July Summary

Bottom Line: Monitoring occurred in the CAWS and upper Illinois Waterway downstream of the Electric Dispersal Barrier in May. **NO BIGHEAD CARP OR SILVER CARP were any found in new locations downstream of the Electric Dispersal Barrier.**

Fixed and Random Site Sampling Downstream of the Dispersal Barrier

Electrofishing:

- Crews from IDNR, USFWS, and U.S. Army Corps of Engineers (USACE) completed 32 electrofishing runs at fixed locations (8 hours total) and 64 runs at randomly selected locations (16 hours total) in the Lockport, Brandon Road, Dresden Island, and Marseilles Pools downstream of the electric dispersal barrier during the weeks of July 7th and July 21st.
- Crews collected 4,199 fish of 52 species and 3 hybrid groups during electrofishing.
- No Bighead or Silver Carp were reported captured or observed during electrofishing in the Lockport, Brandon Road and Dresden Island Pools.
- Four Silver Carp were observed during sampling at fixed and random sites in the Marseilles Pool on 7/7/2014.
- Ten Silver Carp were collected and one observed during sampling at fixed and random sites in the Marseilles Pool on 7/9/2014.
- Three Silver Carp were collected during sampling at fixed and random sites in the Marseilles Pool on 7/22/2014.

Netting:

- Two contracted commercial fishing crews and assisting IDNR biologists set 1.82 miles of net (15 sets) at the four fixed sites and 7.8 miles of net (61 sets) at random and additional sites within the four pools downstream of the electric dispersal barrier.
- Crews collected 164 fish of 7 species during commercial netting.
- No Bighead or Silver Carp were reported captured or observed during commercial netting in the Lockport and Brandon Road Pools.

- Two Silver Carp and 6 Bighead Carp were collected in the Kankakee River near the confluence of the Illinois River in Dresden Island Pool on 7/22/2014.

- Two Bighead Carp were collected in the Dresden Island Pool on 7/22/2014.

- Ten Silver Carp and three Bighead Carp were collected in the Marseilles Pool on 7/24/2014.

- Thirty Silver Carp and 13 Bighead Carp were collected in the Material Services East Pit on 7/24/2014.

- One Bighead Carp was collected in Rock Run Rookery on 7/25/2014.

Hoop and Mini Fyke Netting:

- Crews from IDNR set and pulled 16 hoop nets (6' diameter) downstream of the electric dispersal barrier in Lockport, Brandon Road, Dresden Island and Marseilles Pools during the week of July 7th.

- Crews collected 46 fish of 5 species during hoop net sampling.

- No Bighead or Silver Carp were reported captured or observed during hoop net sampling in Lockport, Brandon Road or Marseilles Pools.

- Twenty-eight Bighead Carp were collected in the Fixed Site 4 hoop net in Dresden Island Pool.

- IDNR crews set and pulled 16 mini fyke nets downstream of the electric dispersal barrier in Lockport, Brandon Road, Dresden Island and Marseilles Pools during the week of June 7th.

- Crews collected 922 fish of 28 species and 1 hybrid group species during mini fyke sampling.

- No Bighead or Silver Carp were reported captured or observed during mini fyke sampling in Lockport, Brandon Road, Dresden Island and Marseilles Pools.

Barrier Defense Asian Carp Removal Project

In July, barrier defense occurred the week of the 7th. Modified from previous years, barrier defense specifically takes place in the Marseilles and Starved Rock Pools. Also in 2014, contracted commercial fisherman are deploying and fishing modified 6 foot diameter hoop nets in the main channel border and side channel habitats. These habitats have been difficult to fish with gill and trammel nets. Below is a summary of the barrier defense activities including hoop netting totals for 2014.

