

2019 May Summary

Bottom Line: Multiple agencies participated in monitoring Asian Carp (Bighead Carp, Black Carp, Grass Carp, and Silver Carp) in the upper Illinois Waterway downstream of the Electric Dispersal Barrier during May 2019. **NO LIVE BIGHEAD CARP, BLACK CARP, GRASS CARP, or SILVER CARP were found in any new locations immediately downstream of the Electric Dispersal Barrier.**

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

Electrofishing:

- United States Army Corps of Engineers (USACE) biologists conducted boat mounted electrofishing surveys in Lower Lockport Pool, Brandon Road Pool, and Dresden Island Pool during May
- Six hours of electrofishing were conducted in Lower Lockport Pool, 6 hours in Brandon Rd Pool, and 0.5 hours in Dresden Island Pool.
- A total of 528 fish were captured cumulatively within the three pools during May.
- Common Carp represented 37.9% of the catch, Gizzard Shad over six inches comprised 13.8% of the catch, Emerald Shiner made up 11.2% of the catch, and Smallmouth Bass were 6.6% of the total catch.
- **No Asian Carp (e.g., Bighead Carp, Black Carp, Grass Carp or Silver Carp) were caught in any of the pools in May during fixed and random site electrofishing.**

Hoop netting:

- Due to changes in the monitoring response plan these efforts did not take place in May.

Mini fyke netting:

- Due to changes in the monitoring response plan these efforts did not take place in May.

Commercial Netting:

- Contracted commercial fishers along with assisting Illinois Department of Natural Resources (IDNR) biologists set 13.9 miles of gill/trammel net at fixed and targeted sites in Lockport Pool and Dresden Island Pool (including Rock Run Rookery) in May.
- 539 fish representing 15 species were captured cumulatively with the two pools during May.
- Five Bighead Carp and 33 Silver Carp were captured in Dresden Island Pool below the electric dispersal barrier. Mostly in the Exelon nuclear plant discharge channel.
- Six Bighead Carp and 4 Silver Carp were captured in Rock Run Rookery.
- **No Bighead Carp, Grass Carp, or Silver Carp were captured or observed in Lockport Pool or Brandon Road Pool during contracted commercial netting during May.**

Sampling results below the electric dispersal barrier by pool through May 2019, along with the same time period in 2017 and 2018 for comparison (caution should be applied when comparing hoop net and mini fyke results among years due to changes in protocols):

Lockport Pool

	2017	2018	2019
Yards of Net Fished	20,800	39,200	10,800
Miles of Net Fished	11.8	22.3	6.1
Hoop Net Nights	10.8	8.9	0.0
Mini Fyke Net Nights	7.1	4.9	0.0
Electrofishing Runs	44	79	24
Electrofishing Time (hrs)	11.0	19.8	6.0
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

Brandon Road Pool

	2017	2018	2019
Yards of Net Fished	21,600	38,200	4,200
Miles of Net Fished	12.3	21.7	2.4
Hoop Net Nights	14.7	7.7	0.0
Mini Fyke Net Nights	8.8	2.8	0.0
Electrofishing Runs	48	60	24
Electrofishing Time (hrs)	12.0	15.0	6.0
Total Asian Carp	0	0	0
Tons of AC Harvested	0	0	0

Dresden Island Pool (Including Rock Run Rookery)

	2017	2018	2019
Yards of Net Fished	36,500	87,800	28,700
Miles of Net Fished	20.7	49.9	16.3
Hoop Net Nights	86.6	7.5	0.0
Mini Fyke Net Nights	11.8	3.9	0.0
Electrofishing Runs	68.0	79.0	2
Electrofishing Time (hrs)	17.0	19.8	0.5
Bighead Carp	221	274	15
Silver Carp	317	641	82
Grass Carp	2	33	2
Total AC	540	948	99
Asian Carp from Rock Run Rookery Lake (RR)	142	99	14
AC upstream I-55 (not in RR)	13	1*	0
AC downstream I-55	385	848	85
Tons of Asian Carp Harvested	6.3	8.2	0.8
AC/1000 yds of gill net	14.6	10.8	3.4

* indicates that the AC captured upstream of I-55 was a Grass Carp.

Asian Carp Removal Project

Removal took place in Marseilles Pool and Starved Rock Pool of the Illinois River. Below is a summary of all IDNR removal activities through May 2019, including 8 weeks of contracted fishing and two unified fishing methods (UFM). For comparison purposes, data from the same time period in 2017 and 2018 are included.

