MONITORING AND RESPONSE WORK GROUP
MONTHLY ACTIVITY UPDATES
NOVEMBER 2024

CONTRACTED COMMERCIAL FISHING BELOW THE ELECTRIC DISPERSAL BARRIER

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	**October 2024**
Yards of Net	600
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
Invasive Carp Pounds	0

Marseilles	**October 2024**
Yards of Net	20,500
Bighead Carp	12
Grass Carp	0
Silver Carp	1,470

Marseilles	October 2024
Invasive Carp Caught	1,482
IC/1000 yards	1.5
Invasive Carp Pounds	20,340

Starved Rock	October 2024
Yards of net	98,850
Bighead Carp	15
Grass Carp	90
Silver Carp	11,199
Invasive Carp Caught	11,304
IC/1000 yards	11.3
Invasive Carp Pounds	64,994

BARRIER MAINTENANCE AND FISH SUPPRESSION

USACE, IL DNR

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.

November 2024 Highlights

The barriers are currently operating at the following parameters (30 November 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- In Standby Mode
1S- (34 Hz, 2.3 ms, 1200 V = 2.5 V/in) Operational
IIA – Out of Service for roof construction activies
IIB – Narrow (34 Hz, 2.3 ms, 2000 V = 2.8 V/in) & wide (34 Hz, 2.3 ms, 800 V= ~1.0 V/in) arrays operational

The unscheduled outages that occurred in November of 2024 are as follows:
11/2/2024 – IIB Wide and Narrow arrays – 24 days, 8 hours, and 38 minutes– Barrier 2B Power loss issue

Traditional Monitoring

During the month of November, USACE biologists conducted eight 15-minute electrofishing runs downstream of the barrier, and one 15-minute electrofishing run within the barrier. Five sites were in Lockport Pool, including the one site in the barrier, and four sites were in Brandon Road Pool. In Lockport Pool, a total of 477 individuals across 14 species were captured with the top five most abundant fish being Gizzard Shad (>6 inches), Emerald Shiner, Gizzard Shad (<6 inches), Largemouth Bass, and Bluntnose Minnow. In Brandon Road Pool, a total of 141 individuals across 19 species were captured with the five most abundant fish being Gizzard Shad (>6 inches), Smallmouth Bass, Largemouth Bass, Emerald Shiner, and Sauger. In the barrier site, 30 individuals across 3 species were captured. Five Largemouth Bass (232-325 mm), two Banded Killifish (59-71 mm), and 23 Gizzard shad (81-111 mm) were captured within the barrier and released downstream. No live or dead invasive carp was caught or observed during the month of November.

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).

November 2024 Highlights

After several struggles with our 2023 telemetry data set, including both processing and equipment issues, we're rapidly moving forward on incorporating those data into the 2021 and 2022 data so we can share another round of results with partners.

INVASIVE CARP ENHANCED CONTRACT FISHING REMOVAL PROGRAM

ILDNR

Introduction

In September 2019, the Enhanced Contract Fishing Program was initiated in the Peoria Pool of the Illinois River. In 2022, the area was expanded to include the LaGrange and Alton pools. The program offers Illinois-licensed commercial fishers $.10 per pound for invasive carp caught in any of these pools and sold to fish processors or other buyers for at least $.07 per pound. To date, a total of 61 fishers have entered into contracts to catch invasive carp from these pools, with 47 currently under contract. From inception through November 2024, 26,006,789 pounds of invasive carp have been caught among all three pools. Of these total catches, 3.02% are Bighead, 86.89% are Silver, and 10.09% are Grass carp. **No Black carp have been reported.**

November 2024 Highlights

The table below summarizes the total pounds of invasive carp caught through enhanced contract fishing.

