

Lower Green Bay and Fox River Area of Concern (AOC)

Fisheries Monitoring Annual Report

Reporting Period: 3/24/2025–12/31/2025

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Monitoring Summary

Duck Creek Northern Pike

Between March 26 and April 11, we used fyke nets to capture a total of 209 northern pike in 38 net-nights of effort in Duck Creek, resulting in a catch per unit effort (CPUE) of 5.5 northern pike/net-night (Table 1, Figure 1). Captured northern pike ranged in length from 10.9–38.3 inches (Figure 2). Although we did not have t-bar anchor (Floy) tags when we first started sampling, we still managed to tag 151 pike in Duck Creek and recapture 6 of these tagged pike. Further, we received angler reports of Duck Creek pike being caught within Duck Creek, in the lower Fox River, and in Green Bay. Additionally, we sampled a pike that was tagged in April of 2022 by UW-Green Bay in a wetland off Lineville Road near the Cat Island chain, which had grown from 28.4 to 35.3 inches.

During this survey, we set nets in a total of six locations (Table 1, Figure 1) but never fished more than four nets at a time. Nets were moved away from the delta and further up Duck Creek to reduce the chance of nets rolling due to waves, increase our ability to safely fish them, and explore other areas where pike might be spawning or staging. Net “DK1” had substantially higher catches of pike than all other nets (Table 1). This net was fished in a transitional area between a deeper hole under the U.S. 41 bridge and a shallow wetland believed to be used for spawning. Net “DK5” was placed just up from the mouth of Lancaster Creek and had high (>300/net-night) catches of yellow perch. For the survey, yellow perch were the dominant bycatch, while we also caught pumpkinseed, white sucker, golden shiners, brown bullhead, and other fishes (Table 2). Water temperature ranged from 33.0–46.6°F during this survey.

We removed pelvic fin rays from 203 northern pike for age and growth analysis. Analyses were not completed by the writing of this report but will be included in our 2026 annual report. In 2026, we plan to sample further into the Duck Creek Delta in Peats Lake and the area southwest of where the Cat Island chain extends from the mainland. Although these areas have vegetation and creeks/ditches flowing into Green Bay that may serve as pike spawning habitat, it may be difficult to sample these sites due to wind, waves, and shallow water.

Table 1. Coordinates, number of northern pike sampled, net-nights of effort, and catch per unit effort (CPUE) of northern pike per net-night in Duck Creek, March 26–April 11, 2025.

Net	Coordinates	# Pike	Net-nights	CPUE
DK1	44.56515, -88.05022	179	12	14.92
DK2	44.5645, -88.0462	3	6	0.50
DK3	44.56428, -88.04165	15	7	2.14
DK4	44.56456, -88.04047	5	6	0.83
DK5	44.56416, -88.0621	6	6	1
DK6	44.56127, -88.0622	1	1	1

Table 2. Count of species caught during Duck Creek northern pike fyke netting survey, March 26–April 11, 2025.

Species	Count
Black Bullhead	1
Black Crappie	19
Bluegill	18
Bowfin	5
Brown Bullhead	23
Coho Salmon	1
Common Shiner	7
Common Carp	2
Creek Chub	1
Golden Shiner	36
Largemouth Bass	3
Northern Pike	209
Pumpkinseed	645
Quillback	1
Rock Bass	7
Sea Lamprey	1
Walleye	3
White Crappie	1
White Perch	13
White Sucker	207
Yellow Bullhead	1
Yellow Perch	4115
Total	5319

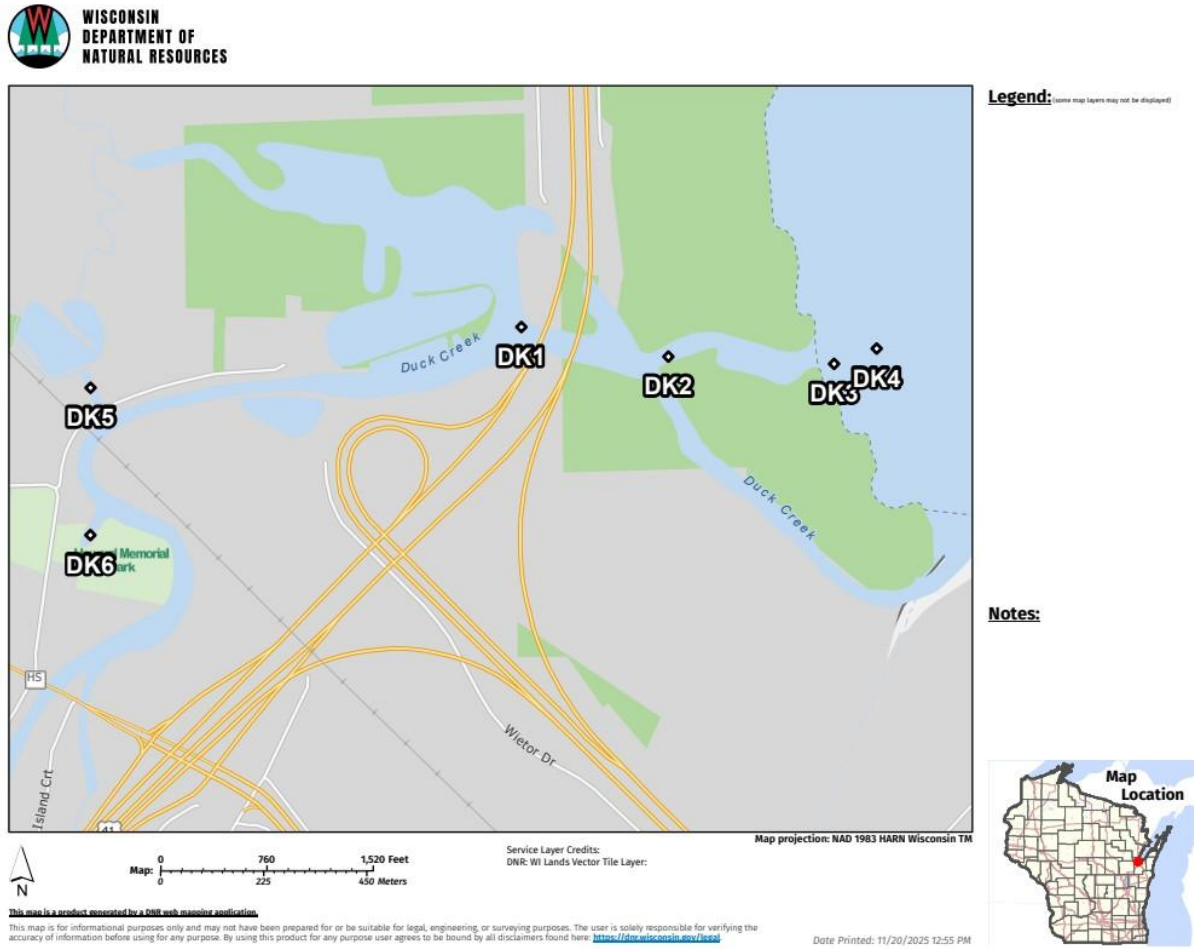


Figure 1. Location of fyke nets used to sample northern pike in Duck Creek, March 26–April 11, 2025.

