

August 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 USACE completed 20 electrofishing runs at fixed locations (5 hours total) and 47 runs at randomly selected locations (11.75 hours total) in the Lockport, Brandon Road, Dresden Island, and Marseilles Pools downstream of the electric dispersal barrier during the weeks of August 4th, August 11th, and August 18th.
- Crews collected 5,151 fish of 56 species and 3 hybrid groups during electrofishing.
- No Bighead or Silver Carp were reported captured or observed during electrofishing in the Lockport and Brandon Road Pools.
- Fifty-two Silver Carp were collected and over 400 were observed during sampling at fixed and random sites in the Marseilles Pool on 8/4/2014.
- Eleven Silver Carp were collected and 21 were observed during sampling at random sites in the Marseilles Pool on 8/5/2014.
- Two Silver Carp were collected and four were observed during sampling at random sites in the Dresden Pool on 8/6/2014.
- Thirteen Silver Carp were collected during sampling at random sites in the Marseilles Pool on 8/13/2014.

Netting:

- Contracted commercial fishing crews and assisting IDNR biologists set 3.2 miles of net (28 sets) at the four fixed sites and 23 miles of net (181 sets) at random and additional sites within the four pools downstream of the electric dispersal barrier.
- Crews collected 372 fish of 11 species during commercial netting.

- No Bighead or Silver Carp were reported captured or observed during commercial netting in the Lockport and Brandon Road Pools.
- One Bighead Carp and one Silver Carp were collected in the Dresden Island Pool on 8/5/2014.
- Fifty-two Silver Carp and 13 Bighead Carp were collected in the Marseilles Pool on 8/8/2014.
- Eight Bighead Carp were collected in Rock Run Rookery on 8/15/2014.
- Two Silver Carp were collected in the Marseilles Pool on 8/22/2014.

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 August 25th.
- Crews collected 7 fish of 4 species during hoop net sampling.
- No Bighead or Silver Carp were reported captured or observed during hoop net sampling in Lockport, Brandon Road, Dresden Island, and Marseilles Pools.
- 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 August 25th.
- Crews collected 1,876 fish of 32 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 August barrier defense occurred the week of the 4th. 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	36	days
Number of Net Crews	192	crew-days
Yards of Net Fished	332700	Yards
Miles of Nets Fished	189.0	Miles
Number of Hoop Net Sets	103.0	Sets
Number of Bighead Carp	8128	Fish
Number of Silver Carp	34552	Fish
Number of Grass Carp	418	Fish
Number of Asian Carp (AC)	43098	Fish
Tons of AC Harvested	216.5	Tons

Understanding Surrogate Fish Movement with Barriers

Currently a total of 1175 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; 665 Common Carp, 458 Smallmouth Buffalo, 41 Bigmouth Buffalo, 13 Black Buffalo, 4 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. No new recaptures were reported in August.

Telemetry Monitoring Project

Downloads or mobile tracking were not completed this month for VR2 receivers. VR4 receivers were downloaded at the barriers and data was submitted to Vemco for Data position processing.

Barrier Maintenance Fish Suppression

One 15 min electrofishing run was completed between 2a and the demo barrier. This was completed as a random site in part of the fixed/random downstream sampling. No fish over 12 inches were captured or observed. Bluntnose minnow and sunfish species were captured during the sampling.

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

Hydroacoustics Surveys

No acoustic surveys were undertaken during August. Analysis of before/after surveys from May and July 2014, and 2012 and 2013 Illinois River surveys is ongoing.

Acoustic Receivers, Transmitters, and Active Tracking

Analysis of 2014 telemetry data is ongoing.

Standardized sampling

During the weeks of 4th and 11th August, an SIU field crew undertook electrofishing surveys in main channel and backwater habitat of the three lower reaches of the Illinois River (Alton, LaGrange and Peoria). Over 200 silver carp were captured but no bighead carp. Length, weight, sex and maturation were recorded for all silver carp. Fin clips and post-cleithra were removed from a subsample of silver carp for hybridization and age analysis. Native fish species were measured and weighed, and returned to the water. YOY Asian carp were captured at main channel and backwater sites in the Alton and LaGrange reaches. A brief summary by reach and habitat type is given below.

Table 1. Summary of adult silver carp captured during SIU standardized sampling on the lower Illinois River

Adult SVCP			
Reach	Total number	CPUE (fish/hr)	Mean TL (mm)
Alton MC	9	9	568
Alton BW	23	30.7	554
<i>Alton All</i>	<i>32</i>	<i>18.3</i>	<i>558</i>
LaGrange MC	37	37	556
LaGrange BW	17	22.7	583
<i>LaGrange All</i>	<i>54</i>	<i>30.9</i>	<i>565</i>
Peoria MC	103	103	502
Peoria BW	13	52	512
<i>Peoria All</i>	<i>116</i>	<i>92.8</i>	<i>503</i>

Detailed information on Asian carp demographic is currently being compiled. Species composition and size structure data obtained from the standardized sampling, and from subsampling at commercial fish processing plants, will be used to inform our upcoming hydroacoustic survey of the Illinois River.

