

## 2018 March Summary

**Bottom Line:** Monitoring occurred in the CAWS and upper Illinois Waterway upstream and downstream of the Electric Dispersal Barrier in March. **NO LIVE BIGHEAD 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:*

- Crews from IDNR and USACE completed 52 electrofishing runs at fixed and random sites (13 hours total) in the Lockport, Brandon Rd, Dresden Island and Marseilles Pools in March.
- They collected 1,552 fish of 37 species.
- **No Asian carp were captured or observed in any of the pools.**

#### *Commercial Netting:*

- Contracted commercial fishers along with assisting IDNR biologists set 37.8 miles of gill net at fixed and targeted sites in the Lockport, Brandon Rd and Dresden Island Pools (including Rock Run Rookery) in March.
- They collected 2,098 fish of 13 species.
- One Bighead Carp and 16 Silver Carp were collected in Rock Run Rookery.
- Fifty-eight Bighead Carp and 79 Silver Carp were collected in the Dresden Island Pool, downstream of I-55.
- **No Bighead Carp or Silver Carp were captured or observed in the Lockport or Brandon Road Pools.**

#### *Unified Fishing Method – Dresden Island Pool:*

The Unified Fishing Method (UFM) in the Dresden Island Pool, which included Rock Run Rookery and the lower Kankakee River, took place the week of February 26<sup>th</sup>. One hundred forty-five Silver Carp and 77 Bighead Carp were removed totaling 4,342 pounds (2.2 tons), which equates to 26% of the total number of Asian carp collected in the Dresden Island Pool in 2017. Fifty-three of the 222 Asian carp collected during the UFM came from Rock Run Rookery. **No Asian carp were collected in any other locations upstream of I-55.** Bycatch totaled 3,565 individuals of 18 species with Smallmouth Buffalo comprising 71% of the bycatch followed by Common Carp (13%). Four pound net nights and 11.8 miles of gill net were utilized during this effort.

Sampling results by pool below the electric dispersal barrier through March 2018, along with the same time period in 2016 and 2017 for comparison:

<b>Lockport</b>			
	<b>2016</b>	<b>2017</b>	<b>2018</b>
Yards of Net Fished	7,300	5,600	22,400
Miles of Net Fished	4.1	3.2	12.7
Hoop Net Nights	0	0	0
Mini Fyke Net Nights	0	0	0
Electrofishing Runs	4	0	0
Electrofishing Time (hrs)	1.0	0.0	0.0
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

<b>Brandon Rd</b>			
	<b>2016</b>	<b>2017</b>	<b>2018</b>
Yards of Net Fished	7,500	5,700	18,400
Miles of Net Fished	4.3	3.2	10.5
Hoop Net Nights	0	0	0
Mini Fyke Net Nights	0	0	0
Electrofishing Runs	4	0	0
Electrofishing Time (hrs)	1.0	0.0	0.0
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

<b>Dresden Island</b>			
	<b>2016</b>	<b>2017</b>	<b>2018</b>
Yards of Net Fished	5,350	4,900	32,900
Miles of Net Fished	3.0	2.8	18.7
Hoop Net Nights	0	0	0
Mini Fyke Net Nights	0	0	0
Electrofishing Runs	0	0	12
Electrofishing Time (hrs)	0.0	0.0	3.0
Asian Carp (AC) upstream I-55	0	0	0
AC downstream I-55	23	4	306
Total AC	23	4	306
Tons of AC Harvested	0.2	0.0	2.7
AC/1000 yds of gill net	4.3	0.8	9.3

<b>Rock Run Rookery</b>			
	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Yards of Net Fished</b>	5,300	3,500	13,600
<b>Miles of Net Fished</b>	3.0	2.0	7.7
<b>Pound Net nights</b>	0	0	4
<b>Bighead Carp</b>	9	11	23
<b>Silver Carp</b>	12	5	47
<b>Total Asian Carp (AC)</b>	21	16	70
<b>Tons of AC Harvested</b>	0.3	0.2	0.9
<b>AC/1000 yds of gill net</b>	4.0	4.6	5.1

### **Barrier Defense Asian Carp Removal Project**

Barrier Defense specifically takes place in the Marseilles and Starved Rock Pools. Below is a summary of all IDNR Barrier Defense activities through March 2018, which is solely comprised of the Unified Fishing Method in the West Pit the week of March 19<sup>th</sup>, along with the same time period in 2016 and 2017 for comparison:

