

## 2019 July 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 July 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:*

- During the month of July 2019, United States Army Corporation of Engineers (USACE) crews conducted 3.5 hours of electrofishing in Lower Lockport, 2 hours in Brandon Road, and 1 hour in Dresden Island.
- A total of 968 fish were captured across the three sites during July.
- Emerald Shiner made up 36.2% of the total catch, Gizzard Shad over 6 inches made up 16.8% of the catch, and Common Carp made up 11.8% of the catch.
- **One Silver Carp was captured in Dresden Island Pool on 26 July.**

#### *Hoop netting:*

- Due to changes in the monitoring response plan this effort will be reported in Aug following the end of the first sampling period (June 15 through July 31).

#### *Mini fyke netting:*

- Due to changes in the monitoring response plan this effort will be reported in Aug following the end of the first period of sampling (June 15 through July 31).

#### *Commercial Netting:*

- Contracted commercial fishers along with assisting Illinois Department of Natural Resources (IDNR) biologists set 23.1 miles of gill/trammel net at fixed and targeted sites in Lockport Pool, Brandon Road Pool, and Dresden Island Pool (including Rock Run Rookery) of the Illinois River in July 2019.
- Cumulatively 279 fish representing 11 species were captured in the three pools during July 2019.
- No Bighead Carp and 10 Silver Carp were captured in Dresden Island Pool below the I55 bridge during July 2019.
- No Bighead Carp or Silver Carp were captured in Dresden Island Pool above I55 bridge during July 2019.
- No Bighead Carp or Silver Carp were captured in Rock Run Rookery during July 2019.
- **No Bighead Carp, Grass Carp, or Silver Carp were captured or observed in Lockport Pool or Brandon Road Pool during contracted commercial netting in June 2019.**

**Sampling results below the electric dispersal barrier by pool through July 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*

	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Yards of Net Fished</b>	41,400	50,500	24,600
<b>Miles of Net Fished</b>	23.5	28.7	14.0
<b>Hoop Net Nights</b>	25.1	24.8	0.0
<b>Mini Fyke Net Nights</b>	13.9	13.0	0.0
<b>Electrofishing Runs</b>	68	115	0
<b>Electrofishing Time (hrs)</b>	17.0	28.8	0.0
<b>Total Asian Carp (AC)</b>	0	0	0
<b>Tons of AC Harvested</b>	0	0	0

*Brandon Road Pool*

	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Yards of Net Fished</b>	46,600	50,600	15,400
<b>Miles of Net Fished</b>	26.5	28.7	8.7
<b>Hoop Net Nights</b>	27.7	23.4	0.0
<b>Mini Fyke Net Nights</b>	15.7	10.8	0.0
<b>Electrofishing Runs</b>	71	96	0
<b>Electrofishing Time (hrs)</b>	17.8	24.0	0.0
<b>Total Asian Carp (AC)</b>	0	0	0
<b>Tons of AC Harvested</b>	0	0	0

*Dresden Island Pool (Including Rock Run Rookery)*

	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Yards of Net Fished</b>	72,950	124,100	71,200
<b>Miles of Net Fished</b>	41.4	70.5	40.5
<b>Hoop Net Nights</b>	319.5	23.1	0.0
<b>Mini Fyke Net Nights</b>	19.2	11.7	0.0
<b>Pound net night</b>	0	4	0
<b>Electrofishing Runs</b>	131	124	0
<b>Electrofishing Time (hrs)</b>	17.0	19.8	0.0
<b>Bighead Carp</b>	267	285	19
<b>Grass Carp</b>	6	37	2
<b>Silver Carp</b>	399	665	116
<b>Total AC</b>	672	987	137
<b>Asian Carp (AC) from Rock Run Rookery Lake (RR)</b>	176	107	17
<b>AC upstream I-55 (not in RR)</b>	16	5*	3
<b>AC downstream I-55</b>	480	875	117
<b>Tons of AC Harvested</b>	7.7	8.6	2.1
<b>AC/1000 yds of gill net</b>	9.0	7.9	1.9

\* indicates that the AC captured upstream of I-55 included 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 July 2019, including 13 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*

