NICMONITORING AND RESPONSE WORKGROUP (MRWG)

MONTHLY ACTIVITY UPDATES

AUGUST 2024

MONITORING AND RESPONSE WORKGROUP (MRWG)

August 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 August 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	**August 2024**
Yards of Net	0
Hoopnet Nights	0
MiniFyke Nights	8
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

Brandon Road	August 2024
Yards of Net	0
Hoopnet Nights	0
MiniFyke Nights	4
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

Dresden Island	August 2024
Yards of Net	0
Hoopnet Nights	56
MiniFyke Nights	20
Electrofishing Runs	41
Electrofishing Hours	10.25
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
Invasive Carp Dresden Above I55	0
Invasive Carp Dresden Below I55	0
Invasive Carp Rock Run	0
IC/1000 yards	0

Dresden Island	August 2024
Invasive Carp Pounds	0

Marseilles	August 2024
Yards of Net	0
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	9
Electrofishing Hours	2.25
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

Starved Rock	August 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

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.

August 2024 Highlights

Lockport	IL DNR
Hoopnet Nights	0
MiniFyke Nights	8
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0

Brandon	IL DNR
Hoopnet Nights	0
MiniFyke Nights	4
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0

Dresden Island	IL DNR
Hoopnet Nights	56
MiniFyke Nights	20
Electrofishing Runs	41

Dresden Island	IL DNR
Electrofishing Hours	10.25
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

Marseilles	IL DNR
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	9
Electrofishing Hours	2.25
Bighead Carp	0
Grass Carp	0
Silver Carp	0
Invasive Carp Caught	0

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).

August 2024 Highlights

The BAFF underwent a two-year scheduled maintenance of the entire system. This included removal, cleaning, and refurbishing sound projectors and related components. In conjunction with this maintenance, HTI telemetry equipment that was used in the study to track fine scale movements of invasive carp around the BAFF was removed. The project is shifting from our intensive 3-year study to management operations by local partners and long-term monitoring of effectiveness.

Analysis of 2023 data has been further delayed by some issues with processing raw telemetry data. We look forward to those issues being fully resolved soon and for analyses to progress quickly once they are. As soon as they are available, new data will be shared with the ICRCC and other key partners.

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. Further details regarding the methods of data collection and use of hydroacoustic data can be provided upon request.

August 2024 Highlights

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

- USFWS completed a scan at the EDBS on August 1st, 2024, identifying a total of 85 targets (15 targets within the EDBS and 70 targets immediately below the barrier, see Figure 1). An average of 28.3 ± 5.9 targets were detected during the three replicate surveys, see Figure 2. The mean target length was 15.9 inches ± 5.0 inches; nine outliers were observed with lengths 21.0, 22.2, 23.1, 23.7, 24.3, 31.1, 31.7, 33.5, and 39.1 inches (Figure 3).
- No hydroacoustic pool scans were completed in the month of August.