	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Number of Days Fished</b>	14	13	5
<b>Number of Net Crew Days</b>	92	98	35
<b>Yards of Net Fished</b>	78,300	56,130	24,100
<b>Miles of Nets Fished</b>	44.5	31.9	13.7
<b>Number of Pound Net nights</b>	20	35	15
<b>Number of Hoop Net nights</b>	0	0	0
<b>Number of Bighead Carp</b>	2,242	336	176
<b>Number of Silver Carp</b>	20,423	20,058	8,852
<b>Number of Grass Carp</b>	10	27	1
<b>Number of Asian Carp (AC)</b>	22,675	20,421	9,029
<b>Tons of AC Harvested</b>	96.1	74.1	40.9
<b>AC/1000 yds of gill net</b>	209.5	354.4	327.2

By comparison, the 2017 Unified Fishing Method in the West Pit resulted in 8,353 Asian carp (8,297 Silver Carp, 56 Bighead Carp) being removed over the course of two weeks totaling 75,161 pounds (37.6 tons). Total effort in 2017 was 20.1 miles of gill net, one 0.5 mile seine haul and 14 pound net nights.

<b>Marseilles</b>			
	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Yards of Net Fished</b>	72,650	41,330	23,900
<b>Miles of Nets Fished</b>	41.3	23.5	13.6
<b>Pound Net nights</b>	20	35	15
<b>Hoop Net nights</b>	0	0	0
<b>Mini Fyke Net Nights</b>	0	0	0
<b>Electrofishing Runs</b>	0	0	12
<b>Electrofishing Time (hrs)</b>	0.0	0.0	3.0
<b>Bighead Carp</b>	2,068	114	176
<b>Silver Carp</b>	18,075	10,109	8,777
<b>Grass Carp</b>	3	8	1
<b>Total Asian Carp</b>	20,146	10,231	8,954
<b>Tons of AC Harvested</b>	89.0	37.7	40.6
<b>AC/1000 yds of gill net</b>	191.0	234.8	326.8
<b>Starved Rock</b>			
	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Yards of Net Fished</b>	5,650	14,800	200
<b>Miles of Nets Fished</b>	3.2	8.4	0.1
<b>Hoop Net nights</b>	0	0	0
<b>Bighead Carp</b>	174	222	0
<b>Silver Carp</b>	2,348	9,949	75
<b>Grass Carp</b>	7	19	0
<b>Total Asian Carp</b>	2,529	10,190	75
<b>Tons of AC Harvested</b>	7.0	36.4	0.3
<b>AC/1000 yds of gill net</b>	447.6	688.5	375.0

## Using Long-term Asian Carp Abundance and Movement Data to Reduce Uncertainty of Management Decisions

Hydroacoustic data collected during the fall 2017 surveys were analyzed for Starved Rock, Marseilles, and Dresden Island pools. Mean pool-wide Asian carp (Bighead Carp and Silver Carp) densities remained similar from 2017 compared to 2016 in Starved Rock and Marseilles pools, but declined in Dresden Island Pool (Figure 1). The repeated surveys of Dresden Island Pool throughout 2017 were consistently low and similar to the fall 2017 density estimate (Figure 2).

Hydroacoustic surveys were completed in the HMS East and West pits of the Marseilles Pool in early 2018, as well as the Dresden Island Pool. Surveys at these locations were conducted before and after Unified Method harvest to provide information on fish spatial distributions to help guide removal efforts. Surveys after harvest will help determine effectiveness of the Unified Method at reducing Asian carp densities. Data from these surveys are currently being analyzed. Acoustic telemetry receivers in the Starved Rock Pool were also downloaded in March.

