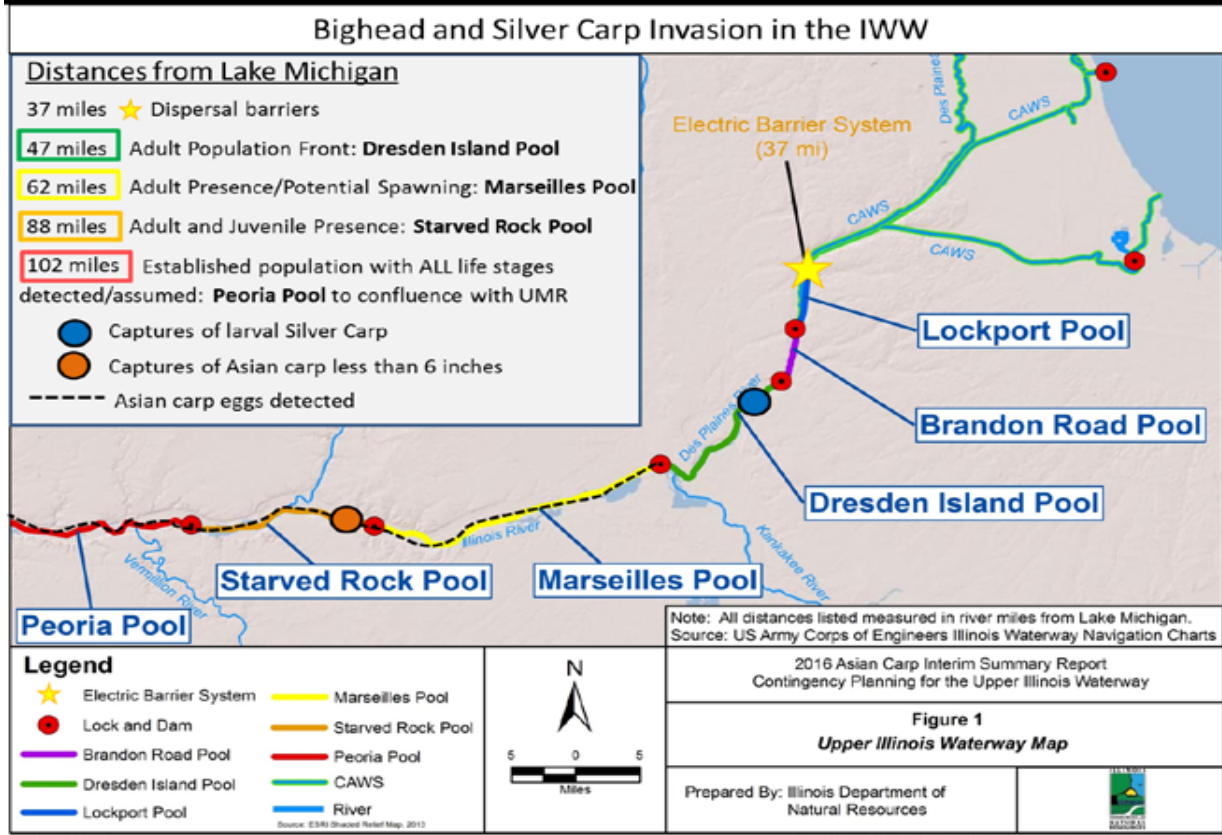


2017 March Summary



Status of Asian carp beginning of 2017 in the Illinois waterway, the map will be routinely updated and distributed to reflect current changes.

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 either upstream of, or immediately downstream of the Electric Dispersal Barrier.**

Fixed and Targeted Site Sampling Downstream of the Electric Dispersal Barrier

Commercial Netting:

- Contracted commercial fishers along with assisting IDNR biologists set 10.5 miles of net at fixed and targeted sites in the Lockport, Brandon Road and Dresden Island Pools (including Rock Run Rookery) in March.
- Crews collected 340 fish of 12 species.
- Two Bighead Card and three Silver Carp (all adults) were collected in Rock Run Rookery.
- Four adult Bighead Carp were collected in the Dresden Island Pool downstream of the I-55 Bridge.
- **No Bighead Carp or Silver Carp were captured or observed in the Lockport or Brandon Road Pools.**

Understanding Surrogate Fish Movement with Barriers

Tagging results for March 2017

Fish Tagged:

Lockport Pool

- Common Carp – 1

Brandon Road Pool

- Common Carp – 15
- Smallmouth Buffalo – 1

Dresden Pool

- Bigmouth Buffalo – 5
- Common Carp – 8
- Smallmouth Buffalo – 44

Total – 74 fish tagged

Recaptures:

Dresden Island Pool

- Smallmouth Buffalo – 3
 - These fish were originally tagged in April 2015, May 2015 and July 2016, respectively. None of which demonstrated movement between pools.

