

2017 June 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 81 electrofishing runs at fixed and random sites (20.25 hours total) in the Lockport, Brandon Road, Dresden Island and Marseilles Pools in June.
- Crews collected 4,955 fish of 51 species.
- One Bighead Carp and three Silver Carp were collected in the Dresden Island Pool (all downstream of I-55).
- Ninety-Six 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 June.
- Crews collected 47 fish of 5 species during hoop net sampling and 323 fish of 18 species and 1 hybrid group during mini fyke sampling.
- **No Bighead Carp or Silver Carp were reported captured or observed in any of the pools.**

Commercial Netting:

- Contracted commercial fishers along with assisting IDNR biologists set 9.6 miles of net at fixed and targeted sites in the Lockport, Brandon Road and Dresden Island Pools (including Rock Run Rookery) in June.
- Crews collected 945 fish of 12 species and 1 hybrid group.
- Sixteen Bighead Carp and three Silver Carp were collected in Rock Run Rookery.
- Two Bighead Carp and 56 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.**

Supplemental Hoop Netting

Dresden Island Pool:

- One contracted commercial fishing crew with an assisting IDNR biologist fished 35 hoop nets in the Dresden Island Pool downstream of I-55 from June 1st to June 8th for a total of 217.4 net nights.
- They collected 730 fish of 10 species.
- Three Bighead Carp and one Silver Carp were collected.

Marseilles and Starved Rock Pool:

- One contracted commercial fishing crew with an assisting IDNR biologist fished hoop nets in the Marseilles and Starved Rock Pools from May 23rd to June 8th for a total 871.8 net nights.
- They collected 15,129 fish of 16 species, which included 117 Bighead Carp and 13,030 Silver Carp (98% of the Asian carp were collected in the Starved Rock Pool).
- Forty tons of Asian carp were removed during this response effort.

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

Lockport			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	43,000	33,000	25,000
Miles of Net Fished	24.4	18.7	14.2
Hoop Net Nights	28.6	22.7	17.9
Mini Fyke Net Nights	13.9	11.0	10.2
Electrofishing Runs	48	59	56
Electrofishing Time (hrs)	12.0	14.8	14.0
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

Brandon Rd			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	36,900	32,850	27,400
Miles of Net Fished	21.0	18.7	15.6
Hoop Net Nights	28.2	22.7	21.7
Mini Fyke Net Nights	13.9	11.1	11.0
Electrofishing Runs	48	55	59
Electrofishing Time (hrs)	12.0	13.8	14.8
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

Dresden Island			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	51,700	25,350	28,500
Miles of Net Fished	29.4	14.4	16.2
Hoop Net Nights	30.5	22.4	311.7
Mini Fyke Net Nights	15.2	11.9	15.4
Electrofishing Runs	72	96	102
Electrofishing Time (hrs)	18.0	24.0	25.5
Asian Carp (AC) upstream I-55	16	10	13
AC downstream I-55	60	173	449
Total AC	76	183	462
Tons of AC Harvested	0.6	1.4	4.8

Rock Run Rookery			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	19,550	19,650	14,850
Miles of Net Fished	11.1	11.2	8.4
Bighead Carp	128	90	137
Silver Carp	26	26	24
Total Asian Carp (AC)	154	116	161
Tons of AC Harvested	2.5	1.8	2.6

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

QUICK SUMMARY:	2015	2016	2017
Number of Days Fished	28	50	42
Number of Net Crew Days	124	264	228
Yards of Net Fished	170,220	276,595	205,580
Miles of Nets Fished	96.7	157.2	116.8
Number of Pound Net nights	24	67	74
Number of Hoop Net nights	92.0	768.7	871.8
Number of Bighead Carp	4,363	5,931	1,475
Number of Silver Carp	52,590	64,798	69,595

Number of Grass Carp	482	415	603
Number of Asian Carp (AC)	57,435	71,144	71,673
AC/1000 yds of gill net	310.2	236.2	281.4
Tons of Bighead and Silver Carp Harvested	202.9	257.2	247.6