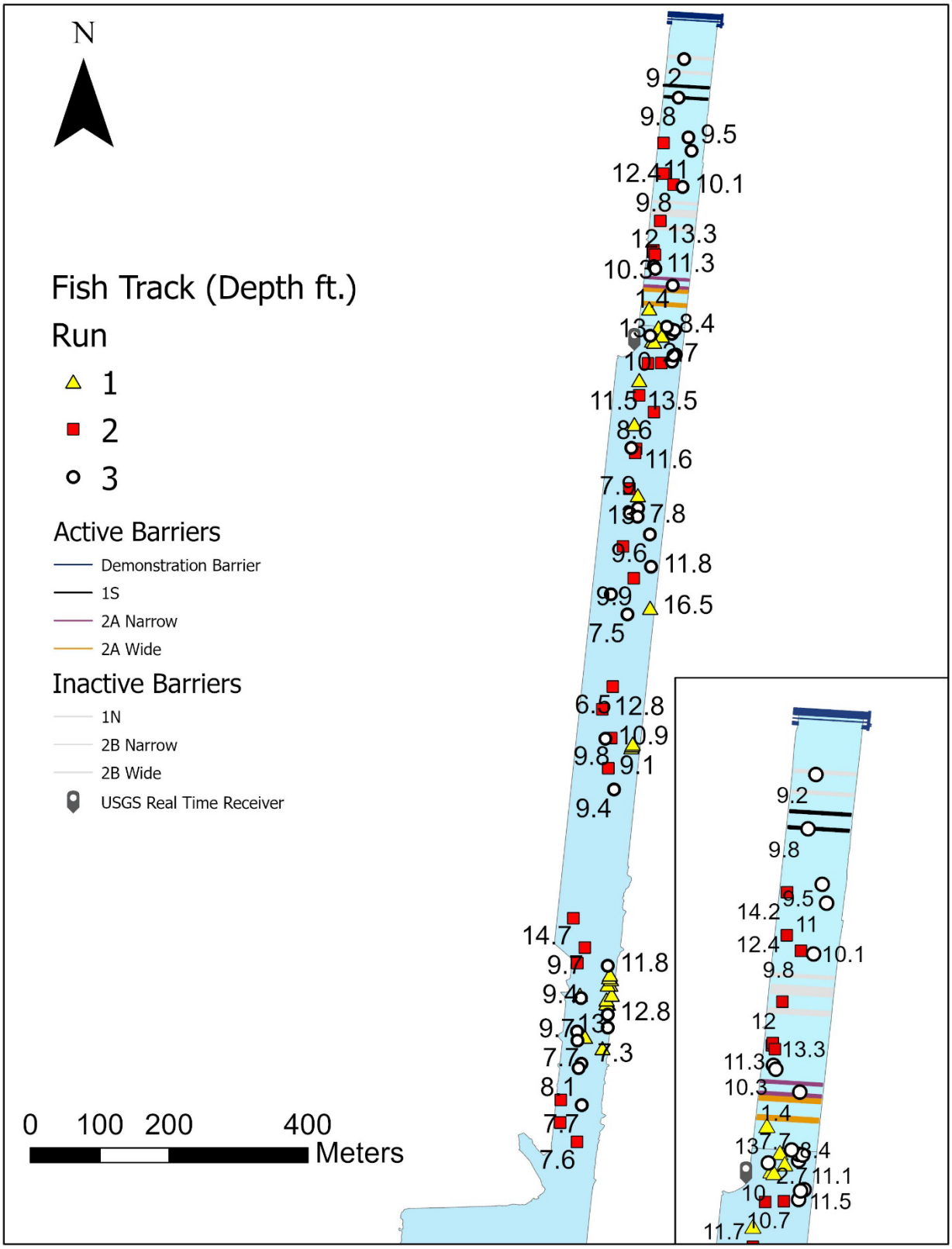


Figure 1. Location of USGS real time receiver and targets ≥ 28.7 dB observed in the vicinity of the EDBS on August 1st, 2024.

