MONITORING AND RESPONSE WORK GROUP
MONTHLY ACTIVITY UPDATES
JANUARY-MARCH 2025

MULTIPLE AGENCY MONITORING OF THE ILLINOIS RIVER

IL DNR/USFWS

January-March 2025 Highlights

The agencies did not submit an update.

CONTRACTED COMMERCIAL FISHING BELOW THE ELECTRIC DISPERSAL BARRIER

IDNR

Introduction

Contracted Commercial Fishing Below the EDBS uses contracted commercial fishers to reduce invasive carp abundance and monitor for changes in range in the Des Plaines River and upper Illinois River downstream of the EDBS. By decreasing invasive carp abundance, we anticipate reduced migration pressure towards the barrier, lessening the chances of invasive carp gaining access to upstream waters in the CAWS and Lake Michigan. Monitoring for upstream expansion of invasive carp should help identify changes in the leading edge, distribution, and relative abundance of invasive carp in the IWW. The "leading edge" is the furthest upstream location where multiple Bighead Carp or Silver Carp have been captured with conventional sampling gears during a single trip or where individuals of either species have been caught in repeated sampling trips to a specific site. Trends in catch data over time may also contribute to understanding invasive carp population abundance and movement between and among pools of the IWW.

Dresden Island	**Jan-March 2025**
Yards of Net	1,400
Bighead Carp	0
Grass Carp	0
Silver Carp	14
Invasive Carp Caught	14
Invasive Carp Dresden Above I55	0
Invasive Carp Dresden Below I55	14
Invasive Carp Rock Run	0
IC/1000 yards	10

Marseilles	**Jan-March 2025**
Yards of Net	36,300
Bighead Carp	122
Grass Carp	3
Silver Carp	3,767

Invasive Carp Caught	3,892
IC/1000 yards	107.2
Invasive Carp Pounds	40,881

Starved Rock	**Jan-March 2025**
Yards of net	70,200
Bighead Carp	50
Grass Carp	64
Silver Carp	21,729
Invasive Carp Caught	21,798
IC/1000 yards	310.5
Invasive Carp Pounds	143,889
Seine haul	2
Silver Carp	44,867*
Bighead Carp	288*
Invasive Carp Pounds	295,631
Total LBS Removed for March	439,520

*Total number of individuals estimated with total weight removed and average weight from subsample

BARRIER MAINTENANCE AND FISH SUPPRESSION

IL DNR, USACE

Introduction

U.S. Army Corps of Engineers (USACE) operates three electric dispersal barriers (Barrier 1, Barrier 2A, and Barrier 2B) 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.

January-March 2025 Highlights

The barriers are currently operating at the following parameters (April 3, 2025) but are subject to change:

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
Barrier I – 1D (Full water - 5 Hz, 4 ms, 400 V = ~1.0 V/in & benthic 5 Hz, 4 ms, 100V)
1N- In Standby Mode
1S- (34 Hz, 2.3 ms, 1200 V = ~2.3 V/in) operational

The unscheduled outages that occurred January through March of 2025 are as follows:

2/24/25 – IIB both arrays- 17 minutes- Power outage from USACE shutting down 2A span breakers
3/13/25 – 1S - 13 hours and 56 minutes- Shut down from leak on ball valve
3/16/25- IIB both arrays- 6 hours, 40 minutes- Power event that 2B did not pick up
3/18/25 – IIB both arrays and 1S - 36 minutes- Loss of B utility feed

Traditional Monitoring

During the months of January to March, there were no USACE invasive carp monitoring efforts able to be completed. Biweekly electrofishing efforts are expected to resume in mid-April.

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).

January-March 2025 Highlights

Science Team members are analyzing 2023-2024 data and working to finalize data summaries and manuscripts for the experimental cycling period (2020-2023) and a year of continuous BAFF operation (2024). A manuscript on full upstream passage of silver carp, grass carp, and native fish species relative to BAFF operation and environmental co-variates is in process and is targeted for the North American Journal of Fisheries Management. New data for the Time-to-Event analysis and fine-scale behavioral assessments for silver carp and grass carp are being processed.

