

2017 August Summary

Bottom Line: Monitoring occurred in the CAWS and upper Illinois Waterway 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, USACE and USFWS completed 96 electrofishing runs at fixed and random sites (24 hours total) in the Lockport, Brandon Road, Dresden Island and Marseilles Pools in August.
- Crews collected 9,965 fish of 48 species.
- Nine Silver Carp were collected in the Dresden Island Pool downstream of I-55.
- Forty-seven Silver Carp were collected in the Marseilles Pool.
- **No Bighead Carp or Silver Carp were reported captured or observed in the Lockport or Brandon Road Pools.**

Hoop and Mini Fyke Netting:

- Crews from IDNR set and pulled 16 hoop nets and 16 mini fykes from fixed sites in Lockport, Brandon Road, Dresden Island and Marseilles Pools in August.
- Crews collected 101 fish of 9 species during hoop net sampling and 1,313 fish of 21 species during mini fyke sampling.
- Six Bighead Carp and three Silver Carp were collected during hoop net sampling in the Marseilles Pool.
- **No Bighead Carp or Silver Carp were reported captured or observed during hoop net sampling in the Lockport, Brandon Road or Dresden Island Pools.**
- **No Bighead Carp or Silver Carp were reported captured or observed during mini fyke sampling in any of the pools.**

Commercial Netting:

- Contracted commercial fishers along with assisting IDNR biologists set 37.3 miles of gill net at fixed and targeted sites in the Lockport, Brandon Road and Dresden Island Pools (including Rock Run Rookery) in August.

- Crews collected 371 fish of 14 species.
- Four Bighead Carp and two Silver Carp were collected in Rock Run Rookery.
- Twelve Silver Carp were collected in the Dresden Island Pool, approximately 5 miles upstream of I-55 (near the casino).
- Two Bighead Carp and 22 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.**

Small Mesh Seine:

- Contracted commercial fishers along with assisting IDNR biologists completed nine small (5/8 inch) mesh seine hauls in August (five in the West Pit of the Marseilles Pool, four in the Dresden Island Pool).
- Crews collected 58,540 fish of 36 species, which included 53,712 Gizzard Shad <6 inches in length.
- Eighteen adult Bighead Carp and 68 adult Silver Carp were also collected in the West Pit.
- **No Bighead Carp or Silver Carp <6 inches in length were captured or observed in either pool.**

Sampling results by pool below the electric dispersal barrier through August 2017, along with same time period in 2015 and 2016 for comparison:

Lockport			
	2015	2016	2017
Yards of Net Fished	65,750	68,200	61,000
Miles of Net Fished	37.4	38.7	34.7
Hoop Net Nights	43.1	38.4	32.6
Mini Fyke Net Nights	20.9	18.8	17.7
Electrofishing Runs	96	83	92
Electrofishing Time (hrs)	24.0	20.8	23.0
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

Brandon Rd			
	2015	2016	2017
Yards of Net Fished	65,700	63,850	68,200
Miles of Net Fished	37.3	36.3	38.7
Hoop Net Nights	43.0	38.6	35.4
Mini Fyke Net Nights	21.0	19.0	18.6
Electrofishing Runs	80	91	95
Electrofishing Time (hrs)	20.0	22.8	23.8
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

Dresden Island			
	2015	2016	2017
Yards of Net Fished	77,950	59,700	70,300
Miles of Net Fished	44.3	33.9	39.9
Hoop Net Nights	95.6	39.1	327.4
Mini Fyke Net Nights	22.5	20.7	23.0
Electrofishing Runs	120	173	155
Electrofishing Time (hrs)	30.0	43.3	38.8
Asian Carp (AC) upstream I-55	25	11	27
AC downstream I-55	134	261	506
Total AC	159	272	533
Tons of AC Harvested	1.2	1.9	5.4

Rock Run Rookery			
	2015	2016	2017
Yards of Net Fished	29,450	32,250	26,950
Miles of Net Fished	16.7	18.3	15.3
Bighead Carp	170	122	156
Silver Carp	36	29	26
Total Asian Carp (AC)	206	151	182
Tons of AC Harvested	3.3	2.4	3.0

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 August 2017, which includes the Unified Fishing Method in HMS W Pit, along with same time period in 2015 and 2016 for comparison:

