

Update on Silver Carp Captured June 22, 2017 in the Chicago Area Waterway
August 18, 2017



Figure 1. View of cross-section of post-cleithrum used to age Silver Carp from June 22, 2017. Like a tree, a fishes age can be determined when growth slows in winter within temperate climate areas. The 4 bands demark a winter thus the fish is 4+ years old when captured during the Spring of 2017 (per USGS Columbia Environmental Research Center. Post - cleithrum results concur with vertebrae age. Images provided by USGS CERC.

Background

Southern Illinois University has provided additional information regarding environmental history of the Silver Carp (28 inches, 8 pounds) captured on June 22, 2017, above the electric barriers and below the T.J. O'Brien Lock and Dam, nine miles from Lake Michigan. This is the second Asian carp captured in the Chicago Area Waterways in 8 years of concerted efforts to document the extent of these species presence there. Following the collection of a single Silver Carp during prescribed seasonal intensive sampling, a two-week contingency response effort (Operation Silver Bullet) was initiated as part of the 2017 Monitoring and Response Plan. The multi-agency response included electrofishing and contract netting over 13 miles of the Calumet and Little Calumet rivers and Calumet Harbor. In all, over 20,000 fish were captured, but no additional Bighead or Silver Carp (Asian carp) were caught or seen. Details are available on www.asiancarp.us.

We do not know how this Silver Carp found its way to the Little Calumet River. An autopsy of the fish included detailed evaluation of the chemical composition (Strontium, Calcium, Barium, and isotopic analyses) of a bony structure, like an ear bone, called an otolith, and aging via bones around the gills called post-cleithrum and the vertebrae. Here is what we have learned from the analysis of Silver Carp captured June 22:

1. Silver Carp originated from Illinois/middle Mississippi watershed
2. Silver Carp was 4 years old and a mature male.
3. Silver Carp spent approximately 25% of its most recent growth (25% of total otolith radius) in the Des Plaines River watershed. Bighead and Silver Carp are regularly found in only the lowest reach of this watershed, Dresden Island Pool. We cannot distinguish between the Des Plaines River watershed and the lower CAWS at this time. See current Asian Carp Status map <http://www.asiancarp.us/problem.htm>.
4. Silver Carp subsequently spent a few weeks to no more than a few months in the Calumet River (That part of the watershed above major pollution control plants where fish was captured, highlighted in red below).
5. These data cannot determine how the fish arrived above the electric dispersal barrier at its capture location.