The BAFF is currently being operated continuously. We were next scheduled for a “inspection and minor maintenance” trip in August or September 2025 but are pursuing contractual arrangements to make repairs as soon as July due to excessively high waters (54’) that exceeded the depth tolerance (50’) of the sound projection units and caused damage to some. Improvements are being pursued to increase the depth capacity of the sound projectors.

INVASIVE CARP ENHANCED CONTRACT FISHING REMOVAL PROGRAM

IL DNR

January-March 2025 Highlights

Agency did not submit an 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. Further details regarding the methods of data collection and use of hydroacoustic data can be provided upon request.

January 2025 Highlights

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

- Hydroacoustic barrier scan on January 28th, 2025, identified a total of 1 target (0 targets within the EDBS and 1 target immediately downstream of the barrier). An average of 0.33 ± 0.58 targets were detected during the three replicate surveys. The target length was 16.9 inches.
- Figure 1 shows the average targets detected across all three replicate surveys.
- No hydroacoustic pool scans were completed in the month of January.

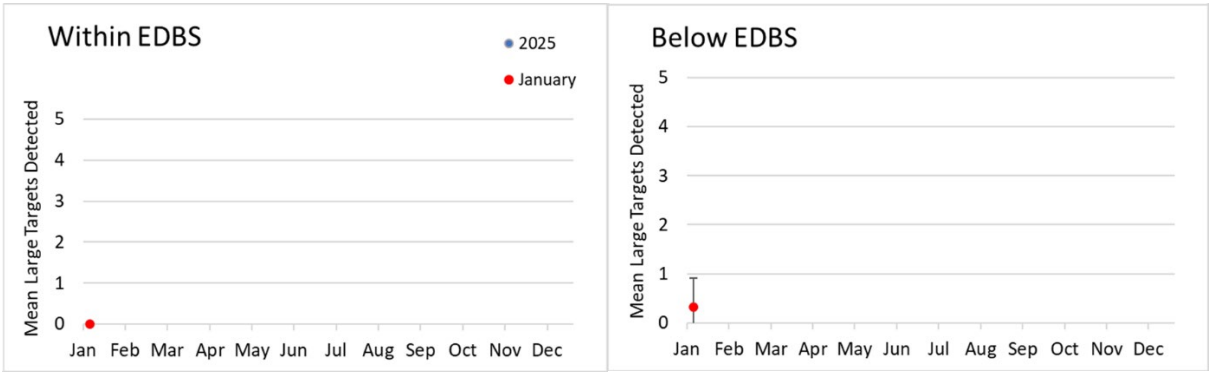

Figure 1. Comparison of the mean and standard deviation for three replicate surveys from the current mobile surveys with previous surveys from 2025.

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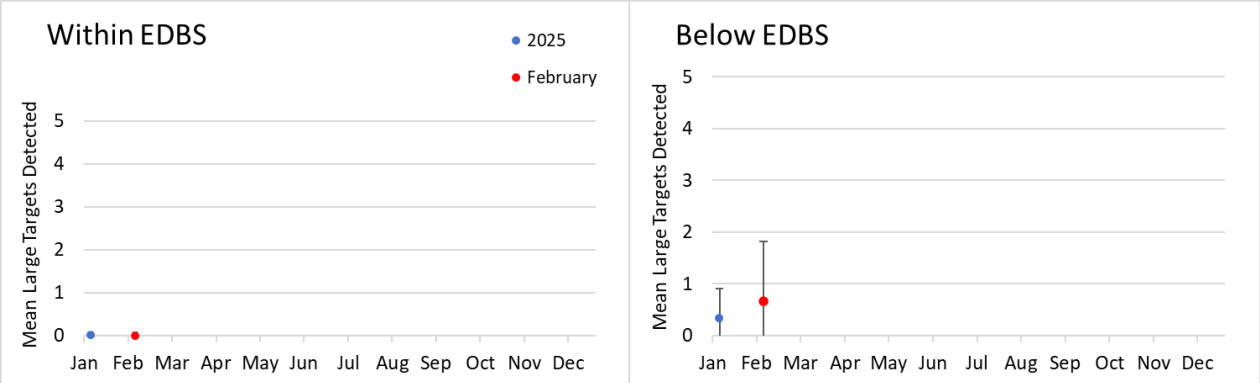
February 2025 Highlights

