

2019 September Summary

Bottom Line: Multiple agencies participated in monitoring Asian Carp (Bighead Carp, Black Carp, Grass Carp, and Silver Carp) in the upper Illinois Waterway during September 2019. **NO LIVE BIGHEAD CARP, BLACK CARP, GRASS CARP, or SILVER CARP were found in any new locations immediately downstream or upstream of the Electric Dispersal Barrier.**

Fixed, Random, and Targeted Site Sampling Downstream of the Electric Dispersal Barrier

Electrofishing:

- During September 2019, United States Army Corporation of Engineers (USACE) and Illinois Department of Natural Resources (IDNR) crews conducted 16 electrofishing runs in Lockport Pool, 19 in Brandon Road Pool, and 2 in Dresden Island Pool at fixed and random sites.
- Scheduled monitoring by USACE was postponed during the week of 19 September.
- A total of 2,371 fish representing 44 species and 1 hybrid groups were captured across the four pools during September.
- One Grass Carp was collected in the Upstream of I55 in Dresden Island Pool directly below the Brandon Road Lock.
- **No Bighead Carp, Black Carp, or Silver Carp were captured or observed while electrofishing during September 2019.**

Hoop netting:

- IDNR set 64.01 hoop net nights in Lockport and Brandon Road Pools during September 2019.
- A total of 167 fish representing 9 species were captured across the two pools with hoop nets during September 2019.
- **No Bighead Carp, Black Carp, Grass Carp, or Silver Carp were captured or observed in Lockport Pool or Brandon Road Pool during hoop netting during September 2019.**

Mini fyke netting:

- IDNR set 29.15 mini fyke net nights in Lockport and Dresden Island Pools during September 2019.
- A total of 1,428 fish representing 27 species and 2 hybrid groups were captured across the two pools with mini fyke nets during September 2019.
- **No Bighead Carp, Black Carp, Grass Carp, or Silver Carp were captured or observed in Lockport Pool or Brandon Road Pool during mini fyke netting in September 2019.**

Commercial Netting:

- Contracted commercial fishers with assisting IDNR biologists set 5.2 miles of gill/trammel net in Dresden Island Pool (including Rock Run Rookery) during September 2019.
- Effort was reduced in pools below the electric barrier, a result of intensive sampling above the electric barrier.
- 213 fish representing 8 species were captured during contracted commercial netting effort in the Dresden Island Pool during September 2019.
- Five Silver Carp were captured in Dresden Island Pool below the I55 bridge during contracted commercial netting during September 2019.
- Two Bighead Carp and 12 Silver Carp were captured in Rock Run Rookery during contracted commercial netting during September 2019.
- **No Bighead Carp or Silver Carp were captured in Dresden Island Pool above I55 bridge (excluding Rock Run Rookery) during contracted commercial netting during September 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. Additionally, all effort may not be reported due to data processing so effort amount and catch could be higher):

Lockport Pool

| | 2017 | 2018 | 2019 |
|----------------------------------|-------------|-------------|-------------|
| Yards of Net Fished | 65,400 | 62,500 | 43,000 |
| Miles of Net Fished | 37.2 | 35.5 | 24.4 |
| Hoop Net Nights | 39.4 | 40.8 | 139.8 |
| Mini Fyke Net Nights | 21.0 | 20.9 | 22.2 |
| Electrofishing Runs | 104 | 151 | 50 |
| Electrofishing Time (hrs) | 26.0 | 37.8 | 12.5 |
| Total Asian Carp (AC) | 0 | 0 | 0 |
| Tons of AC Harvested | 0 | 0 | 0 |

Brandon Road Pool

| | 2017 | 2018 | 2019 |
|----------------------------------|-------------|-------------|-------------|
| Yards of Net Fished | 75,800 | 62,800 | 34,800 |
| Miles of Net Fished | 43.1 | 35.7 | 19.8 |
| Hoop Net Nights | 42.6 | 39.2 | 181.2 |
| Mini Fyke Net Nights | 23.5 | 18.8 | 25.1 |
| Electrofishing Runs | 107 | 132 | 53 |
| Electrofishing Time (hrs) | 26.8 | 33.0 | 13.3 |
| Total Asian Carp (AC) | 1* | 1* | 0 |
| Tons of AC Harvested | 0 | 0 | 0 |