	2015	2016	2017
Number of Days Fished	40	66	50
Number of Net Crew Days	184	328	276
Yards of Net Fished	220,420	356,095	283,810
Miles of Nets Fished	125.2	202.3	161.3
Number of Pound Net nights	24	67	74
Number of Hoop Net nights	163.8	768.7	871.8
Number of Bighead Carp	6,855	6,977	2,261
Number of Silver Carp	74,655	86,684	85,203
Number of Grass Carp	540	456	628
Number of Asian Carp (AC)	82,050	94,117	88,092
AC/1000 yds of gill net	347.0	248.0	261.8
Tons of Bighead and Silver Carp Harvested	286.8	344.6	309.0

Marseilles			
	2015	2016	2017
Yards of Net Fished	134,590	262,375	188,310
Miles of Nets Fished	76.5	149.1	107.0
Pound Net nights	24	67	74
Hoop Net nights	68.1	121.6	78.8
Mini Fyke Net Nights	23.1	18.0	21.3
Electrofishing Runs	120	116	96
Electrofishing Time (hrs)	30.0	29.0	24.0
Bighead Carp	4,495	5,211	1,227
Silver Carp	40,957	44,149	30,219
Grass Carp	75	85	56
Total Asian Carp	45,527	49,445	31,502
Tons of Bighead and Silver Carp Harvested	173.7	214.9	135.8

Starved Rock			
	2015	2016	2017
Yards of Net Fished	85,830	93,720	95,500
Miles of Nets Fished	48.8	53.2	54.3
Hoop Net nights	141.2	683.1	823.2
Bighead Carp	2,441	1,775	1,042
Silver Carp	33,987	43,407	55,413
Grass Carp	477	402	589
Total Asian Carp	36,905	45,584	57,044
Tons of Bighead and Silver Carp Harvested	113.1	129.8	173.2

Understanding Surrogate Fish Movement with Barriers

Tagging results for August 2017

Fish Tagged:

Brandon Road Pool

- Common Carp – 3
- Goldfish – 1

Dresden Island Pool/Rock Run Rookery

- Common Carp – 3
- Bigmouth Buffalo – 1
- Black Buffalo – 1
- Smallmouth Buffalo – 23

Total – 32 fish tagged

Recaptures:

Dresden Island Pool

- Smallmouth Buffalo – 3
 - **No fish demonstrated movement between pools**

Unconventional Gear Development

INHS evaluated alternative pound net configurations at the Material Service backwater located near Morris, IL during the week of August 14. Pound nets have previously been used to block entire channels, but they have the potential to be used in larger, open-water areas as well. INHS staff set one pound net perpendicular to shore and another parallel to shore to compare catch rates and species composition between these alignments. Pound nets were set on August 14 and fished until August 18. Nets were attended daily, at which time all fish were removed, measured, and weighed. Catch rates during this week were extremely low compared to previous years' pound net efforts at the Material Service area, potentially due to the extensive Asian carp removal efforts that have been conducted in this area this year. Only 81 total fish were captured, including 6 Asian carp (3 Bighead Carp, 2 Silver Carp, 1 Grass Carp). More fish were captured in the perpendicular set than in the parallel set ($n = 48$ vs $n = 33$), including all of the Bighead Carp and Silver Carp. Additional deployments will be required to adequately evaluate alternative pound net configurations, particularly in areas where Asian carp densities are higher.

Monitoring Fish Abundance, Behavior, Identification, and Fish-Barge Interactions at the Electric Dispersal Barrier, Chicago Sanitary and Ship Canal, Illinois

Barge entrainment trials occurred the last week of July and three additional weeks in August at the Electric Dispersal Barrier. Data collections included the exploration of mitigation options using several barge configurations, adjusted water velocities, observations of changes in the electrical field associated with barge passage, quantification of changes in flow dynamics within the channel associated with barge passage, the use of waterjets within the channel and observations of the behavior of wild fish near the Electric Dispersal Barrier during barge passage. Data collected is being analyzed and results are forth coming.

Distribution and movement of juvenile Asian carp

Sampling to monitor for juvenile Asian carp (TL <160mm) was conducted in the CAWS for the Lockport, Brandon Road, Dresden Island reaches during August 2017. Boat electrofishing was used in Brandon Road (8/28/2017 – 8/29/2017) and Lockport 8/30/2017 at 14 locations (3.5 hrs fishing time) and 7 locations (1.75 hours of fishing time) respectively. This effort resulted in 394 fish captured in Brandon Road and 726 in Lockport. No Silver or Bighead Carp were caught in either pool. Boat electrofishing took place in the Dresden Island reach (8/15/2017 and 8/31/2017) at 11 locations (2.75 hrs fishing time) and resulted in 938 total fish captured. Only one Silver Carp was captured during this effort in Dresden Island.