	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Number of Days Fished</b>	44	50	63
<b>Number of Net Crew Days</b>	131	190	300
<b>Yards of Net Fished</b>	204,980	203,400	332,465
<b>Miles of Nets Fished</b>	116.5	115.6	188.9
<b>Number of Pound Net Nights</b>	74	22	26
<b>Number of Hoop Net Nights</b>	879.8	1217.1	0.0
<b>Number of Bighead Carp</b>	1,490	2,318	2,315
<b>Number of Silver Carp</b>	70,134	69,142	128,171
<b>Number of Grass Carp</b>	592	656	2,318
<b>Number of Asian Carp (AC)</b>	72,216	72,116	132,804
<b>Tons of AC Harvested</b>	249.1	268.5	517.2
<b>AC/1000 yds of gill net</b>	283.7	329.6	398.2

*Marseilles Pool*

	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Yards of Net Fished</b>	139,830	105,900	143,200
<b>Miles of Nets Fished</b>	79.4	60.2	81.4
<b>Pound Net nights</b>	74	22	26
<b>Hoop Net nights</b>	72.0	247.6	0.0
<b>Mini Fyke Net Nights</b>	15.5	11.7	0.0
<b>Electrofishing Runs</b>	72	96	0
<b>Electrofishing Time (hrs)</b>	18.0	24.0	0.0
<b>Bighead Carp</b>	802	1,115	794
<b>Grass Carp</b>	54	35	38
<b>Silver Carp</b>	23,069	25,938	29,553
<b>Total Asian Carp</b>	23,925	27,088	30,385
<b>Tons of AC Harvested</b>	103.6	129.9	172.2
<b>AC/1000 yds of gill net</b>	159.6	242.2	209.3

*Starved Rock Pool*

	<b>2017</b>	<b>2018</b>	<b>2019</b>
<b>Yards of Net Fished</b>	65,150	97,500	189,265
<b>Miles of Nets Fished</b>	37.0	55.4	107.5
<b>Hoop Net nights</b>	831.2	992.6	0.0
<b>Bighead Carp</b>	690	1,204	1,521
<b>Grass Carp</b>	553	630	2,280
<b>Silver Carp</b>	47,444	44,332	98,618
<b>Total Asian Carp</b>	48,687	46,166	102,419
<b>Tons of AC Harvested</b>	150.2	142.1	344.9
<b>AC/1000 yds of gill net</b>	550.0	424.5	541.1

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

Active tracking of acoustically tagged Common Carp and Silver Carp occurred in the Starved Rock Pool the week of July-17 as part of the collaboration [Southern Illinois University (SIU) & USACE collaboration] surrogate fish project comparing the movements and habitat use of Common Carp and Silver Carp to evaluate the use of Common Carp as a surrogate for Silver Carp. Eleven fish (8 Common Carp, 2 Silver Carp) were detected in Starved Rock Pool (out of 39 tagged) during the week. Weather conditions prevented active tracking in Peoria Pool where additional tagged Common Carp and Silver Carp are located.

Work was conducted on an ongoing experiment to assess the relative effects of acoustic telemetry methods on Silver Carp survival, wound healing, and growth. Fish were stocked into SIU experimental ponds in Spring 2019 and received either: surgery with an acoustic transmitter and a jaw tag; surgery with an acoustic transmitter; only a jaw tag; or no surgery/tag. Additional ponds were stocked with Silver Carp that received either a jaw tag or dorsal loop tag to compare external marking methods on survival and growth. During the week of July 22<sup>nd</sup>, fish from several ponds were recovered to assess endpoints two months after stocking (Figure 1). Fish in the final ponds will be recovered five months after the experiment began (mid-October), at which point growth, survival, and wound healing (surgical site and jaw tag) will be compared across treatments and through time.

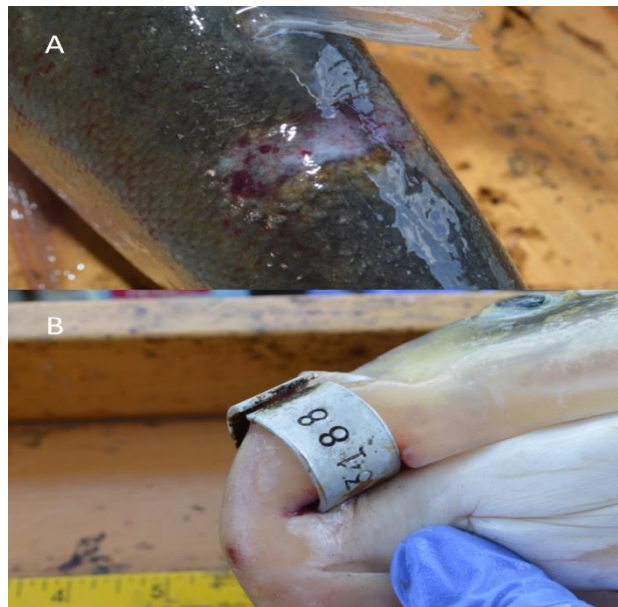


Figure 1. Silver Carp 2 months after receiving loop tags or jaw tags. A) A Silver Carp that lost its loop tag leaving a partially-healed wound. B) A jaw tag retained on an adult Silver Carp.

