



Monitoring and Response Workgroup (MRWG)
Monthly Activities
2021 June 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. **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 June 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

Effort	2019	2020	2021
Yards of Net Fished	16,400	14,000	39,600
Miles of Net Fished	9.3	8.0	22.5
Hoop Net Nights	26.7	15.5	0.0
Mini Fyke Net Nights	7.0	3.8	0.0
Electrofishing Runs	6	15	48
Electrofishing Time (hrs)	1.5	3.8	12.05
Dozer Trawl Runs	0	0	38
Dozer Trawl (hrs)	0.0	0.0	3.15
Total Asian Carp (AC)	0	0	0
Tons of IC Harvested	0	0	0

Brandon Road Pool

Effort	2019	2020	2021
Yards of Net Fished	4,200	14,600	38,000
Miles of Net Fished	2.4	8.3	21.6
Hoop Net Nights	27.1	14.8	26.5
Mini Fyke Net Nights	13.0	3.3	2.8
Electrofishing Runs	6	13	53
Electrofishing Time (hrs)	1.5	3.3	12.25
Dozer Trawl Runs	0.0	0.0	30
Dozer Trawl (hrs)	0	0	2.55
Total Asian Carp (AC)	0	0	0
Tons of IC Harvested	0	0	0

Dresden Island Pool (Including Rock Run Rookery)

Effort	2019	2020	2021
Yards of Net Fished	50,000	32,800	89,500
Miles of Net Fished	28.4	18.6	50.9
Hoop Net Nights	15.3	18.2	23.1
Mini Fyke Net Nights	0.0	7.6	24.0
Pound net night	0	0	3
Electrofishing Runs	3	3	112
Electrofishing Time (hrs)	0.8	0.8	12.35
Dozer Trawl Runs	0	0	37.0
Dozer Trawl (hrs)	0.0	0.0	3.13
Bighead Carp	19	5	18
Grass Carp	2	1	3
Silver Carp	106	87	75
Total IC	127	93	96
Invasive Carp (AC) from Rock Run Rookery	17	2	25
AC upstream I-55 (not in RR)	3	1*	5
AC downstream I-55	107	90	68
Tons of IC Harvested	1.1	0.7	0.7
AC/1000 yds of gill net	2.5	2.8	1.1

Marseilles Pool

Effort	2019	2020	2021
Yards of Net Fished	118,900	78,950	96,050
Miles of Nets Fished	67.6	44.9	54.6
Pound Net nights	0	0	0
Hoop Net nights	39.1	0.0	0.0
Mini Fyke Net Nights	18.8	0.0	0.0
Electrofishing Runs	17	0	0
Electrofishing Time (hrs)	4.3	0.0	0.0
Bighead Carp	387	748	1,552
Grass Carp	39	7	36
Silver Carp	27,742	22,114	11,923
Total Invasive Carp	28,168	22,869	13,511
Tons of IC Harvested	155.8	123.6	76.5
AC/1000 yds of gill net	233.4	289.7	140.7

Starved Rock Pool

Effort	2019	2020	2021
Yards of Net Fished	159,865	54,980	159,250
Miles of Nets Fished	90.8	31.2	90.5
Pound Net nights	0	0	0
Hoop Net nights	27.9	0.0	0.0
Mini Fyke Net Nights	18.9	6.1	0.0
Electrofishing Runs	33	7	1
Electrofishing Time (hrs)	8.3	1.8	1.1
Bighead Carp	583	1,202	644
Grass Carp	2210	199	612
Silver Carp	90,110	37,934	80,468
Total Invasive Carp	92,903	39,335	81,724
Tons of IC Harvested	340.8	117.0	216.2
AC/1000 yds of gill net	580.5	715.1	394.4

Contracted Fishing Below the Electric Dispersal Barrier

- Contract fishing took place in Lockport, Brandon Road, Dresden Island, Marseilles, and Starved Rock Pools of the Illinois River Waterway
- Contracted fishers set and pulled 122,500 yards of gill/trammel net
- 18,720 fish representing 21 species were captured during contracted commercial netting
- 1,442 Bighead Carp, 86 Grass Carp, and 11,700 Silver Carp were removed
- 139,144 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 June 2021. For comparison purposes, data from the same time period in 2019 and 2020 are included.