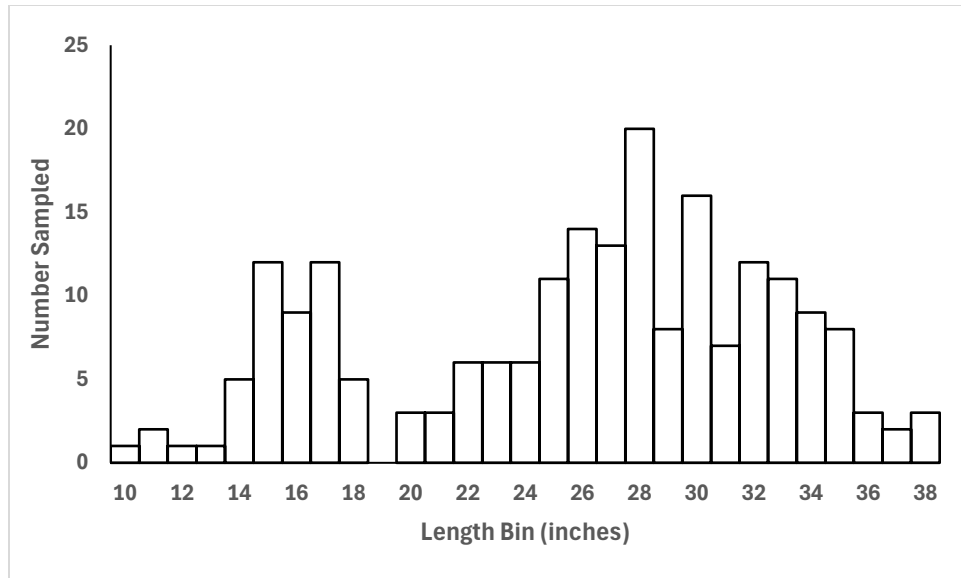


Figure 2. Length frequency distribution of northern pike sampled during Duck Creek fyke netting survey, March 26–April 11, 2025.

Heritage Hill Northern Pike

We set a fyke net adjacent to the the culvert at the Heritage Hill slough (44.47178, -88.04532) on April 2 and checked it on April 3 and April 4. We captured and tagged a 25.4-inch adult male northern pike, which was recaptured the next day. In addition to pike, we sampled pumpkinseeds, golden shiners, yellow perch, and white perch. Low water levels were a major issue with sampling this site, as it was apparent that our recaptured pike was likely moving back to the Fox River as water in the slough was receding. In 2026, we plan on sampling Heritage Hill for northern pike with fyke nets again, but on the Fox River side, rather than in the slough.

Fox River Yellow Perch

From April 9 to April 18, we completed adult yellow perch surveys on the Fox River within the Ashwaubenon Creek and Dutchman Creek designated habitat areas (DHAs) using a combination of 2-foot and 4-foot fyke nets (Table 3, Figure 3). Ashwaubenon and Dutchman Creek areas were surveyed for a total of eleven and thirteen net-nights of effort, with CPUEs of 6.6 yellow perch/net-night in the Ashwaubenon Creek DHA and 3.7/net-night in the Dutchman Creek DHA (Table 3). Yellow perch size structure was generally small, as most individuals captured were <7 inches (Figure 4). Aside from yellow perch, catches were dominated by white perch, walleye, northern pike, black crappie, and others (Table 4). Water temperature ranged from 41.0–48.2°F during this survey.

In 2026, we plan on expanding our spring yellow perch netting. In addition to our Ashwaubenon Creek and Dutchman Creek fyke nets, we plan to place nets in the De Pere Wetland DHA and at least one control net in the lower Fox River.

Table 3. Coordinates, number of yellow perch sampled, net-nights of effort, and catch per unit effort (CPUE) of yellow perch per net-night in the Fox River, April 9–April 18, 2025.

Net	Coordinates	# Perch	Net-nights	CPUE
AC1	44.4627, -88.0589	70	7	10
AC2	44.46656, -88.05704	8	4	2
DC1	44.47858, -88.0477	32	7	4.57
DC2	44.48077, -88.04688	17	6	2.83

Table 4. Count of species caught in Ashwaubenon Creek and Dutchman Creek designated habitat areas (DHAs) in Fox River during yellow perch fyke netting survey, April 9–April 18, 2025.

Species	Count
Bigmouth Buffalo	2
Black Crappie	48
Bluegill	44
Bowfin	13
Channel Catfish	15
Common Carp	32
Flathead Catfish	1
Freshwater Drum	5
Golden Shiner	5
Lake Whitefish	4
Largemouth Bass	5
Muskellunge	3
Northern Pike	51
Pumpkinseed	5
Rock Bass	2
Shorthead Redhorse	1
Walleye	251
White Bass	1
White Perch	1061
White Sucker	12
Yellow Perch	127
Total	1688

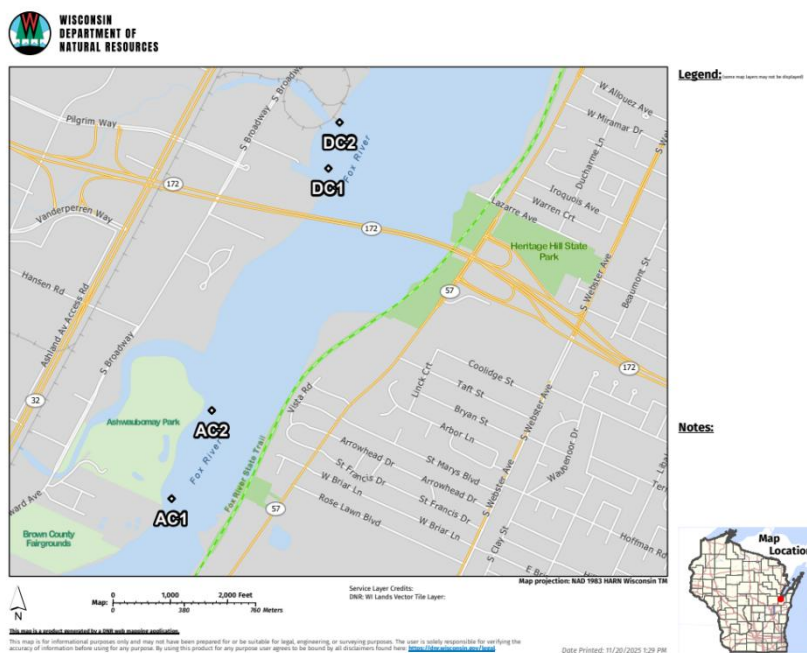


Figure 3. Location of fyke nets used to sample yellow perch in the Fox River at Ashwaubenon Creek (AC) and Dutchman Creek (DC) designated habitat areas (DHAs), April 9–April 18, 2025.