### **Telemetry**

#### *United States Army Corporation of Engineers*

- USACE biologists visited Lockport, Brandon Road, and Dresden Island Pools on 16, 24, 26, 28 July to download data from receivers. Biologists downloaded data from 26 VR2W receivers which data was previously downloaded in May.

- Preliminary screening of the downloaded data indicated approximately 736,000 detections in the Lower Lockport Pool, 46,000 detections in the Brandon Road Pool, and 120,000 detections in the Dresden Island Pool during this two-month detection period.
- One receiver in the Lockport Pool upstream of the electric barrier recorded 16 detections. **Those 16 detections were from one Common Carp originally captured, tagged, and released upstream of the barrier.**
- Data indicate no tagged fish passage upstream through the Electric Dispersal Barrier System (EDBS). No tagged Asian carp moved through the Lockport or Brandon Road Lock and Dams.
- No new transmitters were implanted into any fish in July.

United States Geological Services (USGS)

- Real time receivers

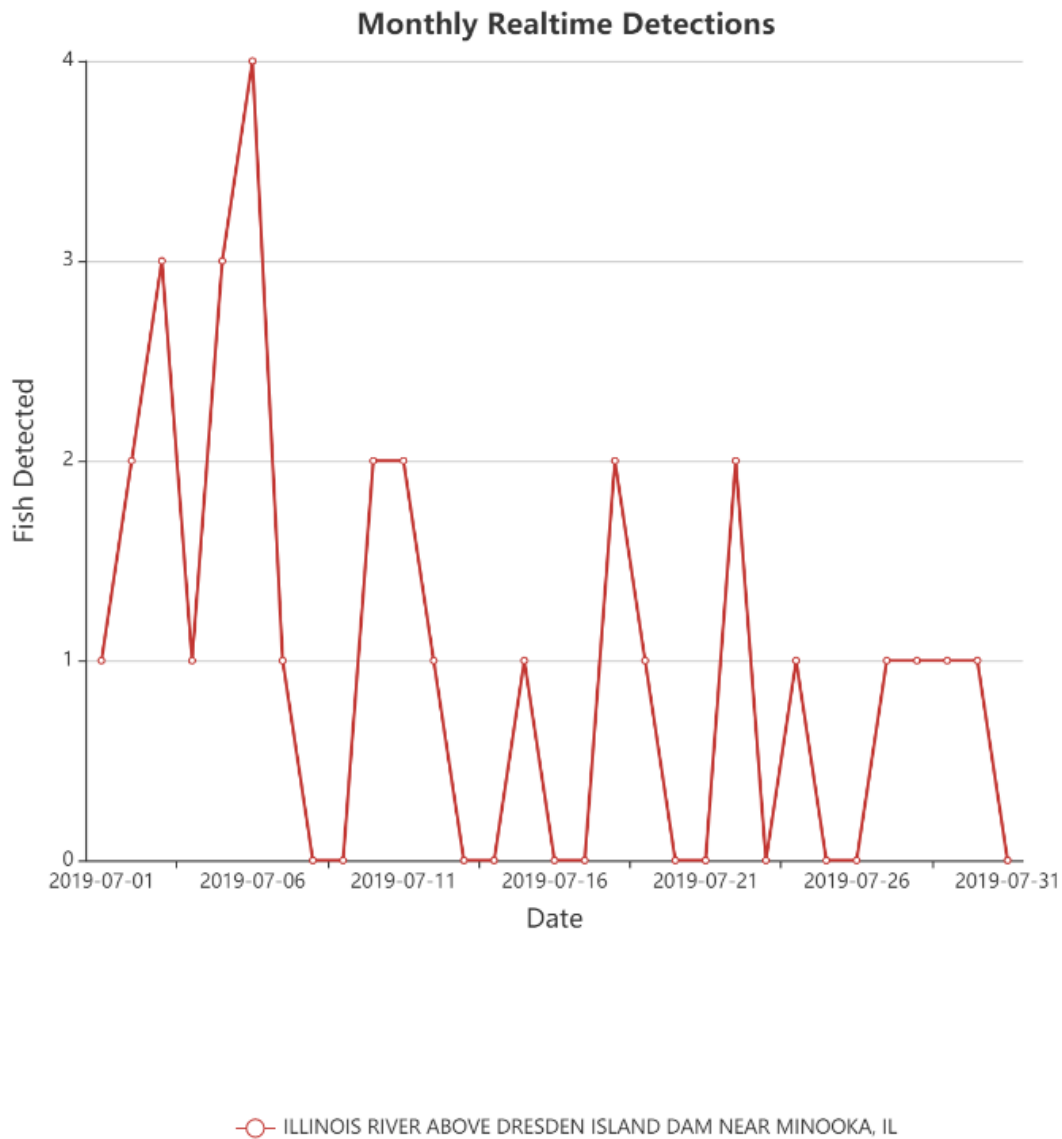


Figure 2. Fish detections for 1 July – 31 July 2019 at the Minooka receiver.