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

- Hydroacoustic barrier scan on February 10th, 2025, identified a total of 2 targets (0 targets within the EDBS and 2 targets immediately downstream of the barrier). An average of 0.67 ± 1.15 targets were detected during the three replicate surveys. The mean target length was 13.4 inches ± 1.8 inches.
- Figure 1 shows the average targets detected across all three replicate surveys.
- No hydroacoustic pool scans were completed in the month of February.



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March 2025 Highlights

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

- Hydroacoustic barrier scan on March 3rd, 2025, identified a total of 5 targets (1 target within the EDBS and 4 targets immediately downstream of the barrier). An average of 1.67 ± 2.08 targets were detected during the three replicate surveys. The mean target length was 13.4 inches ± 1.3 inches.
- Figure 1 shows the average targets detected across all three replicate surveys.
- Hydroacoustic pool scan of Dresden Island on March 25th, 2025, identified a total of 60 large targets in 2,188,601 m^3 of water. Mean target length was 16.0 inches ± 4.48 inches; the three largest targets detected were 23.7, 26.1, and 33.2 inches. A heatmap was provided to the commercial fishermen to help identify potential areas of interest for invasive carp removal efforts (Figure 2).

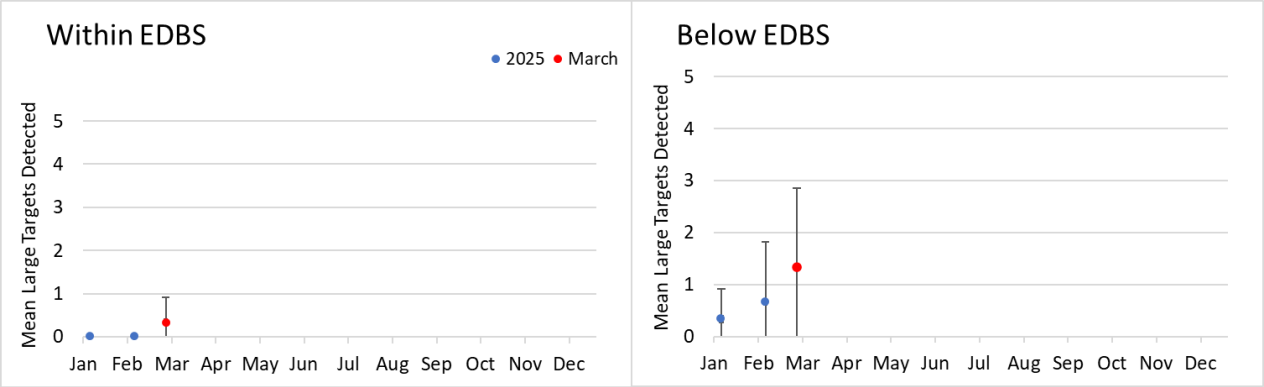

Figure 1. Comparison of the mean and standard deviation for three replicate surveys from the current mobile surveys with previous surveys from 2025.

Figure 2. Heatmap provided to IDNR to help aid in invasive carp removal efforts. Shows the density of large targets detected during the hydroacoustic survey of Dresden Island on March 25th, 2025.

SUPPORT FOR EARLY DETECTION OF INVASIVE CARP IN THE UPPER ILLINOIS WATERWAY

USFWS Wilmington

Introduction

The purpose of US Fish and 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.

March 2025 Highlights

- One Silver Carp (654 mm total length [TL]) was removed from the Dresden Island Pool during March 2025.
- Three Silver Carp (869 mm - 910 mm TL) were removed from the lower Kankakee River during March 2025.
- No small-bodied (< 153 mm TL) invasive carp were captured by EDM in March 2025.
- No large-bodied (≥ 153 mm TL) invasive carp were captured outside their known range by EDM in March 2025.