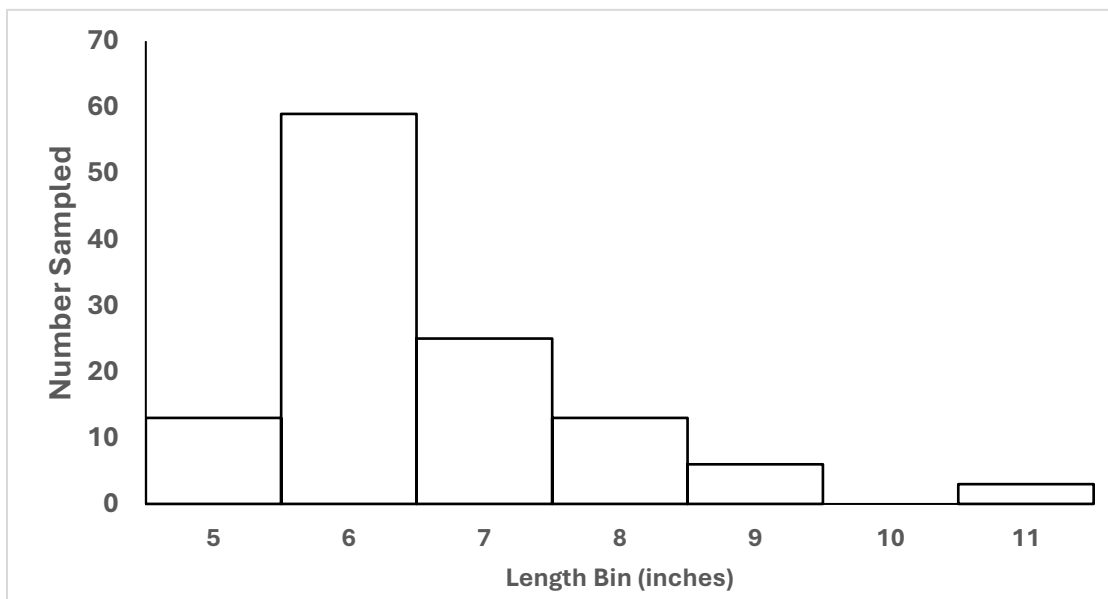


Figure 4. Length frequency distribution of yellow perch sampled during Fox River fyke netting survey, April 9–April 18, 2025.

Joliet Park Adult Walleye

On the nights of April 10 and April 26, we completed electrofishing surveys on the east shore of Green Bay, focusing on the Joliet Park area. In total, we surveyed about 2.95 miles of shoreline over about 1.8 hours of electrofishing, primarily targeting adult walleye. The Joliet Park shoreline had higher catch rates (104 walleye/hour) than a nearby artificial reef (48/hour) and control sites covering shorelines north (39/hour) and south (70/hour) of Joliet Park (Figure 6). In addition to walleye, we also sampled lake whitefish, white perch, and other fishes (Table 5).

Table 5. Count of species caught in Joliet Park adult walleye electrofishing surveys, April 10 and April 26, 2025.

Species	Count
Lake Whitefish	27
Largemouth Bass	1
Smallmouth Bass	3
Troutperch	1
Walleye	112
White Perch	8
White Sucker	1
Total	153

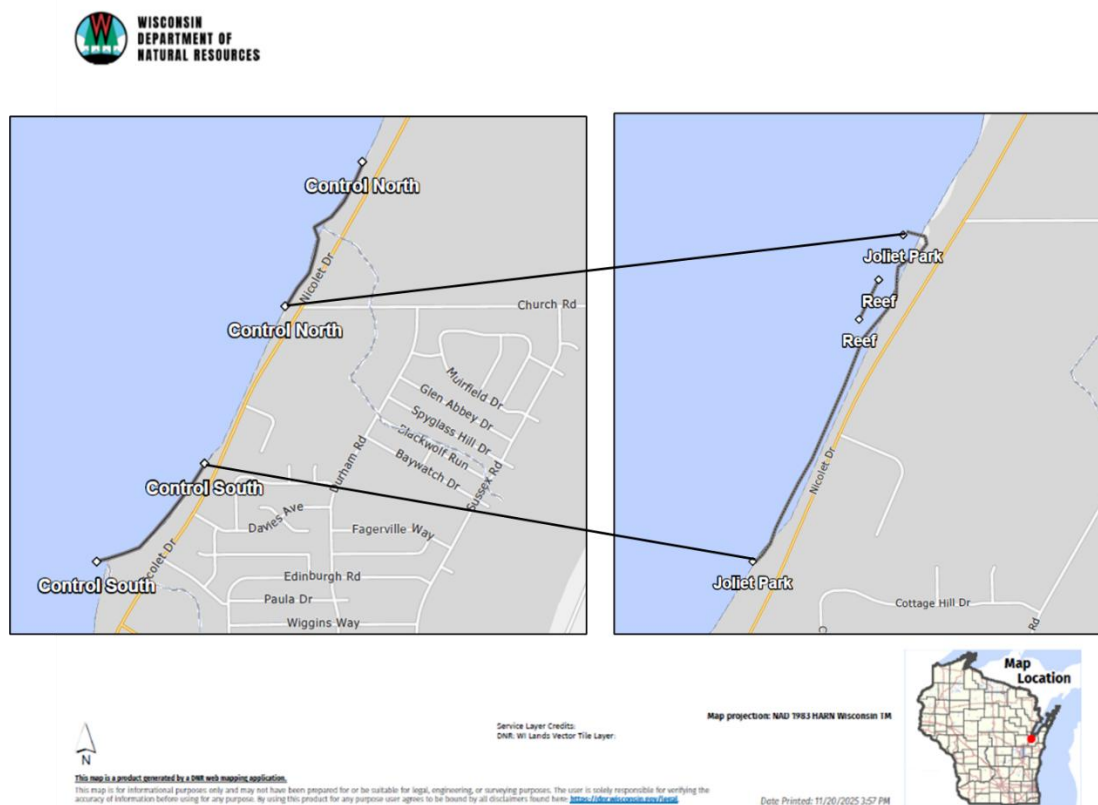


Figure 5. Location of electrofishing transects on the east shore of Green Bay, surveyed April 10 and April 26, 2025.