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 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	4	14	14
Number of Net Crew Days	20	92	100
Yards of Net Fished	32,990	76,500	56,730
Miles of Nets Fished	18.7	43.5	32.2
Number of Pound Net nights	0	21	35
Number of Hoop Net nights	8	0	0
Number of Bighead Carp	847	2,242	328
Number of Silver Carp	10,817	20,423	20,034
Number of Grass Carp	179	10	27
Number of Asian Carp	11,843	22,675	20,389
Tons of Bighead and Silver Carp Harvested	43.1	89.8	74.1

Unified Method Summary

Specific to the Unified Fishing Method in 2017, 8353 Asian carp (8297 Silver Carp, 56 Bighead Carp) were removed during the two-week event totaling 75,161 pounds (37.6 tons). Bycatch totaled 7368 individuals of 20 species with Catastomids comprising nearly 50% of the bycatch followed by Gizzard Shad (28%)

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

Lockport			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	10,000	7,300	5,600
Miles of Net Fished	5.7	4.1	3.2
Hoop Net Nights	8	0	0
Mini Fyke Net Nights	4	0	0
Electrofishing Runs	24	4	0
Electrofishing Time (hrs)	6.0	1.0	0.0
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	10,400	7,500	5,700
Miles of Net Fished	5.9	4.3	3.2
Hoop Net Nights	8	0	0
Mini Fyke Net Nights	4	0	0
Electrofishing Runs	24	5	0
Electrofishing Time (hrs)	6.0	1.25	0.0
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	8,400	5,350	4,900
Miles of Net Fished	4.8	3.0	2.8
Hoop Net Nights	8	0	0
Mini Fyke Net Nights	4	0	0
Electrofishing Runs	24	0	0
Electrofishing Time (hrs)	6.0	0.0	0.0
Asian Carp (AC) upstream I-55	0	0	0
AC downstream I-55	21	23	4
Total AC	21	23	4
Tons of AC Harvested	0.2	0.2	<0.1

Rock Run Rookery			
QUICK SUMMARY: 2016	2015	2016	2017
Yards of Net Fished	900	5,300	2,300
Miles of Net Fished	0.5	3.0	1.3
Total Asian Carp (AC)	45	21	5
Tons of AC Harvested	0.4	0.2	<0.1

Marseilles			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	20,910	70,850	41,930
Miles of Nets Fished	11.9	40.3	23.8
Pound Net nights	0	21	35
Hoop Net nights	8	0	0
Mini Fyke Net Nights	4	0	0
Electrofishing Runs	24	0	0
Electrofishing Time (hrs)	6	0	0
Bighead Carp	563	2,068	106
Silver Carp	6,533	18,075	10,085
Grass Carp	4	3	8
Total Asian Carp	7,100	20,146	10,199
Tons of Bighead and Silver Carp Harvested	28.8	82.8	37.6

Starved Rock			
QUICK SUMMARY:	2015	2016	2017
Yards of Net Fished	12,080	5,650	14,800
Miles of Nets Fished	6.9	3.2	8.4
Hoop Net nights	0	0	0
Bighead Carp	286	174	222
Silver Carp	4,296	2,348	9,949
Grass Carp	175	7	19
Total Asian Carp	4,757	2,529	10,190
Tons of Bighead and Silver Carp Harvested	14.2	7.0	36.5

Assessing movement and behavior of Asian carp at a lock and dam structure to inform control strategies

and

Assessing Spatiotemporal Changes in Asian Carp Abundance and Density to Target Management Actions and Control Strategies

Hydroacoustics to Assess Asian Carp Densities

SIUC completed a pre-harvest hydroacoustic survey of the HMS West Pit in the Marseilles Pool on 2/25/17 to assess the effectiveness of the Unified Method at reducing Asian carp abundance. Pre-harvest densities were ~ 50% lower than 2016 densities (Figure 1). These exact density estimates may change as individual fish targets were sorted into species based on catch data from 2016 in order to provide an estimate of Asian carp abundance prior to harvest. Density estimates will be revised using 2017 catch data following harvest. Asian carp densities were high in similar locations in the HMS West Pit to what was observed in 2016, with the highest densities occurring in sections of the southern shoreline and the far west end of the pit (Figure 2). The first post-Unified Method survey will be completed on 3/23/17 while the block and pound nets are still in place, with additional follow-up surveys occurring every other month in 2017.