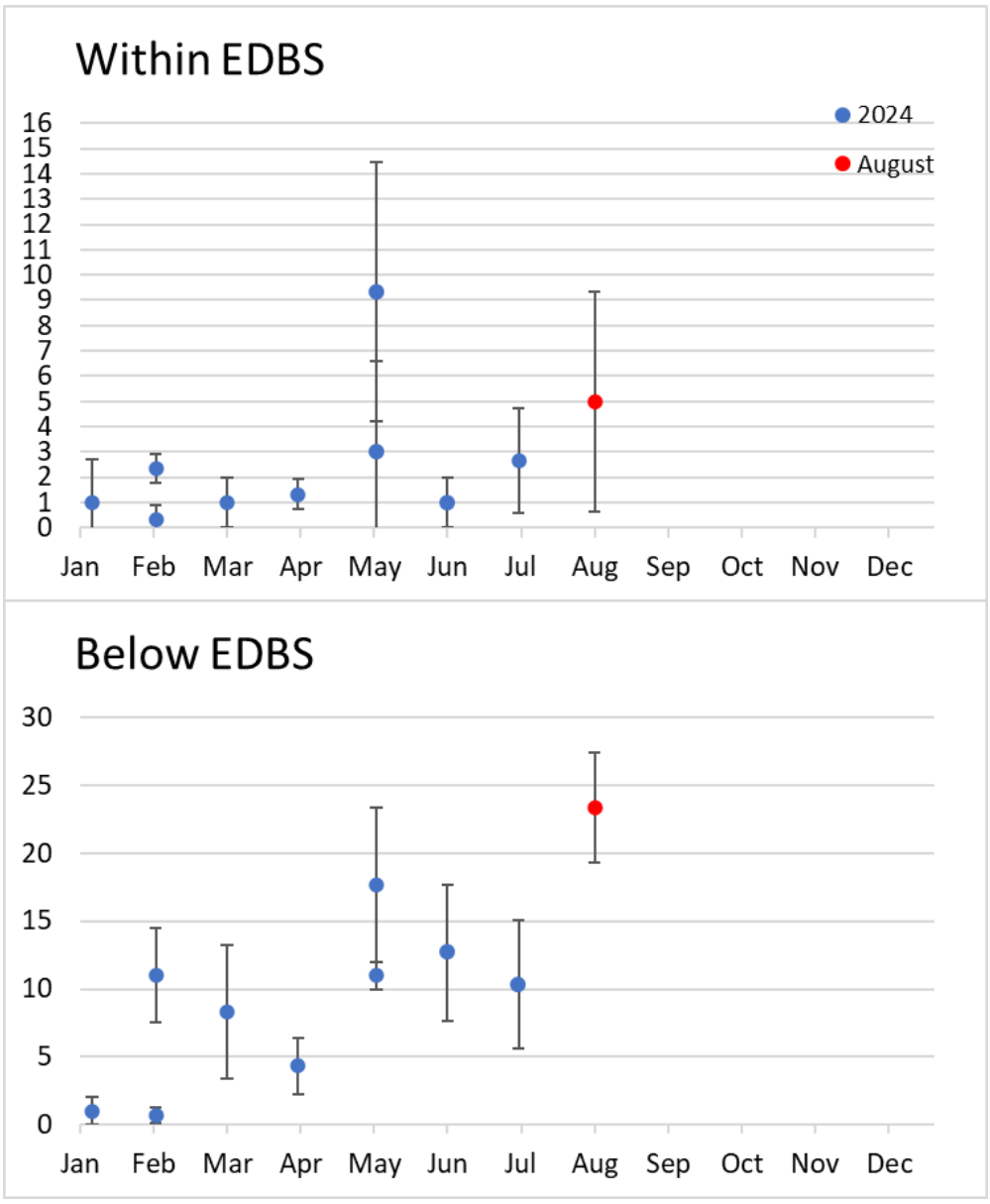


Figure 2. Comparison of the mean and standard deviation for three replicate surveys from the current mobile surveys with previous surveys from 2024.

