2019 November 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 November 2019. Due to unseasonably cold and dangerous conditions, some sampling effort was rescheduled or cancelled. **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:

- United States Army Corporation of Engineers (USACE) crews conducted three electrofishing runs in Lockport Pool during November 2019.
- Seven individual fish representing 3 species were detected.
- **No Bighead Carp or Silver Carp were captured or observed.**

Hoop netting:

- Due to changes in the monitoring response plan hoop netting effort was not put forth in November.

Mini fyke netting:

- Due to changes in the monitoring response plan hoop netting effort was not put forth in November.

Commercial Netting:

- Contracted commercial fishers with assisting Illinois Department of Natural Resources (IDNR) or Illinois Natural History Survey (INHS) biologists set 10 miles of gill/trammel net in Lockport, Brandon Road, and Dresden Island Pool (including Rock Run Rookery) during November 2019.
- 394 fish representing 15 species and 1 hybrid group were captured during contracted commercial netting effort in Lockport, Brandon Road, and Dresden Island Pools during November 2019.
- **No Bighead Carp, Grass Carp, or Silver Carp were captured above the I55 bridge in Dresden Island Pool (excluding rock run rookery) during contracted commercial netting in November 2019.**
- **Zero Bighead Carp, 0 Grass Carp, and 9 Silver Carp were captured below the I55 bridge in Dresden Island Pool bridge during contracted commercial netting in November 2019.**
- **Zero Bighead Carp, 0 Grass Carp and 2 Silver Carp were captured in Rock Run Rookery during contracted commercial netting during November 2019.**

Sampling results below the electric dispersal barrier by pool through November 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 sampling protocol changes. Additionally, all effort may not be reported due to data processing so actual effort amount and catch is likely higher. Check 2019 interim summary, published at the end of the year, for complete results.)

Lockport Pool

	2017	2018	2019
Yards of Net Fished	87,300	77,100	52,600
Miles of Net Fished	49.6	43.8	29.9
Hoop Net Nights	46.6	56.8	163.8
Mini Fyke Net Nights	25.2	28.9	22.2
Electrofishing Runs	130	169	69
Electrofishing Time (hrs)	32.5	42.3	17.3
Total Asian Carp (AC)	0	0	0
Tons of AC Harvested	0	0	0

Brandon Road Pool

	2017	2018	2019
Yards of Net Fished	99,275	77,500	47,400
Miles of Net Fished	56.4	44.0	26.9
Hoop Net Nights	50.3	55.0	158.9
Mini Fyke Net Nights	27.1	26.6	33.1
Electrofishing Runs	129	156	63
Electrofishing Time (hrs)	32.3	39.0	15.8
Total Asian Carp (AC)	1*	1*	0
Tons of AC Harvested	0	0	0

***** Indicates that AC captured were Grass Carp

Dresden Island Pool (Including Rock Run Rookery)

	2017	2018	2019
Yards of Net Fished	171,700	230,400	159,250
Miles of Net Fished	97.6	130.9	90.5
Hoop Net Nights	343.3	52.2	76.3
Mini Fyke Net Nights	30.9	27.6	66.2
Pound net night	4	8	2
Electrofishing Runs	194	210	76
Electrofishing Time (hrs)	48.5	52.5	19.0
Bighead Carp	307	398	45
Grass Carp	28	53	8
Silver Carp	539	1235	274
Total AC	874	1686	327
Asian Carp (AC) from Rock Run Rookery Lake (RR)	250	126	50
AC upstream I-55 (not in RR)	31*	9*	8*
AC downstream I-55	593	1551	269
Tons of AC Harvested	9.5	15.7	4.0
AC/1000 yds of gill net	4.8	7.2	2.0

***** Indicates that 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 November 2019, including 20 weeks of contracted fishing and two UFMs. For comparison purposes, data from the same time period in 2017 and 2018 are included.

Overall

	2017	2018	2019
Number of Days Fished	89	78	106
Number of Net Crew Days	289	369	533
Yards of Net Fished	417,260	355,500	564,025
Miles of Nets Fished	237.1	202.0	320.5
Number of Pound Net Nights	78	26	28
Number of Hoop Net Nights	987.3	1628.2	0.0
Number of Bighead Carp	2,874	3,388	3,435
Number of Silver Carp	122,369	117,743	183,795
Number of Grass Carp	893	1,156	2,825
Number of Asian Carp (AC)	126,136	122,287	190,055
Tons of AC Harvested	493.1	470.4	694.9
AC/1000 yds of gill net	301.0	327.3	333.5

Additional samples have been collected, but sample processing is not completed, and those data have not been entered into the database. Check the 2019 interim summary published at the end of the year for results.