QUICK SUMMARY:		
Number of Days Fished	32	days
Number of Net Crews	172	crew-days
Yards of Net Fished	296050	Yards
Miles of Nets Fished	168.2	Miles
Number of Hoop Net Sets	103.0	Sets
Number of Bighead Carp	7119	Fish
Number of Silver Carp	28985	Fish
Number of Grass Carp	393	Fish
Number of Asian Carp (AC)	36497	Fish
Tons of AC Harvested	186.4	Tons

Monitoring for Asian Carp in the Upper Des Plaines River and Upper Des Plaines River Overflow

USFWS- LaCrosse electrofished 2.46 hours, collecting 887 fish from 30 species and one hybrid group. A total of 8 gill net sets covering 1400 yards, collecting 25 fish from 6 species and 1 hybrid group. No bighead or silver carp were collected or observed.

Understanding Surrogate Fish Movement with Barriers

Currently a total of 1072 surrogate fish have been captured and floy tagged while monitoring in the Lockport, Brandon Road and Dresden Pools downstream of the Electric Dispersal Barrier. A species list of floy tagged fish; 627 Common Carp, 411 Smallmouth Buffalo, 29 Bigmouth Buffalo, 12 Black Buffalo, 2 Goldfish and 4 Common carp X Goldfish hybrid. To date, eleven recaptures (7 tagged fish and 4 marked with no tag) have occurred. Four fish were recaptured in Dresden Pool two of those being in Rock Run Rookery Lake. Four recaptures occurred in Brandon Road pool, and three

recaptures in Lockport pool. With these recaptures no movement has occurred between barriers. Also 1 Common carp was captured that was tagged by USFWS in 2013.

Telemetry Monitoring Project

VR2W receivers were downloaded and mobile tracking occurred from the Cal-Sag Channel upstream of the barriers to the Dresden Island Lock and Dam downstream of the barriers from 30 June to 3 July. Data collected from those trips are still being analyzed and assessed for quality control but some preliminary results are provided here:

Barrier Passage-

On 30 June 2014, USACE biologists tracked a telemetry transmitter 2 miles upstream of the demonstration barrier. The transmitter in question was implanted into a Common Carp approximately 21.3 inches on 24 April 2014 and released 0.80 miles downstream of the Dispersal Barriers, indicating upstream passage through the Dispersal Barriers. Detections on receivers strategically placed near the fish's release location and around the barriers indicate back and forth movements between the release location and the southern margin of the Electric Dispersal Barriers. The last detection downstream of the Electric Dispersal Barriers occurred on 9 May 2014 and was not detected until 16 June 2014 on a receiver 1.5 miles upstream of the Electric Dispersal Barriers.

In attempts to determine whether or not the fish was alive or dead, biologists conducted mobile tracking in and around the last known location of the transmitter on July 1st and 2nd. Tracking on July 1st was unsuccessful and no detections were observed near the last known location. However, the transmitter was detected on July 2nd as well as July 10th in the same location as 30 June. The discrepancies in detections could have been affected by the highly increased flows on the Chicago Sanitary and Shipping Canal. The flows cause a lot of turbulence within the canal system which is picked up by the mobile tracking hydrophone and can mask or interfere with the ability of the unit to adequately detect nearby transmitters. Based on the lack of movement from 30 June during highly increased flows, we assume the fish is dead. In addition, the location of the transmitter is in the center of the canal and not considered Common Carp habitat, further supporting that the fish is likely dead.

With the data gathered so far, we cannot conclusively determine how the fish had passed through the barriers. We will continue to work with telemetry experts at Vemco and attempt to determine the most probable mechanism of passage. Vemco is our source for equipment and technical support. We will share the information as we learn more.

Brandon Road Lock-

Three Common carp released in the Dresden Island pool and an additional 6 Common carp released in the Brandon Rd pool were detected within the lock chamber. Only one

common carp released within the Dresden Island pool has made upstream progress into the Brandon Road pool through the lock chamber. This is the first recorded upstream passage through the Brandon Rd lock. A receiver placed approximately .7 miles upstream into Hickory Creek (adjacent tributary to the Dresden Island pool near the Brandon Road Dam) shows some detections for two tagged common carp. Additional analysis is underway to determine behavior patterns near the Brandon Road lock and dam.

