

**MONITORING AND RESPONSE WORKGROUP  
(MRWG)  
MONTHLY ACTIVITY UPDATES  
JUNE 2024**

## MONITORING AND RESPONSE WORKGROUP (MRWG)

June 2024

### Overview

No live Bighead Carp, Black Carp, Grass Carp, or Silver Carp were found or observed in any new locations immediately downstream or upstream of the Electric Dispersal Barrier. The table below summarizes pool-specific results during June 2024 from all effort within the Upper Illinois Waterway. Additional effort may not be reported due to data processing, and true effort and catch could be higher. For complete yearly results, refer to the 2023 Interim Summary Report.

Lockport	June 2024
Yards of Net	0
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0
Pound Net Night	0
Bighead Carp	0
Grass Carp	0
Silver Carp	0
Invasive Carp Caught	0
IC/1000 yards	0
Invasive Carp Pounds	0

<b>Brandon Road</b>	<b>June 2024</b>
Yards of Net	0
Hoopnet Nights	0
MiniFyke Nights	3
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0
Pound Net Night	0
Bighead Carp	0
Grass Carp	0
Silver Carp	0
Invasive Carp Caught	0
IC/1000 yards	0
Invasive Carp Pounds	0

<b>Dresden Island</b>	<b>June 2024</b>
Yards of Net	30,650
Hoopnet Nights	14
MiniFyke Nights	9
Electrofishing Runs	15
Electrofishing Hours	4.5
Dozer Trawl Runs	0
Dozer Trawl Hours	0
Pound Net Night	0
Bighead Carp	0
Grass Carp	2
Silver Carp	28
Invasive Carp Caught	30
Invasive Carp Dresden Above I55	0
Invasive Carp Dresden Below I55	14
Invasive Carp Rock Run	14
IC/1000 yards	0.98

<b>Dresden Island</b>	<b>June 2024</b>
Invasive Carp Pounds	

<b>Marseilles</b>	<b>June 2024</b>
Yards of Net	3,000
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	5
Electrofishing Hours	1.25
Pound Net Night	0
Bighead Carp	5
Grass Carp	0
Silver Carp	77
Invasive Carp Caught	82
IC/1000 yards	27.3
Invasive Carp Pounds	1,500

<b>Starved Rock</b>	<b>June 2024</b>
Yards of net	37,850
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0
Pound Net Night	0
Bighead Carp	93
Grass Carp	10
Silver Carp	19,052
Invasive Carp Caught	19,155
IC/1000 yards	506
Invasive Carp Pounds	102,599

# MULTIPLE AGENCY MONITORING OF THE ILLINOIS RIVER FOR DECISION MAKING

IL DNR

## Introduction

The leading edge for Bighead Carp and Silver Carp in 2024 was within the Dresden Island Reach, for Grass Carp the CAWS, and for Black Carp the Peoria Reach. Utilizing a standardized, multiple-gear approach has been critical in determining the geographic expanse of invasive carp and monitoring their relative abundance. there is value in monitoring reaches downstream of the EDBS (Lockport through Alton reaches) using a standardized, multiple-gear sampling approach. Doing so will allow for an accurate, comparable, and representative understanding of invasive carp distribution and abundance in the Illinois River between the EDBS and the Alton Reach.

## June 2024 Highlights

Lockport	IL DNR
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0

Brandon	IL DNR
Hoopnet Nights	0
MiniFyke Nights	3
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0

Dresden Island	IL DNR
Hoopnet Nights	28
MiniFyke Nights	9

<b>Dresden Island</b>	<b>IL DNR</b>
Electrofishing Runs	15
Electrofishing Hours	4.5
Dozer Trawl Runs	0
Dozer Trawl Hours	0
Bighead Carp	0
Grass Carp	0
Silver Carp	0
Invasive Carp Caught	0
Invasive Carp Dresden Above I55	0
Invasive Carp Dresden Below I55	0
Invasive Carp Rock Run	0

<b>Marseilles</b>	<b>IL DNR</b>
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	5
Electrofishing Hours	1.25
Bighead Carp	0
Grass Carp	0
Silver Carp	0
Invasive Carp Caught	0

# BARRIER MAINTENANCE AND FISH SUPPRESSION

IL DNR, USACE

## Introduction

U.S. Army Corps of Engineers (USACE) operates three electric dispersal barriers (Barrier 1, Barrier IIA, and Barrier IIB) for aquatic invasive species in the Chicago Sanitary and Ship Canal (CSSC), collectively referred to as the EDBS. USACE has operated electric barriers in the CSSC since 2002. Over the years, several operational and procedural improvements have been implemented to improve the effectiveness and continuously deliver an uninterrupted flow of electricity to the water to deter fish.