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

USFWS Carterville FWCO continued split beam hydroacoustic and side scan sonar data processing and analyses from surveys of the Lockport, Brandon Road, and Dresden Island pools collected during the summer.

Monitoring Fish Abundance, Behavior, Identification, and Fish-Barge Interactions at the Electric Dispersal Barrier, Chicago Sanitary and Ship Canal, Illinois-USFWS

Preparations continued for an extensive DIDSON sonar survey to be conducted by Carterville FWCO and an intensive fish collection effort by Columbia FWCO. These efforts are scheduled to take place at the electric dispersal barrier in September.

Water Gun Development and Testing

- Fish telemetry system
 - HTI system installation and optimization (WFRC)
 - fixed array
 - 32 hydrophones (16 on each side of the water gun barrier)
 - autonomous nodes
 - 12 hydrophones (6 on each side of the water gun barrier)
 - WFRC is processing and analyzing telemetry data
 - Purchased and placed 2 new Vemco detectors for SIU in the west pit
- Hydroacoustics
 - static
 - six lanes (3 on each side of the water gun barrier) operated continuously from 4 - 15 August 2014
 - mobile surveys
 - day and night from 4 - 15 August 2014
 - GLSC and UMESC are processing and analyzing hydroacoustic data
- Algal attractants (CERC)
 - 2 algal feeding sites & 2 control sites – split east & west of the watergun barrier
 - DIDSON surveys were conducted near the algal feeding and control sites
- Fish telemetry tagging (Total fish tagged, released = 184)
 - initial tagging to observe undisturbed fish movement, 24 July
 - 15 fish tagged - 5 bighead carp, 5 silver carp, 5 buffalo

- 6 (2 SVC, 4 BHC) were also Vemco tagged together with HTI tag
 - main tagging day for fish exposed to water guns, algal feeding stations, 7 August
 - 61 buffalo (5 internal, 51 external)
 - 47 bighead carp (internal and jaw tagged)
 - 46 silver carp (internal and jaw tagged)
 - NOTE: relatively high mortality post tagging was observed; believed to be due to handling stress and warm water temperatures
 - additional tagging, 14 August
 - 15 fish tagged - 2 buffalo, 13 SVC (external); low mortality observed
- ILDNR/ILNHS placed pound net on the east side of the culverts to capture fish leaving the west pit
- water gun barrier operated from 8-15 Aug – 24 hour, firing at 10 second intervals
- II WSC conducted water pressure mapping around the water guns during operation
- Completed technology transfer day
- Thanks to:
 - IL DNR for assistance with fish capture, coordination of commercial fishing, pound net below culverts
 - SIU for assistance with fish surgery and tagging
 - USFWS for providing a mobile survey boat, conducting mobile surveys and their assistance with fish tagging
 - GLSC and CERC for their assistance in conducting mobile surveys
- Special thanks to Hanson Material Service Corporation for providing us with a research site
 - Dave Holton – Hanson Material Service Corporation
 - Frank Anderson – Hanson Material Service Corporation
 - Ray Rogers for site prep work

Asian Carp Gear Development and Evaluation

Paupier nets with pulsed DC electrofishing were tested in the Illinois River near Starved Rock State Park and in the Fox River near its confluence with the Illinois River during barrier defense efforts the week of August 4th. Efforts were most successful in the Fox River where Asian carp densities were high, depths were moderate (5-13 feet), and flows were slower (<.4 mph). There were dense pockets of fish. Electrofishing runs targeted dense pockets of fish and averaged 2 minutes long. Sampling was conducted in day, night and early morning hours; the night sampling resulted in 400 fish in 18 combined minutes of electrofishing (see attached picture).

Paupier nets are being tested with various anode configurations including cables, spheres, and hemispheres of various weights and water depths. Anode configurations are tested in various Illinois and Missouri water bodies to explore electrical efficiency and fish response in differing conductivities.

The Mamou mid-column trawl was utilized in Missouri River tributaries in central Missouri to identify the presence or absence of young of year (YOY) Asian carp. Presence was less than that observed in July 2014 and was isolated to individual YOY Asian carp collected in the three Missouri River tributaries sampled. These individuals were not recently hatched and were approximately 3 inches in length.

Small mesh bags were installed in the cod-end of the Paupier nets to further sample YOY Asian carp. No YOY Asian carp were sampled in the Illinois River during barrier defense efforts near Starved Rock or in the Fox River, however, YOY Asian carp were captured in Missouri River tributaries in Central Missouri.