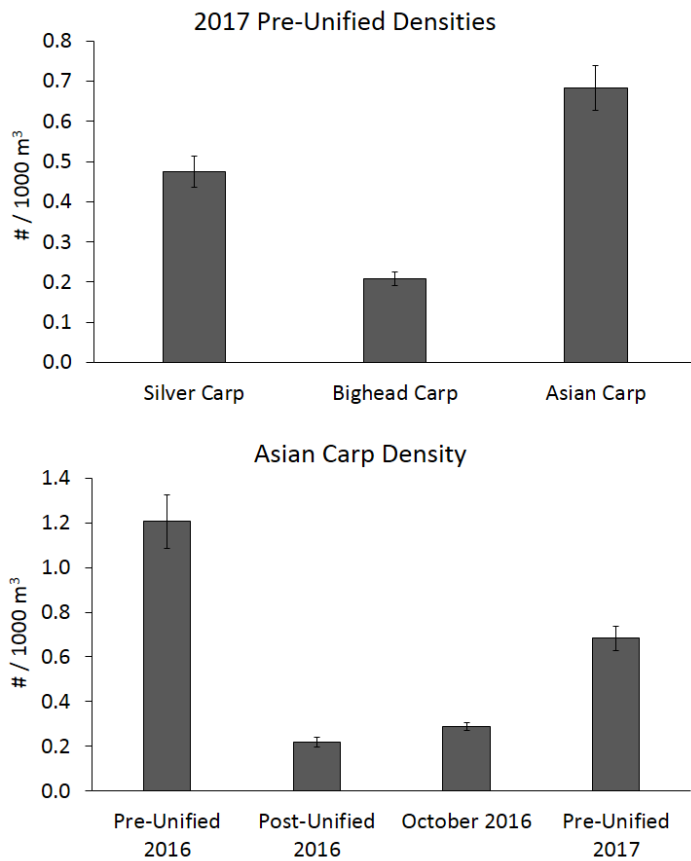


Figure 1. Asian carp densities in the HMS West Pit prior to Unified Method harvest in February 2017 (top). Bottom: Asian carp (Silver Carp and Bighead Carp combined) densities before Unified Harvest in 2017 compared to Pre- and Post-Unified Method densities in 2016, and West Pit fall densities in Oct 2016.

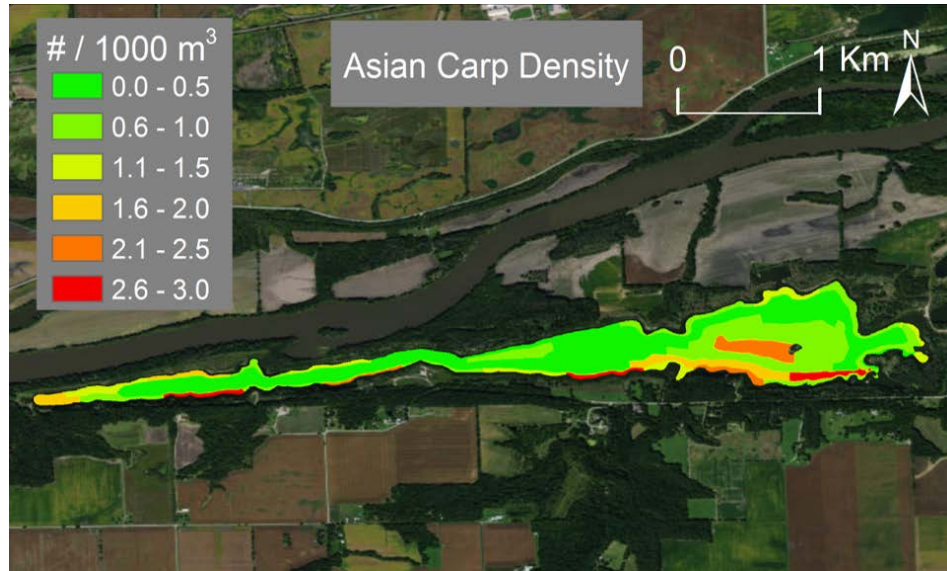


Figure 2. Spatial distribution of Asian carp prior to the Unified Method harvest in the HMS West Pit in the Marseilles Pool of the Illinois River. Data were collected in late February, 2017.

Telemetry to monitor movement among pools

The route of upstream passage by Illinois River Asian carp through dams varied by dam type. At wicket style dams at La Grange and Peoria, upstream passages typically occurred through the lock chamber during high water periods when both upstream and downstream lock gates were left open (Figure 3). Upstream passages through gated dams at Starved Rock and Marseilles occurred mostly through the dame gates. Passages through Dresden Island Lock and Dam all occurred through the lock chamber. Flows are lower at Dresden Island Lock and Dam and so the possibility that the tainter gates were never completely open is being investigated as the most likely cause of this difference in passage route among Dresden Island and other gated dams.