Electrofishing also took place in Marseilles (8/2/2017 – 8/3/2017 and 8/18/2017) and Starved Rock pools (8/1/2017). Boat electrofishing was used for 13 locations (3.25 hrs fishing time) in Marseilles and 5 locations (1.25 hrs fishing time) in Starved Rock. Additionally, an electrified dozer trawl was used in Starved Rock for 3 runs (15 mins fishing time). In total, this effort resulted in 649 fish captured from Marseilles and 212 fish from Starved Rock. Asian carp captures numbered 84 Silver Carp in Marseilles and 47 Silver Carp in Starved Rock. No Bighead Carp were captured. No juvenile Asian carp were captured during sampling.

Telemetry Monitoring

USGS Real-time Receiver Report.

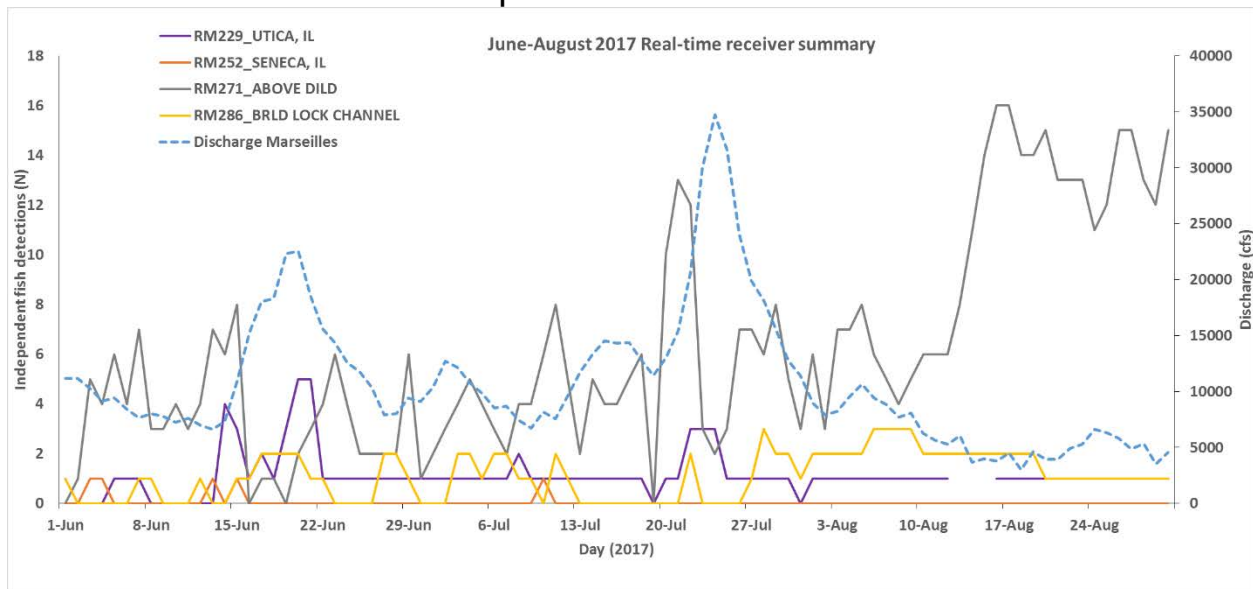


Figure 1. Graph showing the individual fish detections on real-time receivers located at IL river miles 229, 252, 271, and 286 for June through August 2017 with the associated average daily discharge for Marseilles IL (USGS site: 05543500).

During the month of August, twenty-six (26) live fish were detected on two of the four receivers. No live fish were detected at the Utica or Seneca stations. Three grass carp were detected at the receiver in the Dresden Island Lock approach (RM286), and 23 fish were detected at the Minooka receiver (RM271; 17 Bighead carp, one Hybrid, three Silver carp, and two grass carp). No fish were detected moving among pools (upstream or downstream) during the month of August. More detailed detection data can be found at <https://my-beta.usgs.gov/fishtracks/index> or by contacting Marybeth Brey at USGS UMESC.

Contact: Marybeth Brey, mbrey@usgs.gov, (608)781-6243.