YEAR	Total Lbs.**	Bighead	Silver	Grass
2019 *	**518,132**	**24,813**	**310,297**	**183,022**
2020	**2,882,724**	**176,195**	**1,980,175**	**726,355**
2021	**3,345,973**	**209,526**	**2,517,416**	**619,031**
2022	**5,249,161**	**200,396**	**4,615,097**	**433,669**
2023	**8,410,107**	**95,532**	**8,024,643**	**289,932**
2024 Part Year	**-**	**-**	**-**	-
January – March	1,626,455	7,300	1,585,437	33,718
April	751,481	8,417	728,070	14,994
May	785,678	10,949	755,504	19,225
June	401,830	3,806	360,962	37,062
July	512,655	19,980	405,430	87,245
August	415,087	6,128	336,790	72,169
September	379,763	5,104	346,571	28,088
October	316,887	3,955	281,691	31,241
November	231,454	4,812	196,592	30,050
Part Year Subtotal	**5,600,693**	**78,154**	**5,149,621**	**372,918**
GRAND TOTALS	**26,006,789**	**784,614**	**22,597,249**	**2,624,926**

* September 2019 program inception.

** No Black carp reported.

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.

November 2024 Highlights

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

- USFWS completed a scan at the EDBS on November 7th, 2024, identifying a total of 59 targets (11 targets within the EDBS and 48 targets immediately below the barrier, see Figure 1). An average of 19.7± 8.3 targets were detected during the three replicate surveys, see Figure 2. The mean target length was 16.0 inches ± 4.5 inches; three outliers with lengths of 21.8, 27.0, and 30.9 inches were observed (Figure 3).
- No hydroacoustic pool scans were completed in the month of November.