Marseilles Pool

	2017	2018	2019
Yards of Net Fished	243,360	144,800	209,210
Miles of Nets Fished	138.3	82.3	118.9
Pound Net nights	74	22	26
Hoop Net nights	98.0	278.6	141.2
Mini Fyke Net Nights	28.0	27.6	68.9
Electrofishing Runs	132	156	94
Electrofishing Time (hrs)	33.0	39.0	23.5
Bighead Carp	1,534	1,372	1,236
Grass Carp	69	43	80
Silver Carp	41,561	31,615	39,040
Total Asian Carp	43,164	33,030	40,356
Tons of AC Harvested	190.5	157.6	226.6
AC/1000 yds of gill net	165.1	217.7	190.7

Additional samples have been collected, but sample processing is not completed, and those data have not been entered into the database. Check the 2019 interim summary published at the end of the year for results.

Starved Rock Pool

	2017	2018	2019
Yards of Net Fished	173,900	210,700	354,815
Miles of Nets Fished	98.8	119.7	201.6
Pound Net nights	0	0	1
Hoop Net nights	938.6	1403.7	162.1
Mini Fyke Net Nights	0.0	0.0	67.9
Electrofishing Runs	0	0	113
Electrofishing Time (hrs)	0.0	0.0	28.3
Bighead Carp	1,115	1,618	2,154
Grass Carp	922	1059	2,737
Silver Carp	96,037	84,691	144,482
Total Asian Carp	98,074	87,368	149,373
Tons of AC Harvested	298.4	297.1	464.3
AC/1000 yds of gill net	486.5	393.8	416.7

Additional samples have been collected, but sample processing is not completed, and those data have not been entered into the database. Check the 2019 interim summary published at the end of the year for results.

eDNA Detection Response – Bubbly Creek

Water samples collected by the United States Fish and Wildlife Service on October 8-10, 2019 in the Chicago Area Water System (CAWS) found 27 and 49 of those samples tested positive for the presence of Bighead Carp and Silver Carp environmental DNA. A multiple agency (EPA, IDNR, INHS, USACE, USFWS, USGS) response action occurred on November 4th- 8th and November 18th- 22nd within a 10-mile radius of those detections (Figure 1). Contracted gill netting and agency electrofishing sampled targeted and randomly generated sites to detect and remove any live Bighead Carp and Silver Carp that may be present. Daily situations reports were shared with the Asian Carp Regional Coordinating Committee, the Monitoring Response Working Group, and Agency staff. **No Bighead Carp or Silver Carp were captured or observed during the response.**

Effort

- 152 targeted paired electrofishing and commercial netting samples were collected*:*
  - 876 minutes of electrofishing herding
  - 30,400 yards of gill net
- 80 random electrofishing transects (20 hours) were completed
- 32 targeted electrofishing transects (8 hours) were completed
- 56 targeted gill net samples (11,200 yards) were collected

Catch

- Gill nets captured 326 individual fish representing 5 species and 1 hybrid group (Table 2)
- Electrofishing captured 2,170 individual fish representing 27 species (Table 2)

Water Quality

- Dissolved oxygen levels (mg/l) were low when sampling above the Stephenson Bridge within Bubbly creek (Table 1)
- Dissolved oxygen levels (mg/l) increased when sampling below the Stephenson Bridge within Bubbly Creek and outside of Bubbly Creek (Table 1)