Asian carp movements-

Tagged Asian carp were fairly active in the Dresden Island pool with movements into the Kankakee River at least 3.5 miles upstream. Detections were also made at all receivers from the Rock Run Rookery backwater and downstream for actively moving fishes. No Asian carp movements were detected at the Brandon Road lock or dam. A formal analysis is underway to pair movement data with flow, temperature and habitat preference.

Barrier Maintenance Fish Suppression

No physical fish removal activities were required in July. However, changes to barrier operations were made daily during installation of electrodes for permanent barrier 1. While barrier 2A remained active, barrier 2B was turned off between the hours of 0700-1600 while diving operations were occurring. The demonstration barrier remained off throughout the entire month due to technical issues; a proposal for the repair was submitted to Smith-Root Inc. Dive work is scheduled to continue Monday-Friday each week until mid-September.

Optimal Harvest Strategies to Minimize Asian Carp Propagule Pressure on the Electric Dispersal Barrier

Acoustic Receivers, Transmitters, and Active Tracking

During July 2014 acoustic transmitters were downloaded from all sites along the Illinois River except for those located in the Dresden Lock and Dam and La Grange Lock and Dam; receivers on the upstream and downstream sides of the dams were extracted and data downloaded. Data collected for some receivers in backwater areas ranged from September 2013 to July 2014 and from April-July 2014 for all other receivers. Movement data are being continuously analyzed. A short summary of the most recent data follows.

Detections (pings): Over 1.7 million
Number of fish detected: 272
Fish moving through locks and dams: 25

- Movement through Marseilles (7 fish) occurred on 3/30-4/2, 5/11-5/19, and 6/23-7/9. These movements corresponded with some of the highest river discharge in the reach.

- Most movement through Starved Rock Lock and Dam (4 fish) occurred between 3/26 and 4/1.

- The greatest numbers of fish were detected in the Peoria lock chamber (14 fish). Most movement occurred in mid-April, however 1-2 fish were detected on all of the following dates: 3/30, 4/5, 4/7, 4/12, 4/13, 5/13, 5/14, 5/19, 5/22, 5/27, 6/11, 6/12, 6/13, 6/17, 6/18, 6/26, 6/27.

Six additional fish were tagged with acoustic transmitters in the HMSC West pit. Along with Vemco acoustic transmitters (for long term detection), these fish were also tagged with short-term HTI tags (USGS study). All other Asian carp collected that were not tagged with acoustic transmitters were tagged with REWARD jaw tags (12 fish).

Hydroacoustics surveys

During two periods in July (the weeks of July 7th and July 21st), researchers from SIUC conducted hydroacoustic surveys for Asian carp, pre-and post-commercial contracted fishing efforts. The first week of surveys focused on Hanson Material Services East Pit (near Morris, IL) and Rock Run Rockery (near Joliet, IL) during the Barrier Defense program, while the later surveys were in Rock Run Rookery and the Brandon Road Pool, during the CAWS program. Surveys were completed before removal efforts began, and then areas were re-surveyed after removal efforts were completed. Additionally, SIU researchers sub-sampled Asian carp and native fish (bycatch) lengths and weights from the commercial catch, to better inform the hydroacoustics analysis. Detailed analysis is ongoing, but preliminary indications of high fish densities were conveyed to the IDNR observers, to assist the commercial removal effort.

Lower river demographics

In mid-July (14th and 17th), SIU researchers undertook sub-sampling of Asian carp at the American Heartland Fish Products plant in Grafton, IL. Length, weight, sex and species composition data was gathered from commercial catches originating in the Alton and LaGrange pools of the Illinois River. Post-cleithra were also retained for age analysis.

Monitoring Fish Abundance and Spatial Distribution in Lockport, Brandon Road, and Dresden Island Pools and the Associated Lock and Dam Structures

USFWS Carterville FWCO completed split beam hydroacoustic and side scan sonar fish abundance and distribution surveys of the Lockport, Brandon Road, and Dresden Island pools during the month of July. The Carterville FWCO also collected preliminary stationary split beam hydroacoustic data on fish abundance and behavior within the Brandon Rd. lock chamber.