Table one summarizes the USFWS invasive carp EDM from March 2025 for each pool monitored under the project.

Table 1. Summary of USFWS EDM effort during March 2025.

	Marseilles	Dresden Island	Kankakee	Brandon Road	Lockport
Electrofishing Effort (hours)	0	3.75	3.75	2.57	2.27
Electrofishing Sites	0	15	15	10	9
Dozer Trawl Effort (hours)	0	0.92	1.25	0	0
Dozer Trawl Sites	0	11	15	0	0
Mini-fyke Effort (net nights)	0	0	0	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	0	1	3	0	0
Species Richness	0	30	26	8	8
Total Catch	0	592	342	49	52
Most Abundant Species	N/A	Gizzard Shad	Emerald Shiner	Emerald Shiner	Common Carp

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.

January-March 2025 Highlights

INHS has completed processing all ichthyoplankton samples collected during 2024. Invasive carp reproductive productivity was very high during 2024. Invasive carp eggs were collected in samples from all pools in and downstream of the Marseilles Pool, and larvae were collected in all pools in and downstream of the Peoria Pool. Assessment of developmental stages of invasive carp eggs and larvae collected in 2024 and earlier years was performed to provide data for further FluEgg modelling efforts to assess the consistency of invasive carp spawning locations and evaluate habitat conditions associated with spawning sites.

During January-March 2025, preparations were made for upcoming monitoring efforts. A net frame for sampling ichthyoplankton at depth was developed in order to evaluate if invasive carp egg and larval densities vary by depth within the water column. Ichthyoplankton sampling will begin again in late April-early May 2025. Occurrences of invasive carp eggs or larvae, particularly upstream of Starved Rock Lock and Dam, will be reported as soon as this information is available.

DES PLAINES RIVER OVERFLOW MONITORING

USFWS

January-March 2025 Highlights

Agency did not submit an update.

MARCH SUMMARY OF THE TELEMETRY SUPPORT FOR THE SEICARP MODEL

USFWS

Introduction

This project provides support for the inter-agency telemetry array deployed in the Illinois River basin. The 2025 plan of work for USFWS includes placing 150 acoustic transmitters in Silver Carp and Bighead Carp across the Peoria, Starved Rock, and Marseilles Pools. Fifty of these tags will be deployed in bigheaded carps in Marseilles Pool to support detection efforts by agency partners outside USFWS. USFWS maintained 18 receivers across the Peoria and Starved Rock Pools in 2024. In 2025, two additional receivers will be added to Starved Rock Pool. The data gained from the additional tagged fish and additional receivers 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.

March 2025 Highlights

- On March 3rd, four receivers were placed in Peoria Pool between river miles 164.8 and 173 (figure 1)
- On March 6th, seven receivers were placed in the Starved Rock Pool between river miles 233.9 and 242.8 (table 1)
- Two of the seven Starved Rock receivers were put in the Fox River, a tributary to the Illinois River in Ottawa, IL (table 1)
- From March 10th-13th and March 17th-20th, the Starved Rock receivers were range tested to ensure that tagged fish could be detected when swimming within the detection range of the receivers.
- The remaining nine receivers will be deployed the week of April 14th after tagging operations the week of April 7th.

Table 1. Receiver deployments during March 2025. "US" denotes "upstream" and "MC" denotes "main channel". River Mile is not denoted for the Fox River; it is a tributary to the Illinois River.

Receiver Number	Receiver ID	River Mile	Station Name
1	VR2Tx-489204	164.8	Lower Peoria_Lake_Point_River Left
2	VR2Tx-489205	166.6	Peoria Lake Narrows
3	VR2W-137065	173.0	Upper Peoria Lake_River Right
4	VR2Tx-489207	173.0	Upper Peoria Lake_River Left
5	VR2Tx-489212	233.9	Lone Point Delbridge Side Channel
6	VR2Tx-489049	235.1	MC Sheehan Island
7	VR2Tx-489040	238.5	Hitt-Mayo Straight
8	VR2Tx-490950	241	Bulls Island MC Abandoned Harbor
9	VR2Tx-491939	242.8	US of Heritage Harbor River Left
10	VR2W-129787		Fox River-US Illinois River Confluence
11	VR2Tx-491940		Fox River-US Rt.6 Bridge

TELEMETRY MONITORING PLAN

USACE

January-March 2025 Highlights

Agency did not submit an update.