Met with staff from USGS CERC at Lamine River (Missouri) to discuss collaboration in using algal attractants with active gears. Participated in an Algal Attractant conference call to coordinate Integrated Pest Management efforts targeted at Asian carp populations in Illinois and Missouri.



Unconventional Gear Development

INHS deployed Great Lakes pound nets at Material Services during August 11th– 15th. 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 1 to 49 bighead carp and 0 to 1 silver carp per net-night. Greater overnight catches were associated with smaller mesh sizes for bighead carp during this sampling event. Trap nets collected 0

to 3 bighead carp and 0 silver carp per net night, whereas hoop nets collected 0 to 2 bigheads per net night during the week.

Evaluation of Gear Efficiency

INHS used multiple gear types (pulsed-DC electrofishing, mini-fyke nets, small-mesh purse seine, cast nets, small-mesh gill nets, hydroacoustic transects) to target juvenile Asian carp at Material Services (Aug. 11th– 15th), Havana (Aug. 5th), Matanzas Lake (Aug. 6th), and Henry (Aug. 8th). No juvenile Asian carp were captured by purse seining, beach seining, mini-fyke nets, or cast nets at Material Services. Mini-fyke nets collected juvenile silver carp at Havana (30-2515 per night), Matanzas Lake (0-730 per night), and Henry (0-6 per night). Small-mesh purse seines collected juvenile silver carp at Havana (0-4 per pull), Matanzas Lake (1-135 per pull), and Henry (0-1 per pull, plus 1 adult silver carp). Cast nets collected no juveniles at Matanzas Lake or Henry and 0-7 juvenile silver carp per cast at Havana. Small-mesh gill nets collected no Asian carp. Electrofishing CPUE (# per hr) of Silver carp ranged from 16-56. Hydroacoustic data is currently being analyzed.

Larval Fish Monitoring

INHS sampling for larval fish and eggs occurred during the weeks of August 4 – 8 and August 18 – 22. Sampling was conducted at 14 sites located throughout the Illinois Waterway, with 4 samples taken at each site on each sampling occasion. Due to extraordinarily large numbers of larvae present in samples that were collected in July, processing of samples from this month is ongoing. Post-larval Asian carp were also present in larval fish samples collected from the LaGrange and Peoria Pools during late July and August, and additional post-larval Asian carp were captured during these times by sweeping a dip net from the sampling boat. At Lily Lake (LaGrange Pool), 1,574 post-larval Asian carp were captured in larval push nets and 29 in dip nets in July, but none were captured in August. At Matanzas Lake (LaGrange Pool), 132 post-larval Asian carp were captured in larval push nets in July and 1 was captured in August. At Havana (LaGrange Pool), 1,720 post-larval Asian carp were captured in larval push nets in July, but none were captured in August. At Peoria Lock and Dam tailwater (LaGrange Pool), 1 post-larval Asian carp was captured in larval push nets and 623 were captured in dip nets in July, and 2 were captured in larval push nets in August. At Henry (Peoria Pool), 2 post-larval Asian carp were captured in larval push nets and 33 in dip nets in July, but none were captured in August. No larval or post-larval Asian carp have been identified thus far from any samples upstream of the Peoria Pool. Additional sample processing is ongoing and results will be reported once available.

Distribution and Movement of Small Asian Carp in the Illinois Waterway

7,677 fish were collected and identified in the field over the course of three weeks using three sampling gears (Push Trawling, Mini-fyke netting, and Electrofishing). Some specimens were preserved for identification in the lab and will be processed at a later date. No juvenile Asian carp were captured or observed during sampling in August. A breakdown of effort is included below.

Columbia FWCO Push Trawled Dresden Island, Marseilles and Starved Rock pools the week of 18 August as part of the small Asian carp movement study with Carterville FWCO. A 3-person crew deployed 10 trawls (25 - 150 meters) in each pool. No YOY Asian carps were captured. Species of note included Round Goby, Banded Killifish (IL state endangered), Weed Shiner and Silverband Shiner.

Dresden Island Pool

601 fish

21 identified species, 1 hybrid group, 3 unidentified species groups

744 meters trawled

Marseilles Pool

673 fish

16 identified species, 4 unidentified species groups

892 meters trawled

Starved Rock Pool

788 fish

14 identified species, 4 unidentified species groups

1,000 meters trawled

Alternate Pathway Surveillance in Illinois - Law Enforcement

ISU investigated a complaint of live Spotted Eels being sold from a market in Chinatown. The complaint was received several days after the possible sighting, and when the ISU arrived at the store and covertly attempted to purchase Eel, all of them had already been sold. It could not be confirmed if they were actually Spotted Eels, but the employee told the covert officer he would call when the received more.

