



**Monitoring and Response Workgroup (MRWG)**  
**Monthly Activities**  
2021 July Summary

**Bottom Line:** A set of safety protocols developed during the COVID pandemic to ensure safe operations and were carried over into the start of the 2021 field sampling. A large number of small (<6”) Bighead Carp, Grass Carp, and Silver Carp are being collected in the Peoria Reach on down. **NO LIVE BIGHEAD CARP, BLACK CARP, GRASS CARP, or SILVER CARP were found or observed in any new locations immediately downstream or upstream of the Electric Dispersal Barrier.**

**Overall Summary**

**Pool specific results through July 2021 from all effort within the Upper Illinois Waterway.**

**The same time period in 2019 and 2020 for comparison.** Additional effort may not be reported due to data processing and actual effort and catch could be higher. Check 2021 interim summary, published at the end of the year, for complete results

**Lockport Pool**

<b>Effort</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Yards of Net Fished	26,600	26,800	50,800
Miles of Net Fished	15.1	15.2	28.9
Hoop Net Nights	55.4	55.1	55.9
Mini Fyke Net Nights	7.0	7.1	7.4
Electrofishing Runs	23	23	54
Electrofishing Time (hrs)	5.8	5.8	10.8
Dozer Trawl Runs	0	0	60
Dozer Trawl (hrs)	0.0	0.0	5.3
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

**Brandon Road Pool**

<b>Effort</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Yards of Net Fished	15,400	27,800	57,000
Miles of Net Fished	8.7	15.8	32.4
Hoop Net Nights	51.2	54.2	53.0
Mini Fyke Net Nights	13.0	7.2	7.3
Electrofishing Runs	21	20	45
Electrofishing Time (hrs)	5.3	5.0	11.3
Dozer Trawl Runs	0.0	0.0	37
Dozer Trawl (hrs)	0	0	3.13
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

*Dresden Island Pool (Including Rock Run Rookery)*

<b>Effort</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Yards of Net Fished	71,200	47,200	102,100
Miles of Net Fished	40.5	26.8	58.0
Hoop Net Nights	28.3	53.5	54.3
Mini Fyke Net Nights	21.0	23.8	43.3
Pound net night	0	0	3
Electrofishing Runs	25	26	121
Electrofishing Time (hrs)	6.3	6.5	13.68
Dozer Trawl Runs	0	0	54.0
Dozer Trawl (hrs)	0.0	0.0	4.47
Bighead Carp	19	7	18
Grass Carp	2	1	3
Silver Carp	117	112	78
Total AC	138	120	99
Asian Carp (AC) from Rock Run Rookery Lake (RR)	17	10	27
AC upstream I-55 (not in RR)	3	1*	5
AC downstream I-55	118	109	66
Tons of AC Harvested	1.1	0.8	0.7
AC/1000 yds of gill net	1.9	2.5	0.9

*Marseilles Pool*

<b>Effort</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Yards of Net Fished	143,700	113,870	96,050
Miles of Nets Fished	81.6	64.7	54.6
Pound Net nights	26	0	0
Hoop Net nights	51.0	52.6	0.0
Mini Fyke Net Nights	20.6	22.9	24
Electrofishing Runs	31	31	31
Electrofishing Time (hrs)	7.8	7.8	7.8
Bighead Carp	799	1,066	1,552
Grass Carp	40	17	36
Silver Carp	29,570	25,473	11,924
Total Asian Carp	30,409	26,556	13,512
Tons of AC Harvested	169.5	144.9	86.5
AC/1000 yds of gill net	208.7	233.0	140.7

*Starved Rock Pool*

<b>Effort</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Yards of Net Fished	191,365	95,380	159,250
Miles of Nets Fished	108.7	54.2	90.5
Pound Net nights	0	0	0
Hoop Net nights	54.0	56.8	54.0
Mini Fyke Net Nights	18.9	23.5	24
Electrofishing Runs	36	35	35
Electrofishing Time (hrs)	9.0	8.8	8.8
Bighead Carp	1,550	1,898	644
Grass Carp	2,224	261	626
Silver Carp	99,489	48,749	81,965
Total Asian Carp	103,263	50,908	83,235
Tons of AC Harvested	371.7	153.6	224.7
AC/1000 yds of gill net	539.0	531.4	394.4