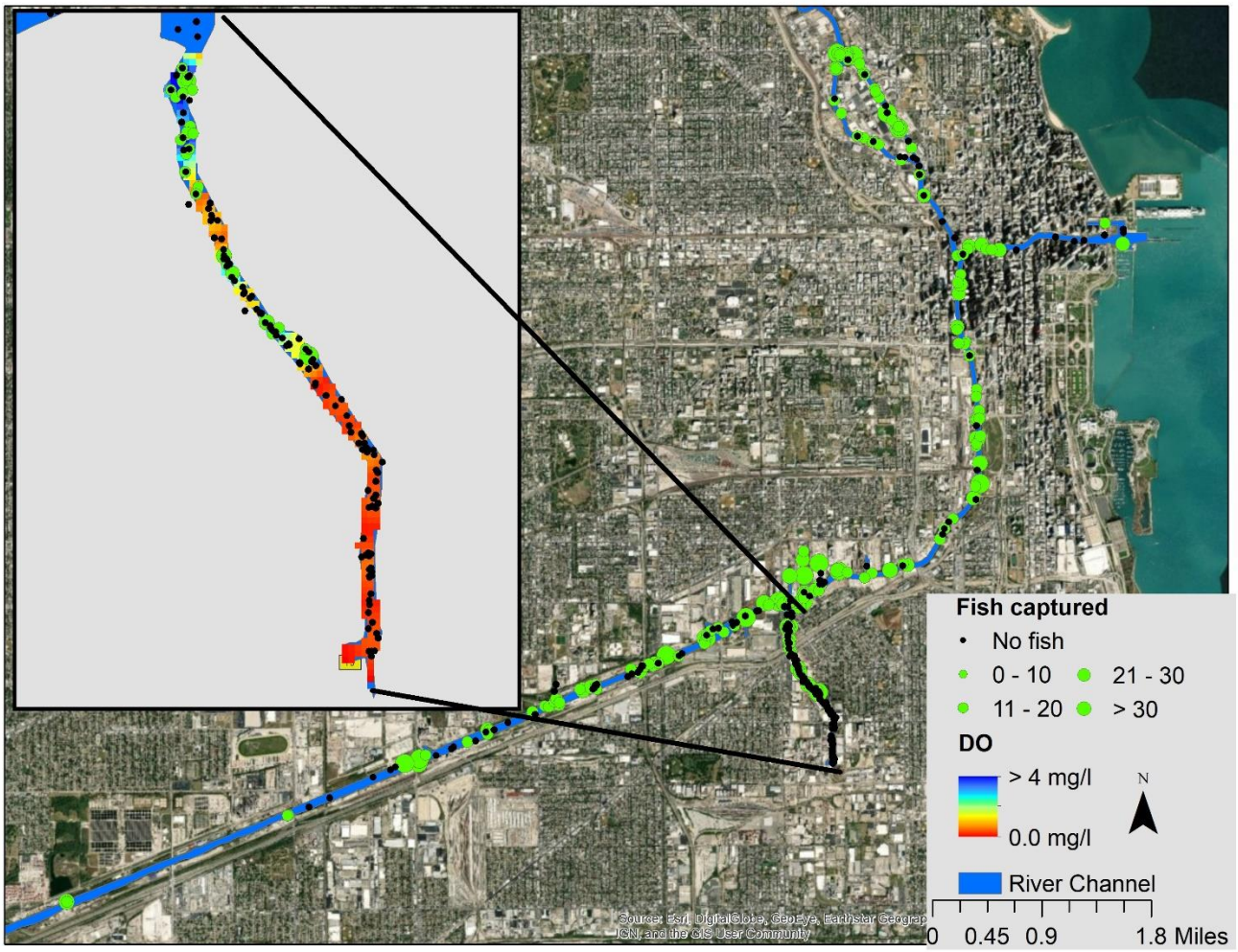

Figure 1. Total number of fish captured within each sampling effort during the eDNA detection response. Interpolated (kernel density estimate) dissolved oxygen levels within Bubbly Creek over the two weeks of sampling are also displayed.

Table 1. Mean (±SE) water quality metrics collected the weeks of November 4th and November 18th during the eDNA detection response.

Location	Dissolved Oxygen (mg/l)	Conductivity (us/cm)	Temperature (°C)
Above Stephenson Bridge	0.8 ± 1.7	943.26 ± 208.4	5.2 ± 2.3
Below Stephenson Bridge	3.9 ± 5.1	736.03 ± 131.8	9.6 ± 0.6
Outside of Bubbly Creek	12.2 ± 1.8	882.12 ± 136.9	9.9 ± 0.9

Table 2. Count of fish captured during the weeks of November 4th and November 18th of the eDNA detection response sampling.