## June 2024 Highlights

The barriers are currently operating at the following parameters (30 June 2024) but are subject to change:

Barrier I – 1D (Full water - 5 Hz, 4 ms, 100 V = ~1.0 V/in & benthic 5 Hz, 4 ms, 100V) Operational  
1N- Out of Service- Blown power sensing relays and fuses. Troubleshooting and repairs ongoing  
1S- (34 Hz, 2.3 ms, 1200 V = 2.3 V/in) Operational

IIA – 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 –In Standby Mode

The unscheduled outages that occurred in June of 2024 are as follows:

6/10/2024 – 1S array –23 minutes – Lost communication from PGS PLC to IO module

6/10/2024 – 1S array – 21 minutes – Lost communication from PGS PLC to IO module

6/10/2024 – 1S array – 3 days, 2 hours, 52 minutes –Lost communication from PGS PLC to IO module

6/13/2024 – 2B wide array – 15 minutes – Lost power to pump VFDs due to power event.

6/13/2024 – 1N array – Duration Unknown– Blown fuses in two SCRs.

6/15/2024 –1S array – 2 days, 2 hours, 45 minutes– Shut down pulser due to loss of communication on chiller.

## Traditional Monitoring

During the month of June, USACE biologists conducted seventeen 15-minute electrofishing runs downstream of the barrier. Nine sites were in Lockport Pool and eight sites were in Brandon Road Pool. In Lockport Pool, a total of 799 individuals across 25 species were captured with the top five most abundant fish being Emerald Shiner, Gizzard Shad, Bluntnose Minnow, Common Carp, and Largemouth Bass. In Brandon Road Pool, a total of 1,066 individuals across 27 species were captured with the five most abundant fish being Gizzard Shad, Emerald Shiner, Gizzard Shad <6, Smallmouth Bass, and Common Carp. One 15-minute electrofishing run within the EDBS was conducted as a fixed site, capturing 0 fish. No Invasive Carp were captured or observed in these pools in the month of June.

# SUMMARY EVALUATION OF BIO-ACOUSTIC FISH FENCE DETERRENT

USFWS, USGS

## Introduction

This project will test the effectiveness of a Bio-Acoustic Fish Fence (BAFF) at deterring Silver Carp and Grass Carp from crossing the BAFF and from crossing through the Barkley Lock on the Cumberland River, KY. This sound, bubble, and light deterrent is designed to have a greater effect on invasive carp than on native species. This deterrent could be part of a multi-deterrent approach to prevent movement through a lock chamber where the lock is the only option for fish to move upstream (e.g., Brandon Road Lock and Dam) or in combination with a yet to be developed deterrent that slows passage through dam gates during open river while the BAFF deters fish from passing via the lock chamber (e.g., Starved Rock Lock and Dam).

## June 2024 Highlights

No change/update.



# USFWS ILLINOIS WATERWAY HYDROACOUSTICS

USFWS

## Introduction

The purpose of USFWS hydroacoustic monitoring in the upper Illinois Waterway (IWW) is to enhance invasive carp management by reporting spatial and temporal patterns of fish abundance. Hydroacoustic data aids operation, maintenance, and response at the electric dispersal barrier system (EDBS). Density and distribution data enhance targeted harvesting efforts throughout navigational pools. Consistent hydroacoustic data collection allows managers to annually assess the risk of further upstream spread of invasive carp. Hydroacoustic estimates of length and depth of targets, along with corresponding telemetric data, allow managers to make inferences about possible fish species identified as targets. Targets detected across replicate surveys may identify the same target. USFWS hydroacoustic barrier surveys are conducted monthly, and pool scans are conducted annually in the fall. Additional barrier and pool scans can be conducted upon request. For more information regarding the methods of data collection and use of hydroacoustic data reach out to the USFWS, Carterville Fish and Wildlife Conservation Office.