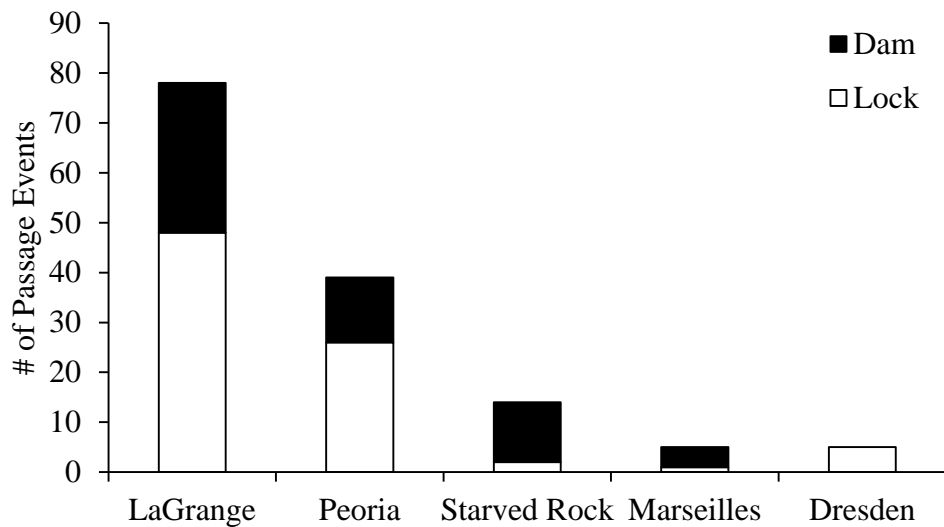


Figure 3. Route of observed upstream passages by Asian carp through Illinois River dams from.

Monitoring Fish Abundance and Spatial Distribution in Lockport, Brandon Road, and Dresden Island Pools and the Associated Lock and Dam Structures

Mobile split-beam acoustic surveys were conducted in the Lockport, and Brandon Road Pools of the Illinois Waterway the second week of March 2017 to determine fish density within the study reaches. Preliminary results did not show observations of large fish targets suspected to be Asian carp.

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

Mobile hydroacoustic fish surveys were performed at the Electric Dispersal Barrier during the second week of March 2017. Preliminary results follow:

Purpose: The USFWS conducts hydroacoustic fish density surveys on a bi-weekly basis to estimate the number, sizes, and location of fish immediately downstream of the Electric Dispersal Barrier System (EDBS). These surveys provide “real time” information to fisheries managers and EDBS operations managers to facilitate fish management decisions and EDBS maintenance operations. Hydroacoustic surveys occur within the area downstream of the Romeoville, IL Electric Dispersal Barrier System (EDBS). The area of analysis extends from immediately downstream of Barrier IIA to a point approximately 300 m downstream of the EDBS. The acoustic beam produced by the side looking transducer sampled the water column across the entire canal.

Preliminary Results 3-15-2017 Density of both large (> 6”) and small (< 6”) fish near the EDBS was very low during this week’s survey (Table 1). The largest estimated fish size was 191 mm. Water temperature was 6.6°C.

Barrier Maintenance & Fish Suppression

The Electric Dispersal Barriers were successfully operated with minimal loss to power in water in the month of March and did not require fish suppression or clearing actions. There were 8 severe weather events which required the barriers to be operated on generator power resulting in 16 minor power outages at the Barrier IIB arrays. Barrier IIA maintained power to the water continuously while Barrier IIB was transferred to and from emergency generator power. Each power transfer from utility to generator or generator to utility results in a momentary loss of power to the water (< 30 sec) at that specific array. The narrow, high field array of Barrier IIA, wide and narrow arrays of Barrier IIB and the demonstration barrier are currently operational. The wide array of Barrier IIA is offline.

Distribution and Movement of Small Asian carp in the Illinois Waterway

The USFWS Columbia sampled the Lockport, Brandon Road, Dresden Island and Peoria pools with the electrified dozer trawl 3/21/2017 – 3/23/2017. No Silver Carp were captured in the Lockport, Brandon Road or Dresden Island pools. Silver Carp measuring between 117mm and 125mm were captured in DePue Lake of the Peoria Pool, 20 miles downstream of the Starved Rock Lock & Dam. The following table is a summary of effort and catch.