* indicates that the AC captured were Grass Carp

Dresden Island Pool (Including Rock Run Rookery)

| | 2017 | 2018 | 2019 |
|--|-------------|-------------|-------------|
| Yards of Net Fished | 108,300 | 162,700 | 103,000 |
| Miles of Net Fished | 61.5 | 92.4 | 58.5 |
| Hoop Net Nights | 335.3 | 36.4 | 76.3 |
| Mini Fyke Net Nights | 26.9 | 19.7 | 42.1 |
| Pound net night | 0 | 4 | 0 |
| Electrofishing Runs | 167 | 179 | 53 |
| Electrofishing Time (hrs) | 41.8 | 44.8 | 13.25 |
| Bighead Carp | 282 | 296 | 30 |
| Grass Carp | 8 | 42 | 2 |
| Silver Carp | 459 | 737 | 145 |
| Total AC | 749 | 1075 | 177 |
| Asian Carp (AC) from Rock Run Rookery Lake (RR) | 196 | 110 | 37 |
| AC upstream I-55 (not in RR) | 29* | 6* | 4 |
| AC downstream I-55 | 524 | 959 | 136 |
| Tons of AC Harvested | 8.5 | 9.3 | 2.5 |
| AC/1000 yds of gill net | 6.7 | 6.5 | 1.7 |

* indicates that the AC captured upstream of I-55 included includes Bighead Carp, Grass Carp and Silver 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 September 2019, including 15 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

| | 2017 | 2018 | 2019 |
|-----------------------------------|-------------|-------------|-------------|
| Number of Days Fished | 63 | 66 | 80 |
| Number of Net Crew Days | 207 | 286 | 408 |
| Yards of Net Fished | 320,810 | 304,800 | 445,215 |
| Miles of Nets Fished | 182.3 | 173.2 | 253.0 |
| Number of Pound Net Nights | 74 | 22 | 26 |
| Number of Hoop Net Nights | 879.8 | 1217.1 | 187 |
| Number of Bighead Carp | 2,388 | 2,914 | 2,910 |
| Number of Silver Carp | 98,922 | 98,331 | 156,741 |
| Number of Grass Carp | 662 | 903 | 2,620 |
| Number of Asian Carp (AC) | 101,972 | 102,148 | 162,271 |
| Tons of AC Harvested | 352.1 | 378.6 | 609.6 |
| AC/1000 yds of gill net | 273.7 | 328.0 | 363.5 |

Marseilles Pool

| | 2017 | 2018 | 2019 |
|----------------------------------|-------------|-------------|-------------|
| Yards of Net Fished | 201,710 | 124,800 | 158,300 |
| Miles of Nets Fished | 114.6 | 70.9 | 89.9 |
| Pound Net nights | 74 | 22 | 26 |
| Hoop Net nights | 89.4 | 262.9 | 78.8 |
| Mini Fyke Net Nights | 23.4 | 19.8 | 45.3 |
| Electrofishing Runs | 108 | 130 | 67 |
| Electrofishing Time (hrs) | 27.0 | 32.5 | 16.75 |
| Bighead Carp | 1,332 | 1,325 | 898 |
| Grass Carp | 59 | 42 | 40 |
| Silver Carp | 33,057 | 28,983 | 30,994 |
| Total Asian Carp | 34,448 | 30,350 | 31,932 |
| Tons of AC Harvested | 149.8 | 144.7 | 179.3 |
| AC/1000 yds of gill net | 162.0 | 231.1 | 199.0 |

Starved Rock Pool

| | 2017 | 2018 | 2019 |
|----------------------------------|-------------|-------------|-------------|
| Yards of Net Fished | 119,100 | 180,000 | 286,915 |
| Miles of Nets Fished | 67.7 | 102.3 | 163.0 |
| Hoop Net nights | 831.2 | 992.6 | 162.2 |
| Mini Fyke Net Nights | 0.0 | 0.0 | 67.8 |
| Electrofishing Runs | 0 | 0 | 97 |
| Electrofishing Time (hrs) | 0.0 | 0.0 | 24.25 |
| Bighead Carp | 1,064 | 1,591 | 2,014 |
| Grass Carp | 621 | 870 | 2,589 |
| Silver Carp | 66,309 | 69,543 | 125,850 |
| Total Asian Carp | 67,994 | 72,004 | 130,453 |
| Tons of AC Harvested | 207.7 | 235.3 | 431.1 |
| AC/1000 yds of gill net | 463.0 | 379.0 | 454.0 |