August inspections of fish markets in Chinatown revealed all the Asian Carp being sold were dead and on ice.

The ISU inspected 5 retail and 6 wholesale fish markets identified as operating without retail and/or wholesale aquatic life dealers licenses. One wholesale dealer sold processed Asian Carp products and one retail dealer was selling dead Asian Carp on ice. A preliminary investigation is currently being conducted on the supplier and transporter of the Asian Carp.

ISU inspected and determined a wholesale / retail aquatic life dealer in Des Plaines, IL was operating without the required Illinois licenses, but the company had out of state licenses where they conducted business. The company processes over 200,000 pounds of fresh salmon and more than 100,000 pounds of whitefish per week. It was determined the company does not process or sell Asian Carp.

ISU cited Tai Nam Market in Chicago for unlawfully selling aquatic life in 2014 without a license. The market was issued a warning for operating without a license in 2013, and had previously been issued a warning in 2010 for the same violation. An inspection was conducted after a Conservation Police Officer encountered fishermen on the Illinois River using live red swamp crayfish they purchased from the store.

An investigation was initiated after receiving two different complaints on Realistic Bait, LLC for unlawfully importing minnows and grass carp into Illinois without required permits. Realistic Bait, LLC did not possess a non-resident aquatic life dealer's license, VHS import permit, or restricted species permit. The investigation revealed Realistic Bait, LLC was delivering bait fish to seven different businesses in Will and Grundy Counties. The invoices gathered from those businesses totaled over \$14,000. On June 18, 2013, an employee of Realistic Bait, LLC was observed selling live bait at a business in Will County. IL. Conservation Police seized Golden Shiners, Fathead Minnows, and White Suckers. The minnows were tested for VHS and the results were negative. Both the owner and company plead guilty on August 19, 2014, in Will County, to unlawful import of Viral Hemorrhagic Septicemia (VHS) susceptible species without import permits. Fines totaled \$4,000.

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

The Lake Erie Management Unit's standard August sampling programs included

- Commercial fishery monitoring using full Port Observer presence and commercial catch sampling program
- Gillnetting in Long Point Bay, Lake Erie
- Trawling in the western basin of Lake Erie
- Electrofishing in Rondeau Bay, Lake Erie
- Water collection for eDNA analysis in the Ausable River, Canard River, and Jeanette's Creek.

The Upper Great Lakes Management Unit's standard August sampling programs in Lake Superior included

- Thunder Bay juvenile sturgeon gillnetting surveys
- Thunder Bay and Sault Ste Marie Aquatic Invasive Species surveys (trawling, fyke netting and boat electrofishing)
- Stream backpack electrofishing surveys
- Fish Community Index Netting (gillnetting; starting on the west side of the lake and moving east)

- Commercial fish sampling around Sault Ste. Marie and Thunder Bay
- Sportfishing creel on Black Bay

Targeted Asian Carp Surveillance

In August we had had several positive eDNA detections for various Asian carp species in tributaries connected to the Great Lakes Basin. Locations for these detections included the Ausable River (Lake Huron tributary), Canard River (Detroit River Tributary), and the Grand River (Lake Erie Tributary). In response to these detections both Fisheries and Oceans Canada (DFO), and the Ministry of Natural Resources and Forestry (MNRF) have increased surveillance efforts with additional eDNA testing and utilizing traditional netting and electrofishing gears. Details include;

- Ausable River
 - A water sample collected in July tested positive for Silver carp DNA. This was confirmed by repeat testing and sequencing.
 - Additional water samples were collected in mid August and one sample tested positive for Silver and Grass carp.
 - The DNA lab confirmed that the positive results were not the result of contamination in the lab.
 - Fisheries and Oceans Canada sent a crew to extensively sample the river and Lake Huron near the mouth of the river using electrofishing and netting gears.
 - The surveillance effort revealed no Asian carps.
 - Additional eDNA sampling did not result in any positive detections.
- Canard River
 - Bighead carp DNA was detected in the Canard River in mid August. This was confirmed by repeat testing and sequencing.
 - Additional water samples were collected, and analysed.
 - None of the samples collected tested positive for Asian carps.
 - Fisheries and Oceans Canada sent a crew to sample the river using electrofishing and netting gears.
 - The surveillance effort did not result in any positive detections.
 - Surveillance crews will sample the river again in September.
- Grand River
 - A water sample collected in late July tested positive Bighead carp DNA in early September. This was confirmed by repeat testing and sequencing.
 - Additional water samples were collected and sent to the MNRF DNA lab for analysis. Results have not been received.
 - Fisheries and Oceans had Asian carp surveillance crews on the Grand River in late May and late July and did not detect any Asian carps.
 - DFO will conduct additional sampling in late September.

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