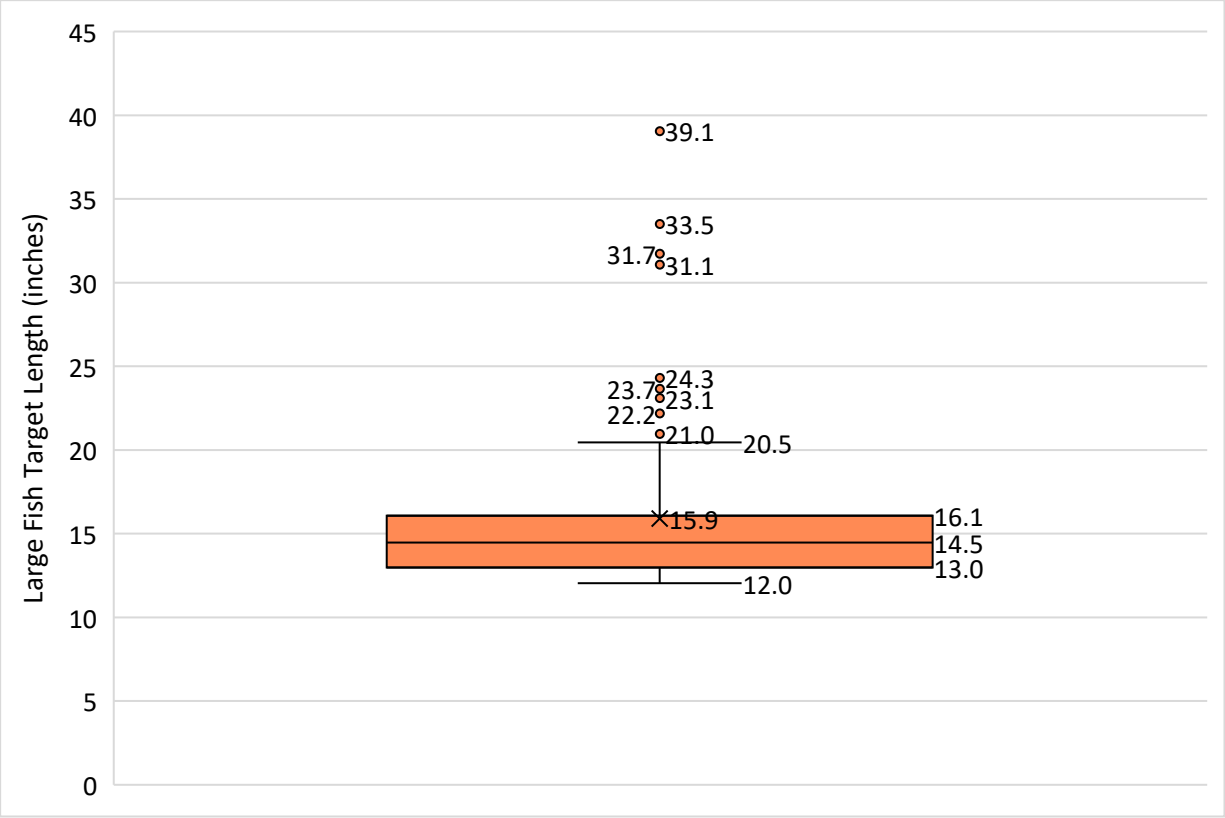


Figure 3. Box-and-whisker plot of all targets ≥12 inches detected during the August 1st, 2024, barrier scan. Mean length was 15.9 inches with a standard deviation of 5.0 inches. Outliers outside the 90% confidence interval are denoted by a point above the box-and-whisker plot.

EARLY DETECTION OF INVASIVE CARP IN THE UPPER ILLINOIS WATERWAY

USFWS Wilmington

Introduction

The purpose of US Fish & Wildlife Service (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 assessed annually based on the results of this analysis. The USFWS Great Lakes EDM Program is an adaptive management tool focused on invasive species detection.

August 2024 Highlights

- Additional targeted sampling occurred in Dresden Island Pool due to a telemetered Silver Carp being detected near the Brandon Road Lock and Dam (BRLD). No invasive carps were captured or observed near BRLD.
- One desiccated small carp (560mm) was recovered in Lockport. USFWS and US Army Corps of Engineers together performed 292 minutes of electrofishing and found no additional invasive carp in Lockport.
- Thirty-six Silver Carp (556 mm – 981 mm total length [TL]) and one Bigheaded Carp (698 mm TL) were removed from the Marseilles Pool.
- Two Silver carp (625 – 865 mm TL) were removed from Dresden Island Pool, and one Silver Carp (849 mm TL) was removed from the lower Kankakee River during August 2024.
- No small-bodied (< 153 mm TL) invasive carp were captured by EDM in August 2024.
- Dozer trawl effort was lower in Dresden Island Pool due to the need to complete MAM sampling.