Overall

	2017	2018	2019
Number of Days Fished	41	37	44
Number of Net Crew Days	131	140	195
Yards of Net Fished	198,030	133,100	250,510
Miles of Nets Fished	112.5	75.6	142.3
Number of Pound Net Nights	74	22	26
Number of Hoop Net Nights	705.3	1217.1	0.0
Number of Bighead Carp	1,367	1,202	726
Number of Silver Carp	66,917	50,205	101,242
Number of Grass Carp	576	506	2268
Number of Asian Carp	68,860	51,913	104,236
Tons of AC Harvested	234.9	207.0	443.3
AC/1000 yds of gill net	280.3	351.9	414.5

Marseilles Pool

	2017	2018	2019
Yards of Net Fished	136,130	83,550	114,600
Miles of Nets Fished	77.3	47.5	65.1
Pound Net nights	74	22	26
Hoop Net nights	36.7	232.0	0.0
Mini Fyke Net Nights	11.7	4.0	0.0
Electrofishing Runs	25	48	0
Electrofishing Time (hrs)	6.3	12.0	0.0
Bighead Carp	743	881	373
Grass Carp	39	20	37
Silver Carp	22,523	23,505	27,680
Total Asian Carp	23,305	24,406	28,090
Tons of AC Harvested	100.5	117.4	159.1
AC/1000 yds of gill net	162.3	276.6	241.6

Starved Rock Pool

	2017	2018	2019
Yards of Net Fished	61,900	49,550	135,910
Miles of Nets Fished	35.2	28.2	77.2
Hoop Net nights	684.1	992.6	0.0
Bighead Carp	624	321	353
Grass Carp	537	486	2231
Silver Carp	44,394	26,700	73,562
Total Asian Carp	45,555	27,507	76,146
Tons of AC Harvested	135.1	89.6	284.2
AC/1000 yds of gill net	539.8	478.9	560.3

Zooplankton as dynamic assessment targets for Asian carp removal

Illinois Natural History Survey (INHS) collected zooplankton and water chemistry samples at 12 main channel and backwater sites located in the Brandon Road, Dresden Island, Marseilles, Starved Rock, Peoria, and LaGrange Pools during the weeks of May 6 and May 20. The collected data will be combined with historical and recent data on Illinois Waterway zooplankton communities to inform management agencies of ecosystem responses to Asian carp removals and develop dynamic targets for diminishing the ecological impacts of Asian carp.

Monitoring of Asian carp reproductive productivity

INHS collected ichthyoplankton samples at 7 main channel sites located in the Brandon Road, Dresden Island, Marseilles, Starved Rock, Peoria, and LaGrange Pools during every week of May. 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. The Illinois River was above flood stage during most of May, but water temperatures did not rise above the threshold thought to be conducive to Asian carp spawning until the second half of the month. A prolonged increase in water levels occurred during the last week in May, and large numbers of Asian carp eggs were observed at Spring Valley in the upper Peoria Pool on May 28. Ichthyoplankton sampling will continue on a weekly basis through the end of June, and will occur biweekly from July to October. Processing of samples and identification of larval fish and eggs is ongoing. Ichthyoplankton data will be used to evaluate changes in the reproductive front of Asian carp populations in the Illinois Waterway, identify reproductive hotspots, and quantify the relationship between Asian carp stock abundance and reproductive output. Results, particularly regarding occurrences of Asian carp eggs or larvae, will be reported as soon as they are available.

Monitoring Bigheaded Carp Movement and Density in the Illinois River

On 5/21 and 5/22, SIU implanted acoustic transmitters into 50 silver carp in Marseilles Pool of the Illinois River. 25 of these individuals were from the HMS East Pit while the remaining 25 were from the main channel and Sugar Island side channel. Additional acoustic tags remain to be implanted into 100 silver carp in Alton and La Grange pools but high water has prevented tagging in these pools.

From 5/14 through 5/17, two pond studies were initiated to evaluate 1) healing and the effects of acoustic tag implantation and 2) compare jaw tags to loop tags as external identifiers for acoustically tagged fishes (Figure 1). Each of these studies will evaluate effects through time and so fish will be sampled at 1 month, 2 months, and 5 months post-tagging. This study is a collaboration between SIU, U.S. Fish and Wildlife Service (USFWS), United States Geological Service (USGS), and Purdue University.



Figure 1. Initiation of the pond studies to evaluate effects of acoustic telemetry tag implantation, jaw tags, and loop tags on silver carp. Left: A silver carp is given a jaw tag. Right: A silver carp with a loop tag.