Zooplankton as dynamic assessment targets for Asian carp removal

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 September 2, September 16, and September 30. Zooplankton samples are being processed to estimate both density and biomass of different zooplankton taxa throughout the Illinois Waterway. 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.

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 September 2, September 16, and September 30. Four larval fish samples were collected at each site. Additional samples were collected in Illinois River tributaries. Water levels in the Illinois River were low and relatively stable during the first half of September. The lower Illinois River underwent a prolonged increase in water levels during the second half of September, whereas the upper Illinois River saw a substantial increase in discharge following a large rain event during the last few days of September. Asian carp eggs were collected in samples from the LaGrange and Peoria Pools during the week of September 30. This is the latest date that evidence of Asian carp spawning has been observed during any year in the Illinois River. Processing of samples and identification of larval fish and eggs is ongoing. 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.

Monitoring Bigheaded Carp Movement and Density in the Illinois River

Implantation of telemetry transmitters in Asian carp in Alton and LaGrange pools was initially planned for the week of 9/23 but was delayed because water temperatures were still > 25°C. Active tracking occurred from 9/9 – 9/13 in Starved Rock and Peoria pools as part of the SIU-USACE collaboration evaluating the use of Common Carp as a surrogate species for Silver Carp. 15 Common Carp and 11 Silver Carp were located in Starved Rock Pool, and 9 Common Carp and 2 Silver Carp were detected in Peoria Pool. Stationary telemetry receivers were downloaded in Dresden Island, Marseilles, and Starved Rock pools, as well as a portion of receivers in Peoria Pool. Receivers located in the Dresden Island and Marseilles locks were unable to be downloaded due to lock closures and commercial vessel traffic.

Telemetry **USACE**

Biologists downloaded 26 stationary VR2W receivers from the confluence of the Cal-Sag Channel and Chicago Sanitary and Shipping Canal in the Lockport Pool to the Dresden Island Lock and Dam within the Dresden Island Pool on 10-12 September 2019. A preliminary review of the data from 16 July to 10 September 2019 indicated no tagged fish crossing the Electric Dispersal Barrier System (EDBS) upstream or downstream and no tagged Asian carp detected upstream of the Brandon Road Lock and Dam. A total of 46 tagged fish were detected in the Lower Lockport Pool, 16 tagged fish in the Brandon Road Pool, and 29 tagged fish in the Dresden Island Pool. Three Common Carp were detected moving downstream through the Lockport Lock and another two Common Carp detected moving upstream through the Lockport Lock within the period of analysis. One Common Carp was detected moving downstream through the Brandon Road Lock and Dam. There were 11 Asian carp tagged by USACE detected within the Dresden Island Pool with the remainder of tagged fish belonging to other agencies. Of the Asian carp tagged by USACE, five utilized both the upper and lower pool, four were only detected in the lower pool, and two were only detected in the upper pool near Rock Run Rookery. A more detailed analysis of habitat use and movement will be provided in the annual interim summary report.

United States Geological Services (USGS)

Four bigheaded carp (three Bighead carp and one Silver carp) were detected at the Minooka, IL real-time receiver above Dresden Island Lock and Dam during the month of September 2019 (Figure 1). The maximum number of fish detected on one day was four and the minimum was zero. No fish were detected moving among pools. No bigheaded carp were detected at any other receivers in August.