Pool	Gear	# of Runs	Time (minutes)	Distance (m)	# of Gizzard Shad	# Silver Carp	# of Silver Carp <153mm
Lockport	Electified Dozer Trawl	9	45	3482	594	0	0
Brandon Road	Electified Dozer Trawl	7	34	2784	258	0	0
Dresden Island	Electified Dozer Trawl	14	65	4499	121	0	0
Peoria	Electified Dozer Trawl	13	62	5240	211	83	4

Juvenile Asian Carp Monitoring

Sampling to monitor for juvenile Asian carp (TL <160mm) began March 27, 2017. Mini fyke nets were used in Starved Rock pool for a total of 15 net nights with a 947 fish captured representing 23 species. No Asian carp were captured. Boat electrofishing was conducted in Marseilles pool (3/27/2017 to 3/30/2017) for 3 total fishing hours with 1108 fish captured representing 25 species. Nineteen adult Silver Carp were captured but no juveniles were observed. Length and weight data were recorded at 3 sites in Marseilles Pool for partners at Southern Illinois University. High river levels and thunderstorms had a negative effect on sampling effort.

Telemetry Monitoring

USACE biologists downloaded telemetry receivers that were stationed from the Upper Lockport Pool to the Dresden Island Lock and Dam throughout the winter. Preliminary analysis of the downloaded data indicates no tagged fish passage through the electric dispersal barrier system in either direction. Additionally, there were no inter-pool movements detected by tagged fish and no Bighead or Silver Carp detected upstream of Rock Run Rookery. Bighead and Silver Carp detections were greatest at the mouth of the Kankakee River and at the connecting channel to Rock Run Rookery. USACE biologists re-established the full telemetry monitoring network consisting of 30 VR2W receivers the weeks of 6 and 13 March. USACE biologists worked with ILDNR observers and contracted commercial fishermen to implant 3 Silver and 4 Bighead Carp with depth and temperature sensor transmitters on 17 March. These tagged fish were captured and released at the Rock Run Rookery backwater.

Upper Des Plaines River Asian Carp Monitoring

USFWS fisheries crews deployed 1500 yards of gill net in areas of the upper Des Plaines River. No bighead or silver carp collected or observed.

Alternate Pathway Surveillance in Illinois - Law Enforcement

A Kentucky Fish hauler arrested by the Invasive Species Unit pled guilty in a Cook County courthouse to importing and selling largemouth bass (VHS susceptible species) without licenses or permits. The fish hauler illegally imported the untested fish into Chicago's Chinatown. The company and owner was ordered to pay \$10,000 to the Illinois Conservation Police Operations fund.

The Invasive Species Unit (ISU) responded to a complaint of two college students releasing 3 live fish into a park district pond in Central Illinois as part of a merit/cultural release celebration for the Chinese New Year. The students were identified and interviewed. They explained the reason they put the fish into the lake was because they believed purchasing fish that would otherwise be killed for food would hopefully bring them good luck. The investigation determined the fish, two Largemouth Bass and one Tilapia, were purchased from a local Asian market, and the students had no knowledge of what species the fish were. Appropriate enforcement action was taken against the students for the unlawful release of the fish, and against the store for having an expired aquatic life dealer's license. The out of state fish hauler / supplier was identified through records and surveillance was set up on the market. The ISU inspected the fish hauler delivering to the market on a later date and documented multiple violations. The investigation is ongoing, so the details will be released at a later date.

The ISU conducted testing for the presence of Asian Carp eDNA at a bait shop in Lake County, IL. There were no reports or suspicions of Asian Carp in the bait that was being sold and all results came back negative for any Asian Carp eDNA.

The ISU conducted surveillance and walk through inspections of fish markets in Chicago's Chinatown.

The ISU attended the Great Lakes Fishery Commission Law Enforcement Committee and relevant training and discussions of invasive species related topics in Ypsilanti, MI.

Assessing Asian carp populations across ecologically significant ecosystems: quantifying abundance, biomass, and size distributions

Quarter period: Jan 1 – Mar 31, 2017

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Gregory Whitledge

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Participating Agencies: SIUC (lead); IDNR (coordination)

We completed post-processing of hydroacoustic data collected in Pool 19 of the Mississippi River during December 2016 and have completed initial analyses. Throughout the pool we sampled 10 sites and 30 miles (48 km) of water, consisting of 5 4-mile main channel sites, three side channel sites (Dutchman Island, Rush Chute, Shokokon Slough), one tributary (Skunk River), and one marina (Riverview Marina). Pool-wide mean densities of Asian carp (Silver Carp and Bighead Carp combined) were 0.03 individuals/1000 m³ [0.21 kg/1000 m³], with Silver Carp being more prevalent than Bighead Carp (Figure 1). Asian carp were more abundant in backwater sites (side channels, tributary, marina) than main channel sites (Figures 2 & 3), with the Skunk River having the highest densities of all sites. Silver Carp occupied intermediate sizes (most between 52 and 100 cm) while Bighead Carp mostly comprised larger size classes (> 96 cm; Figure 4).