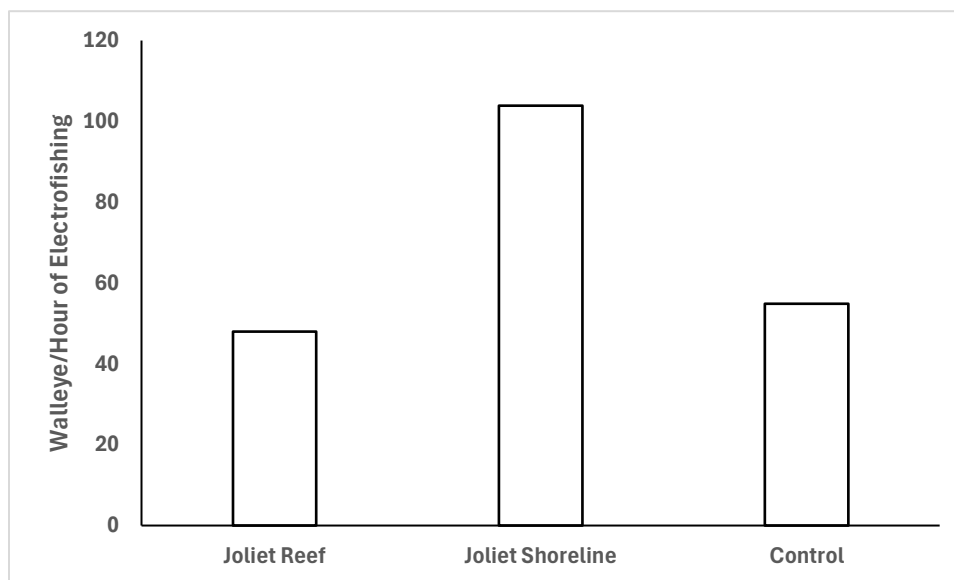


Figure 6. Number of walleyes per hour of electrofishing (CPUE) on Green Bay the nights of April 10 and April 26.

Duck Creek and Fox River Muskellunge

Between April 30 and May 7, in partnership with the Green Bay fish management team, we completed muskellunge fyke netting and tagging at Ashwaubenon and Dutchman Creeks, De Pere Wetland, Duck Creek, Heritage Hill, and several control sites on the Fox and East Rivers. Two nets were fished in Duck Creek, one in the East River, and eleven in the Fox River between control sites (N = 6) and DHA nets (N = 5; Table 6, Figure 7). Each net was set, fished for one night, and checked the following day. Captured muskellunge were measured, checked for a pelvic fin clip that would indicate the size it was stocked at, scanned for a PIT tag, and implanted a PIT tag if one was not found. The water temperature at the USGS lower Fox River gauge (USGS-040851385) ranged from 53.0 to 62.0 °F during this survey with a mean of 56.0 °F.

In total, we allocated 64 net-nights of effort and captured 196 muskellunge (3.1/net-night), although 8 were captured more than once this survey, thus there were 188 unique muskellunge between Duck Creek, East River, and Fox River (Table 6). We tagged 145 individuals (77.1%) and found 43 muskellunge (22.9%) that had been previously tagged (Table 6). Two of the eight muskellunge that were captured more than once this survey were previously tagged, and six were tagged this survey and recaptured. Fifty-four of the 188 (28.7%) muskellunge were females with a length range of 40.0 to 55.1 inches and an average of 49.8 inches. One hundred thirty-four (71.3%) of the muskellunge were males with a length range of 35.7 to 51.2 inches and an average of 43.3 inches.

Heritage Hill had the highest CPUE of muskellunge at 8.0/net-night, although only one net-night of effort was allocated to this site (Table 6). The second highest catch rate of muskellunge was from control site nets at 5.6/net-night, followed by De Pere Wetland at 2.7/net-night and East River at 1.8/net-night (Table 6). Muskellunge catch rates were less than or equal to one per net-night for Ashwaubenon Creek, Duck Creek, and Dutchman Creek sites. The highest muskellunge median length (48.0 inches) and percentage of females (40.0%, N = 2) was at Duck Creek (Table 6, Figure 8). Only male muskellunge were caught at Ashwaubenon Creek (N = 3) and East River (N = 9; Table 6). Of 129 unique muskellunge caught with control nets in the Fox River, 33.3% were females with a median length of 45.3 inches (Table 6, Figure 8). In addition to muskellunge, other species sampled included white sucker (N = 530), freshwater drum (N = 333), white perch (N = 236), and others (Table 7).

Our intent was to also sample the Cat Islands for muskellunge; however, we did not have multiple days in a row where wind conditions allowed us to safely access the site. Further, to leave the nets set for longer than one night while waiting for winds to calm, would have likely increased stress and potential mortality of captured muskies. We hope to sample the Cat Islands this upcoming field season if conditions allow. Muskellunge were caught at all other DHAs where improvements to muskellunge spawning habitat is a goal. Thanks to our collaboration with the Green Bay fisheries management team and volunteers, we effectively sampled the other target areas of the AOC and collected data from areas that have not been recently targeted.

Table 6. Muskellunge fyke netting information including site, number caught, catch per unit effort (CPUE), mean length, length range, percentage that were given PIT tags, and percentage female per net in Duck Creek, East River, and Fox River, April 30–May 7, 2025.

Net	Site	Net-nights	# Muskellunge	CPUE	Mean Length (in)	Length Range (in)	% Given Tags	% Female
A	De Pere Wetland	6	5	0.8	44.7	39.6-52.4	80.0%	20.0%
B	De Pere Wetland	6	27	4.5	43.5	37.2-54.1	61.5%	15.4%
C	Fox River Control	2	6	3.0	42.5	38.0-48.1	83.3%	0.0%
D	Fox River Control	6	37	6.2	45.7	35.7-55.1	69.7%	51.5%
E	Fox River Control	3	45	15.0	45.8	35.9-53.5	68.2%	36.4%
F	Dutchman Creek	4	3	0.8	45.9	42.2-51.3	66.7%	33.3%
G	Ashwaubenon Creek	4	4	1.0	41.0	37.4-46.5	100.0%	0.0%
H	Heritage Hill	1	8	8.0	45.2	37.4-52.5	100.0%	37.5%
I	Fox River Control	1	1	1.0	40.9	-	100.0%	0.0%
DK1	Duck Creek	7	0	0.0	-	-	-	-
DK2	Duck Creek	7	5	0.7	48.4	44.4-53.5	80.0%	40.0%
ER1	East River	5	9	1.8	44.6	39.4-48.7	88.9%	0.0%
FR1	Fox River Control	6	28	4.7	44.2	37.6-52.6	96.3%	11.1%
FR2	Fox River Control	6	18	3.0	47.5	43.3-53.5	83.3%	38.9%

Table 7. Count of species caught in the Lower Green Bay and Fox River Area of Concern (AOC) during muskellunge fyke netting, April 30–May 7, 2025.