## June 2024 Highlights

The results of the mobile hydroacoustic fish surveys are presented below:

- USFWS completed a scan at the EDBS on June 3<sup>rd</sup>, 2024, identifying a total of 41 targets (three targets within the EDBS and 38 targets immediately below the barrier). An average of  $13.7 \pm 6$  targets were detected during the three replicate surveys, see Figure 1. The mean target length was 15.8 inches  $\pm$  5.0 inches; four outliers were observed with lengths of 22.8, 23.8, 26.3, and 38.4 inches (Figure 2).
- No hydroacoustic pool scans were completed in the month of June.

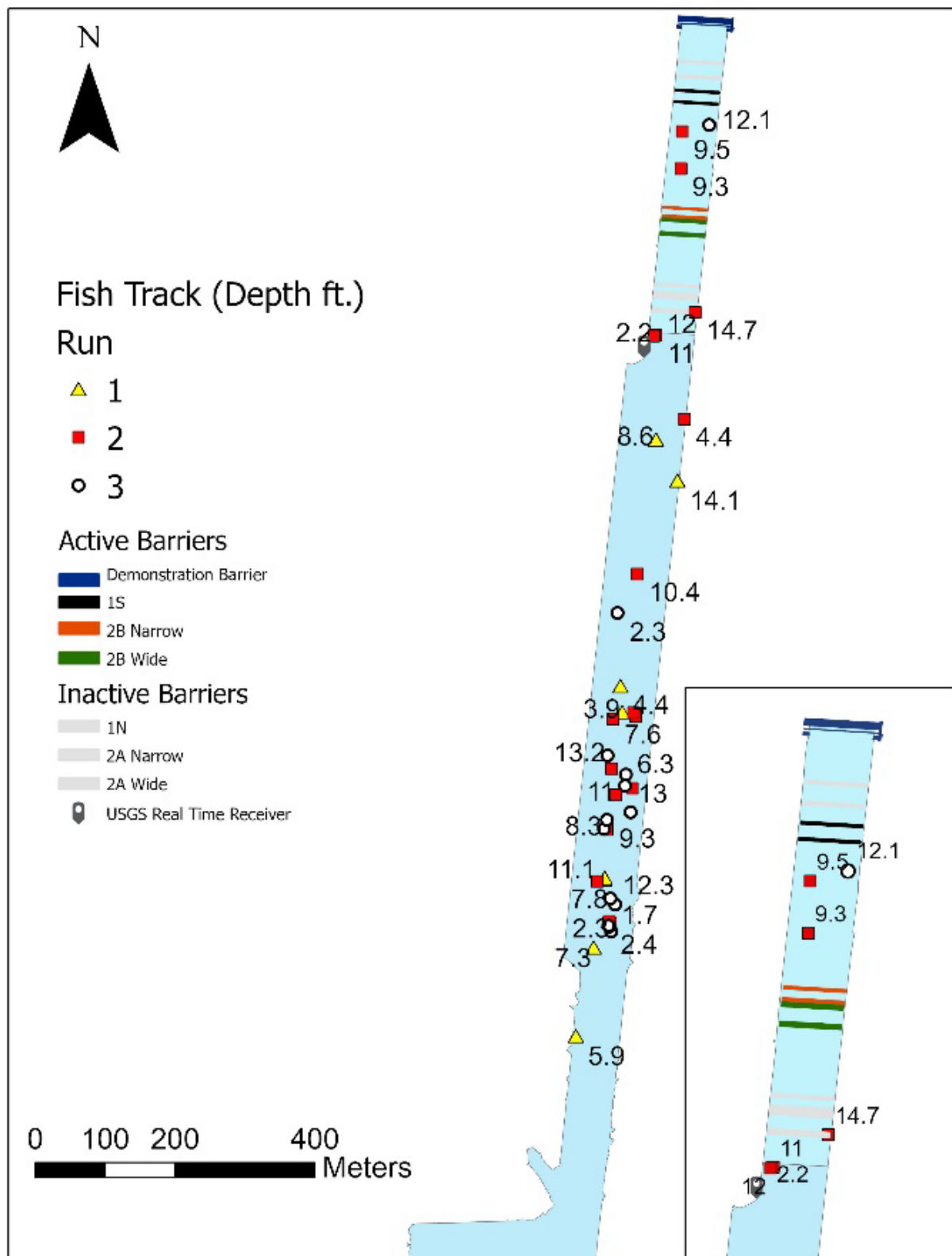


Figure 1. Location of USGS real-time receiver and targets  $\geq 28.7$  dB observed in the vicinity of the EDBS on July 1st, 2024.