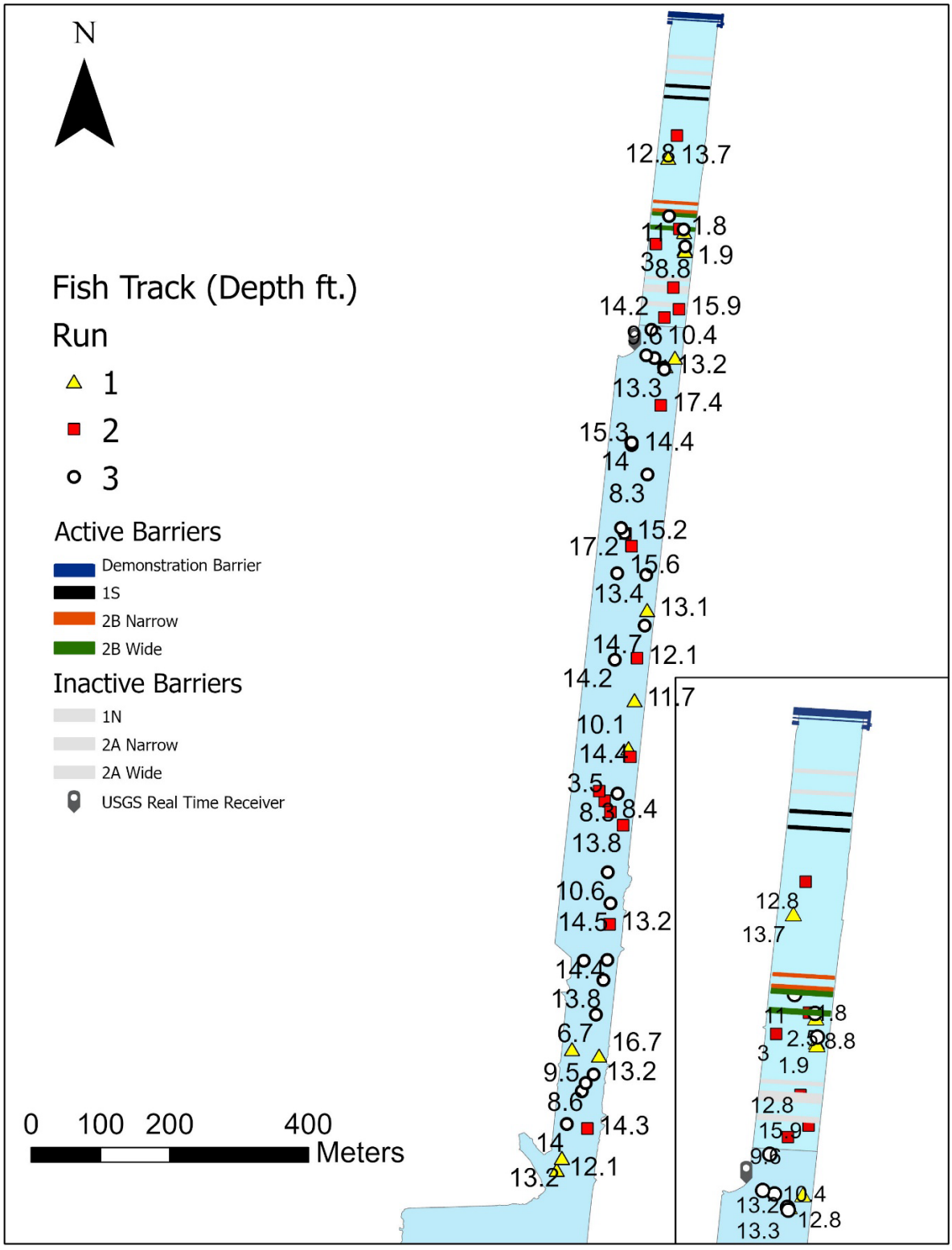

Figure 1. Location of USGS real time receiver and targets ≥ 28.7 dB observed in the vicinity of the EDBS on November 7th, 2024.