Effort	2019	2020	2021
Number of Days Fished	67	33	64
Number of Net Crew Days	317	200	355
Yards of Net Fished	349,365	195,330	422,400
Miles of Nets Fished	198.5	111.0	240.0
Number of Pound Net	26	0	3
Number of Hoop Net	0.0	0	0.0
Number of Bighead Carp	987	1,955	2,214
Number of Grass Carp	2,240	207	651
Number of Silver Carp	117,857	60,117	92,466
Number of Asian Carp	121,084	62,297	95,331
Tons of AC Harvested	497.7	214.3	293.5
AC/1000 yds of gill net	345.4	318.8	180.9

Multiple Agency Monitoring of the Illinois River Waterway

USACE traditional monitoring

During the month of June, USACE biologists conducted thirty-four 15-minute electrofishing runs downstream of the barrier. Fifteen sites were in Lockport Pool and thirteen sites were in Brandon Road Pool. Within the Lockport Pool, 126 individuals were captured across 14 species. The five most abundant species captured were common carp (42.1%), bluntnose minnow (23%), banded killifish (8.73%), spot tail shiner (4.76%), and green sunfish (3.97%). Within the Brandon Road Pool, 264 individuals were captured across 22 species. The five most abundant species found were common carp (40.90%), smallmouth bass (30.3%), green sunfish (3.79%), largemouth bass (3.41%), and emerald shiner (3.03%). No Asian Carp were captured or observed in either pool during the month of June. Within Dresden Island Pool, 6 sites were sampled in the month of June. Within the pool, 135 individuals were captured across 19 species. The five most abundant species captured were gizzard shad over 6 inches (34.8%), largemouth bass (11.90%), smallmouth buffalo (11.10%), common carp (9.63%), and bluegill (8.15%). Two silver carp were captured in Dresden Island Pool during the month of June.

Enhanced Contract Fishing

In September 2019, the Enhanced Contract Fishing Program was initiated in the Peoria Pool. The program offers Illinois-licensed commercial fishermen \$.10 per pound for Asian carp caught in the Peoria Pool and sold to fish processors or other buyers for at least \$.07 per pound. To date, 30 fishermen have entered into contracts to catch Asian carp from this pool. From inception through the remainder of calendar year 2019, 518,132 pounds of Asian carp were caught in the Peoria Pool, throughout the year 2020 a total of 2,882,725 pound were caught, and to date in 2021 an additional 2,005,432 pounds have been caught for a total of 5,319,045 pounds. Of these total catches, 6.17% are Bighead, 70.27% are Silver and 23.57% are Grass carp. **No Black carp have been reported.**

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

YEAR	Total Lbs.**	Bighead	Silver	Grass
2019 *	518,132	24,813	310,297	183,022
2020	2,795,481	177,666	1,914,828	702,987
2021 (Jan through June)	2,005,432	125,465	1,512,397	367,570
GRAND TOTALS	5,319,045	327,944	3,737,522	1,253,579

* September 2019 program inception.

** No Black carp reported.

Monitoring Bigheaded Carp Movement and Density in the Illinois River

SIU conducted hydroacoustic sampling in Dresden Island and Marseilles pools to determine spatial distributions of Asian carp. Density heatmaps were provided to the MRWG Removal Workgroup to provide crews with updated locations of Asian carp.

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 every week of June. 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.

Illinois Waterway water temperatures were above 18°C during the entire month of June. Water levels were stable or declining for the first 3 weeks of June. Quantitative PCR screening suggested the presence of sufficient quantities of Silver Carp DNA (> 10 copies) to expedite closer examination in two samples from Spring Valley in the upper Peoria Pool on June 2 (average number of DNA copies = 15.13 – 24.49), and from one sample from Channahon in the Dresden Island Pool on June 22 (average number of DNA copies = 504.19). However, examination of these samples did not reveal the presence of any Asian carp larvae or large-diameter eggs. Smaller eggs (< 2.5 mm diameter) from these samples will be assessed for species identity and updated information will be provided regarding the presence of any Asian carp eggs from these samples, particularly from the Dresden Island Pool, once it is available. Heavy precipitation across the region resulted in a marked increase in Illinois Waterway discharge beginning on June 25, appearing to trigger a substantial Asian carp spawning event. Large-diameter eggs were collected from the Marseilles through the LaGrange Pool, with high densities at all sites below Starved Rock Lock and Dam during the week of June 28. Additionally, extremely high densities of Asian carp larvae were observed in the LaGrange Pool during this time. Quantitative PCR screening indicated the presence of substantial quantities of Silver Carp DNA in the samples from the Starved Rock and Peoria Pools (average number of DNA copies = 27.89 – 113,339.84), and Grass Carp DNA from Henry in the Peoria Pool (average number of DNA copies = 163.58 – 15,906.80), but no Bighead Carp or Black Carp DNA was evident from these sampling dates. Full processing of all 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 May 31, June 14, and June 28. 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.