Marseilles			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	106,590	208,475	140,630
Miles of Nets Fished	60.6	118.5	79.9
Pound Net nights	24	67	74
Hoop Net nights	52.8	108.1	70.0
Mini Fyke Net Nights	15.5	11.4	17.4
Electrofishing Runs	72	72	49
Electrofishing Time (hrs)	18.0	18.0	12.3
Bighead Carp	2,806	4,654	757
Silver Carp	28,596	36,235	22,751
Grass Carp	64	54	47
Total Asian Carp	31,466	40,943	23,555
Tons of Bighead and Silver Carp Harvested	123.5	172.9	101.8

Starved Rock			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	63,630	68,120	64,950
Miles of Nets Fished	36.2	38.7	36.9
Hoop Net nights	69.6	683.1	823.2
Bighead Carp	1,611	1,277	718
Silver Carp	24,159	28,738	46,929
Grass Carp	429	373	564
Total Asian Carp	26,199	30,388	48,211
Tons of Bighead and Silver Carp Harvested	79.4	84.4	145.8

Understanding Surrogate Fish Movement with Barriers

Tagging results for June 2017

Fish Tagged:

Lockport Pool

- Common Carp – 2

Brandon Road Pool

- Common Carp – 30

Dresden Island Pool/Rock Run Rookery

- Bigmouth Buffalo – 16
- Black Buffalo – 1
- Common Carp – 29
- Smallmouth Buffalo – 25

Total – 103 fish tagged

Recaptures:

Dresden Island Pool/Rock Run Rookery

- Bigmouth Buffalo – 3
- Smallmouth Buffalo – 6
 - **No fish demonstrated movement between pools**

Seasonal Intensive Monitoring

Seasonal Intensive Monitoring (SIM) took place above the electric dispersal barrier the weeks of June 12th and June 19th. Electrofishing and commercial netting occurred in the North Shore Channel, North and South Branches of the Chicago River, Chicago River, CSSC, Cal-Sag Channel, Little Calumet River, Calumet River and Lake Calumet. Trap nets, pound nets and an 800-yard commercial seine were fished exclusively in Lake Calumet.

Electrofishing:

- Crews from IDNR, USACE and USFWS completed 239 electrofishing runs at fixed and random sites (60.6 hours total).
- Crews collected 12,306 fish of 53 species and 2 hybrid groups.

Commercial Seine:

- Contracted commercial fishers along with assisting IDNR biologists completed four 800-yard commercial seine hauls in Lake Calumet.
- Crews collected 2,763 fish of 9 species.

Trap Nets:

- Crews from IDNR set eight trap nets the first week of SIM and seven the second week in Lake Calumet, totaling 53 net nights of effort.
- Crews collected 294 fish of 17 species.

Pound Nets:

- Crews from IDNR set two pound nets in Lake Calumet, totaling 19 net nights of effort.
- Crews collected 646 fish of 14 species.

Commercial Netting:

- Contracted commercial fishers along with assisting IDNR biologists set 30.6 miles of gill net (273 sets) at fixed and random sites.
- Crews collected 935 fish of 14 species and 1 hybrid group.
- **One Silver Carp was caught in a gill net on June 22nd in the Little Calumet River ~9 miles downstream from Lake Michigan and ~27 miles upstream of the electric dispersal barrier (see location below).**



- A total of 16,944 fish representing 56 species and 2 hybrid groups were collected in all gear types combined during the two-week SIM event.
- Gizzard shad was the most abundant species collected comprising 24% of the total catch, followed by Common Carp (18%), Bluegill (7%) and Freshwater drum (6%).

The Silver Carp collected in the Little Calumet River prompted two additional weeks of intensive sampling in Lake Calumet, Calumet River and Little Calumet River. No additional Asian carp were observed or collected. A summary of these events will be available soon.