Species	Count
Bigmouth Buffalo	5
Black Bullhead	1
Black Crappie	75
Bluegill	47
Bowfin	91
Brown Bullhead	43
Channel Catfish	79
Common Carp	129
Flathead Catfish	8
Freshwater Drum	333
Gizzard Shad	3
Golden Shiner	1
Lake Sturgeon	1
Lake Whitefish	9
Largemouth Bass	15
Longnose Gar	87
Muskellunge	196
Northern Pike	53
Pumpkinseed	29
Quillback	17
Rock Bass	17
Shorthead Redhorse	5
Shortnose Gar	12
Silver Redhorse	1
Smallmouth Bass	15
Smallmouth Buffalo	1
Walleye	75
White Bass	48
White Bass X Yellow Bass	1
White Perch	236
White Sucker	530
Yellow Perch	50
Total	2213

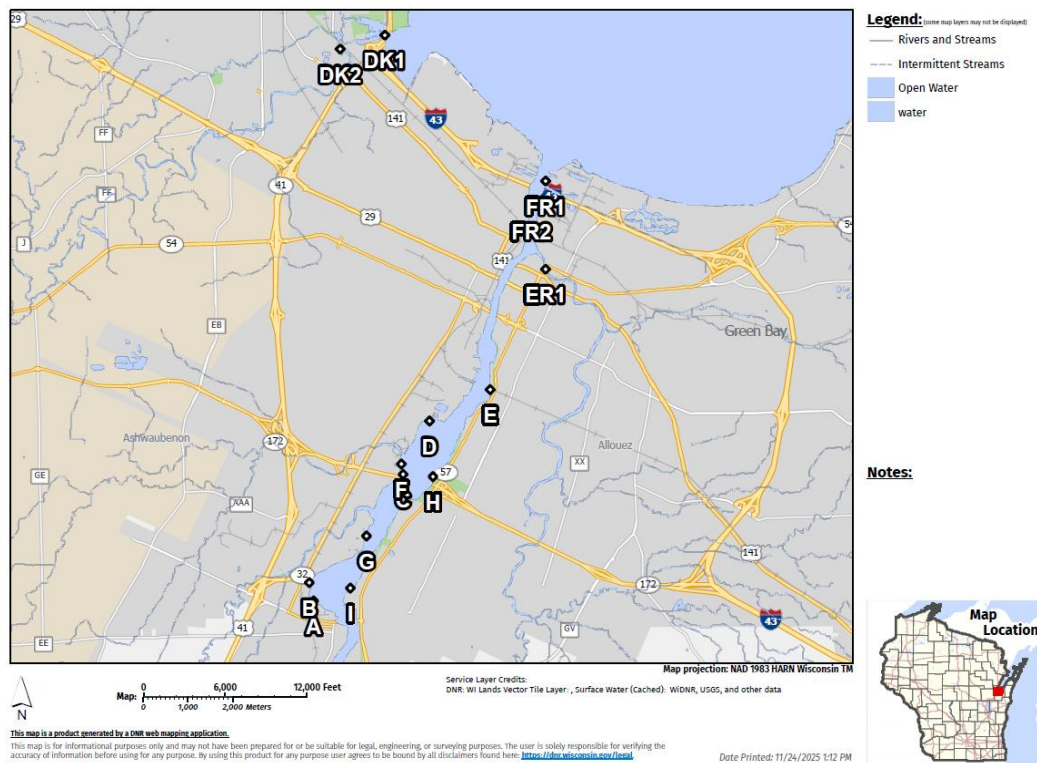


Figure 7. Location of fyke nets used to sample muskellunge in Duck Creek, East River, and Fox River, April 30–March 7, 2025.

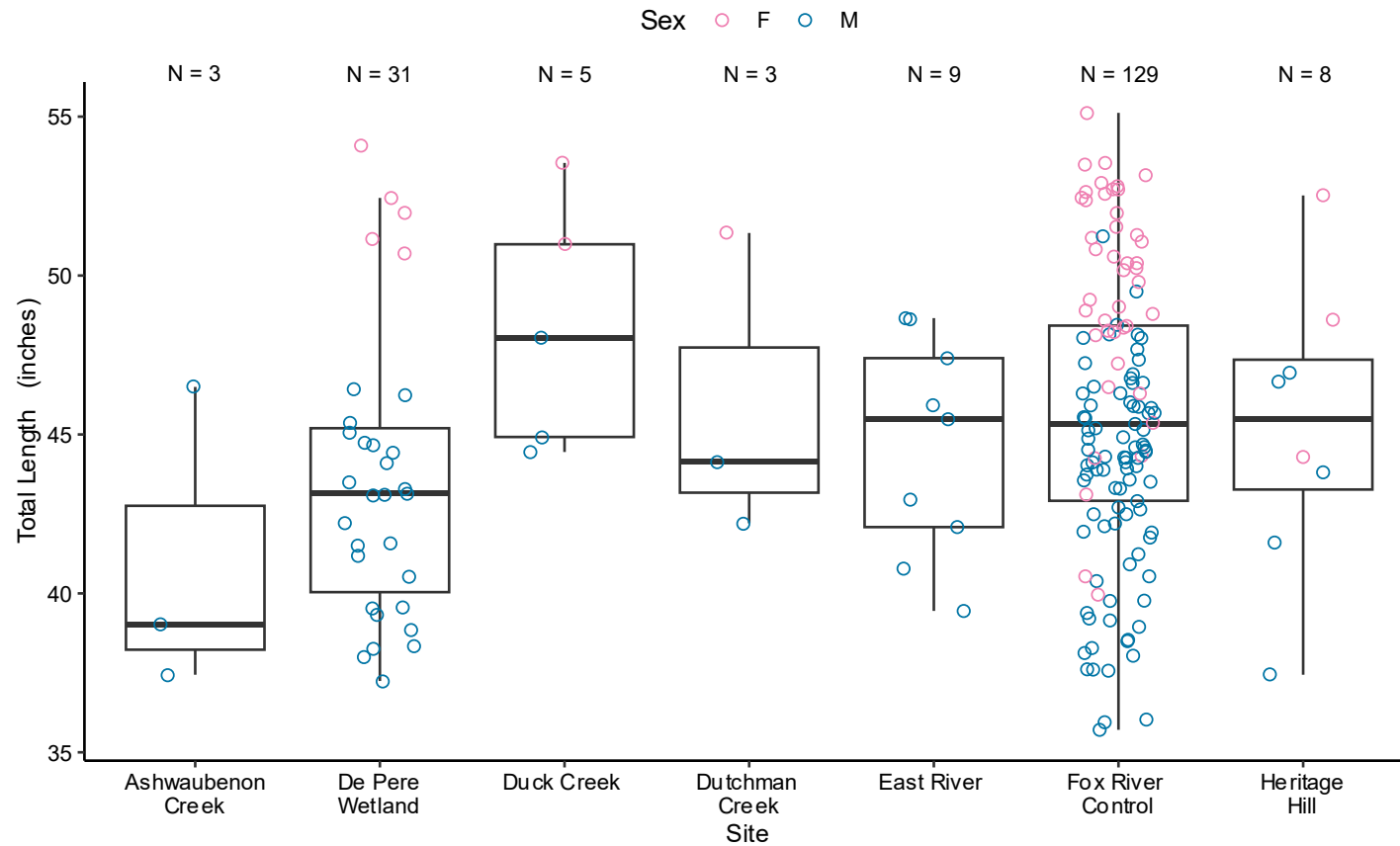


Figure 8. Length (inches) boxplots of muskellunge sampled between April 30 and May 7, 2025, with fyke nets in the Lower Green Bay and Fox River Area of Concern (AOC). Samples are grouped by site, including non-designated habitat area sites (i.e., East River and Fox River Control), and circles show individuals colored by sex. Lines inside boxes represent median length.