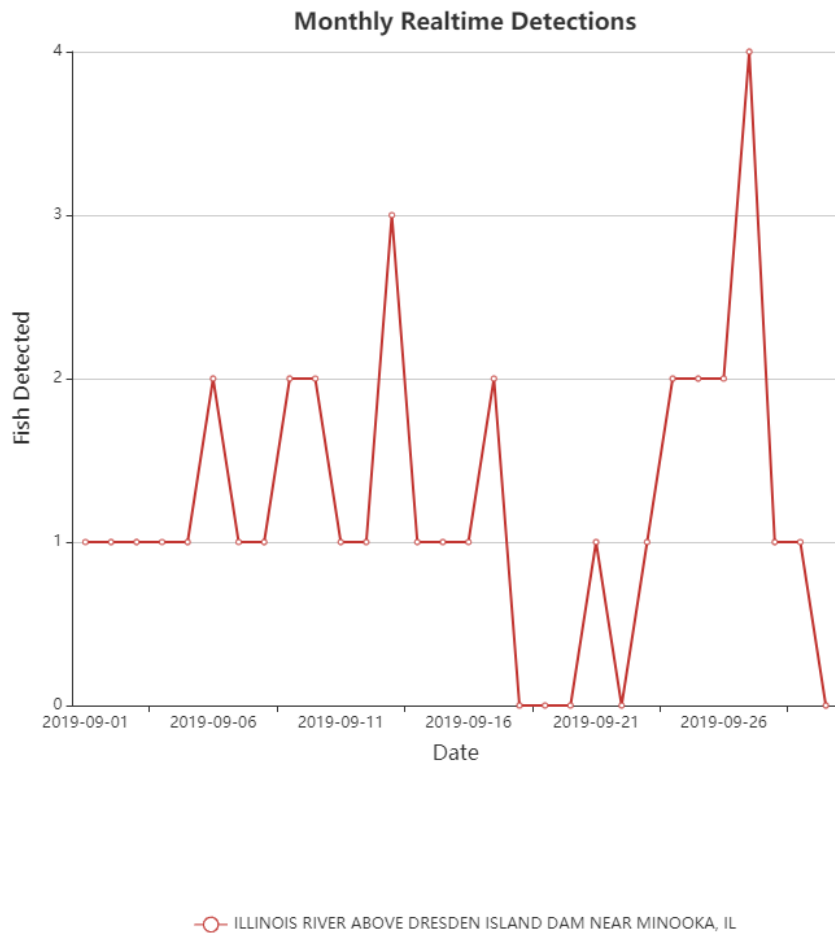


Figure 1. Fish detections for 1 September – 30 September 2019 from the real time receiver on in the Illinois River near Minooka, IL.

DISCLAIMER

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.

Asian carp demographics

During September 2019, the U.S. Fish and Wildlife Service (USFWS) – Columbia Fish and Wildlife Conservation Office completed 50 5-minute dozer trawls in each of the Alton, Peoria, Starved Rock, and Marseilles pools of the Illinois River.

Total length ranged from 132 – 744, 108 – 895, 550 – 790, and 562 – 886 mm in Alton, Peoria, Starved Rock, and Marseilles pools respectively.

Additional sample data including sex ratios, catch per unit effort, and length distributions are forthcoming.

Des Plaines River and Overflow Monitoring

Crews from the Wilmington USFWS office sampled the Des Plaines River upstream of the Illinois River confluence September 23-25, 2019. Sampling was conducted between Lemont Road and the Columbia Woods Picnic area. Efforts included a total of 22 electrofishing runs (330 minutes electrofishing time) and 300 yards of gillnet sets. A total of 568 fish were collected, representing 25 species. No Silver or Bighead carp were captured. An additional week of effort will be attempted during fall of 2019.

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

The USFWS conducted two mobile hydroacoustic fish surveys at the EDBS during September 2019. Surveys were completed on September 16, 2019 and September 26, 2019 to monitor for the presence and distribution of large fishes greater than 12 inches (30.5 cm) total length in the vicinity of the EDBS. purpose of these hydroacoustic surveys is to aide in assessing the risk of fish detected in the vicinity of the EDBS being either Bighead or Silver Carp prior to or during barrier operational changes and/or maintenance. Fish detections during a survey does not necessarily indicate the presence of Bighead or Silver Carp merely fish greater than 12 inches. 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:

One large fish target was detected within the EDBS on September 16, 2019. Ten large fish targets were detected downstream of the EDBS.