Asian Carp Demographics

In May 2019, the USFWS – Columbia Fish and Wildlife Conservation Office began the second year of a fisheries-independent, standardized protocol to update parameter estimates and address data gaps associated with the Spatially Explicit Asian carp Population (SEAcARP) model. Data collections include Silver Carp length and sex structure, maturity status, and relative abundance during spring and fall in six pools of the Illinois River: Alton, LaGrange, Peoria, Starved Rock, Marseilles, and Dresden Island (2019 only). During the weeks of May 13th and 20th, electrified dozer trawl crews sampled the Dresden Island, Marseilles, and Starved Rock pools. Of the 405 Silver Carp captured, 90% were collected from the Starved Rock Pool (Table 1). No Silver Carp less than 510mm were captured. Sex and maturity were evaluated on a sub-sample of Silver Carp from each pool and data is pending.

Table 1. Sampling effort and preliminary results using the electrified dozer trawl, May 2019.

Pool	Total Silver Carp Captured	Sample Size (# of 5 min trawls)	Mean CPUE (Silver Carp /5 min trawl)	Standard Error	Silver Carp Size Range (mm)
Dresden Island	0	50	0	0	-
Marseilles	40	48	0.83	0.26	552-819
Starved Rock	365	50	7.3	1.25	510-795

Asian Carp Telemetry

USACE biologists visited the Lockport, Brandon Road, and Dresden Island Pools on 10, 21, 23, 29 May to download data from receivers. Biologists downloaded data from 27 VR2W receivers from which data was previously downloaded in March. Preliminary screening of the downloaded data indicated approximately 555,000 detections in the Lower Lockport Pool, 29,000 detections in the Brandon Road Pool, and 166,000 detections in the Dresden Island Pool. Data indicates no tagged fish passage upstream through the Electric Dispersal Barrier System (EDBS) and no tagged Asian carp movements through the Lockport or Brandon Road Lock and Dams. No new transmitters were implanted into any fish in May.

Asian Carp Real Time Telemetry

The real time fish tracks webpage was down at the time of completion of this summary. May real time telemetry results will be included in the June summary.

Hydroacoustic Fish Surveys at the Electric Fish Dispersal Barrier System, Romeoville, IL

The USFWS conducted one mobile hydroacoustic fish surveys at the Electric Dispersal Barrier System (EDBS) during May 2019. One survey was completed in May due to hazardous river conditions. The survey was completed on May 20, 2019 to monitor for the presence and distribution of large fishes greater than 12 inches (30.5 cm) total length near the EDBS. The purpose of these hydroacoustic surveys is to aide in assessing the risk of fish detected near the EDBS being either Bighead or Silver Carp prior to or during barrier operational changes and/or maintenance. Hydroacoustic surveys covered the area between Hanson Material Services Corporation (HMSC) docking slip, approximately 1.3 km below the Romeo Road Bridge, to the upstream side of the Demonstration Barrier (0.6 km above Romeo Road Bridge). For reporting purposes, Romeo Road Bridge is treated as the dividing line between the areas referred to as “within the EDBS” and “downstream of the EDBS.”

Preliminary Results:

One large fish target was detected within the EDBS on May 20, 2019. The fish was detected upstream of Barrier IIB just downstream of the Demonstration Barrier. No large fish targets were detected downstream of the EDBS.

Barrier Operational and Maintenance Status

Status as of 31 May 2019

- Demo – Full water (5 Hz, 4 ms, 400 V = 1.0 V/in) & benthic (5 Hz, 4 ms, 100V) operational
- IIA – Online; Narrow (34 Hz, 2.3 ms, 2000 V = 2.3 V/in) & wide (34 Hz, 2.3 ms, 800 V = ~1.0 V/in) arrays operational
- IIB –Online; Narrow (34 Hz, 2.3 ms, 2000 V = 2.3 V/in) & wide (34 Hz, 2.3 ms, 800 V = ~1.0 V/in) arrays operational
- Des Plaines By-Pass Fence - Fully Operational; Turtle Gates are Open

Demo Barrier was fully operational throughout the month of May. The Demo Barrier will be powered down for annual maintenance AFTER Barrier IIA annual maintenance. Exact schedule is TBD and pending repair completions at Barrier IIA and contractor availability.

Barrier IIA was in lock out / tag out (LOTO) status in support of cooling system upgrades and repair work. Cooling system upgrades to Barrier IIA were completed in May and the system returned to full operation on 21 May 2019. The wide array was intermittently in operation for several days following re-start as the cooling water system was flushed following a prolonged period of downtime. The wide array was powered back on full time on 30 May 2019.

Barrier IIB annual maintenance is complete and both wide and narrow arrays returned to service on 30 March 2019. Barrier IIB wide and narrow arrays were in full operation throughout the month of May.

The Des Plaines Bypass Barrier is fully functional. The turtle gates were opened on 15 March 2019 for the season to allow for passage of amphibians and reptiles. Turtle gates were open throughout the month of May with no overtopping events recorded.