### **Contracted Fishing Below the Electric Dispersal Barrier**

- Contracted fishing took place in Lockport, Brandon Road, and Dresden Island Pools of the Illinois River Waterway
- Contracted fishers set and pulled 42,800 yards of gill/trammel net
- 96 fish representing 8 species were captured during contracted commercial netting
- **No Bighead Carp, Grass Carp, or Silver Carp were removed**
- **0 pounds of Bighead, Grass and Silver Carp were removed**

Below is a summary of all Illinois Department of Natural Resources (IDNR) contracted fishing activities through July 2021. For comparison purposes, data from the same time period in 2019 and 2020 are included.

<b>Effort</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Number of Days Fished	84	54	68
Number of Net Crew Days	384	290	370
Yards of Net Fished	448,265	311,050	465,200
Miles of Nets Fished	254.7	176.7	264.3
Number of Pound Net Nights	26	0	3
Number of Hoop Net Nights	0.0	0	0.0
Number of Bighead Carp	2,366	2,971	2,214
Number of Grass Carp	2,254	269	651
Number of Silver Carp	129,048	74,102	92,466
Number of Carp	133,668	77,342	95,331
Tons of AC Harvested	541.8	299.4	312.2
AC/1000 yds of gill net	297.3	248.6	164.3

### **Multiple Agency Monitoring of the Illinois River Waterway**

- Lockport, Brandon, Dresden, Marseilles, Starved Rock, and Peoria pools of the Illinois River Waterway were monitored by the United States Army Corps of Engineers (USACE), IDNR, and Illinois Natural History Survey (INHS).
- All assigned samples were collaboratively collected within each pool by each gear type during period one (Table 1).
- 10,810 individual fish representing 68 species and 5 hybrid groups have been identified and processed thus far with many samples still being processed (Figure 1).
- **426 Bighead Carp, Grass Carp, and Silver Carp were detected (Figure 2)**
  - 214 small ( $\leq 6$  inches)
  - 215 large ( $> 6$  inches)
- **Furthest upriver large Bighead Carp, Grass Carp, or Silver Carp were detected was in Rock Run Rookery**
  - River mile 282 (41.46715, -88.16922)
- **Furthest upriver small Bighead Carp, Grass Carp, or Silver Carp were detected was in Peoria Pool**
  - River mile 210 (41.2924, -89.3435)

Table 1. Number of samples collected by gear type and pool during the first monitoring period.

<b>Gear</b>	<b>Lockport</b>	<b>Brandon</b>	<b>Dresden</b>	<b>Marseilles</b>	<b>Starved Rock</b>	<b>Peoria</b>
Electrofishing	15	12	24	31	35	45
Large Hoop	14	14	14	14	14	14
Small Hoop	14	14	14	14	14	14
Fyke Net	0	0	5	5	5	10
Minnow Fyke	8	8	24	24	24	24



Figure 1. Quantity of fish captured from a single minnow fyke net night with the Peoria reach during the first period of the Multiple Agency Monitoring project. Photo by Brandon Harris.



Figure 2. Small (<6") Silver Carp of various size classes potentially indicating multiple successful spawning events captured in a minnow fyke net within the LaGrange Reach of the Illinois River (a). Photo by Kris Maxson. Small (<6") Grass Carp captured during an electrofishing run within the Peoria Reach of the Illinois River during the Multiple Agency Monitoring project (b). Photo by Brandon Harris.

## USACE

*Traditional Monitoring* – During the month of July, USACE biologists conducted twenty 15-minute electrofishing runs downstream of the barrier. Nine sites were in Lockport Pool and eleven sites were in Brandon Road Pool. Within the Lockport Pool, 150 individuals were captured across 15 species. The five most abundant species captured were emerald shiner (20.00%), gizzard shad under 6 inches (20%), bluntnose minnow (19.30%), pumpkinseed minnow (14.70%), and gizzard shad over 6 inches (11.30%). Within the Brandon Road Pool, 220 individuals were captured across 18 species. The five most abundant species found were common carp (23.60%), gizzard shad under 6 inches (23.2%), emerald shiner (21.80%), gizzard shad over 6 inches (10.00%), and smallmouth bass (7.27%). No Asian Carp were captured or observed during the month of July.