Strategy for eDNA Sampling in the CAWS and Refining eDNA Interpretation Below the Electric Dispersal Barrier

Dresden Island Pool was sampled for bighead and silver carp eDNA the week of May 30th. A total of 276 samples were collected, including blanks. Samples are waiting to be processed at the Whitney Genetics Lab. Results for this event will not be posted on publicly, but will be reported to the MRWG in the annual report.

The four traditional CAWS sites (Chicago River, North Shore Channel, Little Calumet River, and Lake Calumet) were sampled for bighead and silver carp eDNA the week of June 5th. Similar to past events, a total of 240 samples were collected including blanks. Results for this event have been shared with the state of Illinois and will be posted publicly sometime in July.

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 every week in June. 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. Small numbers of large-diameter eggs were collected during the weeks of June 5 and June 12 in the LaGrange Pool. Following a rise in water levels during the week of June 19, large numbers of potential Asian carp eggs were observed in the Starved Rock, Peoria, and LaGrange Pools. Numerous larval Asian carp were captured in ichthyoplankton samples in the Peoria and LaGrange Pools during the week of June 26. Ichthyoplankton sampling will continue on a biweekly basis from July to October. Processing of samples and identification of larval fish and eggs is ongoing. Results, particularly regarding occurrences of Asian carp eggs or larvae, will be reported once available.

Evaluation of Gear Efficiency

INHS conducted pulsed-DC electrofishing in the Brandon Road, Dresden Island, Marseilles, Starved Rock, Peoria, and LaGrange Pools during the week of June 26 to search for juvenile Asian carp. No juvenile Asian carp were observed at any site during this time. Additional gear deployments (mini-fyke nets, beach seines, pulsed-DC electrofishing, hydroacoustic transects) to sample for juvenile Asian carp are planned for July. Results will be reported once available.

Distribution and movement of juvenile Asian carp

Sampling to monitor for juvenile Asian carp (TL <153mm) was conducted for the Dresden Island, Marseilles, and Starved Rock pool reaches during June 2017. Boat electrofishing was conducted in Dresden Island Pool (6/14/2017 to 6/15/2017) at 10 locations (2.5 hours of fishing time) in the upper half of the pool. Electrofishing resulted in 1015 fish captured representing 39 species. Only 1 adult Silver Carp was captured during this sampling.

Boat electrofishing was also conducted in Marseilles Pool (6/5/2017 to 6/8/2017) at 21 locations (5.25 hours of fishing time) throughout the reach. This effort resulted in 369 fish captured representing 37 species. Only adult Silver Carp (n= 34) were captured, all above 400mm in total length. Poor fishing conditions negatively affected the catches during this month.

Mini-fyke nets were used in Starved Rock Pool for 23 locations/net nights. This effort resulted in 618 fish caught representing 31 species. No Silver or Bighead Carp were captured.

Distribution and Movement of Small Asian carp in the Illinois Waterway

The USFWS - Columbia Fish and Wildlife Conservation Office sampled the Lockport, Brandon Road, Dresden Island and Peoria pools with the electrified dozer trawl 6/6-6/8/2017 and then the Marseilles and Starved Rock pool with the electrified dozer trawl and electrified paupier trawl 6/21- 6/22/2017. No Silver Carp were captured in the Lockport, Brandon Road or Dresden Island pools (Table 1). No Silver Carp less than 153mm were captured in Marseilles, Starved Rock, or Peoria pools.