Table one summarizes USFWS invasive carp EDM for each pool monitored in August 2024.

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

-	Marseilles	Dresden Island	Kankakee	Brandon Road	Lockport
Electrofishing Effort (hours)	5.03	3.5ǂ	3.75	2.75	2.25*
Electrofishing Sites	20	14ǂ	15	10	9*
Dozer Trawl Effort (hours)	1.67	0.27	0.08	0	0
Dozer Trawl Sites	20	3	1	0	0
Mini-fyke Effort (net nights)	18.88	18.39	15.10	0	0
Gill Net Effort (yards)	0	0	0	2000	1400
Gill Net Sites	0	0	0	10	7
Small Carp Captured	0	0	0	0	0
Large Carp Captured	43	2	1	0	1
Species Richness	45	45	39	20	15
Total Catch	13,129	1,402	2,374	386	388
Most Abundant Species	Gizzard Shad	Gizzard Shad	Bluntnose Minnow	Gizzard Shad	Gizzard Shad

ǂ Does not include 40 minutes of electrofishing in response to tagged Silver Carp below Brandon Road Lock& Dam.

*Does not include 292 minutes of electrofishing in response to Silver Carp found in Lockport.

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.

August 2024 Highlights

Monitoring for invasive carp reproduction was conducted during the weeks of August 5 and August 19. Ichthyoplankton monitoring from previous years indicates that the likelihood of invasive carp spawning diminishes considerably after mid-July, so routine sampling is usually conducted bi-weekly after the second week of July, unless hydrologic conditions or real-time telemetry information suggests the potential for invasive carp spawning is high. Illinois River water temperatures were consistently greater than 24°C and water levels were low throughout the month of August. INHS collected ichthyoplankton samples at sites from the Brandon Road to LaGrange Pools during this time. The Kankakee and Fox rivers were sampled in August, but water levels in other Illinois River tributaries were too low to allow for boat access. No clear evidence of invasive carp reproduction was observed during August. No evidence of invasive carp reproduction has been observed upstream of the Marseilles Pool thus far in 2024. Full processing of ichthyoplankton samples 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.

AUGUST 2024 TELEMETRY SUMMARY

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.

June-August 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 August 27th-29th. The data on receivers covered periods from June 17, 2024, 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 September 12th, 2024.
- Two hundred and one unique transmitters were detected; 86 were detected by a single receiver, 12 were a single detection on a single receiver. One transmitter was recorded by a single receiver (VR2W-129787) in the Fox River.
- Movement across multiple receivers was observed for 115 transmitters (114 longitudinal, one lateral). Movement only upstream was observed on three transmitters and downstream only movement was observed on 48 transmitters. Two individual fish were observed moving downstream from Starved Rock Pool to Peoria Pool. Both fish did not make any further movements. Twenty-seven fish returned to their origin, 11 ended their detection period downstream of their origin, and seven ended the detection period upstream of its origin. Three fish ended their detection period moving upstream into the Fox River. Three fish ended their detection period in the Fox River after emigrating from upstream of the confluence (Bull's Island).
- 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	47	16,291
2	VR2Tx-489205	166.6	Peoria Lake Narrows	41	850
3	VR2W-137065	173.0	Upper Peoria Lake, River Right	37	7,963
4	VR2Tx-489207	173.0	Upper Peoria Lake, River Left	35	1,207
5	VR2Tx-489206	182.4	US Chillicothe Bridge Peninsula	33	283
6	VR2W-137064	188.1	DS Lacon, MC Sawyer Slough	66	14,225
7	VR2Tx-489208	194.8	US Upper Henry Island	42	30,810
8	VR2Tx-489209	199.1	Senachwine Lake Peninsula	41	1,588
9	VR2Tx-489211	202.7	Lower Twin Sisters Island	40	2,125
10	VR2W-137066	211.0	MC Near Depue Lake Channel	66	16,342
11	VR2Tx-489039	216.0	US of Clark Island	59	9,929
12	VR2W-129785	219.8	US Spring Valley River Left	75	22,522
13	VR2Tx-489037	223.0	US Route 251 Bridge, Peru	44	2,805
14	VR2Tx-489212	233.9	Lone Point Delbridge Side Channel	10	34,620
15	VR2Tx-490949	235.1	MC Sheehan Island	19	17,002
16	VR2Tx-489040	238.5	Hitt-Mayo Straight	14	17,792
17	VR2Tx-490950	241.0	Bulls Island, MC Abandoned Harbor	28	31,389
18	VR2W-129787	N/A	Fox River Island, US of Rt 6 Bridge	7	1,905
-	-	-	**Total**	**201**	**229,648**