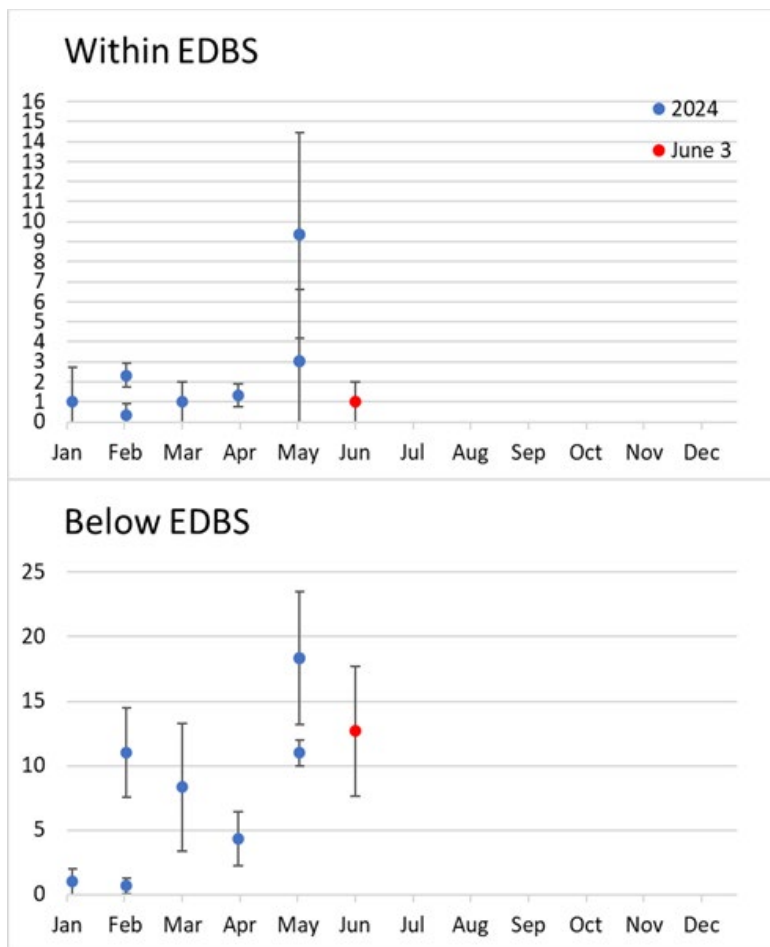


Figure 2. Comparison of the mean and standard deviation for three replicate surveys from the current mobile surveys with previous surveys from 2024.

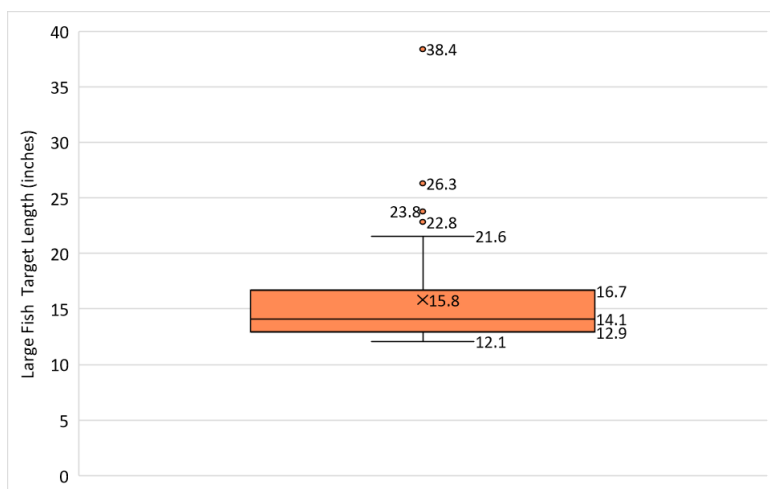


Figure 3. Box-and-whisker plot of all targets  $\geq 12$  inches detected during the June 3<sup>rd</sup>, 2024, barrier scan. Mean length was 15.8 inches with a standard deviation of 5.0 inches. Outliers outside the 90% confidence interval are denoted by a point above the box-and-whisker plot.