Habitat usage and movement of juvenile Asian carp (telemetry)

Telemetry of juvenile Asian carp to study habitat usage continued in the Peoria reach continued through August 2017. A total of 53 juvenile Asian carp have been implanted with transmitters and 26 hydrophones are deployed for monitoring. After the first receiver data download, 51 fish have been detected on stationary hydrophones. Mean movement distance was 3.9 km and mean residence time was 6.8 hours during the first month of monitoring.

Larval Fish Monitoring

INHS conducted ichthyoplankton sampling 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 August 7 and August 21. Four larval fish samples were collected at each site, and zooplankton and water chemistry samples were also collected. Additional samples were collected in Illinois River tributaries to evaluate the potential for Asian carp spawning in these rivers. Processing of samples and identification of larval fish and eggs is ongoing. Ichthyoplankton sampling will continue on a biweekly basis through October. Results, particularly regarding occurrences of Asian carp eggs or larvae, will be reported once available.

Distribution and movement of juvenile Asian carp

The USFWS - Columbia Fish and Wildlife Conservation Office sampled the Marseilles and Starved Rock pools with the electrified dozer trawl and Dresden Island and Peoria pool with the electrified paupier. No Silver Carp less than 153mm were captured (Table 1).

Table 1. USFWS Columbia effort expended, Gizzard Shad captured and Silver Carp captured by electrified dozer trawl and electrified paupier in August 2017.

Pool	Gear	# of Samples		Time (minutes)		# of Gizzard Shad	# Silver Carp	# of Silver Carp <153mm	SVC/P range (mm)
Dresden Island	Electified Paupier	3	15	11	2	0	794-950		
Marseilles	Electified Dozer Trawl	9	43	875	33	0	518-777		
Starved Rock	Electified Dozer Trawl	3	12	29	13	0	526-748		
Peoria Pool	Electified Paupier	3	13	16	31	0	482-692		

Gear Evaluation for Removal and Monitoring of Juvenile Asian Carp Species

Table 1. Silver Carp (SVCP) captured by the USFWS - Columbia Fish and Wildlife Conservation Office in August 2017 during the gear evaluation study using three gears (PA – electrified paupier, DT – electrified dozer trawl, EF – standard electrofishing). Study sites are in the LaGrange (Lily Lake, Matanzas Lake, Bath Chute) and Marseilles (Hansen Material Services East, Hansen Material Services West) pools of the Illinois River, IL. All Silver Carp less than 200 mm were captured in the LaGrange Pool.

Site	Gear	N	Time (min)	SVCP	SVCP/5 min	SVCP < 200mm	SVCP range (mm)
Lily Lake	PA	8	40	159	19.9	16	45-745
	DT	8	40	41	5.1	1	57-662
	EF	8	40	19	2.4	0	384-630
Matanzas Lake	PA	8	40	166	20.8	0	227-746
	DT	8	38.2	100	13.1	0	272-776
	EF	8	40.3	16	2.0	0	281-606
Bath Chute	PA	8	40	444	55.5	1	26-757
	DT	8	39.5	26	3.3	0	477-652
	EF	8	40.3	13	1.6	0	471-628
Hansen Materials East	PA	8	40	63	7.9	0	617-876
	DT	8	40	46	5.8	0	550-814
	EF	7	35.1	1	0.1	0	660-753
Hansen Materials West	PA	8	40.7	119	14.6	0	541-841
	DT	8	39.2	44	5.6	0	527-763
	EF	8	40	11	1.4	0	644-839

Assessing movement and behavior of Asian carp at a lock and dam structure to inform control strategies and Assessing Asian carp populations across ecologically significant ecosystems: quantifying abundance, biomass, and size distributions

Analyses of late July hydroacoustic surveys from Dresden Island and Marseilles pools were completed. Observed Asian carp (Silver Carp and Bighead Carp combined) densities in Dresden Island Pool decreased slightly from June to July and was due to a decrease in observed Silver Carp density and a marginal decrease in observed Bighead Carp density (Figure 1). Within Dresden Island Pool, Asian carp densities were highest in the Treats Island side-channel and Mobil Bay backwater, although Treats Island was highly variable (Figures 2 and 3). At other locations in Dresden Island Pool, densities were high in the main channel adjacent to the Rock Run Rookery backwater, near the mouth of the Kankakee River, and within the power plant effluents near the Kankakee River and just upstream from Rock Run Rookery (Figure 3). These locations were similar to high-density sites observed in early June sampling (Figure 3).