Asian Carp Gear Development and Evaluation

Staff from the Columbia Fish & Wildlife Conservation Office (CFWCO) joined Illinois Natural History Survey in sampling Lily Lake, near Beardstown, IL, July 28 – 31, 2014. CFWCO used the new Magna Carpa to sample with 3 different gears – the Mamou trawl, the Paupier with electricity and the Paupier without electricity. The Mamou is a mid-column trawl that samples 3-5' below the surface of the water while being pulled behind the boat. The Paupier is a set of nets extending on either side of the boat on out-riggers. The paupier fishes a maximum of 5' below the surface of the water but can be raised to fish shallower. Preliminary data shows that over 20,000 young of year (YOY) Asian carp were captured and were, on average, 57% of the total catch with many samples exceeding 90%. Mamou trawls averaged 62% YOY Asian carp, the electrified Paupier averaged 61%, and the non-electrified Paupier averaged 30%. There were 20 other species of fish captured. The dominant bycatch species included Gizzard shad (21% of total catch) and emerald shiners (12%). CFWCO calibrated their gear in the Lamoine River, approximately 1 kilometer upstream Lily Lake. Young of year Asian carp were abundant in the system and made for a good comparison to Lily Lake production. The CFWCO is planning to return to Lily Lake to work alongside INHS in the future.

Larval Fish and Productivity Monitoring in the Illinois Waterway

INHS sampling for larval fish and eggs occurred during the weeks of June 30 – July 4, July 7 – 11, and July 21 – 25. Sampling was conducted at 14 sites located throughout the Illinois Waterway, with 4 samples taken at each site on each sampling occasion. Extremely large numbers of possible Asian carp eggs were observed in samples from the LaGrange Reach during the week of June 30 – July 4. Preliminary processing of samples from late June indicates that 714 – 3508 eggs were collected per sample at Henry on June 24. Considerably fewer eggs were collected at Morris, Ottawa, and I-55 (0-15 eggs per sample) during June 19 - 25. Processing of larval fish samples is ongoing and additional results will be reported once available.

Unconventional Gear Development

Experiments testing the effectiveness of driving Asian carp into surface-to-bottom gill nets were conducted at Havana, Henry, Ottawa, and Morris during the week of July 14 – 18. Preliminary results suggest that trials using a boat electrofisher to drive fish into nets were more effective than trials using traditional pounding methods or control sets. INHS deployed Great Lakes pound nets at Lily Lake in the LaGrange Pool during July 28 – August 1. Pound nets were set in conjunction with both small- and large-mesh hoop nets and trap nets to compare catch rates and size distributions with traditional passive sampling gears. Overnight catches by Great Lakes pound nets ranged from 6 to 595 fish (all species), and averaged 186 fish per net-night. In one overnight set, an estimated 1058 kg of Asian carp (comprised of 546 Silver carp, 42 bighead carp) was collected from a pound net. In contrast, trap nets collected 12 to 68 fish (all species) per night and at most 4 Asian carp per net night. Hoop nets collected 0 to 6 fish per net night and caught only one Asian carp during the week.

Evaluation of Gear Efficiency and Asian Carp Detectability

INHS conducted pulsed-DC electrofishing and inshore dip-netting targeting juvenile Asian carp in shallow-water areas of the LaGrange, Peoria, Starved Rock, and Marseilles Pools during all weeks from July 7 through August 1. Large numbers of juvenile Asian carp were captured during these efforts in the LaGrange and Peoria Pools, but none were observed in the Starved Rock or Marseilles Pools. Evaluation of all sampling gears targeting juvenile Asian carp was conducted at the Lily Lake backwater and in the Illinois River main channel upstream from Lily Lake in the LaGrange Pool during the week of July 28 – August 1. Gears deployed included mini-fyke nets, a small-mesh purse seine, small-mesh gill nets, cast nets, pulsed DC electrofishing, and hydroacoustic transects. Gears were deployed in conjunction with U.S. Fish and Wildlife Service personnel evaluating the use of a Mamou trawl and a Paupier net for sampling juvenile Asian carp as part of the Gear Development and Evaluation project. Electrofishing collected juvenile Asian carp in both main channel and backwater habitats. High numbers of juvenile Asian carp were collected in mini-fykes and the data is still being tabulated. Cast nets collected 1 to 83 juvenile Asian carp per cast. Small mesh gill nets did not collect any Asian carp. Purse seines collected 1 to 2091 juvenile Asian per haul. Juvenile Asian carp dominated beach seine samples in main channel habitats (109-4797/haul). Fewer Asian carp (9-96/haul) juveniles were collected in backwater habitats