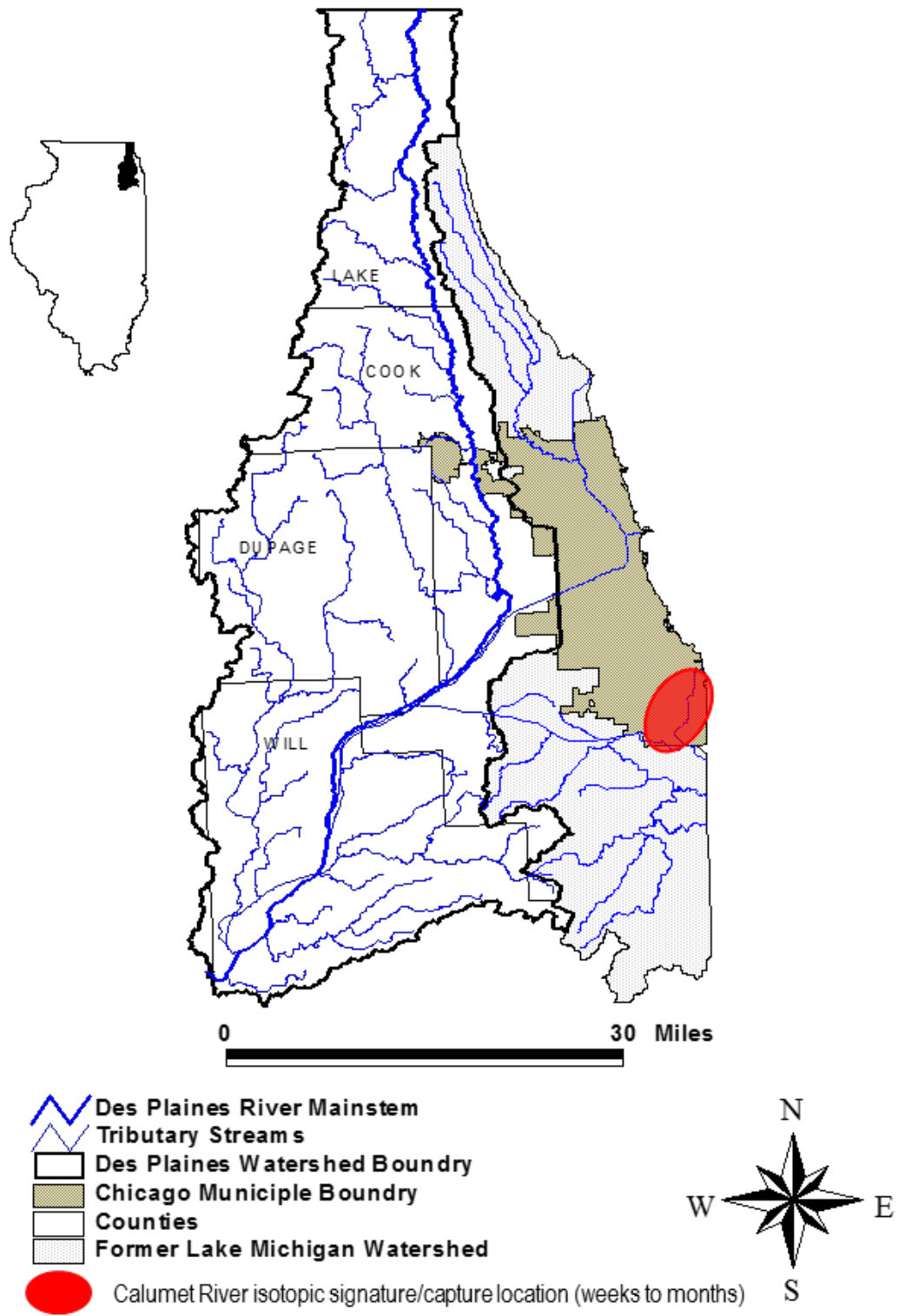


Figure 2. Des Plaines and CAWS watershed noting isotopic signature inference of final weeks to months of June 22 2017 Silver Carp history.

Vigilance remains strong with seasonally intensive monitoring in the CAWS, backed up by appropriate response activities through the 2017 Monitoring and Response Plan (MRP). With this information, it suggests the current MRP is successful in detecting and addressing this isolated occurrence of Asian carp in this part of the waterway. The current monitoring suggests the population front is in Dresden Island Pool of the Illinois Waterway and has not moved since Bighead Carp was found there beginning in 1991. Scheduled eDNA monitoring as part of Spring Seasonal Intensive Monitoring did not detect any Bighead or Silver Carp eDNA.

Recommendation

1. Maintain seasonal intensive monitoring in the CAWS
 - a. Continue with 2017 Fall Seasonal Intensive Monitoring throughout CAWS in September
 - b. Heightened and coordinated sampling coordinated with August Barrier work and waterway closures in Lockport Pool.
 - c. Provide additional detection effort in the CAWS as recommended by MRWG during 2017 fall seasonal intensive monitoring (additional contracted fisher circa capture in spring).
2. Maintain intensive detection work in Lockport and Brandon Road Pools of IWW, specifically within the Des Plaines River Watershed.
3. Maintain intensive removal efforts in upper Illinois Waterway
4. Maintain power in the water at electric barrier system
5. Provide appropriate Law Enforcement and Education and Outreach to prevent intentional/unintentional movement of live fish.
6. Support contingency measures of the MRP.
7. Identified ongoing work to refine, or otherwise further inform inferences of chemical markers within Des Plaines watershed and CAWS.