Gear Evaluation for Removal and Monitoring of Juvenile Asian Carp Species

Table 1. Silver Carp (SVCP) captured by the USFWS Columbia office for the month of June, 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, Quiver Lake) 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)	SVC P	SVCP/5 min	SVCP < 200mm	SVCP range (mm)
Lily Lake	PA	8	40.8	83	10.2	10	80-705
	DT	5	24.9	30	6.0	2	87-725
	EF	8	40.0	10	1.3	0	475-682
Matanzas Lake	PA	10	51.0	178	17.5	20	109-748
	DT	7	36.0	38	5.3	3	135-704
	EF	8	40.2	17	2.1	0	389-642
Quiver Lake	PA	10	50.4	10	1.0	0	465-784
	DT	10	50.4	10	1.0	0	452-659
	EF	5	25.2	1	0.2	0	600
Hansen Materials East	PA	13	66.0	63	4.8	0	611-895
	DT	8	40.2	33	4.1	0	512-785
	EF	8	40.2	7	0.9	0	675-731
Hansen Materials West	PA	12	60.6	49	4.0	0	506-862
	DT	8	40.2	1	0.1	0	610
	EF	8	40.2	10	1.2	0	610-815

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

Pool	Gear	# of Samples	Time (minutes)	# of Gizzard Shad	# Silver Carp	# of Silver Carp < 153mm
Lockport	Electified Dozer Trawl	8	44	0	0	0
Brandon Road	Electified Dozer Trawl	13	64	27	0	0
Dresden Island	Electified Dozer Trawl	20	100	269	0	0
Marseilles	Electified Dozer Trawl	4	17	29	6	0
Marseilles	Electified Paupier	3	15	456	200	0
Starved Rock	Electified Dozer Trawl	6	34	101	88	0
Starved Rock	Electified Paupier	6	18	308	173	0
Peoria	Electified Dozer Trawl	14	68	151	270	0

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

Asian carp densities before and after Unified Method harvest

Hydroacoustic surveys were conducted before and after harvest from the Unified Method in the HMS West Pit. Mean (SE) pre-harvest density of Asian carp (Silver Carp and Bighead Carp combined) was 1.1 (0.1) fish/1000 m³ and significantly decreased to 0.6 (0.4) fish/1000 m³ after harvest. Changes in the size distributions of Asian carp following harvest are currently being analyzed.

Seasonal densities in Dresden and Marseilles

The first hydroacoustic surveys of 2017 were conducted throughout the Marseilles and Dresden Island pools in late March, with final analyses now complete. Pool-wide Asian carp densities in Dresden Island Pool were relatively low and were similar to densities observed during June 2016 (Figure 1). Dresden Island density was low among all sites sampled. Densities were similar between the Kankakee River tributary and the main channel (Figure 2), and although Treats Island mean Asian carp density was high, it was not statistically different from other sites. Additionally, no Asian carp were detected in the Mobil Bay backwater. Note that the Rock Run Rookery was not included in these density surveys in Dresden Island Pool. Marseilles pool-wide Asian carp densities were slightly higher than the previous surveys (previous surveys only occurred in October; Figure 1), with the Sugar Island side-channel and the Hanson Material Services West Pit and East Pit having similar densities (Figure 2). Hydroacoustic surveys were also conducted in the Marseilles and Dresden Island pools on 5-June. Data from these surveys are currently being analyzed.

Telemetry Array

Stationary receiver downloads were conducted in Starved Rock Pool the week of 29-May. Stationary Receivers were downloaded in the rest of the Illinois River the week of 26-June.