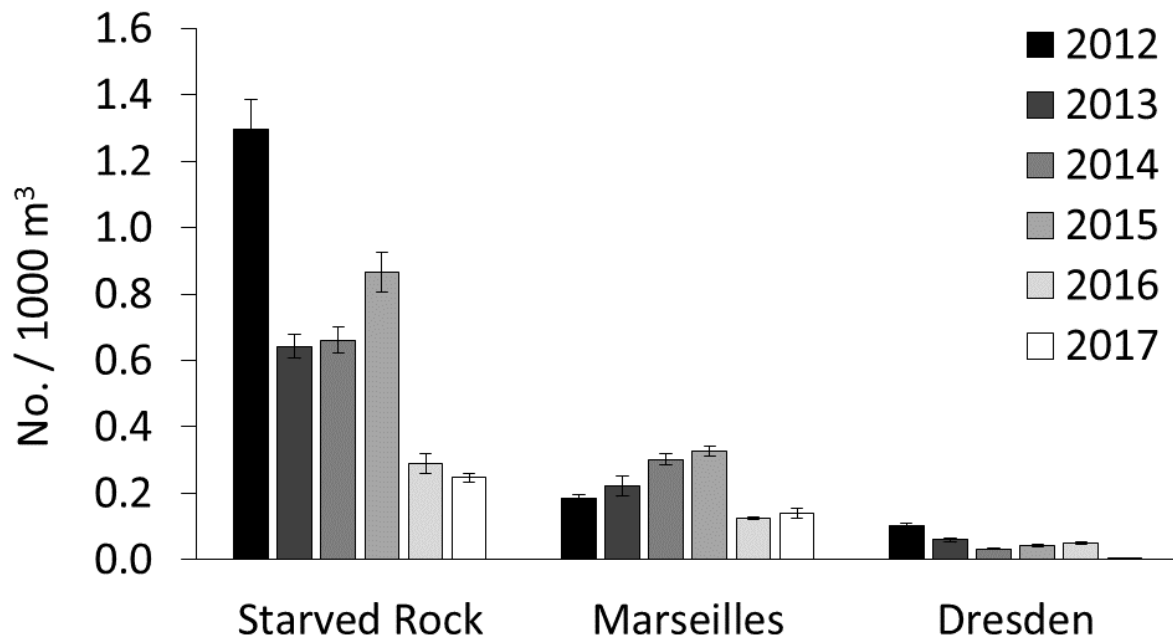


Figure 1. Mean (SE) pool-wide Asian carp densities from 2017 fall (October, after Unified Method harvest) hydroacoustic surveys in the upper Illinois River.