### **Enhanced Contract Fishing**

To date, a total of 5,672,595 pounds of Asian carp have been removed from the Peoria Pool under the Enhanced Contract Fishing Program. This program was initiated in September of 2019 and offers Illinois-licensed commercial fishermen \$.10 per pound for Asian carp caught in this pool and sold to fish processors or other buyers for at least \$.07 per pound. A total of 30 fishermen are currently under contract to catch Asian carp from the Peoria Pool. From inception through the remainder of calendar year 2019, 518,132 pounds of Asian carp were caught in the Peoria Pool, during full calendar year 2020 a total of 2,882,724 pounds were caught, and to date in 2021 an additional 2,146,489 pounds have been caught for a total of 5,547,345 pounds. Of these total catches, 6.35% are Bighead, 70.06% are Silver and 23.60% are Grass carp. **No Black carp have been reported.**

*Table 1. Table of Enhanced Contract Fishing – Peoria Pool from inception, September 2019 through July 2021. By receipt date, not catch date.*

<b>YEAR</b>	<b>Total Lbs.**</b>	<b>Bighead</b>	<b>Silver</b>	<b>Grass</b>
<b>2019 *</b>	518,132	24,813	310,297	183,022
<b>2020</b>	2,882,724	176,195	1,980,175	726,355
<b>2021 (Jan thru July)</b>	2,146,489	151,192	1,595,767	399,530
<b>GRAND TOTALS</b>	5,547,345	352,199	3,886,239	1,308,907

\* September 2019 program inception.

\*\* No Black carp reported.

### **Monitoring of Asian carp Reproductive Productivity**

INHS collected ichthyoplankton samples at 7 main channel sites located from the Brandon Road to LaGrange navigation pools during the weeks of July 5, July 12, and July 26. A minimum of four larval fish samples were collected at each site. Additional samples were collected in Illinois River tributaries to evaluate the potential for Asian carp spawning in these rivers. Main channel samples from the Dresden Island to Peoria pools were screened for the presence of species-specific DNA derived from eggs or larvae using quantitative PCR (qPCR) methodology. Sampling was conducted on a weekly basis from May through the first two weeks of July, as data from previous years indicates that this is the period during which Asian carp spawning is most likely to occur. From mid-July until October, sampling will be conducted every two weeks, unless any change in environmental conditions that might trigger Asian carp spawning (i.e. substantial increase in discharge) occurs. Quantitative PCR (qPCR) screening of ichthyoplankton samples will also not occur for the remainder of the year unless conditions indicate that it may be necessary to rapidly identify samples that may contain Asian carp eggs or larvae.

Illinois Waterway water temperatures were above 22°C during the entire month of July, well above the threshold that allows for Asian carp spawning. Water levels in the upper Illinois Waterway continuously declined until around July 10 following the large increase in discharge that occurred during the last week in June but remained low and stable thereafter. In the lower Illinois River, water levels continued to rise until mid-July and then began a gradual and steady decline for the second half of the month. Quantitative PCR screening suggested the presence of sufficient quantities of Silver Carp DNA (> 10 copies) to expedite closer examination of one sample collected

from Morris on July 6 and one sample from Spring Valley on July 12. However, no large-diameter eggs or Asian carp larvae were found in either of these samples. Full processing of all other ichthyoplankton samples and identification of larval fish and eggs is ongoing. Any additional occurrences of Asian carp eggs or larvae, particularly upstream of Starved Rock L&D, will be reported as soon as this information is available.

### **Zooplankton as Dynamic Assessment Targets for Asian carp Removal**

INHS collected zooplankton and water chemistry samples at 11 main channel and backwater sites located in the Brandon Road to LaGrange navigation pools during the weeks of July 12 and July 26. The collected data will be combined with historical and recent data on Illinois Waterway zooplankton communities to inform management agencies of the ecosystem responses to Asian carp removals and develop dynamic targets for diminishing the ecological impacts of Asian carp.