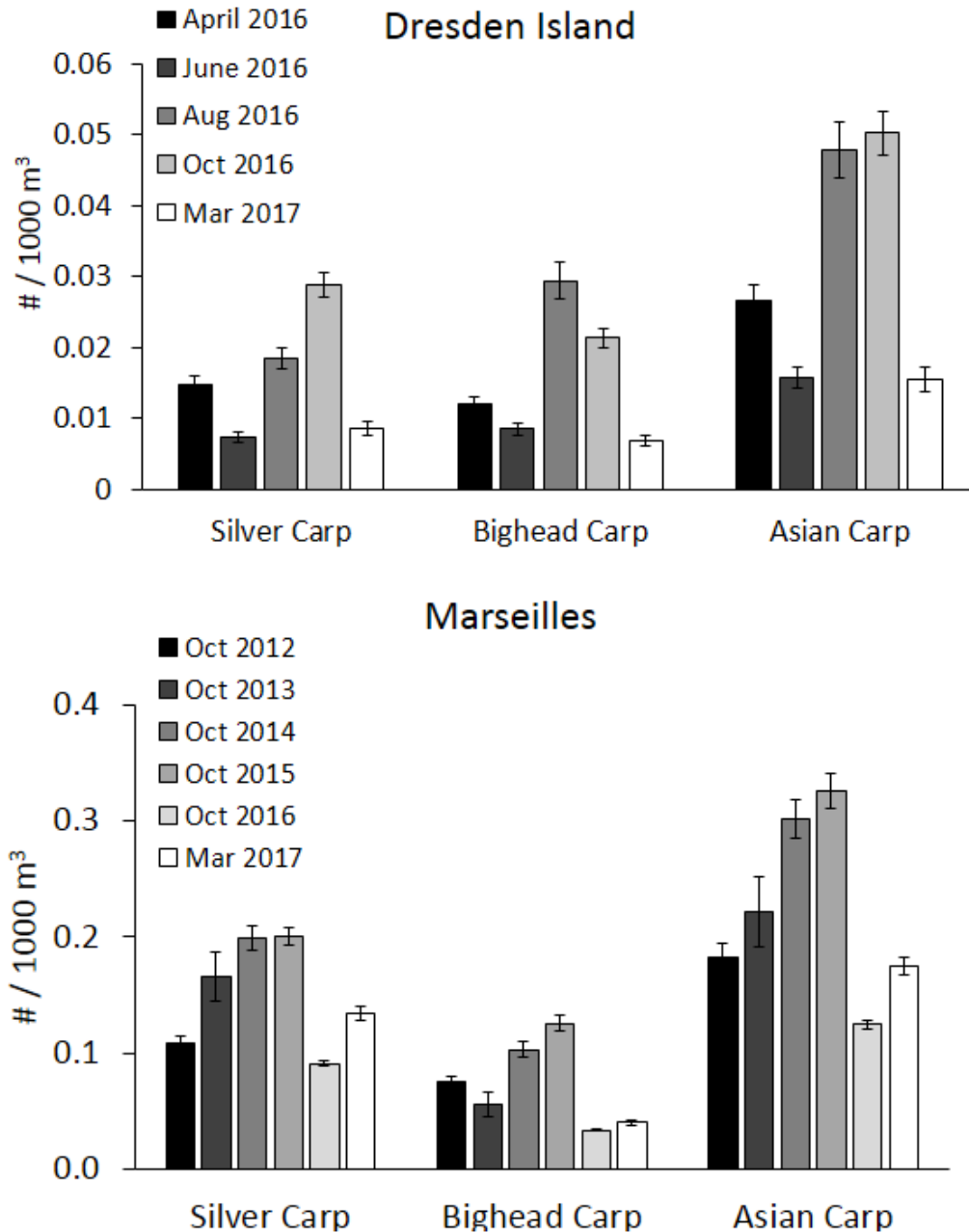


Figure 1. Mean (SE) Silver Carp, Bighead Carp, and Asian carp (Silver and Bighead Carp combined) pool-wide densities throughout the Marseilles and Dresden Island pools in March 2017, with past density estimates provided for comparison. Seasonal densities were assessed in Dresden Island Pool during every other month in 2016. Marseilles densities were only assessed in October in previous years as part of annual river-wide fall surveys. Note differences in y-axis values between pools.