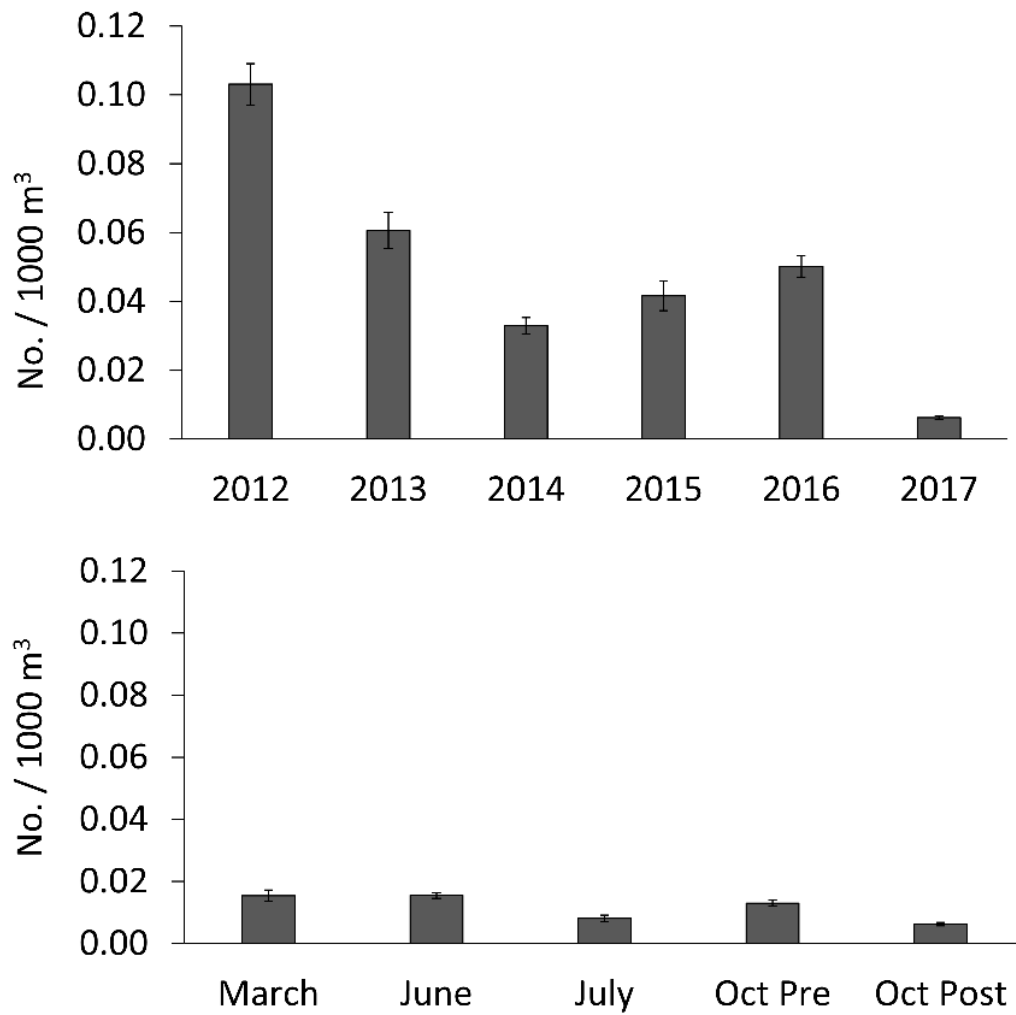


Figure 2. Mean (SE) pool-wide Asian carp densities in the Dresden Island pool from hydroacoustic surveys. Top: annual fall densities; bottom: bi-monthly densities throughout 2017 (Oct Pre and Oct Post: density estimates before and after the Unified Method in October, respectively).

## Real-time USGS Acoustic Telemetry Receiver Summary

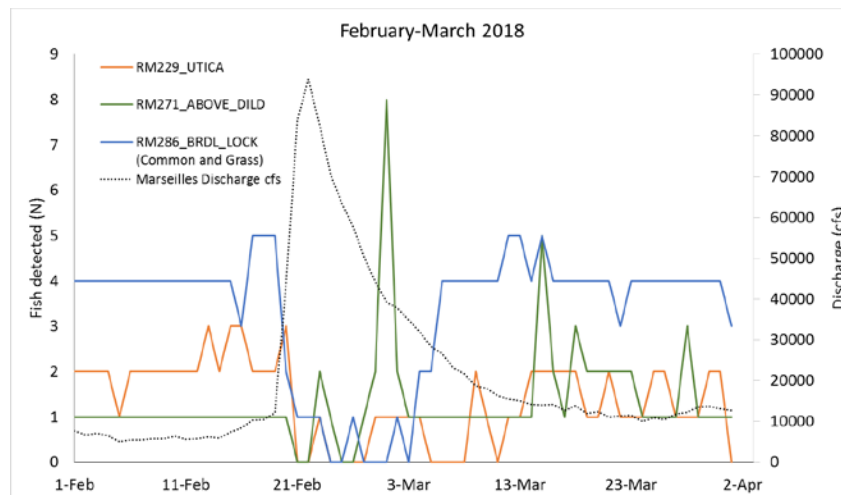


Figure 1. Graph showing fish detections for February and March at Utica, Minooka, and Rockdale receivers. All fish shown for Utica (RM 229; orange) and Minooka (RM 271; green) are Silver or Bighead carp. Discharge for the Marseilles gaging station (USGS 05543500) is shown as a black dotted line.

Twenty bighead or silver carp were detected on real-time receivers from 1 Mar – 1 Apr 2018. All bighead or silver carp were detected at Utica (N = 9 silver carp, 1 bighead carp) or at Minooka above Dresden Island Lock and Dam (N = 1 bighead carp, 1 big/silver hybrid, 1 silver carp). One fish was detected at two receivers, suggesting that this bighead carp passed downstream through three locks/dams (Dresden Island, Marseilles, and Starved Rock) over a two week time period (Mar 1 – Mar 15). The Bighead carp (A69-1601-23027) was detected above Dresden Island L&D (Minooka receiver) on March 1 and below Starved Rock Lock and Dam (Utica receiver) on March 15 and 16. Further downloads from stationary receivers will be necessary to confirm this movement. Additional common or grass carp were detected at the Rockdale receiver below Brandon Road Lock and Dam (N = 5 grass carp, 1 common carp), at Rockdale above Brandon Road Lock and Dam (N = 5 Common Carp), and at Minooka (N = 1 common carp). For additional details, please refer to the attached spreadsheet and graphs. For questions, please contact Marybeth Brey ([mbrey@usgs.gov](mailto:mbrey@usgs.gov)).

