MONITORING AND RESPONSE WORKGROUP (MRWG)

MONTHLY ACTIVITY UPDATES

JULY 2024

MONITORING AND RESPONSE WORKGROUP (MRWG)

July 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 July 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	**July 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	July 2024
Yards of Net	0
Hoopnet Nights	0
MiniFyke Nights	5
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	July 2024
Yards of Net	0
Hoopnet Nights	28
MiniFyke Nights	17
Electrofishing Runs	15
Electrofishing Hours	3.75
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	July 2024
Invasive Carp Pounds	0

Marseilles	July 2024
Yards of Net	0
Hoopnet Nights	0
MiniFyke Nights	0
Electrofishing Runs	9
Electrofishing Hours	2.25
Pound Net Night	0
Bighead Carp	5
Grass Carp	0
Silver Carp	3
Invasive Carp Caught	0
IC/1000 yards	0
Invasive Carp Pounds	0

Starved Rock	July 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 2022 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	8
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0

Brandon	**IL DNR**
Hoopnet Nights	0
MiniFyke Nights	5
Electrofishing Runs	0
Electrofishing Hours	0
Dozer Trawl Runs	0
Dozer Trawl Hours	0

Dresden Island	**IL DNR**
Hoopnet Nights	28
MiniFyke Nights	17

Dresden Island	IL DNR
Electrofishing Runs	15
Electrofishing Hours	3.75
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	3
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).

July 2024 Highlights

Had some issues with compressor overheating that has resulted in intermittent operations of the bubble curtain. Compressor maintenance company has isolated the issue and ordered parts. Other less substantial issues occurred and will be more fully resolved in August when every two-year scheduled maintenance of the entire system is performed.

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.

July 2024 Highlights

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

- USFWS completed a scan at the EDBS on July 1st, 2024, identifying a total of 39 targets (eight targets within the EDBS and 31 targets immediately below the barrier, see Figure 1). An average of 13 ± 5.3 targets were detected during the three replicate surveys, see Figure 2. The mean target length was 17.5 inches ± 5.9 inches; one outlier was observed with length a length of 38 inches (Figure 3).
- No hydroacoustic pool scans were completed in the month of July.

