

2016 October Summary

Bottom Line: Monitoring occurred in the CAWS and upper Illinois Waterway downstream of the Electric Dispersal Barrier in March. **NO LIVE BIGHEAD CARP OR SILVER CARP were found in any new locations either upstream of, or immediately downstream of the Electric Dispersal Barrier.**

Fixed, Random and Targeted Sampling Downstream of the Electric Dispersal Barrier

Electrofishing:

- Crews from IDNR and USACE completed 52 electrofishing runs at fixed and random sites (13 hours total) in the Lockport, Brandon Road, Dresden Island, and Marseilles Pools in October.
- Crews collected 9,419 fish of 44 species.
- **No Bighead Carp or Silver Carp were reported captured or observed in the Lockport or Brandon Road Pools.**
- One adult Silver Carp was collected in the Dresden Island Pool, downstream of the I-55 Bridge.
- Twenty-eight adult Silver Carp were collected in the Marseilles Pool.

Commercial Netting:

- Contracted commercial fishers along with assisting IDNR biologists set 24.3 miles of net (181 sets) at fixed and targeted sites in the Lockport, Brandon Road and Dresden Island Pools (including Rock Run Rookery) in October.
- Crews collected 448 fish of 15 species and 1 hybrid group.
- **No Bighead Carp or Silver Carp were captured or observed in the Lockport or Brandon Road Pools.**
- Sixteen adult Silver Carp were collected in the Dresden Island Pool downstream of the I-55 Bridge.

Hoop and Mini Fyke Netting:

- Crews from IDNR set and pulled 16 hoop nets (6' diameter) and 16 mini fykes in Lockport, Brandon Road, Dresden Island and Marseilles Pools in October.
- Crews collected 24 fish of 6 species during hoop net sampling and 1,378 fish of 23 species and 1 hybrid group during mini fyke sampling (213 of which were state threatened Banded Killifish).
- **No Bighead Carp or Silver Carp were reported captured or observed in the Lockport, Brandon Road or Dresden Island Pools.**
- One adult Bighead Carp were collected during hoop net sampling in the Marseilles Pool.

Sampling results for all pools and locations below the electric dispersal barrier through October 2016, with the same time period from previous years for comparison:

Lockport			
QUICK SUMMARY:	2014	2015	2016
Yards of Net Fished	47,200	77,550	89,175
Miles of Net Fished	26.8	44.1	50.7
Number of Net Sets	236	369	428
Hoop Net Nights	56	64	56
Mini Fyke Net Nights	28	32	28
Electrofishing Runs	156	114	118
Electrofishing Time (hrs)	39.0	28.5	29.5
Total Asian Carp (AC)	0	0	0

Brandon Rd			
QUICK SUMMARY:	2014	2015	2016
Yards of Net Fished	46,200	78,800	81,825
Miles of Net Fished	26.2	44.8	46.5
Number of Net Sets	230	364	389
Hoop Net Nights	56	64	56
Mini Fyke Net Nights	28	32	28
Electrofishing Runs	167	96	113
Electrofishing Time (hrs)	41.8	24.0	28.3
Total Asian Carp (AC)	0	0	0

Dresden Island			
QUICK SUMMARY:	2014	2015	2016
Yards of Net Fished	69,000	87,350	78,025
Miles of Net Fished	39.2	49.6	44.3
Number of Net Sets	339	336	333
Hoop Net Nights	56	116	56
Mini Fyke Net Nights	28	32	28
Electrofishing Runs	167	131	203
Electrofishing Time (hrs)	41.8	32.8	50.8
Asian Carp (AC) upstream I-55	5	22	7
AC downstream I-55	53	154	293
Total AC	58	176	300
Tons of AC Harvested	0.5	1.3	2.0

Rock Run Rookery			
QUICK SUMMARY:	2014	2015	2016
Yards of Net Fished	18,400	35,150	47,525
Miles of Net Fished	10.5	20.0	27.0
Number of Net Sets	23	85	172
Total Asian Carp (AC)	55	230	165
Tons of AC Harvested	0.5	2.0	1.5

Barrier Defense Asian Carp Removal Project

Below is a summary of IDNR Asian Carp removal for all Barrier Defense activities in through October 2016, along with the same time period in 2015 for comparison:

QUICK SUMMARY:	2015	2016
Number of Days Fished	60	85
Number of Net Crew Days	296	414
Yards of Net Fished	399,670	465,035
Miles of Nets Fished	227.08	264.22
Number of Pound Net nights	24	64
Number of Hoop Net nights	118	768.7
Number of Bighead Carp	7,057	7,627
Number of Silver Carp	103,840	117,652
Number of Grass Carp	595	578
Number of Asian Carp	111,492	125,857
Tons of Bighead and Silver Carp Harvested	378	438.7

Harvest results for Marseilles and Starved Rock Pool through October 2016, with the same time period from previous years for comparison:

Marseilles			
QUICK SUMMARY:	2014	2015	2016
Yards of Net Fished	357,350	189,190	325,005
Miles of Nets Fished	203.0	107.5	184.7
Number of Net Sets	558	318	500
Pound Net nights	18	24	64
Hoop Net nights	48	86.5	141.7
Mini Fyke Net Nights	28	32	28
Electrofishing Runs	181	132	132
Electrofishing Time (hrs)	45	33	33
Bighead Carp	7,021	5,051	5,670
Silver Carp	21,899	51,078	53,065
Grass Carp	171	80	94
Total Asian Carp	29,091	56,209	58,829
Tons of Bighead and Silver Carp Harvested	151.7	212.6	254.8

Starved Rock			
QUICK SUMMARY:	2014	2015	2016
Yards of Net Fished	155,800	121,180	140,030
Miles of Nets Fished	88.5	68.9	79.6
Number of Net Sets	237	194	264
Hoop Net nights	420.4	141.2	683.1
Bighead Carp	4,296	2,514	1,977
Silver Carp	33,634	58,286	65,513
Grass Carp	396	523	515
Total Asian Carp	38,326	61,323	68,005
Tons of Bighead and Silver Carp Harvested	161.8	179.9	187.8

Table 1. Barrier defense efforts by USFWS Columbia, MO, for the days of 10/25 and 10/27 with one paupier boat in the Starved Rock Pool fishing in several different locations including Sheehan Island backwater and side channel, Delbridge Island, Fox River, and Heritage Harbor Marina.

Number of Days Fished	2
Number of Crew Days	2
Fishing Time (hours)	14.5
Paupier Electroshocking Time (hours)	1.78
Person Fishing Hours (3 per crew)	43.5
Number of Bighead Carp	0
Number of Silver Carp	1586
Number of Grass Carp	0
Number of Asian Carp	1586
Est. Tons of Bighead and Silver Carp Harvested	3.9
CPUE (# of Asian Carp/day (5 hours))	547
CPUE (# of Asian Carp/fishing hour)	109
CPUE (# of Asian Carp/electroshocking hour)	891
CPUE (# of Asian Carp/person fishing hour)	37

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

A Mobile split-beam acoustic survey was conducted at the Electric Dispersal Barrier during October. The survey will provide data on temporal changes in patterns of fish density.

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

A mobile split-beam acoustic survey was conducted in the Lockport reach of the Illinois Waterway during October 2016 to determine fish density. An acoustic survey was also conducted inside the Brandon Road Lock during the fourth week of October.

Monitoring Asian Carp using Netting with Supplemental Capture Techniques

Netting for adult Asian carp with supplemental capture techniques took place in Starved Rock, Marseilles, and Dresden Island Pools during the month of October. Some effort was also done within the Brandon Road Lock and Dam in conjunction with an acoustic scan. In Starved Rock 1,400 yards of net were deployed, resulting in the capture of 50 fish; including, 38 Silver Carp. In Marseilles 2,700 yards of net were deployed, resulting in the capture of 205 fish; including, 180 Silver Carp and 17 Bighead Carp. In Dresden Island 400 yards of net were deployed, resulting in the capture of 3 fish, none of which were Asian carp. Within Brandon Road Lock and Dam 366 yards of net were deployed; however, zero fish captured.

Analysis of feral Grass Carp in the CAWS and Upper Illinois River

During the month of October three Grass Carp were captured and implanted with acoustic tags for the purpose of telemetry within Marseilles Pool. Ploidy results indicate that two fish were diploid and one was triploid. During manual tracking efforts one Grass Carp was observed in Marseilles Pool near RM 267.

Telemetry Monitoring

USACE biologists captured 18 Common Carp from the Upper Lockport Pool near the Cal-Sag confluence on 13 October 2016. These fish were implanted with Vemco V16 transmitters and released back into the Lower Lockport Pool at the Cargill boat launch. All tagged fish were marked by an anal ray fin clip before release.

Barrier Maintenance & Fish Suppression

The Electric Dispersal Barrier System continuously supplied power to the water during the month of October. There were no planned or unplanned outages at any barrier array during the month of October greater than 1 minute in duration. There were 4 occasions which required Barrier IIB to be powered on generator power causing 8 minor interruptions to power in the water for less than one minute each. Each power transfer from utility to generator or generator to utility results in a momentary loss of power to the

water (< 30 sec) at that specific array. Barrier IIA was operational during all power transfer events at Barrier IIB.