Duck Creek, Fox River, and Green Bay Adult Centrarchids

Between May 13 and June 4, we completed electrofishing surveys for adult centrarchids at Ashwaubenon and Dutchman Creeks, Cat Islands, De Pere Wetland, Duck Creek, Heritage Hill, Joliet Park, Renard Island, and multiple control sites. In total, we surveyed about 8.8 miles of shoreline over about 4.9 hours of electrofishing. We also used fyke nets to sample the “harbor” area south of Renard Island due to accessibility concerns regarding getting an electrofishing boat between the southeast tip of the island and the tombolo extruding from shore.

Centrarchid catch rates were generally low, as we caught more walleye and/or yellow perch at many sites compared to centrarchids (Table 8). Bluegill, smallmouth bass, and largemouth bass were our most captured centrarchids, followed by rock bass, pumpkinseed, and black crappie. We sampled a total of three black crappie, capturing individuals in Duck Creek and Renard Island. We observed the highest bluegill catch rates at Duck Creek (5.5/hour), Renard Fykes, and at Dutchman Creek. Duck Creek also had the highest catch rates of largemouth bass (60/hour), followed by Dutchman Creek and our Duck Creek control site. Pumpkinseeds were mostly found at Duck Creek, with a few also sampled at De Pere Wetland. Rock Bass were predominantly sampled at Duck Creek, both in the creek (5.0/hour) and delta (8.0/hour). Lastly, smallmouth bass catch was highest at the Cat Islands (13.0/hour), our Fox River Control site (10.9/hour), Renard Island (7.7/hour), and De Pere Wetland (6.2/hour). Regarding bycatch, yellow perch, freshwater drum, channel catfish, and walleye were our most captured fishes (Table 9).

Although overall centrarchid numbers were low during this targeted electrofishing survey, it is worth noting that we caught substantial numbers of black crappie in Duck Creek musky nets (3.1/net-night), De Pere Wetland musky nets (1.8/net-night), and Dutchman Creek yellow perch nets (3.6/net-night). We removed dorsal spines from 52 smallmouth bass for age and growth analysis. Age and growth analyses were not completed by the writing of this report but will be included in our 2026 annual report. In future years, we plan to sample Renard Harbor with both an electrofishing boat (when accessible) and fyke nets, for comparability.

Table 8. Catch per unit effort (CPUE) of centrarchids, walleye, and yellow perch per hour of night electrofishing in Duck Creek, Fox River, and Green Bay May 13–June 4, 2025. Renard Fykes CPUE given in fish/net-night.

Site	Black Crappie	Bluegill	Largemouth Bass	Pumpkinseed	Rock Bass	Smallmouth Bass	Walleye	Yellow Perch
Ashwaubenon Creek	-	-	3.8	-	-	-	67.5	86.3
Cat Islands	-	1.6	-	-	1.6	13.0	4.9	11.4
Cat Islands Control	-	-	-	-	-	2.6	15.7	-
De Pere Wetland	-	4.1	-	2.1	-	6.2	24.8	33.1
Duck Control	5.5	-	5.5	-	-	-	-	120.0
Duck Creek	-	25.0	60.0	15.0	5.0	-	-	230.0
Duck Delta	-	-	4.0	-	8.0	-	-	168.0
Dutchman Creek	-	10.0	6.7	-	-	-	30.0	50.0
Fox River Control	-	2.7	5.5	-	-	10.9	60.0	57.3
Heritage Hill	-	2.2	2.2	-	2.2	-	17.8	60.0
Joliet Control	-	-	-	-	-	-	13.8	-
Joliet Reef	-	-	-	-	-	-	12.0	-
Joliet Shore	-	-	-	-	-	-	25.7	-
Renard EF	-	-	4.6	-	-	7.7	1.5	6.2
Renard Fykes	0.2	7.2	-	-	0.4	0.6	-	1.0

Table 9. Count of species caught in the Lower Green Bay and Fox River Area of Concern (AOC) during spring centrarchid electrofishing, May 13–June 4, 2025.

Species	Count
Black Bullhead	1
Bowfin	7
Brown Bullhead	10
Channel Catfish	92
Common Carp	58
Emerald Shiner	24
Flathead Catfish	13
Freshwater Drum	95
Gizzard Shad	24
Golden Redhorse	2
Golden Shiner	15
Longnose Gar	17
Muskellunge	9
Quillback	40
Shorthead Redhorse	1
Shortnose Gar	6
Spottail Shiner	47
Troutperch	7
Walleye	92
White Bass	1
White Perch	65
White Sucker	2
Yellow Bullhead	1
Yellow Perch	228
Total	857

Dead Horse Bay Reefs Smallmouth Bass and Walleye

Dead Horse Bay/Longtail Point monitoring was not anticipated to begin until 2026 after a monitoring plan was determined, however, interest in fish communities of the bay prompted earlier exploratory sampling in 2025. Two sets of paired 5-foot fyke nets were fished in Dead Horse Bay to target smallmouth bass and walleye. One net pair was placed at the area of formerly proposed reef additions (44.58454, -87.99038), and another was placed in a control area (44.59642, -88.00103). Nets were fished for one net-night (June 4) and four net-nights (June 17–20) per area, for a total of 10 net-nights between the two areas. No smallmouth bass or walleye were captured between the control site and potential reef site. Catches were dominated by yellow perch, white perch, and channel catfish (Table 10). The proposed reef locations are no longer in Dead Horse Bay due to sedimentation concerns.

Table 10. Count of species caught in Dead Horse Bay using paired 5-foot fyke nets to sample proposed smallmouth bass and walleye reef sites between June 4 and June 20, 2025.

Species	Count
Alewife	1
Brown Bullhead	3
Channel Catfish	9
Freshwater Drum	3
Muskellunge	3
Quillback	1
White Bass	1
White Perch	18
Yellow Perch	41
Total	80

Fox River and Lower Green Bay Catfish

Between June 17 and July 25, 2025, 95 net-nights of effort were allocated to hoop netting for channel and flathead catfishes in the Fox River among 12 locations (Table 11, Figure 9). Hoop nets were placed at DHAs and associated creeks, and control sites in the AOC (Table 11, Figure 9). A portion of the control sites were selected to target habitats similar to those of the DHA sites, and others were placed in areas with habitat that varied in presumed favorability for catfish. A combination of unseeded nets and nets seeded with a live flathead catfish as an attractant to target flathead catfish were fished (Table 11). Channel catfish were measured and released, whereas flathead catfish were measured, checked for Floy and PIT tags, and tagged with both or with the missing type of tag. The water temperature at the USGS lower Fox River gauge (USGS-040851385) ranged from 67.1 to 85.5 °F during this survey (mean = 77.4 °F).