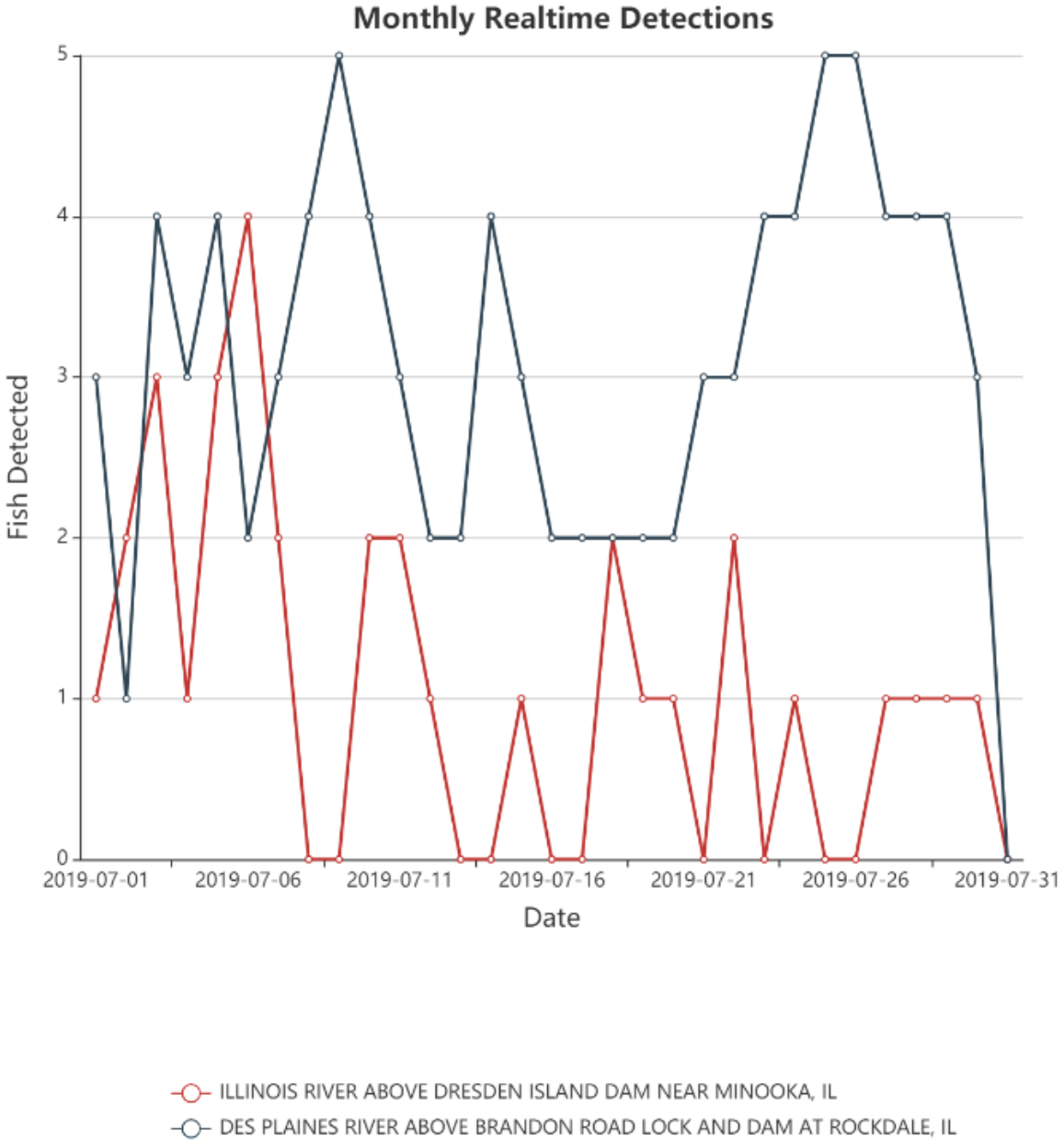


Figure 3. Fish detections for 1 July – 31 July 2019 at Rockdale, and Minooka receivers.

These data are preliminary or provisional and are subject to revision. They are being provided to meet the need for timely best science. The data have not received final approval by the USGS and are provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the data. For additional details, on the hydrographs figure please contact Marybeth Brey ([mbrey@usgs.gov](mailto:mbrey@usgs.gov)).

### **Telemetry Support for SEACarP Model**

The United States Fish and Wildlife Service (USFWS) Carterville FWCO – Wilmington Substation captured (boat electrofishing) and tagged a total of 105 Adult Silver and Bighead carp throughout the Peoria Pool from Starved Rock State Park to Coopers Park in East Peoria in support of the SEACarP model. The size range of these fish was 490 - 776 mm TL. No juvenile Silver carp were captured and from this effort. Information on the tagged fish will be disseminated to the MWRG - Telemetry Workgroup soon.

### **Habitat Use and Movement of Juvenile Silver Carp in the Illinois River**

The USFWS Carterville FWCO – Wilmington Substation conducted a total of 2.5 weeks of effort for the Juvenile Silver carp habitat use and movement (telemetry) project. From July 1 to July 3, sampling with mini-fyke nets and a seine took place in the lower Peoria pool. A total of 6 mini-fyke nets were deployed in Peoria Lake (lower pool) July 1 to July 2 and resulted in 0 YoY Silver carp captured. A seine net was used to actively sample shoreline areas in floodplain and at boat ramps in East Peoria for a sum of 17 hauls. The seine effort resulted in an estimated total of 500 YoY Silver carp. Total length (TL) of these fish ranged from 12 mm to 21 mm. YoY silver carp were not individually measured and counted to expedite handling time, as these fish were immediately transported to a holding facility in Alton, IL to be tagged later in 2019 as part of our juvenile telemetry project. One week was also spent downloading and maintaining telemetry receivers.