The same hydroacoustic sampling procedure was used to assess Asian carp densities in portions of the Buttonland Swamp and adjacent Cache River in southern Illinois. The Cache River was also sampled from the confluence with the Mississippi River upstream as far as water depth allowed (ended just southeast of Unity, IL). Hydroacoustic surveys and fish capture (netting and electrofishing) were completed during the week of 3/27/17 and are currently being processed. One Black Carp was collected during fish capture events. Identification of this fish was verified by Greg Whitledge and immediately reported to IDNR.

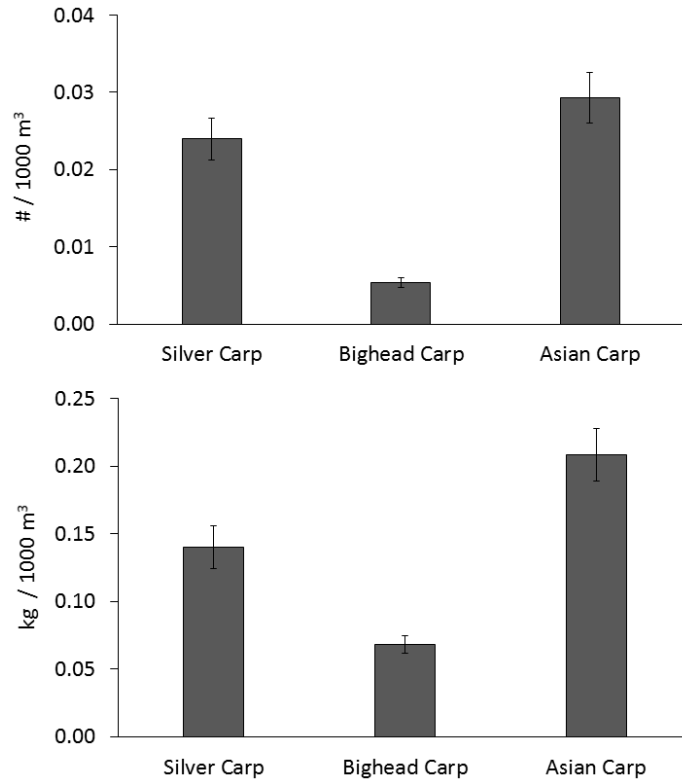


Figure 1. Mean (SE) pool-wide densities of Silver Carp, Bighead Carp, and Asian carp (Silver and Bighead combined) in Pool 19 of the Mississippi River, sampled in December 2016.