# EARLY DETECTION OF INVASIVE CARP IN THE UPPER ILLINOIS WATERWAY

USFWS Wilmington

## Introduction

The purpose of USFWS Wilmington Substation early detection monitoring (EDM) is to detect juvenile and adult invasive carp (Bighead, Silver, Black, and Grass Carp) at the invasion front. A combination of traditional boat electrofishing, electrified dozer trawling, mini-fyke netting, and gill netting are used in main-channel border, side-channel, and backwater habitats in the Marseilles, Dresden Island, Brandon Road, and Lockport pools of the upper Illinois Waterway (IWW), and in the lower Kankakee River. Rarefaction analysis is performed annually to ensure an extremely high probability that sampling efforts are detecting any changes in invasive carp population status. The application of fishing gears across pools and habitats, utilizing fixed and random sites, is adjusted annually based on the results of this analysis. The USFWS Great Lakes EDM Program is an adaptive management tool focused on invasive species detection.

## June 2024 Highlights

- Fifty-five Silver Carp (542 mm – 955 mm total length [TL]) and one Grass Carp (970 mm TL) were removed from the Marseilles Pool during June 2024.
- Five Silver Carp (835 mm - 906 mm total length) were removed from the lower Kankakee River during June 2024.
- No small-bodied (< 153 mm TL) invasive carp were captured by EDM in June 2024.
- No large-bodied ( $\geq$  153 mm TL) invasive carp were captured outside of their known range by EDM in June 2024.

Table one summarizes the USFWS invasive carp EDM for June 2024 in each pool monitored under the project.

Table 1. Summary of USFWS EDM effort during June 2024.

	Marseilles	Dresden Island	Kankakee	Brandon Road	Lockport
Electrofishing Effort (hours)	5.26	3.78	3.75	2.5	2.25
Electrofishing Sites	21	15	15	10	9
Dozer Trawl Effort (hours)	1.67	0.92	1.25	0	0
Dozer Trawl Sites	20	11	15	0	0
Mini-fyke Effort (net nights)	18.40	18.25	16.24	0	0
Gill Net Effort (yards)	0	0	0	2000	1600
Gill Net Sites	0	0	0	10	8
Small Carp Captured	0	0	0	0	0
Large Carp Captured	56	0	5	0	0
Species Richness	51	51	44	13	10
Total Catch	6294	1790	1163	209	153
Most Abundant Species	Gizzard Shad < 6 inches	Bluntnose Minnow	Gizzard Shad > 6 inches	Gizzard Shad < 6 inches	Bluegill

# MONITORING INVASIVE CARP REPRODUCTION IN THE ILLINOIS WATERWAY

INHS

## Introduction

This project monitors for invasive carp reproduction in the IWW and major tributaries (Kankakee, Fox, Vermilion, Mackinaw, Spoon, and Sangamon rivers). Ichthyoplankton sampling will be conducted to assess the extent, timing, and magnitude of invasive carp reproduction in the IWW, monitor for Black Carp reproduction, and quantify relationships between invasive carp adult abundance, reproductive output, and recruitment. Samples will be collected from late April through October, with more frequent sampling effort during periods when temperature and flow conditions are considered optimal for invasive carp spawning.

## June 2024 Highlights

Monitoring for invasive carp reproduction was conducted every week during the month of June. INHS collected ichthyoplankton samples at sites from the Brandon Road to Alton pools during each week. Additional sampling was conducted in major tributaries of the Illinois River (Kankakee, Fox, Vermilion, Mackinaw, Spoon, Sangamon rivers). Illinois River water temperatures were consistently greater than 20°C throughout the month of June. In the upper Illinois River, water levels were low and relatively stable for the entire month. In the lower river (Alton and LaGrange pools), water levels steadily declined for most of June, but widespread precipitation caused a modest increase in discharge during the last week of the month. Low numbers of invasive carp eggs were observed in samples from sites in the Peoria, LaGrange, and Alton pools during the first two weeks of June, but not afterwards. Variation in local rainfall patterns caused considerable differences in discharge patterns among tributary rivers during June, but invasive carp eggs and larvae were only found in LaGrange Pool tributaries during the first two weeks of June. No evidence of invasive carp reproduction has been observed upstream of the Marseilles Pool thus far in 2024. Sample processing and identification of fish larvae is ongoing. Any additional occurrences of invasive carp eggs or larvae, particularly upstream of the Starved Rock Lock and Dam, will be reported as soon as this information is available.