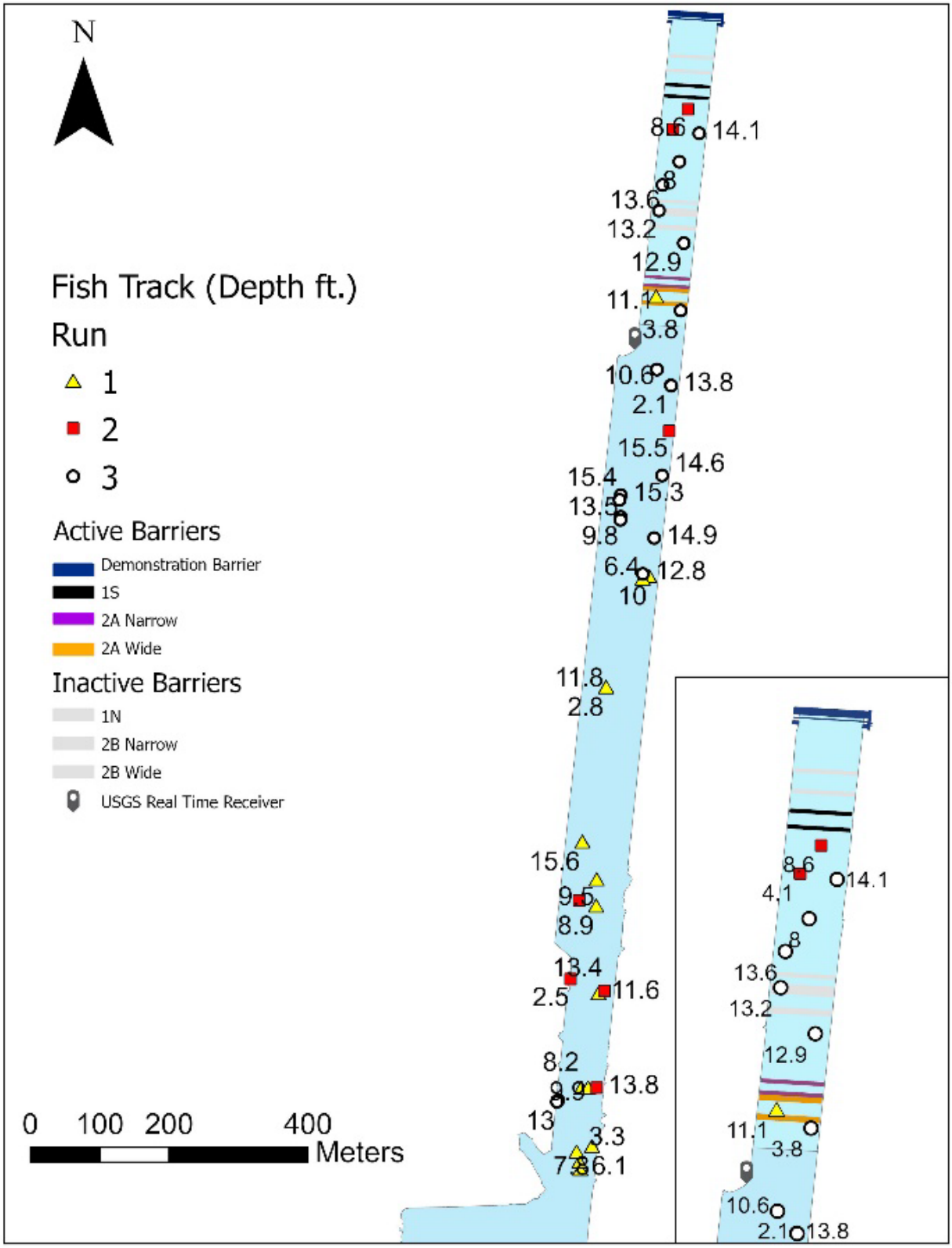

Figure 1. Location of USGS real time receiver and targets ≥ 28.7 dB observed in the vicinity of the EDBS on July 1st, 2024.

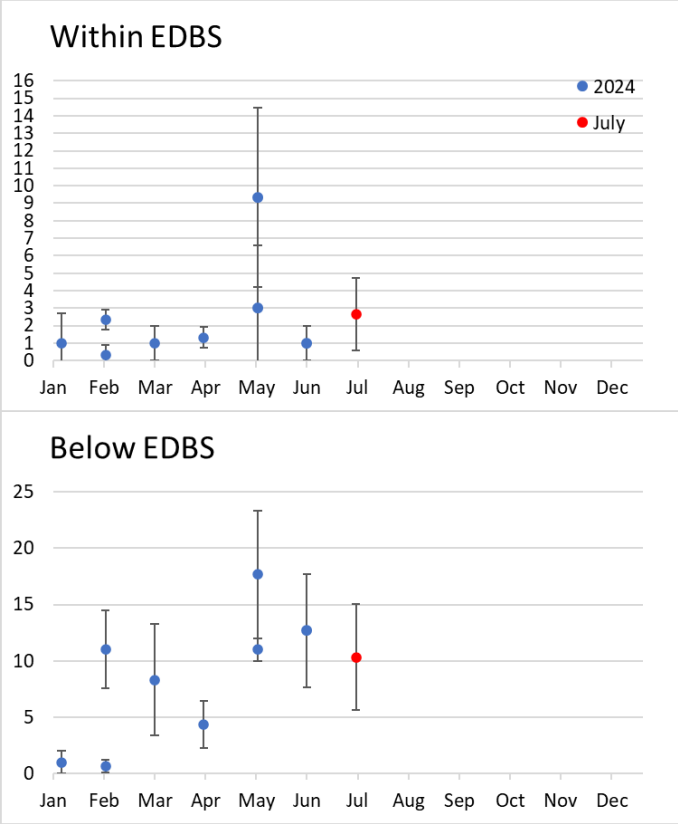

Figure 2. Comparison of the mean and standard deviation for three replicate surveys from the current mobile surveys with previous surveys from 2024.

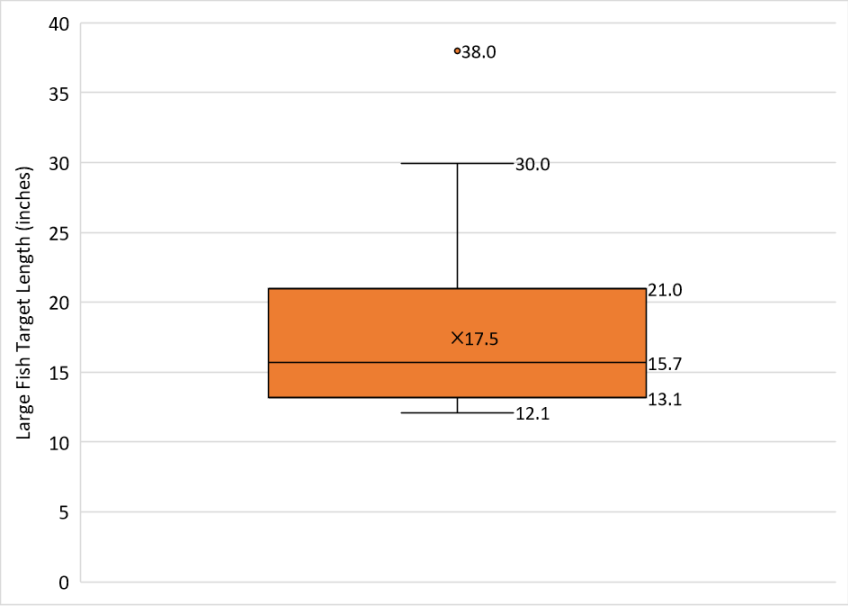

Figure 3. Box-and-whisker plot of all targets ≥12 inches detected during the July 1st, 2024, barrier scan. Mean length was 17.5 inches with a standard deviation of 5.9 inches. Outliers outside the 90% confidence interval are denoted by a point above the box-and-whisker plot.