The current status of each barrier array as of 3 November 2016 is provided here:

Barrier array: Applied Voltage (Voltage Gradient), Pulse width, Frequency

Barrier IIA narrow: 2200 V (2.3 V/in), 2.3 ms, 34 Hz

Barrier IIA wide: offline

Barrier IIB narrow: 2200 V (2.3 V/in), 2.3 ms, 34 Hz

Barrier IIB wide: 800 V (1.0 V/in), 2.3 ms, 34 Hz

Demonstration Barrier: 400 V (1.0 V/in), 4 ms, 5 Hz

Distribution and Movement of Small Asian Carp in the Illinois Waterway

Pool	Gear	# of runs	Minutes	Distance(m)	# of GZSD	# of GZSD/min	GZSD range (mm)	# of Juvenile Silver Carp $\leq 153\text{mm}$
Starved Rock	Electrified Dozer Trawl	3	15	806	83	6	84-277	0

The USFWS Columbia sampled the Starved Rock pool with the electrified dozer trawl on 11/26/16. No Silver Carp were captured in the Starved Rock pool. See above table for a summary of effort and catch.

In October, USFWS Wilmington conducted sampling in the Illinois River for small Asian carp ($\leq 153\text{mm}$). These efforts are documented below (Table 1). No small Asian carp ($\leq 153\text{mm}$) were captured.

Table 1. October USFWS sampling effort by gear and river pool.

Pool	Gear	Effort
Marseilles	Electrofishing	18 runs (260 minutes)
Marseilles	Otter Trawl	27 runs (667 minutes)
Dresden Island	Otter Trawl	3 runs (30 minutes)

Larval Fish Monitoring

INHS concluded 2016 Illinois Waterway ichthyoplankton sampling during the week of September 26. During October, sample processing was completed for samples collected through the month of June. Preliminary assessment suggests very low numbers of Asian carp eggs and larvae were present in the Illinois Waterway during May and June 2016 compared to the numbers observed during these months in the previous 2 years. Processing of samples for the remainder of 2016 will continue until all collected fish eggs and larvae have been identified. Subsamples of eggs and larvae will be prepared for genetic analyses to confirm visual identifications in the coming months. Complete results from 2016 ichthyoplankton sampling will be summarized and reported once all samples have been processed.

Unconventional Gear Development

Great Lakes trap (pound) nets were pulled from the Hanson Material Service Pit on October 7, after having been deployed for 2 weeks in collaboration with USGS partners as part of the feeding attractant and sound stimuli studies. During these trials, one net was conditioned with the attractant/stimuli, whereas the other served as the control. Nets were checked daily and all fish were measured and weighed. Data from these trials will be summarized and results reported by USGS. INHS also conducted sampling with a modified push trawl in conjunction with Gear Evaluation sampling at four sites in the LaGrange Pool during the week of October 17. The trawl captured only 26 total fish during these efforts, including 3 age-0 Silver Carp. These catch rates are considerably lower than were attained with this gear during August sampling efforts. Further refinement and testing of this gear type will be conducted in 2017 to evaluate its utility for sampling juvenile Asian carp in different habitats during different seasons.

Evaluation of Gear Efficiency

INHS conducted sampling for juvenile Asian carp using several gear types (mini-fyke nets, beach seines, pulsed-DC electrofishing) at four sites in the LaGrange Pool during the week of October 17. A total of 2,236 fish were captured during these efforts, including 262 age-0 Silver Carp (23 – 80 mm). Mini-fyke nets captured the highest numbers of all fish (n = 1,711) and age-0 Silver Carp (n = 261). Pulsed-DC electrofishing only captured age-1 and older Silver Carp (230 -709 mm). Sampling was conducted concurrently with USFWS trawl comparisons. USFWS trawling data will be compared to INHS juvenile gears set in the same locations.

Alternate Pathway Surveillance in Illinois - Law Enforcement

Invasive Species Unit (ISU) participated in the GLDIATR advisory committee meeting to help further develop the Internet search tool which detects aquatic invasive species for sale on the Internet and allows invasive species managers and law enforcement personnel to perform a variety of activities to prevent the sale and spread of invasive species in the Great Lakes region.

Asian Carp Gear Development and Evaluation

Table 1. Summary of four gears (PA – Paupier Electrified, ST- Surface Trawl, DT – Dozer Trawl Electrified, EF – Standard Electrofishing) used to capture Silver Carp (SVCP) and Gizzard Shad (GZSD) in the LaGrange (Lily Lake, Quiver, Matanzas) and Marseilles (Hansen Material Services East, Hansen Material Services West) pools of the Illinois River during the month of October 2016. All Silver Carp less than 200 mm were captured in the LaGrange Pool.

	N	Time (hr)	SVC P	SVCP/hr	SVCP < 200mm	SVCP range (mm)	GZSD	GZSD/hr	GZSD < 200mm	GZSD range (mm)
PA	3									
A	8	3.1	744	240	8	96-839	5561	1794	5104	60-394
ST	4									
D	0	3.4	4	1	4	90-133	142	42	141	32-318
T	3									
T	2	2.7	196	74	0	158-895	679	256	578	69-348
EF	3									
EF	0	2.5	34	14	0	270-739	257	103	241	64-341