# DES PLAINES RIVER AND OVERFLOW MONITORING

USFWS

## Introduction

The upper Des Plaines River originates in southeast Wisconsin and joins the CSSC in the Brandon Road Pool immediately below the Lockport Lock and Dam. Invasive Bighead Carp, Silver Carp, and Grass Carp (invasive carp) have been observed in Brandon Road Pool up to the confluence with the Des Plaines River and have free access to the upper Des Plaines River. Opportunities for eggs and larvae to pass upstream of the EDBS occurred during high discharge events in 2011, 2013, and 2020 when water breached the physical barrier. USFWS monitors this area for invasive carp presence whenever river levels are high enough to access by boat.

## June 2024 Highlights

- No large or small invasive carp were captured or observed during sampling.
- USFWS staff conducted sampling on June fifth and sixth 2024, when water conditions were  $\geq 7$  ft. at the USGS river gage 05533600.
- Sampling efforts were conducted between Lemont Rd. and Willow Springs Rd.
- Effort consisted of 2.02 hours of electrofishing, 200 yd of gill net, and 2.03 fyke net nights.
- The total catch was 405 individuals from 26 unique species.

# TELEMETRY SUPPORT FOR POPULATION MODELING

April-June 2024

## Introduction

This project provides support for the inter-agency telemetry array deployed in the Illinois River basin. The 2024 plan of work for USFWS includes placing 150 acoustic transmitters in Silver Carp and Bighead Carp in the Peoria and Starved Rock pools, and operation and maintenance of the telemetry array in Peoria and Starved Rock pools. The data gained from the additional tagged fish will improve the accuracy of MRWG modeling work, allowing improved estimates of current levels of exploitation and bolstering estimates of large-scale pool-to-pool movement.

## April-June 2024 Highlights

- USFWS continued to maintain receivers and download the data collected from the receivers from the telemetry array in the Peoria and Starved Rock pools June 17<sup>th</sup>, 18<sup>th</sup>, 20<sup>th</sup>, and 24<sup>th</sup>. The data on receivers covered periods from April 19<sup>th</sup> to the respective receiver's collection date. The data was added to the USFWS telemetry database and United States Geological Survey's FishTracks database on June 26<sup>th</sup>, 2024.
- Two-hundred-eighty-seven unique transmitters were detected; 55 were detected by a single receiver, 16 were a single detection on a single receiver. Four transmitters were recorded by a single receiver (VR2W-129787) in the Fox River.
- Movement across multiple receivers was observed for 216 transmitters (214 longitudinal, two lateral). Movement only upstream was observed on 42 transmitters and downstream only movement was observed on 24 transmitters. One upstream movement from Peoria Pool to Starved Rock Pool was observed from a single fish. Two downstream moving fish were detected moving from the Starved Rock Pool into Peoria Pool. Seventy-two fish returned to their origin, 32 ended the detection period downstream of their origin, and 44 ended the detection period upstream of its origin.
- Detection numbers are summarized in table 1 and receiver placements are shown in figure 1. Further details are available on request.



Table 1. Receiver data from April 19 through June 26, 2024. “US” denotes “upstream” and “DS” denotes “downstream”. “MC” denotes “main channel”. Receiver number corresponds to the numbers shown in figure 1.

Receiver Number	Receiver ID	River Mile	Station Name	Unique Tags	Number of Detections
1	VR2Tx-489204	164.8	Lower Peoria Lake Point, River Left	81	34,479
2	VR2Tx-489205	166.6	Peoria Lake Narrows	68	1,429
3	VR2W-137065	173.0	Upper Peoria Lake, River Right	57	8,800
4	VR2Tx-489207	173.0	Upper Peoria Lake, River Left	62	7,016
5	VR2Tx-489206	182.4	US Chillicothe Bridge Peninsula	53	1,861
6	VR2W-137064	188.1	DS Lacon, MC Sawyer Slough	84	5,837
7	VR2Tx-489208	194.8	US Upper Henry Island	93	41,795
8	VR2Tx-489209	199.1	Senachwine Lake Peninsula	87	3,471
9	VR2Tx-489211	202.7	Lower Twin Sisters Island	96	2,725
10	VR2W-137066	211.0	MC Near Depue Lake Channel	127	15,889
11	VR2Tx-489039	216.0	US of Clark Island	127	5,582
12	VR2W-129785	219.8	US Spring Valley River Left	153	14,016
13	VR2Tx-489037	223.0	US Route 251 Bridge, Peru	136	3,270
14	VR2Tx-489212	233.9	Lone Point Delbridge Side Channel	15	25,958
15	VR2Tx-490949	235.1	MC Sheehan Island	24	17,694
16	VR2Tx-489040	238.5	Hitt-Mayo Straight	27	7,797
17	VR2Tx-490950	241.0	Bulls Island, MC Abandoned Harbor	23	23,290
18	VR2W-129787	N/A	Fox River Island, US of Rt 6 Bridge	11	10,685
<b>Total</b>				<b>287</b>	<b>231,594</b>