### **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 the weeks of July 8 and July 22. Four larval fish samples were collected at each site. Additional samples were collected in Illinois River. Processing of samples and identification of larval fish and eggs is ongoing. Ichthyoplankton sampling will continue to occur biweekly through October. 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.

### **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 July 8 and July 22. 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.

## **Hydroacoustic Fish Surveys of the Upper Illinois Waterway: Dresden Island, Brandon Road, and Lockport Pools**

The USFWS Carterville FWCO – Wilmington Substation conducted mobile hydroacoustic fish surveys in Dresden Island Pool, Brandon Road Pool, and Lockport Pool. The Lockport Pool survey was completed on July 15, 2019. The Brandon Road Pool survey was completed on July 17, 2019. The Dresden Island Pool survey was completed on July 22, 2019 and July 23, 2019. These surveys are designed to monitor for the presence and density of large fishes, potentially Bighead or Silver Carp >12 in (30.5 cm) total length within the upper Illinois Waterway. The hydroacoustic survey in Lockport Pool covered the area between the Hanson Material Services Corporation (HMSC) docking slip and Lockport Lock and Dam a distance of approximately 6.5 km. The hydroacoustic survey in Brandon Road Pool covered the area between Lockport Lock and Dam and Brandon Road Lock and Dam a distance of approximately 7.2 km. The hydroacoustic survey in Dresden Island Pool covered the area between Brandon Road Lock and Dam and Dresden Island Lock and Dam a distance of approximately 23 km. In all pools, surveys consisted of a single clockwise-loop transect with the boat following the contour of the main channel edge while ensonifying water within the channel.