Species	Gill net	Electrofishing
Banded killifish		75
Bullhead minnow		4
Black bullhead		3
Brook silverside		1
Bluegill		200
Bluntnose minnow		64
Common carp	297	453
Carp x goldfish hybrid	1	
Emerald shiner		32
Freshwater drum	1	
Goldfish	25	2
Golden shiner		122
Green sunfish		25
Gizzard shad		88
Gizzard shad < 6 in		765
Hybrid sunfish		1
Largemouth bass	1	250
Pumpkinseed		40
Pumpkinseed x bluegill hybrid		1
Rainbow trout		1
Round goby		1
Rock bass		2
River shiner		1
Spotfin shiner		21
Smallmouth bass		4
Sand shiner		1
Tilapia		1
Walleye		3
White sucker	1	4
Yellow bullhead		5
Total	**326**	**2170**

Bigheaded Carps Behavioral Responses

Columbia Environmental Research Center— United States Geological Survey (USGS) in collaboration with INHS and IDNR enclosed Sheehan Island backwater within the Starved Rock Pool of the Illinois River to assess capture and behavioral responses of bigheaded carps among three trap gear types. Sampling took place on November 1 to November 6, 2019. Each trap net (merwin, iruka, and pound nets) was first set passively overnight (merwin net soaked two nights due to sleet and ice) then emptied the following morning, reset, and fished actively via herding stimuli (Table 3). Fish behavioral interaction with the trap gears during herding were recorded using adaptive resolution imaging sonar (ARIS). After trap net sampling was complete, a new seining method using gas powered winches was tested and collected an additional 106 Silver Carp and 22 Bighead Carp.

Table 3. Catch results from trial testing various trap gears in Sheehan Island Backwater within the Starved Rock Pool of the Illinois River during November 2019.

	Merwin net		Iruka net		Pound net	
Species	**Passive**	**Herding**	**Passive**	**Herding**	**Passive**	**Herding**
Silver Carp	279	0	85	2	30	13
Bighead Carp	12	0	8	0	7	0
Gizzard Shad	0	2	0	4	18	145
Channel Catfish	P	0	8	0	33	0
Freshwater Drum	P	0	5	0	30	0
River Carpsucker	P	0	5	0	12	0
Smallmouth Buffalo	P	0	0	0	6	0
White Bass	P	0	0	0	5	1
White Crappie	0	0	0	0	5	1
Sauger	P	0	1	0	2	0
Golden Redhorse	0	0	1	0	1	0
Common Carp	1	0	0	0	0	0
Walleye	0	0	1	0	0	0
Smallmouth Bass	0	0	0	0	0	1
Shortnose Gar	0	0	0	0	1	0
Black Crappie	P	0	0	0	0	0
Yellow Bass	P	0	0	0	0	0

*Species count represented with “P” indicates species was present but not enumerated

Monitoring Bigheaded Carp Movement and Density in the Illinois River

Downloads of acoustic telemetry stationary receivers throughout the Illinois River (Dresden – Alton pools) were completed during the week of November 11th. Downloads are currently being QA/QC’d and will be incorporated in SIU’s acoustic telemetry database and submitted to FishTracks. Stationary receivers within lock chambers could not be downloaded despite multiple attempts as lock closures had led to restricted access to some lock chambers and heavy barge traffic when the locks were open.

Silver Carp in the lower Illinois River were tagged the week of November 4th. 50 individuals were implanted with acoustic transmitters and released in Alton Pool and 2 individuals were tagged and released in La Grange Pool. High water levels and declining temperatures in La Grange Pool prevented the implantation of 48 additional tags; however, these additional individuals will be tagged and released in early 2020.

Telemetry

USACE

USACE biologists completed downloads at 27 stationary receivers from the Cal-Sag Channel confluence with the CSSC in Upper Lockport to the Dresden Island Lock and Dam. The system was prepared for the winter months and 16 receivers were removed. Those receivers will be redeployed in spring 2020 once back waters have thawed. Remaining receivers were left deployed in deep water at strategic locations within the waterway to maintain monitoring presence above and below the Barriers and Lock & Dams.