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 June 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 survey was completed on 15 June 2021 and covered the area between the EDBS and Lockport Lock and Dam; a distance of about 5 river miles. The Brandon Road Pool survey was completed on 2 June 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 survey was completed on 1 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 survey was completed on 23 June 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 June 2021.
- No large-bodied (\geq 350 mm TL) bigheaded carp were captured outside their known range by USFWS in June 2021.

Table 2. Summary of USFWS invasive bigheaded carp early detection monitoring preliminary results from June 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	2.5 h; n _e = 10	0.75 h; n _d = 9	0	0	0	96	11	Common Carp (n _i = 36)
Brandon Road	4.5 h; n _e = 18	1.25 h; n _d = 15	0	0	0	92	13	Common Carp (n _i = 35)
Dresden Island	h; 2.75 n _e = 11	0.83 h; n _d = 10	n _n = 13	0	1 (Silver Carp, 730 mm TL)	1368	40	Gizzard Shad (n _i = 722)
Kankakee	h; 2.5 n _e = 10	0.83 h; n _d = 10	0	0	1 (Silver Carp, 860 mm TL)	273	31	Gizzard Shad (n _i = 47)

Barrier Operational and Maintenance Status

In the month of June, 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)

June 1 – Barrier 1D had scheduled maintenance that required a shutdown between 09:43 and 11:00. Barriers 1N and 2A were both operational at this time.

June 2 – Barrier 1 D had a scheduled maintenance that required a shutdown between 10:00 and 13:30 to continue maintenance that was started the previous day. Barriers 1N and 2A were operational during this shutdown.

June 4 – Barrier 1D experienced a loss of power at 10:44 for a few minutes. Barriers 1N and 2A were operational at this time. Barrier 1N experienced and outage at 11:45 with barrier 2A being operational at this time.

June 12 – Barrier 1N experienced a loss of utility power between 02:17 and 07:20. Barrier 1D and 2A were operational at this time.

June 21 - Barrier 1N experienced a loss of utility power between 10:36 and 11:08. Barrier 1D and 2A were operational at this time.

June 22 – Barrier 1 N experienced a loss of power between 04:54 and 05:43. Barrier 1D and 2A were operational at this time.

June 22 - Barrier 1N experienced a loss of power between 13:46 and 15:12. Barrier 1D and 2A were operational at this time.

June 23 - Barrier 1N experienced a loss of power between 09:58 and 10:23. Barrier 1D and 2A were operational at this time.

June 23 - Barrier 1N experienced a loss of power between 15:18 to 17:00. Barrier 1D and 2A were operational at this time.

June 23 - Barrier 1N experienced a loss of power between 19:24 and 20:25. Barrier 1D and 2A were operational at this time.

June 24 - Barrier 1N experienced a loss of power between 02:15 and 06:22. Barrier 1D and 2A were operational at this time.

June 25 – Barrier 1N experienced a loss of power between 06:49 and 07:09. Barrier 1D and 2A were operational at this time.

June 25 – Barrier 1N experienced a loss of power between 07:27 and 07:41. Barrier 1D and 2A were operational at this time.

June 28 - Barrier 1N experienced a loss of power due to scheduled maintenance between 09:50 and 11:12. Barrier 1D and 2A were operational at this time.

Alternate Pathway Surveillance in Illinois - Law Enforcement

- ISU assisted the Cook County Forest Preserve Police and District 4 Conservation Police with an incident that occurred on a forest preserve reservoir. 30 live red swamp crayfish and 7 tilapia were purchased from an Asian market in Schaumburg, IL and released into the water during a Buddhist merit release ritual. A witness observed the incident and notified the Forest Preserve Police who were able to identify the offender and the market the aquatic life was purchased at. Afterwards, ISU seized 30 pounds of live red swamp crayfish from the market and issued a citation for the unlawful possession and sale of live red swamp crayfish to the manager who had been warned for the same offense in 2019. Invoices obtained from the store identified the crayfish supplier out of Louisiana who was also issued a citation for the unlawful importation of live red swamp crayfish into Illinois. ISU determined the tilapia were legally transported and sold to the market. The woman who released the crayfish was issued a citation for releasing the aquatic life into the water.
- ISU answered public inquires pertaining to trapping crayfish on the Des Plaines river, the legality of using goldfish as bait, and keeping recreational caught sportfish within home aquaria.
- ISU participated in a surveillance operation of a suspected importer of injurious species. The investigation is ongoing and valuable intelligence was gathered during the surveillance.
- ISU inspected and aquaculture facility in Wheaton, IL that was seeking approval to raise tilapia. No deficiencies were observed approval for the permit was recommended.



Pictures: (Left) Red swamp crayfish “crawfish” for sale at the Schaumburg market. (Right) District 4 Conservation Officer weighing red swamp crayfish seized at the market.