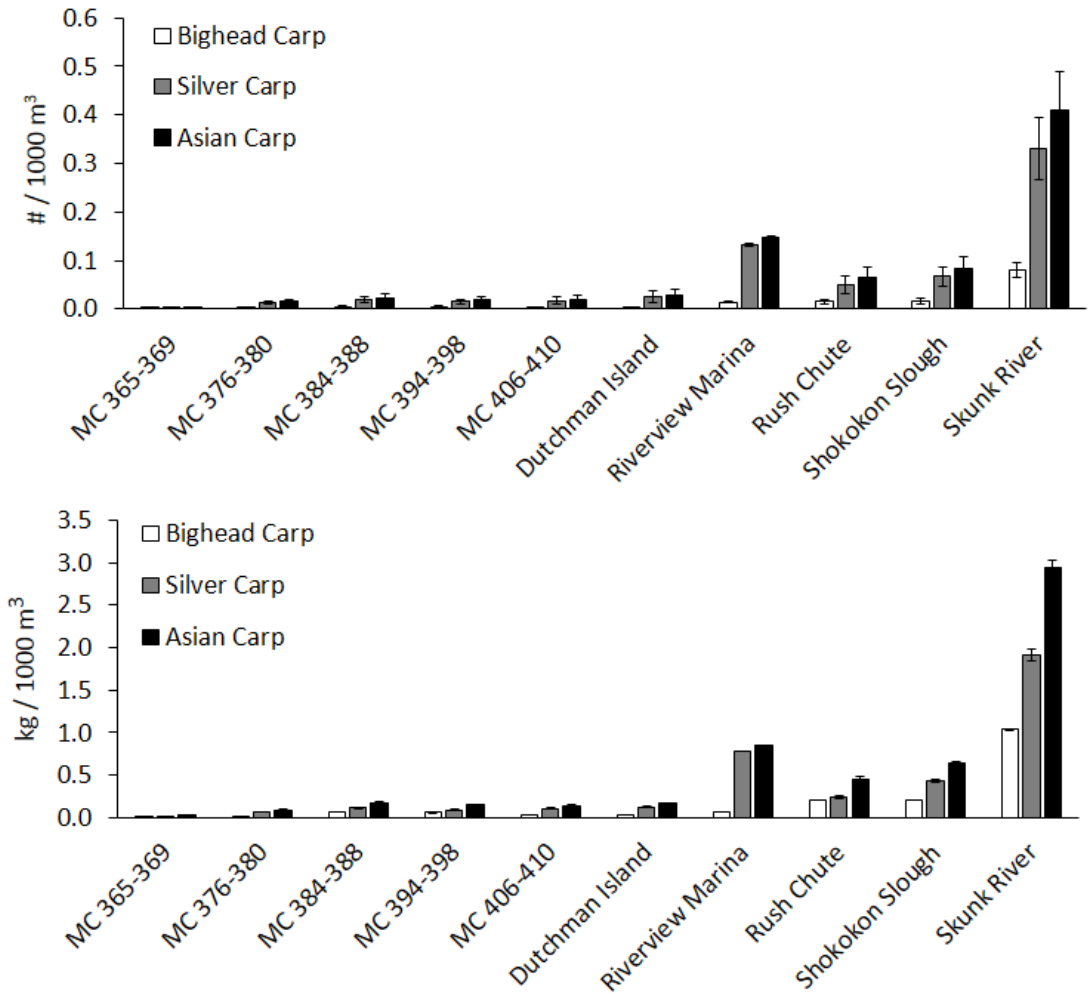


Figure 2. Densities of Bighead Carp, Silver Carp, and Asian carp (Silver and Bighead Carp combined) across sites sampled in Pool 19 of the Mississippi River in December 2016. Main channel (MC) sites are designated by starting and ending river miles.

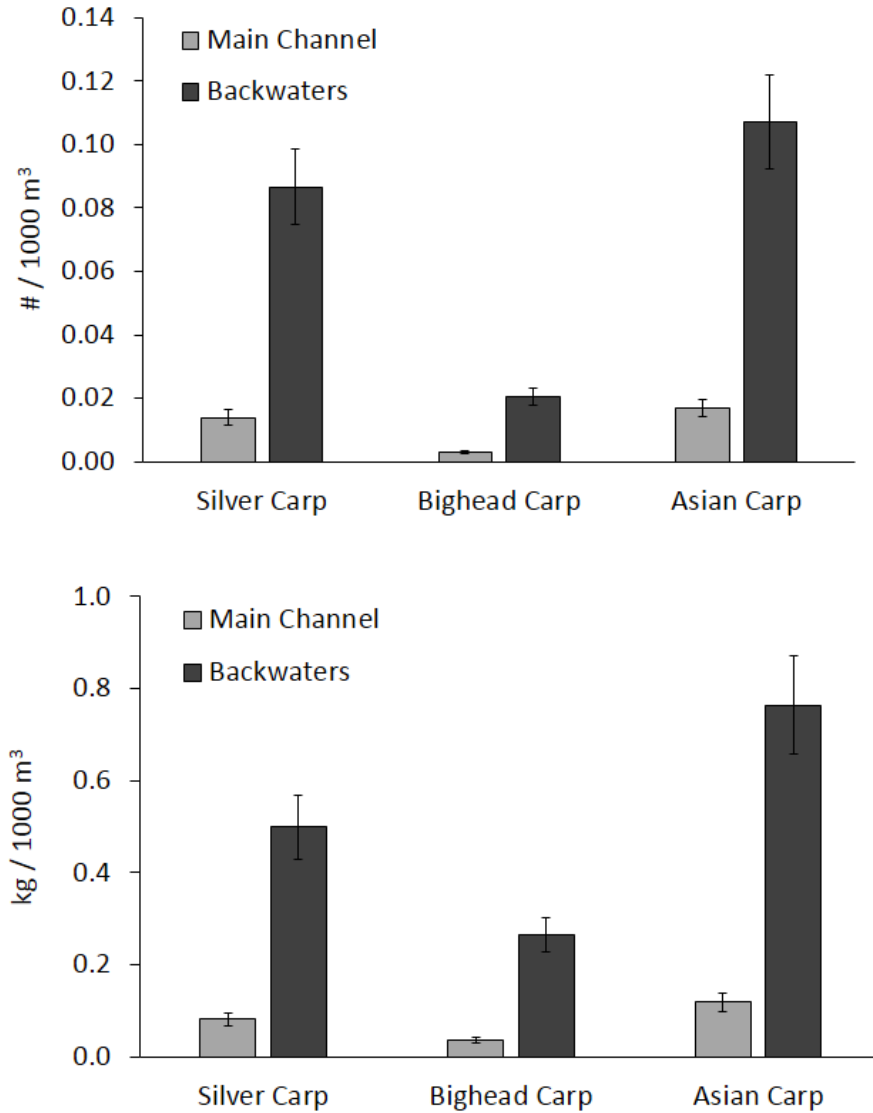


Figure 3. Mean (SE) densities of Silver Carp, Bighead Carp, and Asian carp (Silver and Bighead combined) between main channel and backwater (side channel, marinas, tributary) habitats in Pool 19 of the Mississippi River in December 2016.