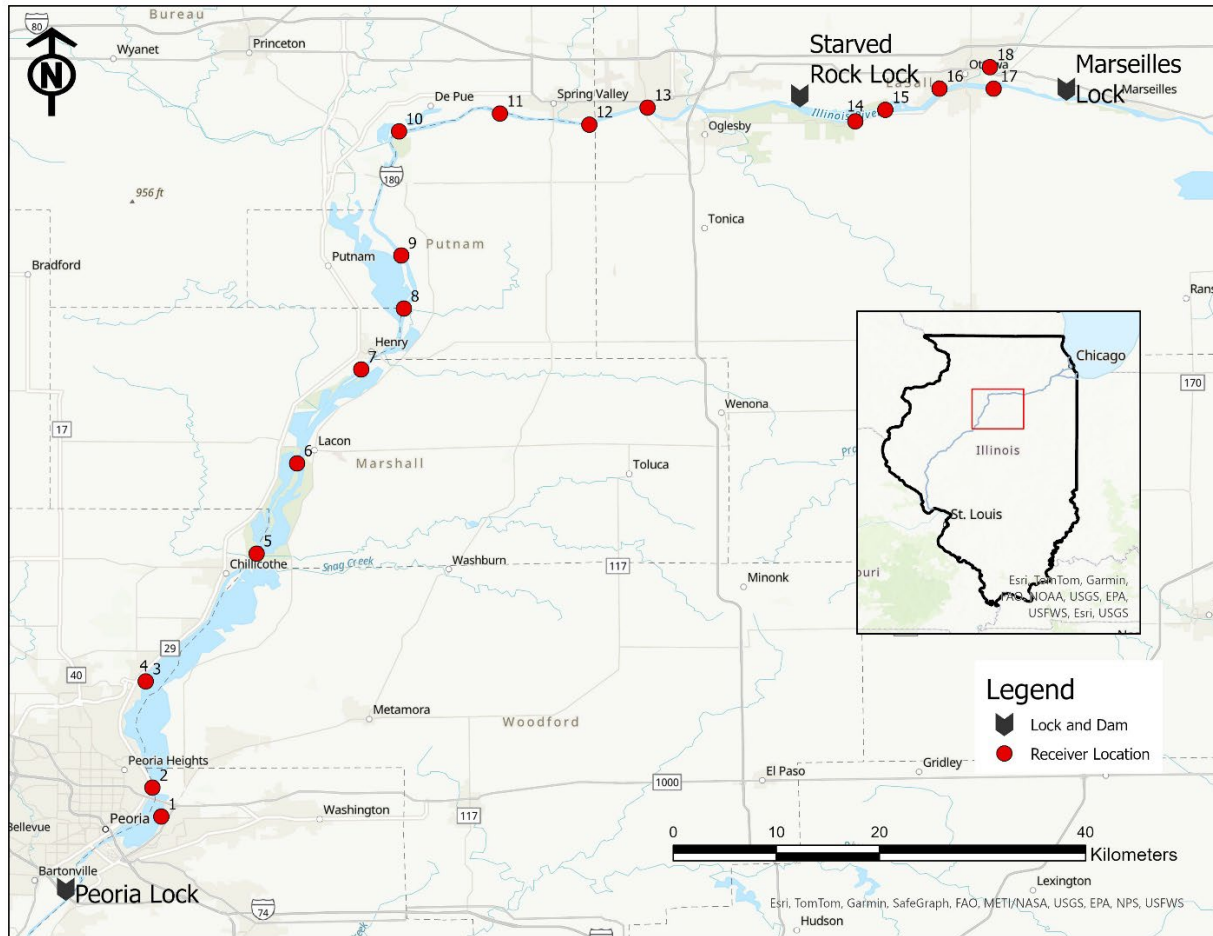


Figure 1. Location of receivers in Peoria and Starved Rock Pools.