Distribution and Movement of Small Asian Carp

In July, Carterville FWCO spent one week electrofishing and one week setting mini fyke nets in the Dresden, Maresilles and Starved Rock Pools. The purpose of these sampling activities was to determine if small Asian carp are moving closer to the electric dispersal barrier. During electrofishing ten 15-minute runs were done in each of the study site pools and 10 mini fyke net nights were done in each pool. Data are still in the

process of being entered and quality controlled, no juvenile Asian carp have been captured or observed.

Alternate Pathway Surveillance in Illinois - Law Enforcement

The Invasive Species Unit (ISU) identified 41 retail fish markets in the Chicagoland area selling Illinois protected aquatic life without the required resident aquatic life dealer's license. All 41 of these stores were brought into compliance, and valuable information was gathered on the wholesale suppliers to these stores. None of the markets were selling live Asian Carp, but 5 of the markets had sold dead Asian Carp in the past advertising it as Fresh Whole Golden Carp for $1.79 per pound.

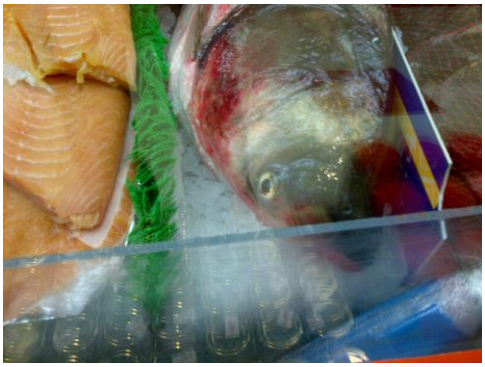
ISU investigated a wholesale dealer from New York delivering aquatic life to fish markets in the Chicagoland area. The company did not have the required non-resident aquatic life dealer's license. The company does not sell or deliver Asian Carp, and after they were contacted by ISU they purchased the license.

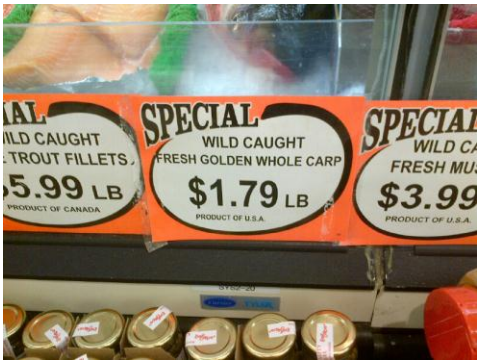
ISU started case files and initial investigations on 14 resident wholesale aquatic life dealers delivering aquatic life to fish markets in the Chicagoland area. It is known they do not have the required licenses, but ISU is looking into any other potential violations.

ISU arrested an individual as a result of a covert investigation for unlawfully selling Western Hognose snakes. The snakes were seized and the case is pending in court.

ISU investigated the complaint of a Chinese restaurant offering to barter food for freshly caught fish. The investigation revealed the owner wanted the fish for personal use and was not preparing them in his restaurant or attempting to profit by selling them to others.

ISU attended IDNR Fisheries meeting in Bloomington and gave a presentation on ISU activities.





Ontario Ministry of Natural Resources (MNR) – Asian Carp Surveillance

The Lake Erie Management Unit's July sampling programs include

- Commercial fishery monitoring using full Port Observer presence and commercial catch sampling program
- Near shore seining in Lake St. Clair
- Gillnetting in Long Point Bay, Lake Erie
- Trawling in the central basin of Lake Erie
- Water collection for eDNA analysis in the western basin of Lake Erie, Grand River and additional tributaries of Lake Erie's central and eastern basins.

No Asian carps have been detected through these activities to date.