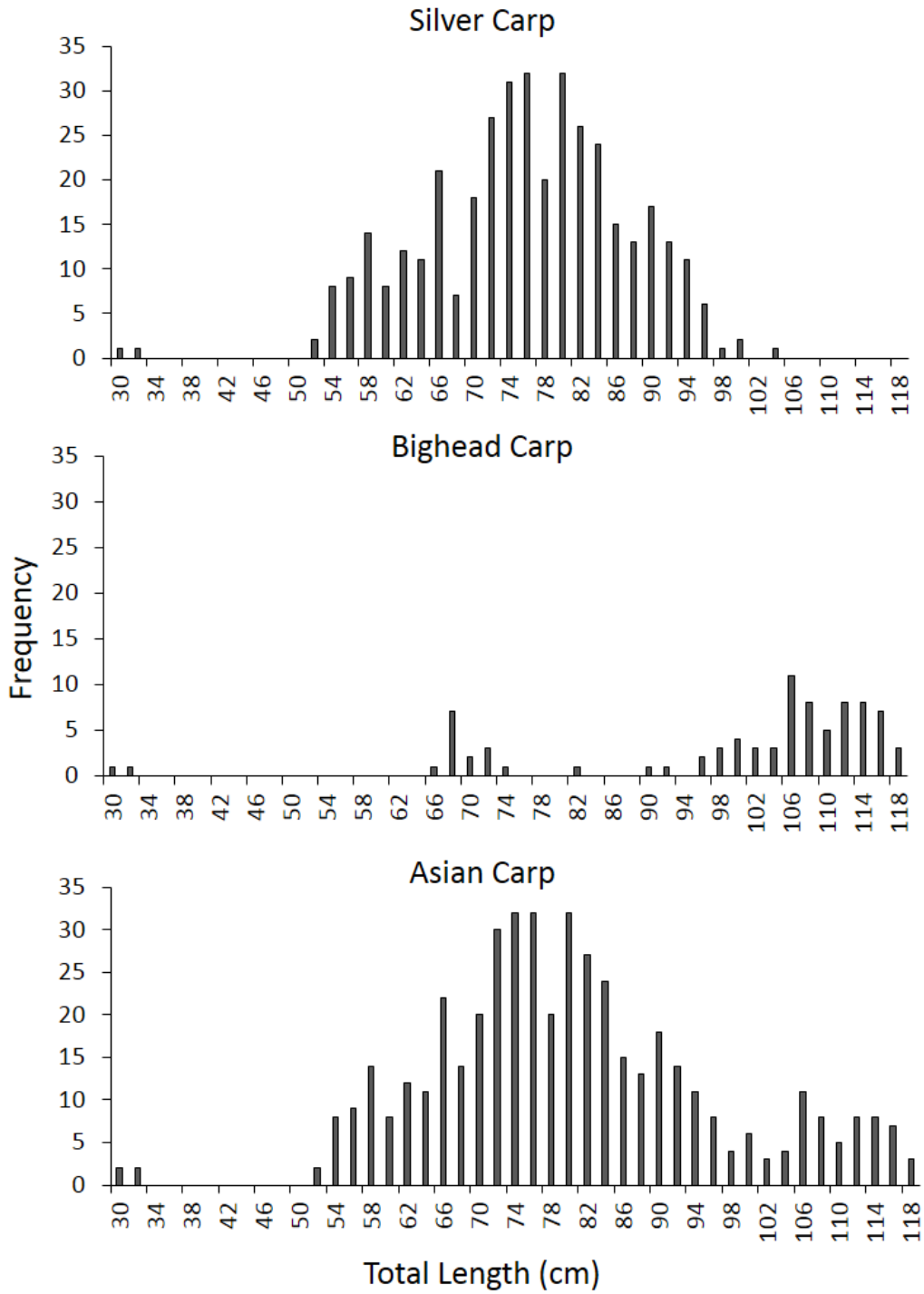


Figure 4. Size distributions of Silver Carp, Bighead Carp, and Asian carp (Silver and Bighead combined) identified from hydroacoustic sampling throughout Pool 19 of the Mississippi River. Lengths represent individuals from all sites pooled together.