A preliminary review of the data indicated no fish passage across the Electric Dispersal Barrier System (EDBS) and no tagged Bighead or Silver Carp were detected upstream of the Brandon

Road Lock and Dam. A total of 35 tagged Common Carp were detected between the EDBS and Lockport Lock, 8 tagged Common Carp in the Brandon Road Pool, and 46 tagged fishes in the Dresden Island Pool and Kankakee River. This consisted of 37 Silver Carp and 7 Bighead Carp detected in the Dresden Island Pool.

USGS

No Bighead carp and four Silver carp were detected at the Hanson Material Service east pit real-time receiver near Morris, IL during the month of November 2019 (Figure 2). The maximum number of fish detected on one day was four and the minimum was zero.

Three Bighead carp and one Silver carp were detected at the real-time receiver above Dresden Island Lock and Dam near Minooka, IL during the month of November 2019 (Figure 2). The maximum number of fish detected on one day was three and the minimum was two.

Zero Bighead carp and four Silver carp were detected at the real-time receiver below starved rock Lock and Dam near Minooka, IL during the month of November 2019 (Figure 2). The maximum number of fish detected on one day was four and the minimum was zero.

There were zero fish detected moving among pools.

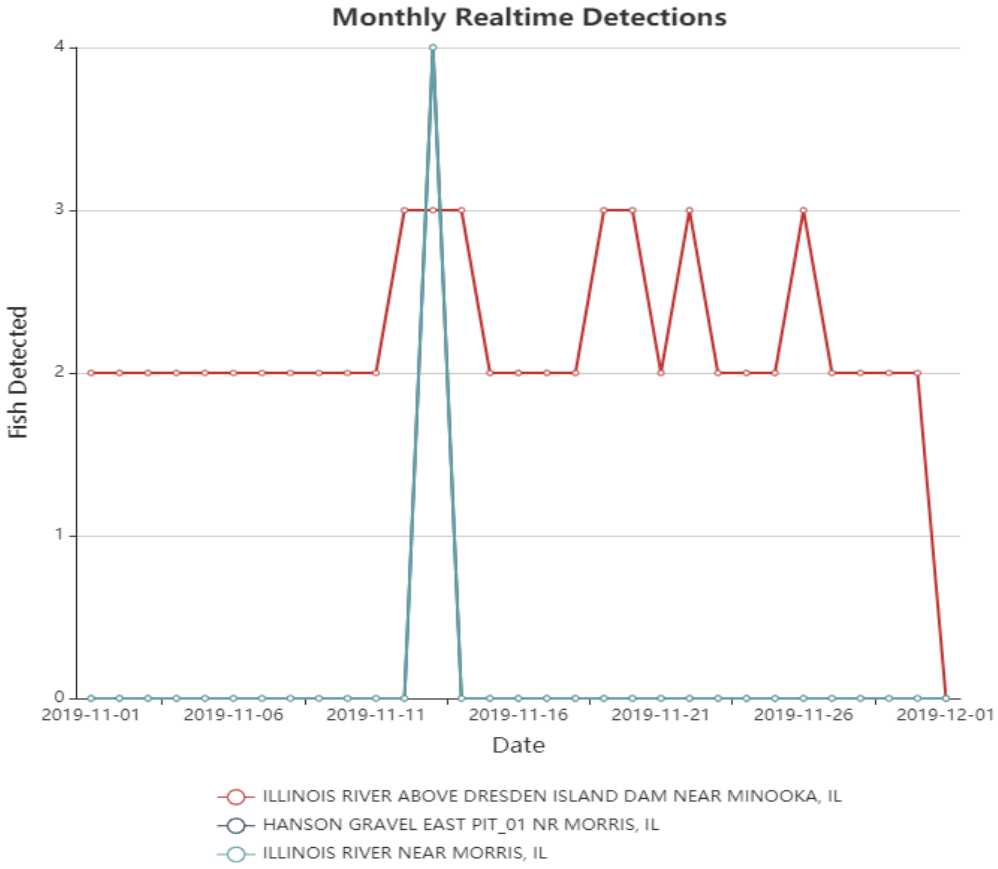

Figure 2. Fish detections for 1 November – 30 November 2019 from telemetry receivers in the Illinois River near Minooka, IL, Utica, IL, and in the Hanson Materials West Gravel Pit in Morris, IL.

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.