Observed Asian carp densities in late July within the Marseilles Pool were higher in July than June but were comparable to densities observed in March (Figure 1). This was due to an increase in observed Silver Carp density from June levels. Asian carp densities remained similar to the previous survey in the HMS East Pit backwater lake and the main channel but increased at the Sugar Island side-channel and HMS West Pit backwater lake (Figure 2). Within the main channel, locations with high densities were mostly downstream, towards the Marseilles Lock & Dam (Figure 4). Densities in the East Pit were highest in the northeast cove, along the eastern shoreline, and in the north-central bay (Figure 5). Asian carp densities in the West Pit were moderate along most of the shoreline but were elevated in the west end of the lake, along the north-central shoreline, and in the northeastern cove (Figure 5).

Sample collection for the project entitled “Assessing Asian carp populations in Pool 19 of the Mississippi River and the Cache River of southern Illinois”, including hydroacoustic surveys and electrofishing/gill netting, is complete. We are working to finalize data analyses and complete the final project report.

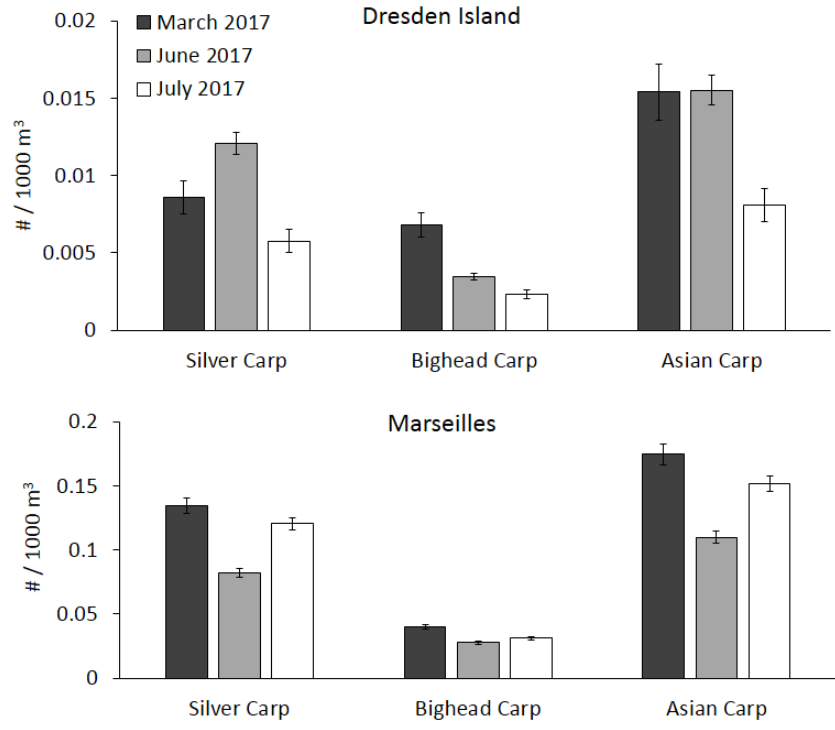


Figure 1. Mean (SE) pool-wide Silver Carp, Bighead Carp, and Asian carp (Bighead and Silver Carp combined) densities observed from mobile hydroacoustic surveys in the Dresden Island and Marseilles Pools in 2017. Note differences in y-axis scale.