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 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.

July 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.
- Dozer trawl effort was lower in Dresden Island Pool due to the need to complete MAM sampling.
- Forty Silver Carp (565 mm – 969 mm total length [TL]) and three Grass Carp (910 mm – 980 mm TL) were removed from the Marseilles Pool during July 2024.
- No small-bodied (< 153 mm TL) invasive carp were captured by EDM in July 2024.
- No large-bodied (≥ 153 mm TL) invasive carp were captured outside their known range by EDM in July 2024.

Table 1 summarizes USFWS invasive carp EDM for each pool monitored in July 2024.

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

-	Marseilles	Dresden Island	Kankakee	Brandon Road	Lockport
Electrofishing Effort (hours)	5.27	4.75	3.77	2.52	2.25
Electrofishing Sites	21	19	15	10	9
Dozer Trawl Effort (hours)	1.67	0.58	1.25	0	0
Dozer Trawl Sites	20	7	15	0	0
Mini-fyke Effort (net nights)	20.47	16.98*	14.71	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	43	0	0	0	0
Species Richness	52	46	43	18	0
Total Catch	17,054	3,838	1,572	150	178
Most Abundant Species	Gizzard Shad < 6 inches	Gizzard Shad < 6 inches	Gizzard Shad > 6 inches	Smallmouth Bass	Emerald Shiner

* Conservative estimate due to a recording error.

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.

July 2024 Highlights

Monitoring for invasive carp reproduction was conducted during each of the first four weeks of July 2024. 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 25°C throughout the month of July. Water levels in the Illinois River were low and declining at the beginning of July. However, substantial precipitation resulted in pronounced increases in discharge during the third week of July 2024, compelling additional sampling effort at that time. INHS collected ichthyoplankton samples at sites from the Brandon Road to Alton pools during the first two weeks of July, and from the Brandon Road to LaGrange pools thereafter. Additional sampling was conducted in major tributaries of the Illinois River (Kankakee, Fox, Vermilion, Mackinaw, Spoon, Sangamon rivers). No clear evidence of invasive carp reproduction was observed during the first two weeks of July. However, following the increase in discharge during the third week of July, large numbers of invasive carp eggs were observed at sites in the Peoria and LaGrange pools. A large spawning aggregation of Silver Carp was observed at Havana in the LaGrange Pool and large numbers of invasive carp eggs were also collected from the Spoon River at this time. Water levels declined the following week, and clear evidence of invasive carp spawning was not observed then. 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.

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.

July 2024 Highlights

Sport fishing enforcement did not detect any anglers possessing live prohibited invasive species, but one enforcement detail caught an angler with an overlimit of 49 Soft-shelled turtles. The turtles were released back into the lake after being photographed and videotaped for evidence and several citations were issued. ISU provided clarification of regulations to an individual who inquired about catching and selling invasive carps as cut bait to anglers. ISU assisted with the inspection of a fish truck transporting channel catfish from Kentucky to Indiana after an Illinois State Trooper stopped to assist the truck because it was stopped on the shoulder of the interstate. The truck driver possessed all the required permits, and no violations were detected. ISU inspected fish purchase records at a Northern Illinois fishing club to ensure all the fish being imported and stocked into their lakes were permissible 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.

July 2024 Highlights

The modeling work group solicited feedback from the MRWG co-chairs about a variety of interim analyses (please see June 2024 updates for details) to ensure that all parties agree on the direction of this work. The MRWG co-chairs were receptive to using a variety of modeling approaches to understand changes in the Silver Carp population in the ILR.

Progress with the initial SEICarP simulations expanding the model to include the effects of Pool 26 on the Illinois River Invasive Carp Population has continued. Further discussions with MRWG partners regarding scenarios (i.e., harvest and deterrent locations as well as the magnitude of movement between Pool 26 and Alton Pool) and preliminary results are scheduled for late August.

The modeling work group has also begun a literature review and planning for analyzing community data to determine appropriate sample sizes for confirming the absence of Silver Carp in the upper pools of the ILR.

Lastly, USGS provided the modeling work group with code to run a length-based Bayesian (LBB) method to estimate fishing mortality of invasive carps in the upper Illinois River using existing length data from the removals work group. Initial LBB runs will commence once data are received.

Lastly, the modeling work group incorporated feedback from other MRWG work groups (monitoring and removals) into the data collection protocol for fisheries-dependent demographic information (e.g., age, length, weight, sex) to support the statistical catch-at-age model. A final draft was sent to the agencies and offices involved with this project on 7/22/24. No additional feedback was received.