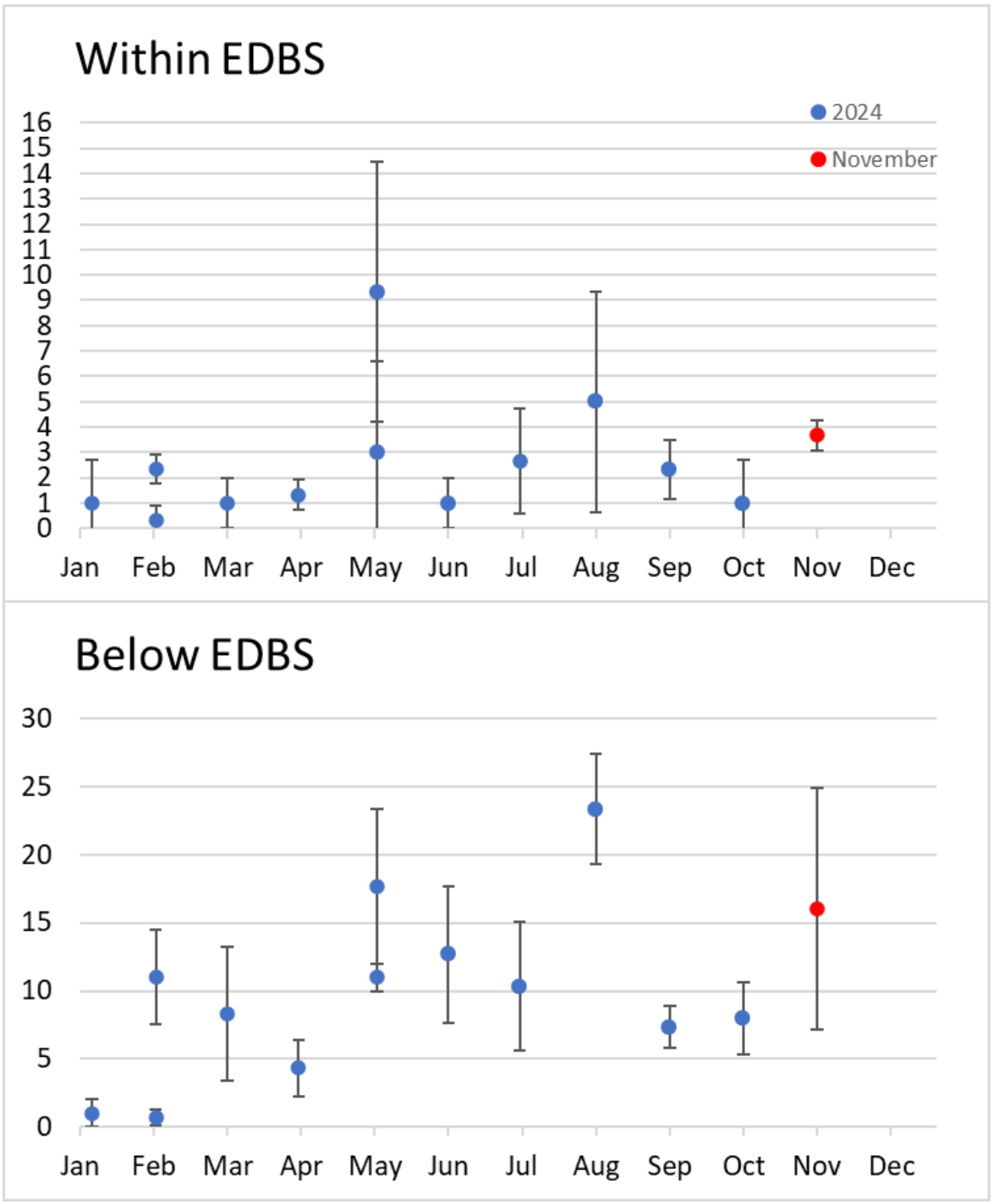

Figure 2. Comparison of the mean and standard deviation for three replicate surveys from the current mobile surveys with previous surveys from 2024.

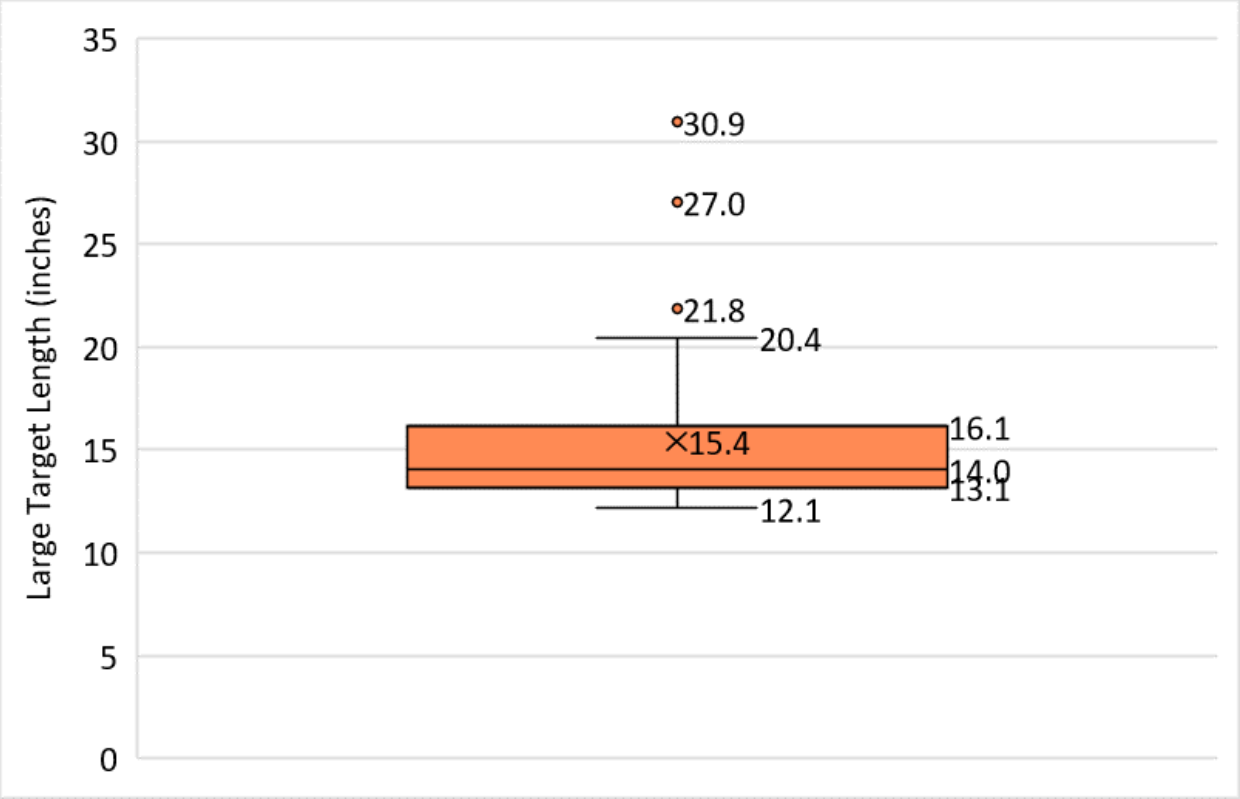

Figure 3. Box-and-whisker plots of all targets ≥12 inches detected during the EDBS scan in November 2024. Outliers and their values are denoted by a point above the box-and-whisker plot.