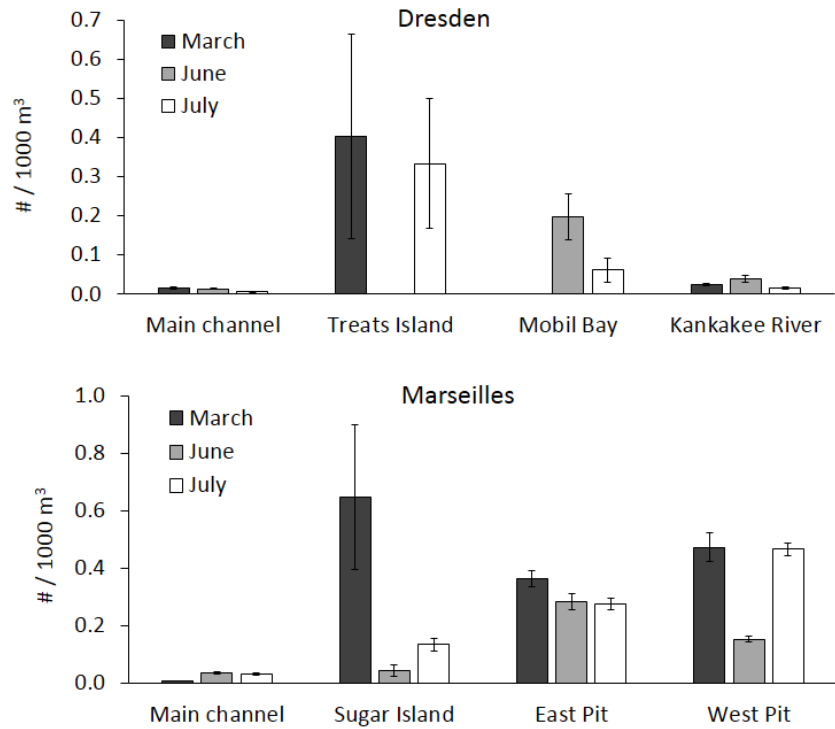


Figure 2. Mean (SE) site-specific Silver Carp, Bighead Carp, and Asian carp (Bighead and Silver Carp combined) densities observed from mobile hydroacoustic surveys in the Dresden Island and Marseilles pools in 2017. Note differences in y-axis scale.

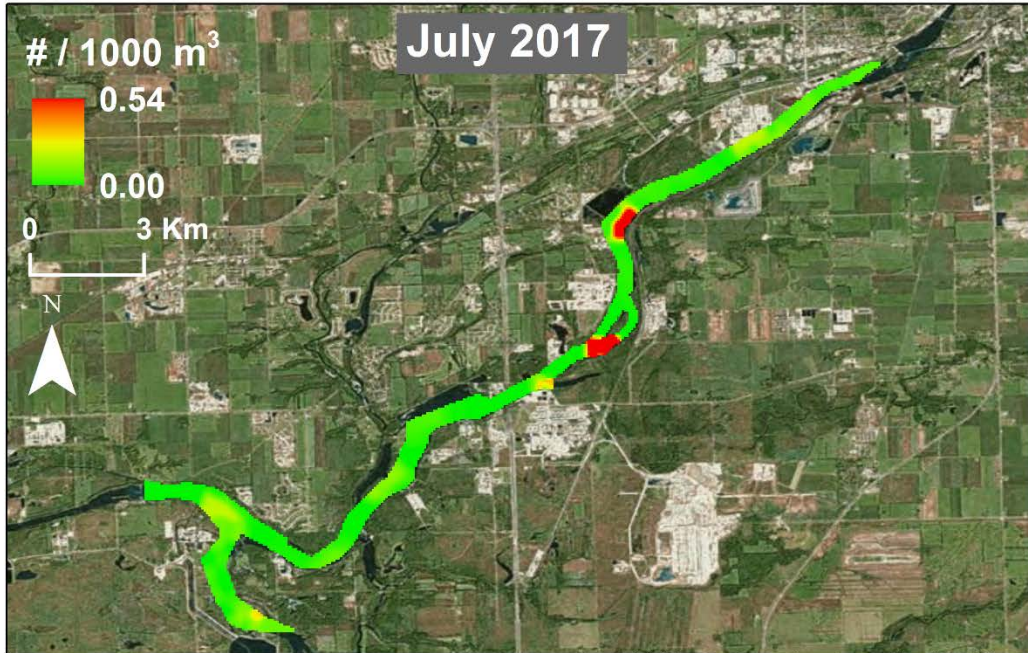


Figure 3. Mean Asian carp (Silver and Bighead Carp combined) densities in the Dresden Island Pool observed using mobile hydroacoustic sampling in early June and late July, 2017. Note differences in scale between months.