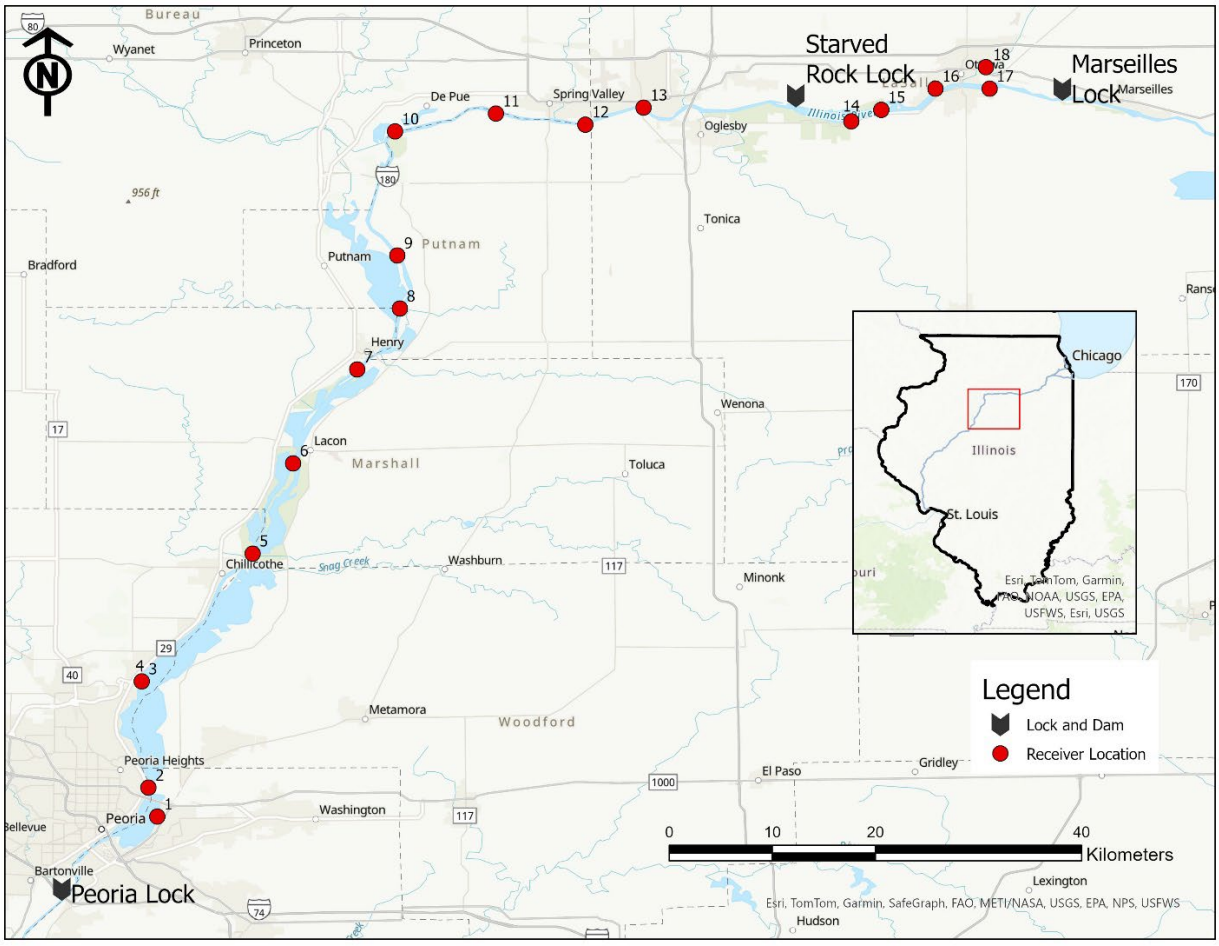


Figure 1. Location of receivers in Peoria and Starved Rock Pools.

