



US Army Corps
of Engineers
Chicago District

Asian Carp Monitoring Fact Sheet

Acoustic Telemetry

Chicago Sanitary and Ship Canal – Aquatic Nuisance Species Dispersal Barrier

Overview:

Telemetry is a monitoring method identified in the Asian Carp Regional Coordinating Committee's (ACRCC) Monitoring and Rapid Response Plan. The telemetry plan includes the tagging of fish with individually coded ultrasonic transmitters (tags) in the Upper Illinois Waterway (IWW) and Chicago Area Waterways System (CAWS). The acoustic network is comprised of stationary acoustic receivers and supplemented by a mobile hydrophone unit to collect information from tags implanted into Asian carp (bighead carp and silver carp) and surrogate species. The purpose is to monitor fish movements and response to the Aquatic Nuisance Species Electric Dispersal Barriers (I, IIA and IIB) in the Chicago Sanitary and Ship Canal, to determine if Asian carp are able to navigate through lock structures in the Upper IWW and to determine the leading edge of Asian carp below the barriers.

Stationary receivers are supplemented with the addition of eight new receivers around Barrier IIB. These new receivers, deployed in May and July 2011, have the capacity to be deployed for five years, and the data can be downloaded from shore, eliminating the need for physical retrieval in the electrified zone of water. Additionally, these receivers use a positioning system to determine the exact location of the tagged fish in the water.

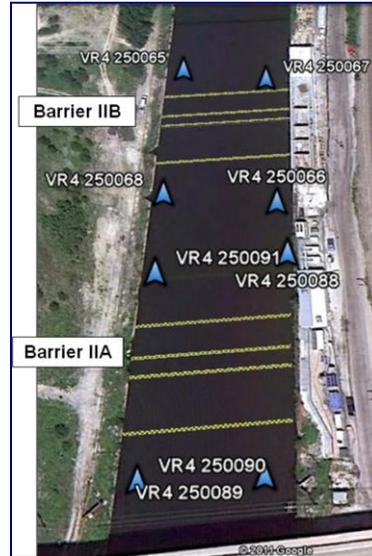
Tagging data to date:

In 2010, 105 tags were implanted into adult Asian carp and surrogate species:

- Chicago Sanitary Ship Canal/Chicago River above barriers: 20 common carp
- Lockport Pool above barriers: 18 common carp, 2 freshwater drum
- Lockport Pool below barriers: 29 common carp
- Brandon Road pool: 1 grass carp; 1 smallmouth buffalo, 17 common carp
- Dresden Island pool: 17 bighead carp

In 2011, 77 tags were implanted into adult and small (< 7.5 inches) surrogate species:

- Lockport Pool: 47 tags into 43 common carp, 2 mirror carp, 1 freshwater drum, 1 channel catfish
- Upstream and downstream of Barrier IIB: 30 tags into small, non-Asian carp species (white sucker, green sunfish, pumpkinseed, skipjack herring, largemouth and smallmouth bass, crappie, bullhead).



VR4 Receiver Placement around Barriers IIA and IIB (left); USACE Biologist Alyssa Clevens and a VR4 Receiver pre-deployment (below)



The total number of tagged fish in the system is 182. This includes the 152 adult fish (Asian carp and surrogate species) and 30 small fish (all non-Asian carp species).

Summary:

As of January 2012, over 3.7 million detections indicated none of the 182 tagged fish crossed the barriers in the upstream direction (with a 75 percent detection rate). Inter-pool movement from tagged common carp has been detected, indicating movement through Lockport Lock. Some tagged common carp have also been detected approaching the barriers, then back downstream in the following days, suggesting a potential challenge to the barriers, but unsuccessful breach.

What's next?

Telemetry is part of continuous monitoring to assess the effectiveness of the barriers. As long as we operate the barriers, we will continue to evaluate how it is working to deter fish movement. We plan to continue to tag fish and replace dying tags (lifespan is about 2.5 years), and continue to work with our state, Federal and academic partners to monitor fish movements in the upper IWW and CAWS. In 2012, we plan to implant 60 additional tags into surrogate fish, with an increased focus on the downstream leading edge in Dresden Island and Marseilles pools.

Authority:

The Water Resources Development Act of 2007, Section 3061, Chicago Sanitary and Ship Canal Dispersal Barriers Project, Illinois, authorized the Barrier project.

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