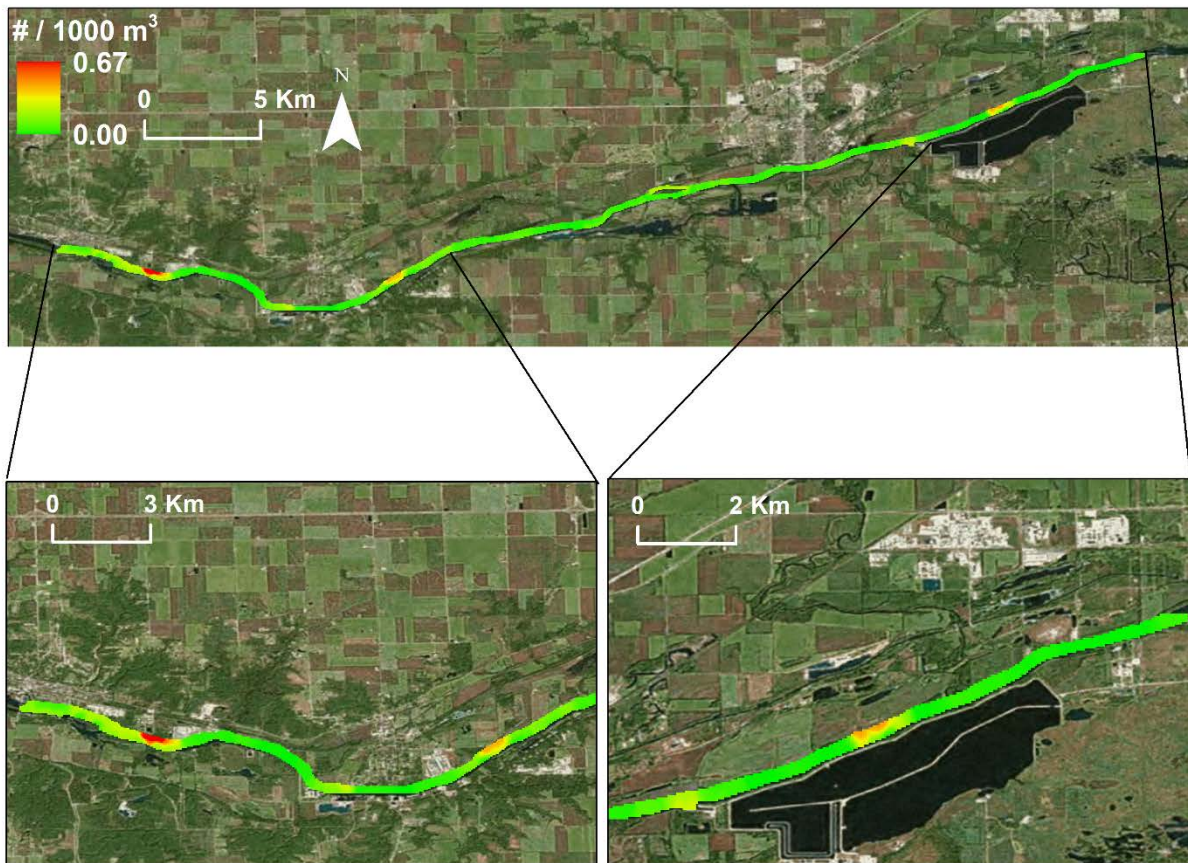


Figure 4. Mean Asian carp (Silver and Bighead Carp combined) densities in the Marseilles Pool main channel observed using mobile hydroacoustic sampling in late July, 2017.