EARLY DETECTION OF INVASIVE CARP IN THE UPPER ILLINOIS WATERWAY

USFWS Wilmington

Introduction

The purpose of US Fish 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 a 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.

November 2024 Highlights

- Twenty Silver Carp (621 mm – 910 mm total length [TL]) and three Grass Carp (832 mm – 1030 mm TL) were removed from the Marseilles Pool during November 2024.
- One Silver Carp (802 mm TL) was removed from the lower Kankakee River during November 2024.
- Three Silver Carp (653 mm – 870 mm TL) were removed from the Dresden Island Pool during November 2024.
- No small-bodied (< 153 mm TL) invasive carp were captured by EDM in November 2024.
- No large-bodied (≥ 153 mm TL) invasive carp were captured outside their known range by EDM in November 2024.

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

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

-	Marseilles	Dresden Island	Kankakee	Brandon Road	Lockport
Electrofishing Effort (hours)	5	3.75	3.75	2.5	2.25
Electrofishing Sites	20	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)	19.97	20.50	14.67	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	23	3	1	0	0
Species Richness	44	40	40	14	13
Total Catch	1392	3345	4026	177	177
Most Abundant Species	Gizzard Shad	Gizzard Shad	Spotfin Shiner	Emerald Shiner	Gizzard Shad

TELEMETRY MONITORING PLAN

USACE

Introduction

The USACE-Chicago telemetry monitoring plan includes tagging fish with individually coded ultrasonic transmitters in the Upper IWW. The acoustic network is comprised of stationary receivers supplemented (when necessary) by a mobile hydrophone unit to collect information from acoustic transmitters implanted into Bighead Carp, Silver Carp, and Common Carp. Acoustic receiver coverage within the Upper IWW primarily focuses on the EDBS, with secondary coverage surrounding lock and dams and emigration routes, such as tributaries and backwater areas. As of 2024, USACE operates 41 receivers between the confluence of the Cal-Sag and CSSC and Dresden Island Lock and Dam.

November 2024 Highlights

During the month of November, all USACE receivers were downloaded. All detection data was sent to USGS for inclusion in the RAFT database. In Lockport Pool, 2 Common Carp were tagged, and in Brandon Road Pool, 1 Common Carp was tagged.

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.

November 2024 Highlights

ISU investigated a complaint of an ethnic grocery store in Chicago illegally selling shark fin. Illinois banned the possession, selling, buying, trading, and distributing of shark fin in 2013. ISU located the suspected product for sale in the store which will be analyzed to determine if it came from a prohibited species.

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.

November 2024 Highlights

The modeling work group has submitted a draft manuscript describing the results of the modified SEICarP model including the connection between the Illinois and Mississippi rivers for review by coauthors. In addition, the modeling work group has begun working with the Carterville FWCO, Wilmington Substation to develop occupancy models to inform the amount of sampling necessary to monitor the upstream pools of the Illinois River for the presence of invasive carps.

BLACK CARP BOUNTY PROGRAM

ILDNR

Introduction

In 2015, the Black Carp Bounty Program was created to increase the number of black carp specimens made available for research to provide improved information on the status and characteristics of these carp in the Mississippi River and its tributaries. Knowledge of black carp geographic distribution, population characteristics, and diet are needed to inform development of management strategies to control black carp abundance, impacts, and further range expansion.

Nearly all black carp detected in the Mississippi River and tributaries are caught and reported by commercial fishers, largely due to the difficulty in sampling black carp in large rivers and limited agency and university sampling efforts focused on this species. The Black Carp Bounty Program was created to provide a reward of $100 per fish to provide incentive for commercial fishers to target black carp in the wild, report any black carp that they catch to agency biologists, and donate the fish for black carp research.

November 2024 Highlights

The table below summarizes the total number of Black carps caught since transition of the program from Southern Illinois University to IDNR.

Month	# of Fish
2023 *	11
2024 Part Year	-
January – March	24
April	3
May	29
June	18
July	18
August	4
September	4
October	9
November	4
GRAND TOTALS	124

* Records start July 1, 2023.