Channel catfish were not marked during the survey and in total 214 were caught, resulting in a catch rate of 2.3 per net-night. One hundred thirty-four flathead catfish (1.4/net-night) were caught and 131 were tagged, as one was found dead upon lifting a net and not tagged and two flathead catfish that were tagged during the survey were recaptured once each. Channel catfish catch was highly variable, with catches of 40+ and 70+ in individual nets, along with many zeroes. Overall, Ashwaubenon Creek (AC1 and AC2 nets) had the highest catch of channel catfish with 133 channel catfish (62.1% of total caught in survey) and an average catch rate of 5.8/net-night (Table 11). Average flathead catfish catch rate was highest at control sites (2.0/net-night) with the highest being at CTL6 (6.3/net-night) and CTL3 (2.9/net-night; Table 11). Ashwaubenon Creek at AC1 and AC2 nets had an average flathead catfish catch rate of 1.6/net-night and Dutchman Creek DC1 and DC2 was 0.4/net-night (Table 11). The mean length for flathead catfish was 28.4 inches (range = 17.7–42.8 inches; Figure 10) and 25.1 inches (range = 11.1–32.0 inches; Figure 11) for channel catfish.

Seeded hoop nets had higher average catch rates of flathead catfish than unseeded at 1.8/net-night and 1.1/net-night, respectively. Conversely, average channel catfish catch rate was higher in unseeded nets than seeded nets at 2.9/net-night and 1.4/net-night. Despite seeding nets at Ashwaubenon Creek, the average catch rate of channel catfish was still relatively high (5.1/net-night; Table 12). Other species sampled during hoop netting included freshwater drum (N = 31), common carp (N = 18), bluegill (N = 13), and others (Table 13).

In addition to hoop netting, incidental catches of catfish during fyke netting and electrofishing provided additional insights and tagging opportunities. Two 2-foot fyke nets were set at Renard Island for three nights (6 net-nights) June 3–5, 2025, to target adult centrarchids as electrofishing was not attempted due to concerns of accessibility with the boom shocker. High catch rates of channel catfish (15.0/net-night) were caught in addition to a smaller number of flathead catfish (2.2/net-night). Two 4-foot fyke nets were set in the same locations at Renard Island June 24, 2024, to investigate whether there were still high numbers of catfish present and as a backup to catch flathead catfish for net seeding. Channel catfish and flathead catfish catch rates were lower this time at 3.5 and 0.5 per net-night. Mean length of channel and flathead catfishes at Renard Island were 27.9 and 32.1 inches (Figure 12). Further, we assisted the U.S. Army Corps of Engineers during Fox River electrofishing surveys, allowing us to tag smaller flathead catfish than we generally see in hoop nets (range = 11.5–35.9 inches; Figure 12). In total, 157 flathead catfish were PIT tagged in the AOC in 2025.

This catfish survey was the first investigation of catfish populations in the lower Fox River in recent years and the first tagging effort of flathead catfish. Catfish hoop netting was successful overall and seeding nets with flathead catfish seemed to be effective in increasing catch rates of flathead catfish. We plan to repeat this survey next year and continue tagging flathead catfish with PIT and Floy tags. Additionally, we plan to mark channel catfish with fin clips to get a better understanding of recapture rates and attempt a population estimate on both catfishes. Flathead recaptures were too few this year to accurately estimate population size. We also plan to collect pectoral fin spines from channel and flathead catfishes next field season to estimate ages of AOC catfishes, compare to statewide data, and gain insight into growth and mortality rates.

The AOC seems to harbor sizeable populations of channel and flathead catfishes with a large size structure that is likely attractive to anglers. Based on catch rates of channel and flathead catfish at Ashwaubenon Creek DHA (i.e., net AC1) and Renard Island “harbor”, there is likely suitable spawning habitat near these areas (e.g., riprap and boulders). Increasing favorable spawning habitat in these areas and at DHAs that had lower catch rates of catfish and less favorable spawning habitat could increase the use of these areas and recruitment.

Table 11. Number of net-nights hoop nets were fished at Ashwaubenon Creek and Dutchman Creek designated habitat areas (DHAs) and control sites, and all channel and flathead catfish caught, June 17–July 25, 2025. Efforts were split into Fox River and creek proper areas. Seeded nets were baited with a live flathead catfish as an attractant.

Net	Coordinates	DHA/Site	Area	Net-nights		# Caught	
				Unseeded	Seeded	Channel	Flathead
AC1	44.46294, -88.05872	Ashwaubenon Creek	Fox R.	6	5	127	32
AC2	44.46601, -88.05647	Ashwaubenon Creek	Fox R.	8	4	6	5
AC3	44.47052, -88.05946	Ashwaubenon Creek	Creek	3	1	1	4
CTL1	44.45272, -88.07364	Control	Fox R.	5	3	-	1
CTL2	44.49051, -88.02632	Control	Fox R.	8	4	2	21
CTL3	44.45961, -88.06401	Control	Fox R.	4	4	-	23
CTL4	44.47605, -88.04126	Control	Fox R.	1	3	14	8
CTL5	44.49953, -88.02191	Control	Fox R.	1	3	10	2
CTL6	44.48596, -88.03788	Control	Fox R.	1	3	10	25
DC1	44.47928, -88.04709	Dutchman Creek	Fox R.	7	5	23	4
DC2	44.48179, -88.04547	Dutchman Creek	Fox R.	8	4	18	6
DC3	44.4818, -88.04861	Dutchman Creek	Creek	2	2	3	3

Table 12. Catch per net-night of channel and flathead catfishes at Ashwaubenon Creek and Dutchman Creek designated habitat areas (DHAs) and control sites during hoop netting, June 17–July 25, 2025. Catch rates are shown separately for nets in Fox River areas and in the creek proper of the DHAs and for nets seeded with a live flathead catfish as an attractant versus unseeded nets.

	Species	Ashwaubenon Creek DHA		Dutchman Creek DHA		Controls
		Fox R.	Creek	Fox R.	Creek	
Unseeded	Channel	6.2	0.3	2.7	0.5	1.5
	Flathead	1.5	1.3	0.3	-	1.7
Seeded	Channel	5.1	-	0.1	1.0	0.4
	Flathead	1.8	-	0.7	1.5	2.4

Table 13. Count of species caught in the Fox River during catfish hoop netting, June 17–July 25, 2025.

