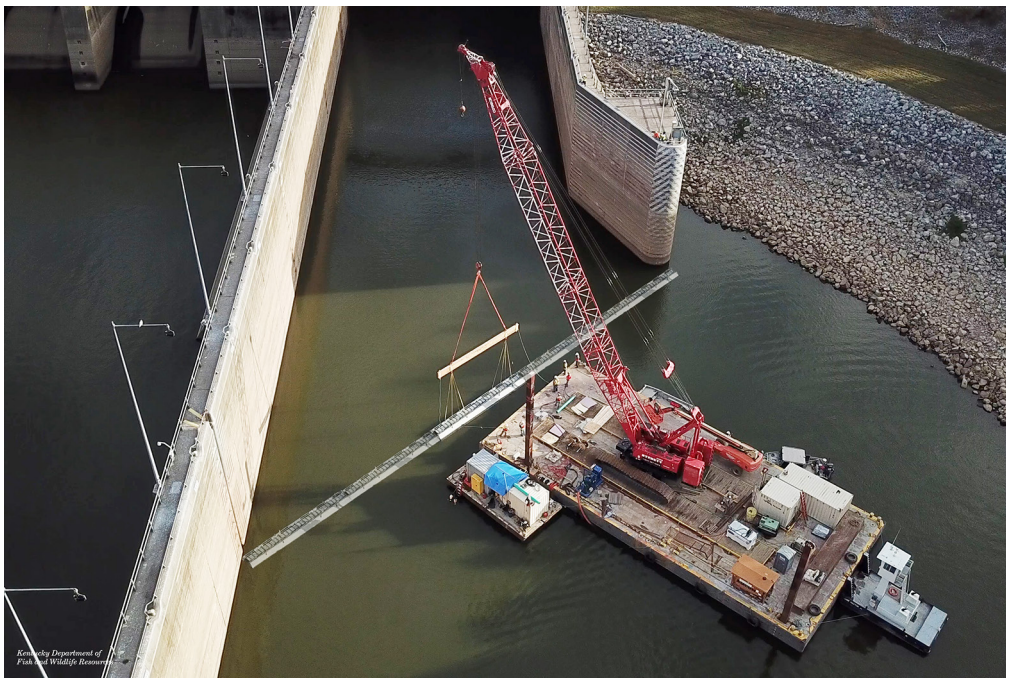
# Lake Barkley Bio-Acoustic Fish Fence

## *Questions and Answers*

*Four species of Asian carp—bighead, black, grass and silver—menace the waters of the United States. The surge of Asian carp threatens the country's renowned aquatic biodiversity, outdoor economies and way of life. Federal and state partners have joined together to test a new and innovative fish deterrent technology to slow the carp's upstream push. The bio-acoustic fish fence, or BAFF, has been deployed on the downstream side of Barkley Lock in Kentucky to determine its effectiveness at reducing the movement of Asian carp through a lock chamber.*




*The BAFF, or bio-acoustic fish fence, being installed at Barkley Lake lock and dam. Credit: Kentucky Department of Fish and Wildlife Resources.*

### What is a bio-acoustic fish fence, or BAFF?

Developed by Fish Guidance Systems, the BAFF is designed to keep Asian carp from entering the lock's chamber and Lake Barkley. It deploys customized sound signals, strobe lights and an air-bubble curtain to steer the fish away from the dam. The BAFF has the potential to deter the movement of invasive fish without impeding navigation.

### How will it work?

A line of bubbles runs diagonally across the river's surface between the lock's walls. Within those bubbles, sounds will be projected. They may be audible if passing over the curtain by boat. At night, flashing white lights will be visible, especially when water levels are low.

### How long will the BAFF be in place?

The BAFF is currently scheduled for removal in spring 2021, but may remain in place longer to ensure enough time to evaluate various light, sound and bubble combinations.

### How effective is a BAFF at stopping Asian carp?

The purpose of the Barkley Lock project is to determine the BAFF's effectiveness in a field setting. Lab tests conducted by the University of Minnesota found the BAFF to be 97 percent effective in deterring bighead carp and silver carp.

### What affect will the BAFF have on the movement of other fish species?

The sound emitted by the BAFF is particularly effective on Asian carp because they are very sensitive to sound, particularly certain frequencies. Lab studies indicate that the BAFF also deters movements of native fish, but less so than Asian carp. This field experiment will also study changes in the movement rates of native fish through Barkley Lock.

### Why is Lake Barkley an ideal test site for a BAFF?

It offers a number of advantages. We know Asian carp are present and have already passed through the lock, so the fish fence will determine if we can slow or stop their rate of passage. The dam is tall enough so that, even during high water conditions, the carp will not be able to swim over it.

US Army Corps of Engineers ®
Nashville District

## Why is the BAFF deployed where Asian carp have already passed?

It is essential to place it where Asian carp are currently passing through a lock to see how the BAFF slows them down.

## Why isn't an electric dispersal barrier being used at Lake Barkley?

Electric dispersal barriers have been installed and tested in the Chicago Area Waterway System. This project is specifically designed to field test the BAFF as an alternate type of deterrent for Asian carp passage through a lock chamber.

## Why is fishing restricted around the BAFF?

Fishing and recreational boating are prohibited from the outer canal wall to the lock chamber to protect the BAFF and telemetry receivers from getting damaged by anglers or anchors. Restricted areas are clearly marked.

## How much does the BAFF cost?

The project costs an estimated $10 million and is funded by the Great Lakes Restoration Initiative, through the Asian Carp Regional Coordinating Committee's Asian Carp Action Plan, and the U.S. Fish and Wildlife Service.

## Why are Great Lakes funds being used?

The primary purpose of this project is to field-test the BAFF for possible later use protecting the Great Lakes and other regions from Asian carp.

## Who tracks where Asian carp are currently found in North America?

The U.S. Geological Survey's Nonindigenous Aquatic Species Database tracks black carp, grass carp, silver carp and bighead carp. The database is available at: https://nas.er.usgs.gov.

## Who is leading this project?

The U.S. Fish and Wildlife Service in collaboration with the U.S. Army Corps of Engineers, U.S. Geological Survey, Kentucky Department of Fish and Wildlife Resources, Tennessee Wildlife Resources Agency, University of Minnesota and others. Fish Guidance Systems (BAFF) and HTI (fish telemetry and tracking) are also key partners.

*Electro-fishing silver carp at the tailwaters of Barkley Lake lock and dam. Credit: USFWS, Kristen Peters.*

## What else is being done to address Asian carp in Kentucky?

The Kentucky Department of Fish and Wildlife Resources is conducting several research projects on Lake Barkley and Kentucky Lake. Commercial fishers have also harvested more than four million pounds of Asian carp from Kentucky lakes, Barkley in particular. Kentucky is also working with the USFWS and USGS to evaluate the so-called Modified-Unified Method of harvesting carp at Kentucky and Barkley lakes. This removal method involves corralling carp into one location using electronic technology and extracting the fish from the water with specialized nets. This method has been successful at removing millions of pounds of Asian carp from water bodies in Illinois and Missouri.

## Contact Information

*For BAFF project questions:*

Katie Steiger-Meister
Great Lakes Region
U.S. Fish and Wildlife Service
Katie_Steiger-Meister@fws.gov
612/713 5317

Dan Chapman
South Atlantic-Gulf Region
U.S. Fish and Wildlife Service
Dan_Chapman@fws.gov
404/679 4028

*For BAFF navigation questions:*

Jill Kelley
U.S. Army Corps of Engineers
jill.e.kelley@usace.army.mil
615/736 5644