### *Preliminary Results:*

#### **Lockport Pool:**

A mean density of 1.4 large fish targets per 100,000 m<sup>3</sup> were detected in Lockport Pool. Fifteen fish were detected, on the -9.6° subsurface transducer, in 675,956 m<sup>3</sup> of ensonified water. Two fish were detected, on the -3.2° surface transducer, in 330,575 m<sup>3</sup> of ensonified water.

#### **Brandon Road Pool:**

A mean density of 1.2 large fish targets per 100,000 m<sup>3</sup> were detected in Brandon Road Pool. Two fish were detected, on the -9.6° subsurface transducer, in 223,398 m<sup>3</sup> of ensonified water. Six fish were detected, on the -3.2° surface transducer, in 425,760 m<sup>3</sup> of ensonified water.

#### **Dresden Island Pool:**

A mean density of 4.4 large fish targets per 100,000 m<sup>3</sup> were detected in Brandon Road Pool. Thirty five fish were detected, on the -9.6° subsurface transducer, in 611,290 m<sup>3</sup> of ensonified water. Forty fish were detected, on the -3.2° surface transducer, in 1,294,502 m<sup>3</sup> of ensonified water.

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

The USFWS Carterville FWCO – Wilmington Substation conducted two mobile hydroacoustic fish surveys at the Electric Dispersal Barrier System (EDBS) during July 2019. The surveys were completed on July 9, 2019 and July 19, 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 aid 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:*

No large fish targets were detected within the EDBS on July 9, 2019. Five large fish targets were detected downstream of the EDBS.

Two large fish targets were detected within the EDBS on July 19, 2019. One fish was detected upstream of Barrier IIA and downstream of Barrier IIB. One fish was detected between Barrier IIB and the Demonstration Barrier. Additionally, ten large fish targets were detected downstream of the EDBS.

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

Status as of 31 July 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

Barrier IIB wide and narrow arrays were powered down for just over six hours on 3 July 2019 in support of cooling tower repair work. Barriers IIA and the Demonstration Barrier were active during this work. No opportunity for fish passage occurred.

The Demonstration Barrier was powered down for annual maintenance from 9am on 8 July 2019 through 2pm on 10 July 2019. The Demo was powered back down at 8am on 16 July for inspections and was brought back online by 8 am on 17 July 2019. Barrier IIA and IIB were fully functional during this outage and no opportunity for fish passage occurred.

Barrier IIA experienced a minor loss of power to the water for less than 30 sec at its narrow array on 24 July as power was transferred from its primary to secondary pulser around 7am. A wide array outage also occurred on 24 July from 7am to 10am. The operating pulser for the narrow array was toggled between the primary and secondary units on 25 July at 1am and 7am for two more minor losses of power to the water. The wide array was powered down between 7am and 3pm on 25 July 2019. The narrow array for Barrier IIA was shut down around 11pm on 25 July and was turned back on for ten hours on 31 July 2019 between 10am and 7pm before being turned back off. Barrier IIA narrow array was powered back on for full time operation on 2 August 2019. Barrier IIB and the Demonstration Barriers were fully operating during these Barrier IIA outages. A notification

was sent to the MRWG on 5 August indicating an opportunity for fish passage had occurred at Barrier IIA.

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

Invasive Species Unit (ISU) inspected retail fish markets in the Chicagoland area in search of live invasive species for sale. Live red swamp crayfish were observed at one location and seized (Figure 4). Another location had the crayfish advertised for sale, but the store had sold all of them prior to the inspection. The investigation is ongoing.



Figure 4. Live Red Swamp Crayfish seized.

ISU traveled to Ohio to meet with fellow investigators of the Aquatic Resources Task Force. Representatives from U.S. Fish and Wildlife, Ohio Department of Natural Resources, and Indiana Department of Natural Resources were in attendance. Investigative strategies were discussed concerning ongoing cases involving invasive species and commercial fishing.

ISU participated in a joint meeting between Illinois and Indiana DNR to discuss current issues with commercial fishing violations on the river systems bordering each state. ISU participated in the Lake County Outdoor Education Day where presentations were given to approximately 150 children and adults about the dangers of invasive species. Participants were given an overview of how invasive species enter the state of Illinois as well as ways they can help prevent the spread of invasive species. ISU participated in a survey administered by the University of Illinois Department of Natural Resources and Environmental Sciences studying the relationship between anglers and invasive species from the perspective of law enforcement personnel. ISU instructed the current Conservation Police Academy class enforcement techniques for invasive species; aquaculture; live fish transportation; and injurious species.