### **Monitoring Bigheaded Carp Movement and Density in the Illinois River**

Equipment maintenance was completed, including boat, gillnet and electrofishing repairs, in preparation for fall sampling of the fish community to support hydroacoustic analyses. Telemetry data processing was also ongoing to fully integrate receiver data downloaded in Spring 2021 into the full database before additional downloads occur in September and October.

### **Invasive Bigheaded Carp Early Detection Monitoring Surveys in the Upper Illinois Waterway: Lockport, Brandon Road, and Dresden Island Pools, and the Lower Kankakee River**

U.S. Fish and Wildlife Service (USFWS) conducted invasive bigheaded carp (Bighead Carp, *Hypophthalmichthys nobilis*; Silver Carp, *H. molitrix*) early detection monitoring (EDM) surveys in Lockport Pool, Brandon Road Pool, Dresden Island Pool, and the lower Kankakee River during July 2021. These surveys were designed to monitor for the presence of invasive bigheaded carp in novel areas of the upper Illinois Waterway below the Electric Dispersal Barrier System (EDBS). The Lockport Pool surveys were completed on 9 July 2021 and covered the area between the EDBS and Lockport Lock and Dam; a distance of about 5 river miles. The Brandon Road Pool surveys were completed on 8 July 2021 and covered the area between Lockport Lock and Dam and Brandon Road Lock and Dam; a distance of about 4.25 river miles. The Dresden Island Pool surveys were completed on 29 July 2021 and covered the area between Brandon Road Lock and Dam and Dresden Island Lock and Dam; a distance of about 13.5 river miles. The Kankakee River surveys were completed on 29 July 2021 and covered the area between the Kankakee Conservation Area Boat Launch and the Kankakee's confluence with the Illinois Waterway; a distance of about 4.25 river miles. Where possible, EDM surveys consisted of traditional boat electrofishing, electrified dozer trawling, and mini-fyke net sets in a combination of main-channel, side-channel, and backwater habitats. Electrofishing was performed in 15-minute sampling periods consisting of repeated passes perpendicular to and toward shore, with one crewmate collecting fishes with a handheld dip net. Dozer trawling was conducted in 5-minute sampling periods consisting of s-shaped passes parallel to shore, and with fishes collected by a net supported by a rigid frame at the boat's bow. Wisconsin-type mini-fyke nets with 24' leads and 1/8" mesh were staked against the shoreline and fished overnight.

### Highlighted results:

- No small-bodied (< 350 mm total length; TL) bigheaded carp were captured by USFWS in July 2021.
- No large-bodied ( $\geq$  350 mm TL) bigheaded carp were captured outside their known range by USFWS in July 2021.

**Table 2. Summary of USFWS invasive bigheaded carp early detection monitoring preliminary results from July 2021.** Location is the section of river sampled. Electrofishing effort reports completed hours of two-person traditional boat electrofishing and  $n_e$  is the number of surveys completed. Dozer effort reports completed hours of electrified dozer trawling and  $n_d$  is the number of surveys completed. Mini-fyke effort reports the number of overnight net sets completed and  $n_n$  is net nights. Small carp captured is the number of bigheaded carp with total length (TL) < 350 mm captured. Large carp captured is the number of bigheaded carp with total length  $\geq$  350 mm captured. Total fish captured is the total number (N) of individual fishes (all species) captured. Species richness is the count of species captured. Most abundant species is the common name of the fish species that was the largest proportion of total fish captured and  $n_i$  is the number of individuals of that species captured.