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.

January 2025 Highlights

Agency said there were no updates for January 2025.

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February 2025 Highlights

Several surveillance details in Chicago produced video and photographic evidence for a multi-agency aquatic life trafficking investigation involving the Illinois Conservation Police's Invasive Species Unit and conservation police from another state agency. The details provided critical information for the investigation which led to the seizure of live invasive fish after they were transported across state lines and offloaded at two separate business locations.

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March 2025 Highlights

The Illinois Conservation Police Invasive Species Unit and District 4 CPOs conducted a fish truck inspection detail in Chicago to ensure compliance with IDNR live fish importation and transportation regulations. Chicagoland has dozens of food markets holding live fish in holding tanks for food purposes. The industry is regulated closely by the IDNR. Fish must be certified-free of disease prior to importation and only transported to approved locations with IDNR permits. Most of the fish purchased by customers at the food markets are purchased for consumption, but the Invasive Species Unit has investigated several incidents where live fish purchased from food markets were released into Illinois waters. The officers inspected an out-of-state fish truck delivering seven different live fish species to Chicago food markets including grass carp. The truck was transporting thousands of pounds of VHS susceptible species without required IDNR viral hemorrhagic septicemia importation permits. The truck was also transporting IDNR restricted species without the required permits and delivering restricted species to unauthorized customers from another state who would meet the truck in Chicago to transport the fish back to their food markets. The fish being transported to the other state were illegal to possess alive in that jurisdiction. Evidence was seized during the detail and charges will be determined at the completion of the investigation.

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.

January 2025 Highlights

The modeling work group reported out on progress made on modeling efforts during 2024 at the annual MRWG meeting during Feb 4-6. Brief summaries of those updates are below.

- Occupancy models
    - The Modeling WG received data from the USFWS Carterville FWCO-Wilmington Substation (Detections WG) to use to better understand if current sampling efforts are sufficient to detect bigheaded carps if they are present in a particular area (Marseilles Pool-lower Des Plaines River) using an occupancy framework.
    - The models suggest that the dozer trawl (Marseilles and Dresden Island pool and the Kankakee River) and boat electrofishing (all areas) have high detection probabilities across the areas in which they are deployed.
    - In contrast, mini fyke (Marseilles and Dresden Island pool and the Kankakee River) and gill nets (Brandon Road and Lockport pools and the Des Plaines River) have low detection probabilities in the areas in which they are deployed.
    - The models suggest that there could be efficiencies gained by reallocating some effort (e.g., moving some effort from Marseilles Pool to more upstream areas) and/or by reducing deployment of less effective gears (mini fyke and gill nets).
    - Following discussions at the annual MRWG meeting during which other offices and agencies suggested that mini fyke and gill nets can be effective tools for detecting bigheaded carps, the modeling work group plans to reach out to other WGs with data requests.
    - Additional model runs to ensure the most accurate results for informing decision making will be forthcoming following receipt of additional data.
- Community analysis
    - In a complementary analysis to the above, the Modeling WG received one year (2021) of dozer trawl data from the USFWS Carterville FWCO-Wilmington Substation (Detections WG) to explore the use of a rarefaction analysis to better understand if current sampling efforts are sufficient to sample the fish community in its entirety and, therefore, detect