ALTERNATE PATHWAY SURVEILLANCE IN ILLINOIS – LAW ENFORCEMENT

IL DNR

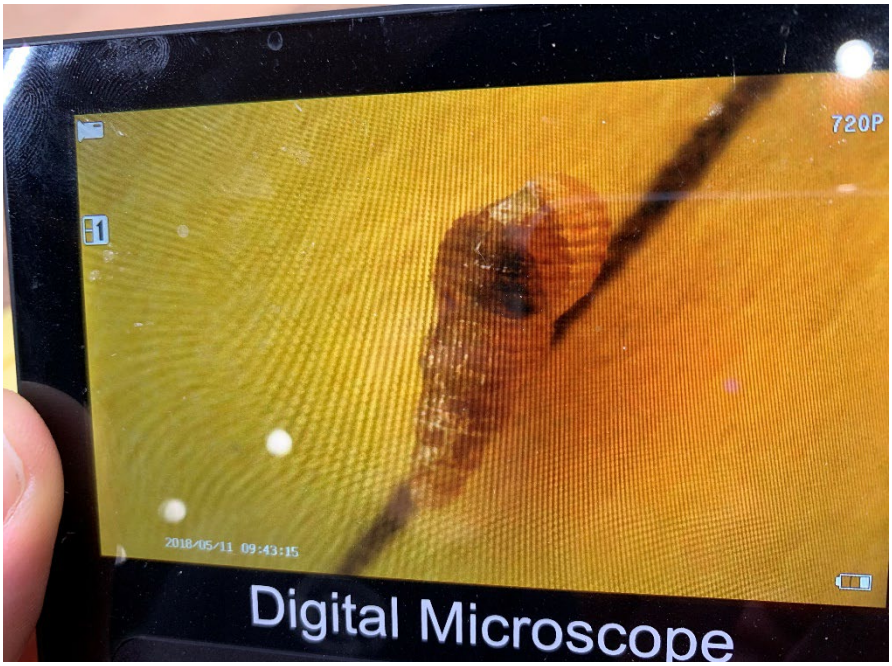
Introduction

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.

August 2024 Highlights

In early August, zebra mussel shells were discovered in a shipment of Marimo moss balls in Washington State. The shipment was traced back to a distributor in Florida and records showed two Illinois wholesale distributors received moss balls from the same distributor during that time. ISU conducted site visits at the two businesses and physically examined all their inventory by hand and with a digital microscope for the presence of zebra mussels, but none were located. ISU obtained purchase and sale records from both companies who fully cooperated. Invasive species sportfishing enforcement details located a Chicago resident fishing in Dewitt County with live Cherry Stone clams, also known as hard clams and Quahog clams. It was determined the clam is a saltwater species and not illegal to possess. The angler admitted to previously buying and using live crawfish as bait, but told Conservation Police Officers live crawfish weren't available to purchase anymore.

Photograph of Marimo moss balls.



Using a digital microscope to assess presence of zebra mussels.

Photograph of Marimo moss balls and the digital microscope.

Cherry stone clams on ice.

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.

August 2024 Highlights

Further discussions regarding harvest and deterrent scenarios for the expanded SEICarP model occurred in late August and additional scenarios were run. Those involved with developing the scenarios are scheduled to meet again in mid-September to review the results. The modeling work group has also reached out to the MRWG co-chairs to set up a meeting to discuss the results of these modeling efforts and to solicit feedback.