**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 U.S. Geological Survey (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.**

### **Distribution and monitoring of juvenile Asian carp**

Field crews sampled Starved Rock pool for small Silver and Bighead carps (TL <160mm) over one week during March 2018. Boat electrofishing was used from March 13 to March 15 at a total of 16 sites (4 hrs total fishing time) and resulted in a total of 1054 fish captured representing 28 species. A sum of 56 adult Silver carp and 3 adult Bighead carp were caught during sampling. No juvenile Silver or Bighead carp were captured during March 2018. High river stages as well as cold weather conditions negatively impacted the intensity of field work and fish catch rates.

### **Habitat usage and movement of juvenile Asian carp (telemetry)**

Two weeks of effort were conducted as part of the telemetry project to determine habitat usage and movement of juvenile Silver and Bighead carps. One week was spent in the Peoria reach downloading radio telemetry data, checking batteries, and repairing radio equipment for the 2018 field season. During this time active tracking in the main channel also took place resulting in location of 3 of 12 silver carp tagged with VHF transmitters, however high water flow velocity and wind limited the signal range of tagged fish. A second week was spent in the Peoria reach deploying hydrophones in preparation for fish tagging during 2018.

### **Telemetry Monitoring**

USACE biologists completed downloads at 13 receivers within the Lockport, Brandon Road, and Dresden Island Pools on 12-16 March. In addition, the receivers removed prior to winter were replaced throughout all three pools for the upcoming sampling season. Downloaded data was briefly analyzed to determine if any fish moved between pools or through the dispersal barrier. No Bighead or Silver Carp were detected upstream of the Brandon Road Lock and Dam. No fish passage through the electric dispersal barrier system was observed. One Common Carp appears to have moved upstream through Lockport Lock in early March. The data will continue to be processed for fish movement and habitat use patterns.



## **Barrier Maintenance & Fish Suppression**

From March 7<sup>th</sup> through April 3<sup>rd</sup>, Barrier 2A was turned off to replace the electrodes. During the day time, when divers were in the water to remove and replace electrodes, Barrier 2B was also turned off. This occurred throughout the construction on weekdays starting around approximately 7 am to 3-5pm. Barrier 2B was operational during the weekends and turned back on once divers were out of the water. In addition, the demo barrier remained operational during the entire construction period, even when divers were in the water. Electrode replacement was complete on April 3<sup>rd</sup> and 2A was turned on. Water temperatures are being closely monitored and barrier parameters will be adjusted to approximately 2.3 v/inch, as equipment allows, once the average water temperatures hit 50°F or greater for one consecutive week.

## **Ecosystem Response to Asian Carp Barrier Defense and Removal**

INHS collected zooplankton and water chemistry samples at 15 main channel and backwater sites located in the Brandon Road, Dresden Island, Marseilles, Starved Rock, Peoria, LaGrange, and Alton Pools during March 26-27. The collected data will be compared to previous years' data from the same locations and will be used to assess changes in zooplankton densities and community composition in response to changing Asian carp densities.

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

The Illinois Department of Natural Resources Invasive Species Unit (ISU) investigated a complaint from the Utah Division of Wildlife of an Illinois house boat owner transporting his boat from Lake Mead in Utah to Fox Lake in Northern Illinois that wasn't properly decontaminated for zebra and Quagga mussels.

ISU conducted several surveillance operations on a fish market that is receiving live shipments of fish from an unidentified fish hauler/dealer delivering without a license or required IDNR permits. The investigation is ongoing.

The ISU investigated a complaint of a bait shop in Northern Illinois that was selling minnows without the required license. The owner had a license purchased in his name instead of the business and was complying with all regulations.

The ISU provided training to District 4 Conservation Police Officers on fish truck inspections, commercial inspections, and invasive species enforcement techniques.

The ISU completed a training course and certification on Search Warrant and Major Case Management in Urbana, IL.

The ISU attended the Great Lakes Fishery Commission Law Enforcement Committee in Toronto, Ontario and gave a presentation to the group on the establishment of Invasive Species Unit; investigative techniques; and case summaries. The Unit also received training at the event relative to Aquatic Invasive Species enforcement and visited live fish markets in the area.

The ISU participated in a 6-state investigation and intelligence meeting.

The ISU met with USFWS inspectors for the initial phase of cooperative enforcement efforts at Chicago airports to detect and intercept Illinois injurious and invasive species shipments.

The ISU inspected business records at a fish market in Chinatown after receiving a tip of illegal activities. The business and owner were issued written warnings for selling fish with an expired retail aquatic life dealer's license. Documents seized revealed illegal shipments of live fish are being delivered to the store and an investigation into the matter is ongoing.