No large fish targets were detected within the EDBS on September 26, 2019. One large fish target was detected downstream of the EDBS.

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

The USFWS conducted mobile hydroacoustic fish surveys in Dresden Island Pool, Brandon Road Pool, and Lockport Pool during September 2019. The Lockport Pool and Brandon Road Pool surveys were completed on September 5, 2019. The Dresden Island Pool survey was completed on September 17, 2019. These pool surveys were designed to monitor for the presence and density of large fishes, potentially either Bighead or Silver Carp, greater than - 30.5 dB (theoretical side-aspect target strength of a 10 inches (30.5 cm) total length fish) within the upper Illinois Waterway. Fish detections during a survey do not necessarily indicate the presence of Bighead or Silver Carp merely fish greater than 12 inches which could also be any other large bodied fish. 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 0.8 large fish targets per 100,000 m³ were detected in Lockport Pool. Three fish were detected, on the -9.6° subsurface transducer, in 328,241 m³ of ensonified water. Five fish were detected, on the -3.2° surface transducer, in 677,006 m³ of ensonified water.

Brandon Road Pool:

A mean density of 2.3 large fish targets per 100,000 m³ were detected in Brandon Road Pool. Five fish were detected, on the -9.6° subsurface transducer, in 226,455 m³ of ensonified water. Eleven fish were detected, on the -3.2° surface transducer, in 443,987 m³ of ensonified water.

Dresden Island Pool:

A mean density of 0.8 large fish targets per 100,000 m³ were detected in Dresden Island Pool. Three fish were detected, on the -9.6° subsurface transducer, in 619,116 m³ of ensonified water. Ten fish were detected, on the -3.2° surface transducer, in 939,249 m³ of ensonified water.

Barrier Operational and Maintenance Status

Status as of 30 Sept 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 were Open throughout the month

All barriers were fully functional at the above settings for the month of September 2019.

Seasonal Intensive Monitoring

The fall Seasonal Intensive Monitoring (SIM) took place above the electric dispersal barrier the during weeks of September 9th and September 16th. Electrofishing and commercial netting occurred in the North Shore Channel, North and South Branches of the Chicago River, Chicago River, Chicago Sanitary and Ship Canal, Cal-Sag Channel, Little Calumet River, Calumet River, and Lake Calumet (Figure 2).