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

The U.S. Fish and Wildlife Service conducted three mobile hydroacoustic fish surveys at the Electric Dispersal Barrier System (EDBS) during November 2019. The surveys were completed on November 1, 2019, November 15, 2019, and November 26, 2019. Objective of these surveys was 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. Hydroacoustic technology does not distinguish or identify fish species. However, the purpose of these hydroacoustic surveys is to aide in assessing the risk of fish detected in the vicinity of the EDBS, potentially being either Bighead or Silver Carp, prior to or during barrier operational changes and/or maintenance. 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:

Five large fish (≥ -28.7 dB; 30.5 cm) were detected above Romeo Road on November 1, 2019. Four fish were detected between Barrier IIA and Barrier IIB. One fish was detected between the Romeo Road Bridge and Barrier IIA. Thirteen large fish were detected below the EDBS. Fish were detected during all three replicate surveys.

Eight large fish (≥ -28.7 dB; 30.5 cm) were detected within the EDBS on November 15, 2019. Two fish were detected between Barrier IIA and Barrier IIB. Six fish were detected between Barrier IIB and the Demonstration Barrier. Eight large fish were detected below the EDBS. Fish were detected during all three replicate surveys.

No large fish (≥ -28.7 dB; 30.5 cm) were detected within the EDBS on November 26, 2019. Two large fish were detected below the EDBS. All fish targets were detected during Survey Replicate #3.

Barrier Operational and Maintenance Status

Status as of 30 Nov 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 closed on 15 November 2019

All barrier arrays remained active throughout the month of November 2019. No outages greater than 1 minute occurred and no operational changes required a clearing assessment or action by the MRWG. One operation and maintenance event was cancelled in November in support of the contingency response action above the EDBS in the Chicago Area Waterway near and within Bubbly Creek.

Lake Michigan Monitoring (through annual sportfish assessment program)

- IDNR crews conducted electrofishing runs in Jackson Park and Diversey harbors (52 minutes total).
- IDNR crews set and pulled gill nets targeting spawning lake trout at Waukegan and Lake Bluff- 10 Mile reefs for total of 4 net nights (total of 533 yards of net).
- *No new Aquatic Invasive Species (AIS) were captured during these sampling events. The following introduced species was detected: Gizzard Shad.*
- **No Asian Carp were captured or observed at any sites sampled in Lake Michigan during November.**

Alternate Pathway Surveillance in Illinois - Law Enforcement

Invasive Species Unit (ISU) is investigating a fish dealer from the Western part of the U.S. who illegally imported and sold live trout, channel catfish, tilapia, and rainbow trout to Illinois customers without the proper import permits or non-resident aquatic life dealer's license.

ISU assisted and District 1 CPO with a bait shop owner inquiry into importing frozen "Lake Erie Salted Shiners" into Illinois to sell as bait. The bait was identified as Emerald Shiners, a VHS susceptible species, which would require testing prior to the importation. The bait shop owner decided the idea would not be cost effective to pursue.

ISU inspected an aquaculture facility in Winnetka, IL that applied for a permit and Letter of Authorization to raise tilapia. No deficiencies were observed during the inspection. ISU assisted a D4 CPO with the random inspection on a university raising tilapia under an aquaculture permit. No unauthorized species were located during the inspection.

ISU assisted the Jackson County Health Department with identifying an individual illegally selling aquatic life on Facebook without wholesale or retail aquatic life dealer's licenses and in violation of several local health code regulations. No live invasive species were being sold by the individual.

ISU investigated a complaint of an Illinois resident purchasing live Red swamp crayfish in Louisiana, driving them to Illinois, and then selling them out of his garage. ISU identified the subject as someone who was cited in March of 2019 for the same activities. It was determined the suspect was now only selling live blue crabs. The individual's Facebook page contained several comments of his dislike for the IDNR and Illinois regulations on live Red swamp crayfish.

ISU investigated a complaint of an individual running an unlicensed bait shop out of his house and selling live Asian carp as bait. ISU determined the complaint was unfounded and the species thought to be Asian carp were Goldfish. The bait shop was licensed. ISU had spoken with the owner months earlier to inform him of the bait shop regulations during a random inspection of his facility.

ISU provided the Quebec Wildlife Enforcement Office with information relevant to a case made by the ISU of two college students who performed a cultural/merit release in 2017 of largemouth bass and tilapia into a local lake. The information will assist with the training of Quebec officers on the matter.