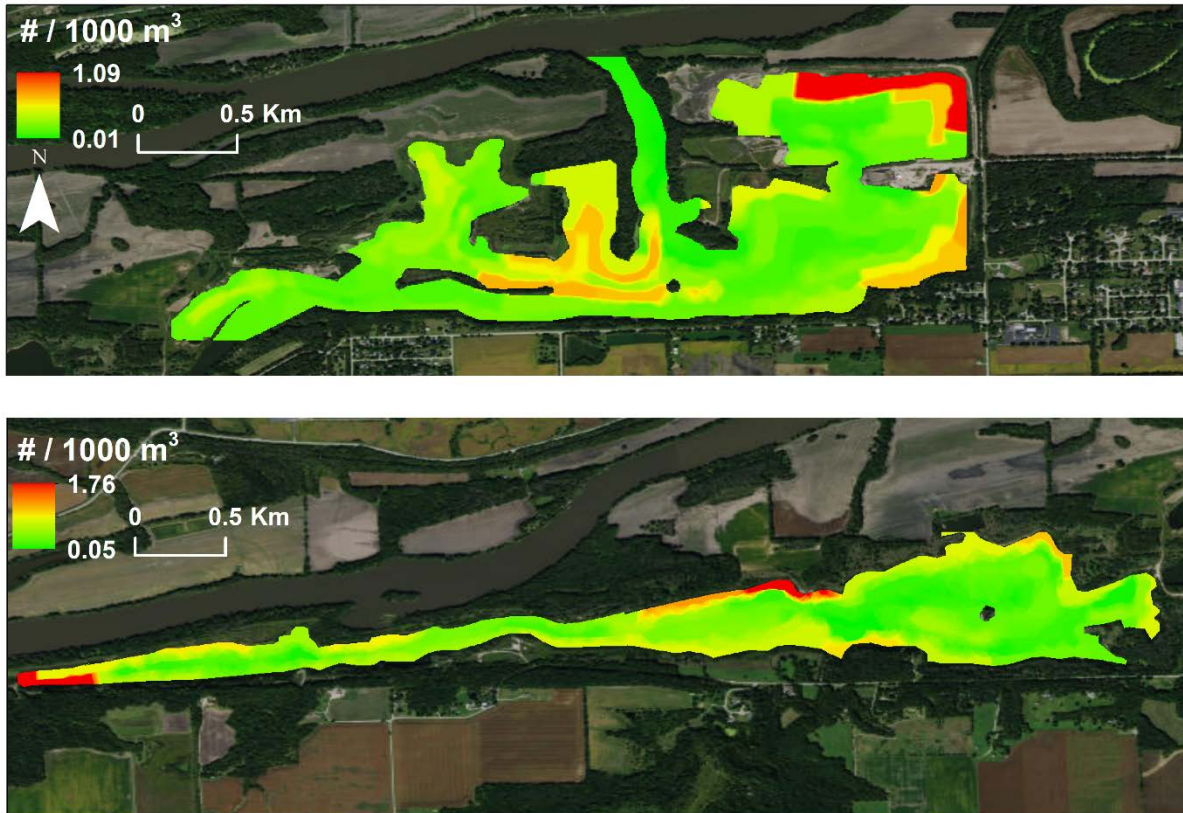


Figure 5. Mean Asian carp (Silver and Bighead Carp combined) densities in the HMS East Pit (top) and West Pit (bottom) backwater lakes in the Marseilles Pool. Densities were observed from mobile hydroacoustic sampling in late July, 2017. Note differences in scale between maps.

Alternate Pathway Surveillance in Illinois - Law Enforcement

An investigation into a Missouri company advertising and selling tilapia over the Internet determined the company was illegally shipping live tilapia to various locations throughout the State without the required non-resident aquatic life dealer's license or restricted species transportation permit. A total of 2,650 tilapia were sold and shipped into Illinois via FedEx in 2016 & 2017. Some of the fish were used to stock ponds which increases the risk of the tilapia escaping into open water systems. The company cooperated with the investigation and agreed to comply with all IDNR regulations in the future.

A Mt. Vernon golf course purchased and illegally stocked 1000 tilapia into two golf course ponds. Proper enforcement action was taken against the golf course. The site was inspected by an IDNR Fisheries biologist to determine the best way to prevent escapement.

Invasive Species Unit (ISU) located and inspected an illegal aquaculture facility in Plano that was raising tilapia without an aquaculture permit. The tilapia were purchased on the Internet and shipped via FedEx. The owner was informed of IDNR permit requirements.

ISU interviewed an individual that purchased 100 live tilapia to raise indoors without the required aquaculture license or letter of authorization to possess a restricted species. The fish were illegally imported into Illinois without a restricted species importation permit. All of the fish died within a week of the delivery and none of them were released into open waters.

ISU interviewed a Bollingbrook resident who purchased tilapia over the Internet and illegally stocked them in an outside garden pond. All of the fish died within two days. The owner was issued written warnings for his actions.

The ISU participated in on Aquatic Invasive Species pet take back event at Williams Powers State Park to provide security and respond to any law enforcement issues that came up.

Alternate Pathway Surveillance in Illinois – Urban Pond Monitoring

On September 6th, Illinois Department of Natural Resources Asian Carp crew conducted a search for Asian Carp including Grass carp in Flatfoot lake, Cook County. Agencies participating were Cook County Forest Preserve (1 electrofishing boat), IDNR (1 electrofishing boat) and 1 IDNR contracted commercial fisherman. Sampling was safe and successful catching 3 Asian carp (2 Bighead Carp and 1 Grass Carp)

Catch and effort is below:

Effort:

2 Shock Boats – 7 hours total shock time
Commercial boat – 1,600 yards of gill net

Total Catch:

Common Carp – 50
Grass Carp – 6 (largest weighed 55 pounds)
Bighead – 2 (weighed 75 & 79 pounds)