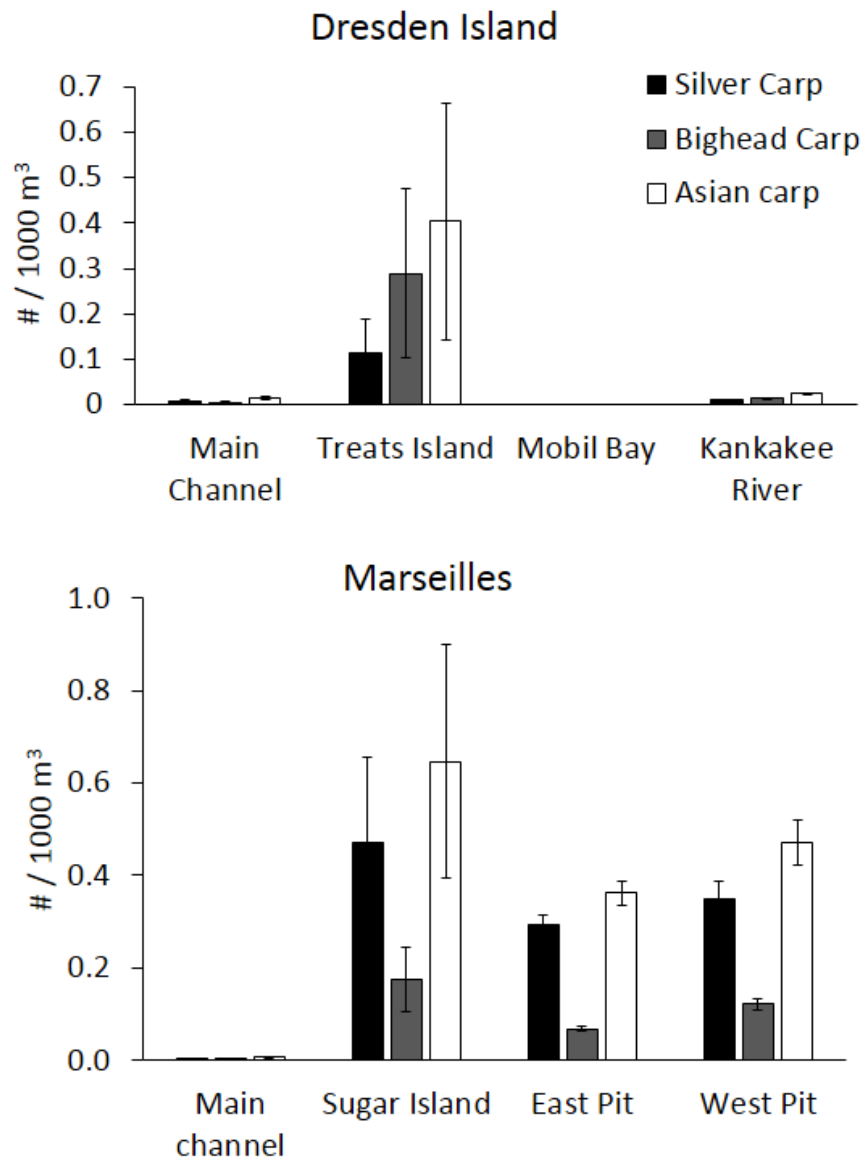


Figure 2. Mean (SE) site-specific densities of Asian carp (Silver Carp and Bighead Carp combined) in the Marseilles and Dresden Island Pools surveyed in March 2017.

Alternate Pathway Surveillance in Illinois - Law Enforcement

The Invasive Species Unit (ISU) investigated a complaint of an illegal aquaculture facility in Springfield raising unknown species of fish. An inspection of the facility located Tilapia being raised in a repurposed hot tub inside a garage and in a separate homemade aquaponics structure in the front yard of the property. The owner, who has never applied for any DNR permits, was provided information on the rules and regulations and issued a written warning. None of the fish raised at the location were transported or sold to other people alive. A follow up investigation will be conducted on an out-of-state aquatic life dealer that ships the Tilapia via FedEx to Illinois customers.

The ISU gave a presentation at a local Cub Scout fishing event in Grayslake and spoke about resource conservation, pollution of the waterways, and preventing the spread of invasive species.

ISU assisted the Division of Fisheries by relaying the Silver Carp caught in the Little Calumet River to Southern Illinois University for analysis.