# ALTERNATE PATHWAY SURVEILLANCE IN ILLINOIS – LAW ENFORCEMENT

IL DNR

## Introduction

This project provides enforcement of laws enacted to prevent the expansion and/or introduction of AIS within the waters of the State of Illinois and jurisdictions throughout the Great Lakes basin. The IL DNR Invasive Species Unit (ISU) specializes in more closely regulating water-related industries that are likely to be a source of future introductions or expansion of AIS into state waters. Industries include sport and commercial fishing, aquaculture, fish transportation, bait, pet, aquarium, fish stocking, and live food markets.

## June 2024 Highlights

A lengthy investigation of an Illinois licensed wholesale aquatic life dealer determined the business violated several Illinois laws. IDNR licensed wholesale aquatic life dealers are required to maintain minimum records containing the type and amount of each species purchased and provide accurate receipts to commercial fishermen listing the number of pounds and kinds of aquatic life purchased. This business did not separate or record different species. In fact, the aquatic life dealer falsely claimed all the fish it was buying were the same species. Over a three-month period, Conservation Police Officers inspected commercial fishermen shipments prior to their arrival at the facility and that information was ultimately compared to business records and receipts to prove the offenses. ISU conducted commercial inspections of retail fish markets and bait dealers in the Chicagoland area. No violations or prohibited live species were found. One of the fish markets was accused of purchasing live bluegill and largemouth bass from anglers and then selling the fish alive to consumers, but that complaint was unfounded. A compliance check of an angler on the Illinois River found him using live rusty crayfish as bait. Rusty crayfish are an IDNR injurious listed species, and it is unlawful to use them as live bait. The fisherman collected the crayfish from a creek earlier that day and transported them to the area where he was encountered by a Conservation Police Officer. The crayfish were confiscated, but unfortunately the fisherman admitted to releasing some of them alive where he was fishing. He was issued a citation and written warning. ISU gave a virtual presentation at the Invasive Crayfish Collaborative virtual meeting held in Sault Ste. Marie, Ontario, Canada. The presentation highlighted the benefits of aquatic invasive species training for Conservation Police Officers, offered successful case studies, and emphasized the need for teamwork amongst law enforcement, fisheries personnel, and aquatic invasive species staff.



# INVASIVE CARP POPULATION MODELING TO SUPPORT AN ADAPTIVE MANAGEMENT FRAMEWORK

USGS, USFWS

## Introduction

This project will develop objective, data-driven models to inform decisions concerning invasive carp control efforts in the Illinois River. This project supports ongoing modeling efforts to provide recommendations about the magnitude and spatial allocation of fishing effort and deterrent barriers to reduce the risk of Silver Carp and Bighead Carp introduction and establishment in the Great Lakes.

## June 2024 Highlights

Initial SEICarP simulations expanding the model to include the effects of Pool 26 on the Illinois River Invasive Carp Population have begun. Further discussions with MRWG partners and co-chairs regarding which scenarios (i.e., harvest and deterrent locations as well as the magnitude of movement between Pool 26 and Alton Pool) are most relevant will be scheduled during July or August.

Discussions regarding potential interim analyses to inform the MRWG of the status of the invasive carp population in the Illinois River occurred between the modeling work group and INHS. INHS is currently examining patterns in carp condition as a potential indirect measure of the effectiveness of harvest efforts (e.g., increased condition of invasive carps in areas of high density likely indicate reductions in invasive carp densities). This analysis will also attempt to correlate changes in condition to changes in CPUE as additional evidence for the effectiveness of harvest. In addition, the modeling work group is planning to pursue an investigation of community structure as an indirect measure of changes in the invasive carp population. This analysis will use existing fish community data to examine changes in community structure through time and space.

Discussions between the modeling work group and USGS scientists have also begun for using a length-based Bayesian method to estimate fishing mortality of invasive carps in the upper Illinois River using existing length data from the removals work group.

The modeling work group will be soliciting feedback from the MRWG co-chairs about these analyses in the coming weeks to ensure that all parties agree on the direction of this work.

Lastly, the modeling work group has received feedback from other MRWG work groups (monitoring and removals) about a data collection protocol for fisheries-dependent demographic information (e.g., age, length, weight, sex) to support the statistical catch-at-age model. This feedback will be incorporated into the protocol which will be sent back to the work groups for review the week of 7/15.