Location	Electrofishing Effort (h; $n_e$ )	Dozer Effort (h; $n_d$ )	Mini-fyke Effort ( $n_n$ )	Small carp captured	Large carp captured	Total fish captured (N)	Species richness	Most abundant species
Lockport	5 h; $n_e = 31$	2.58 h; $n_d = 31$	0	0	0	6432	26	Gizzard shad ( $n_i = 5526$ )
Brandon Road	6 h; $n_e = 24$	1.83 h; $n_d = 22$	0	0	0	365	20	Gizzard shad ( $n_i = 106$ )
Dresden Island	h; 5.58 $n_e = 23$	2.17 h; $n_d = 27$	$n_n = 21$	0	1 (Silver carp, 717 mm TL)	7859	48	Bluegill ( $n_i = 3198$ )
Kankakee	h; 5.43 $n_e = 22$	2.17 h; $n_d = 27$	$n_n = 21$	0	1 (Grass carp, 1025 mm TL)	1473	47	Emerald shiner ( $n_i = 253$ )

### Des Plaines River and Overflow Monitoring

A crew from the Wilmington FWS office sampled the Des Plaines River upstream of the Illinois River confluence June 28-July 2, 2021. Sampling was conducted between East Romeo Road and IL Route 83. Effort included a total of 16 electrofishing runs (240 minutes electrofishing time). A total of 508 fish were collected, representing 26 species and 1 hybrid group. No Silver or Bighead carp were captured. One additional week of effort will be attempted during the fall of 2021.

### Telemetry

USACE biologists downloaded the network of telemetry receivers in the first week of July. Post download analysis of the 28 receivers in the network indicated that two fish transited between Brandon Road Pool and Lockport Pool. One fish moved downstream from Lockport to Brandon Rd on June 11<sup>th</sup>. A second fish moved upstream from Brandon Rd to Lockport on June 26<sup>th</sup>. All five of these fish were Common Carp. There was no indication that any Bighead or Silver carp approached Brandon Road Lock or transited upstream of it. The next download of the full receiver network will be in September.

### Telemetry Support for the Spatially Explicit Asian Carp Population Model (SEACarP)

#### USFWS

On July 6, 2021, a Wilmington Fish and Wildlife Service crew attempted to conduct retrieval efforts for the SEACarP telemetry project; however, due to high water condition, no receivers were recovered or downloaded at any locations.



### **Barrier Operational and Maintenance Status**

In the month of July, barrier IIB was off for cooling system upgrades and periodic outages were experienced at the barriers, but at no time was there not at least one barrier providing power to the water.

When barriers were operational, they were operating at the following parameters

IIA – Narrow (34 Hz, 2.3 ms, 1800 V = 1.7 V/in) & wide (34 Hz, 2.3 ms, 800 V = ~1.0 V/in) arrays operational

IIB – Not operational, cooling system upgrade

Barrier 1 Demo (ID) – Full water (5 Hz, 4 ms, 400 V = 1.0 V/in) & benthic (5 Hz, 4 ms, 100V) operational

Barrier 1 North (1N) – Operational (34 Hz, 2.3 ms, 1700 V = 2.3 V/in)

July 5/6 – Barrier 1N experienced an outage between 21:02 on July 5<sup>th</sup> and 02:36 on July 6<sup>th</sup>. Barriers 1D and 2A were both operational at this time.

July 7 – Barrier 1N was experienced an outage between 16:49 and 16:54. Barriers 1D and 2A were both operational at this time.

July 19 – Barrier 2A wide array experienced an outage at 08:35 and was reenergized by 11:00. was shut down to undergo maintenance operations. The narrow array of 2A and barriers 1N and 1D were operational at this time.

### **Alternate Pathway Surveillance in Illinois - Law Enforcement**

ISU assisted the Department of Fisheries and Oceans Canada with an aquatic invasive species importation project. ISU participated in the Great Lakes Fishery Commission Law Enforcement Committee meeting to discuss and plan upcoming joint agency law enforcement objectives. Phase one of the GLFC LE Committee was completed entailing an official report documenting notification of regulations to yabby and marbled crayfish dealers within the Great Lakes and St. Lawrence river region. ISU investigated RongShing Trading company in Chicago for illegally selling live red swamp crayfish to food markets in Michigan and Illinois. ISU also discovered the company illegally sold live crayfish in Wisconsin. Two additional seafood distributors in Texas and Louisiana were discovered during the investigation. Citations were issued to a Champaign Asian market for illegally possessing and selling live non-approved species and selling aquatic life without a permit. The store had previously been issued warnings for the violations. ISU interviewed and conducted a records audit of a commercial fishermen in Missouri suspected of fraudulently reported harvest information.