bigheaded carps if they are present in a particular area (Dresden Island-Lockport pools and the Kankakee River).
    - The preliminary results suggest that sampling efforts are likely sufficient in the Brandon Road Pool and Kankakee River, but that additional sampling may be required in the Dresden Island and Lockport pools.
    - The Modeling WG will discuss the path forward for this analysis and what years and gear types to include with the Detections WG and others, as applicable.
- Spatially Explicit Invasive Carp Population (SEICarP) model
    - The Modeling WG began running updated simulations to the SEICarP model to include a connection to the Mississippi River following discussions at the 2024 annual MRWG meeting.
    - Preliminary results suggest no qualitative differences to the results presented in the original model (Kallis et al. 2023).
        - Harvesting from the source population (lower ILR) is more effective at reducing the Dresden Island population than harvesting from the sink population (upper ILR).
        - Harvesting both the source and the sink populations is most effective at reducing the Dresden Island population.
    - The model results also suggest that adding a connection to the Mississippi River makes it harder to crash the Dresden Island population.
    - The Modeling WG is running additional simulations following discussions with the Telemetry WG to include variable movement probabilities from the Mississippi River to the Illinois River and vice-versa.
- Length-based Bayesian (LBB) analysis
    - The Modeling WG received length data (2011-2023) from harvested bigheaded carps from the upper ILR (Starved Rock-Dresden Island pools) and used these data in a LBB analysis to better understand the effectiveness of removal efforts.
    - Preliminary results suggest that the upper ILR Silver Carp population is not overfished (B/B0 > BMSY) and that overfishing is not occurring (F/M < 1).
    - The Modeling WG will continue to work through some of the nuances of this analysis.
    - The Modeling WG will also investigate the use of a length-based spawning potential analysis to determine if both analyses suggest a similar population status which would lend support to the current LBB results.
- Statistical catch-at-age (SCAA) model
    - The Modeling WG developed a sampling plan with input from the Monitoring WG for the collection of demographic data from commercial harvest throughout the ILR.
    - The first year of data collection was completed during 2024.
    - The age structures collected during 2024 were processed and the data reported to the Modeling WG.
    - The Modeling WG is in the process of performing data checks on those data and will determine if changes to the data collection protocol will be necessary prior to beginning 2025 data collections.

INVASIVE CARP POPULATION MODELING TO SUPPORT AN ADAPTIVE MANAGEMENT FRAMEWORK

USGS, USFWS

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February 2025 Highlights

The modeling work group met with the Carterville FWCO, Wilmington Substation (monitoring work group) and the Columbia FWCO to discuss the next steps in the rarefaction analysis to help understand sampling needs for the EDM project in the Upper ILR and is planning to move forward with expanding the scope of the work to include both dozer trawl and boat electrofishing gears. The modeling work group is also planning to conduct a resampling analysis to estimate the needed sample completeness to detect invasive carps using these gears.

The modeling work group has also completed checking the 2024 catch data and is in the process of checking the age data collected by the Wilmington suboffice prior to harmonizing the catch and age data. These data will provide the basis for the statistical catch-at-age model.

Lastly, the modeling work group has completed a draft and review of the manuscript associated with the occupancy model for the Upper Illinois River EDM sampling. That manuscript will be revised and circulated to co-authors for additional review.

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USGS, USFWS

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March 2025 Highlights

The modeling work group is in the process of reviewing two manuscripts examining bigheaded carp population dynamics in the Illinois River. Specifically, the first manuscript focuses on simulating food web effects, reproductive dynamics, and control of silver and bighead carps in the Illinois River with a multi-species individual-based model and the second focuses on modeling food web dynamics and harvest control strategies for bigheaded carp in the Illinois River using EcoPath with EcoSim. In addition, the modeling work group submitted a graphical user interface for the Spatially Explicit Invasive Carp Population (SEICarP) model for USGS review. This interface is designed to allow managers to explore the effects of potential management actions on the Illinois River bigheaded carp population using a simplified version of the SEICarP model. Lastly, the modeling work group began exploring a spatially and temporally varying Von Bertalanffy Growth model to help inform both the statistical catch-at-age (SCAA) and length-based Bayesian (LBB) models by determining if there are temporal variations in natural mortality within the Illinois River bigheaded carp population (SCAA) and to determine realistic theoretical maximum length values for the upper Illinois River bigheaded carp population (LBB).

INVASIVE CARP STOCK ASSESSMENT IN THE ILLINOIS RIVER

IL DNR

January-March 2025 Highlights

The agency did not submit an update.

BLACK CARP BOUNTY PROGRAM

IL DNR

January-March 2025 Highlights

The agency did not submit an update.