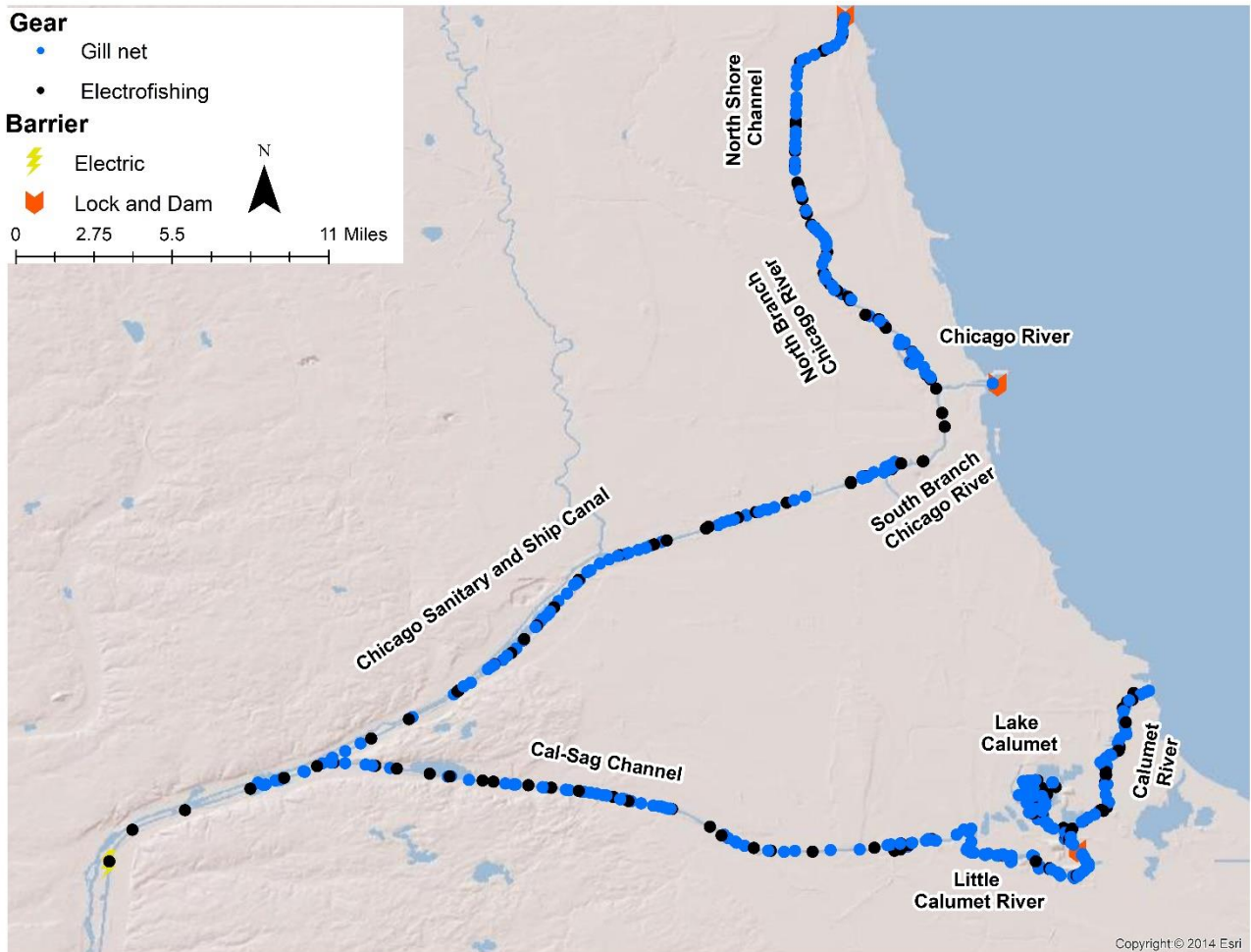


Figure 2. Spatial distribution of gill net sets (blue dots), and electrofishing runs (black dots) within the Chicago Area Waterway during the 2019 spring Seasonal Intensive Monitoring event.

Electrofishing:

- Crews from IDNR, USACE, and USFWS completed 169 electrofishing runs at fixed and random sites (42.25 hours total).
- Crews collected 7,166 fish representing 44 species.
- Two Grass Carp were captured during electrofishing sampling during the SIM event: 1 in Lake Calumet (41.68368, -87.58514) and 1 in the Calumet River (41.66679, -87.5639).

Commercial Netting:

- Contracted commercial fishers along with assisting IDNR biologists set 40.9 miles of gill net (360 sets) at fixed and random sites.
- Crews collected 546 fish representing 11 species and 1 hybrid group.
- One Grass Carp was captured in Lake Calumet (41.686473, -87.579241) during commercial netting.

Overall:

- A total of 7,712 fish representing 47 species and 1 hybrid group were collected cumulatively with all gear types during the two week SIM event.
- **No Bighead Carp or Silver Carp were observed or collected during the September SIM event.**

Lake Michigan monitoring (through annual sportfish assessment program)

- IDNR crews conducted electrofishing runs in North Point Marina, Waukegan South, Diversey, Jackson Park, and Calumet harbors (15.7 hours total).
- IDNR crews conducted seine hauls targeting juvenile fishes at beaches near North Point Marina, Waukegan Harbor, Wilmette (Tower Road), Evanston (Farwell Ave), and Jackson Park Harbor (total of 44 hauls).
- No new Aquatic Invasive Species (AIS) were captured during these sampling events. The following introduced species were detected during sampling: Alewife, Common Carp, Gizzard Shad, Goldfish, Koi, and Round Goby.
- **One angler-caught Grass Carp was encountered by staff while launching at Jackson Park Inner Harbor. The fish was measured, an eye sample was collected and shipped to La Crosse Fish Health Center. Ploidy analysis came back as “likely Triploid” but could not be confirmed due to sample degradation.**
- **No Bighead or Silver Carp were captured or observed at any sites sampled in Lake Michigan during this quarter.**