Species	Count
Bigmouth Buffalo	1
Black Crappie	8
Bluegill	13
Bowfin	1
Channel Catfish	214
Common Carp	18
Flathead Catfish	134
Freshwater Drum	31
Gizzard Shad	1
Largemouth Bass	1
Longnose Gar	9
Muskellunge	2
Northern Pike	8
Quillback	4
Rock Bass	5
Shorthead Redhorse	4
Shortnose Gar	4
Silver Redhorse	1
Smallmouth Bass	2
Walleye	2
White Perch	1
White Sucker	2
Total	466



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Figure 9. Locations of hoop nets used to sample catfish in the Fox River, June 17–July 25, 2025.

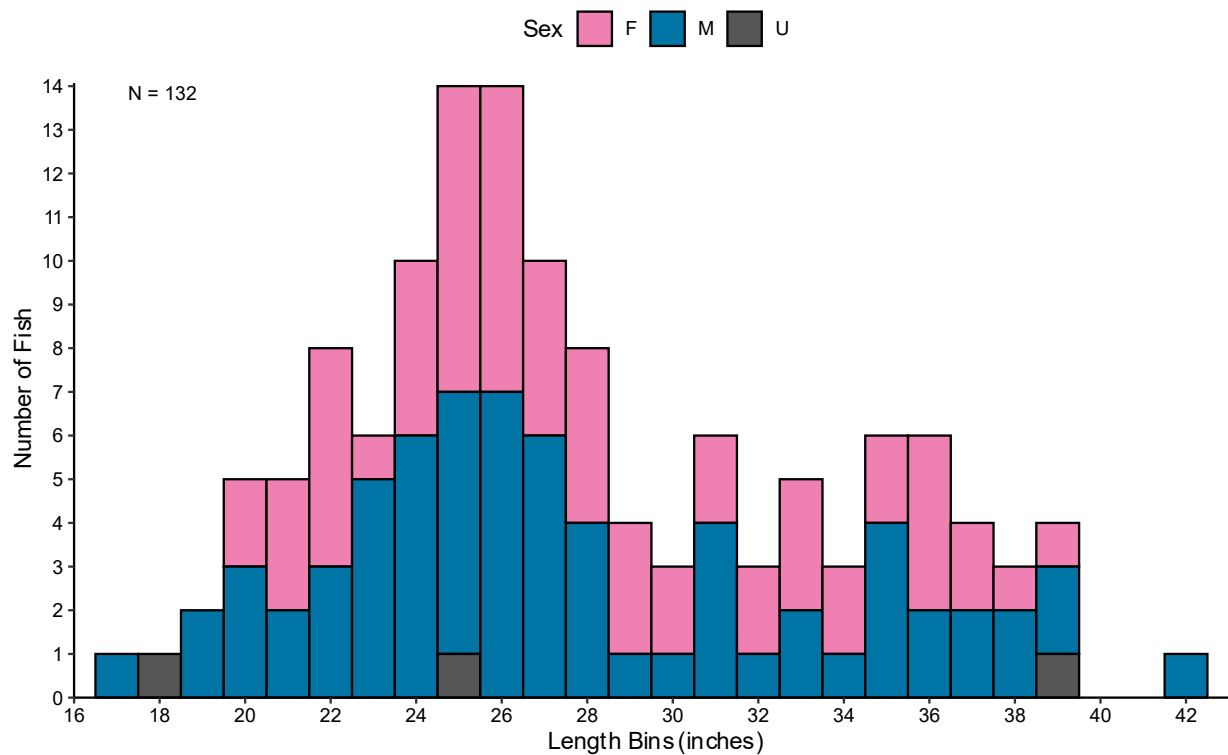


Figure 10. Length frequency distribution of flathead catfish sampled during Fox River hoop netting survey, June 17–July 25, 2025. Bars are colored by sex.

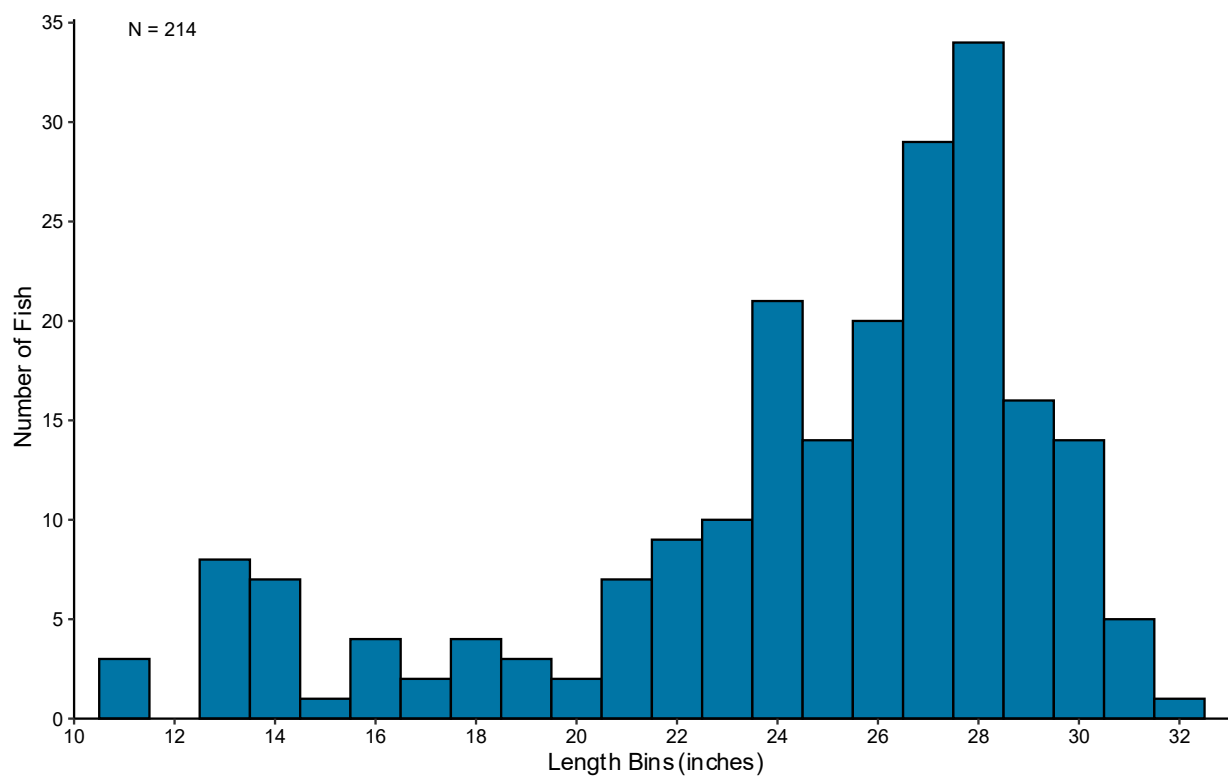


Figure 11. Length frequency distribution of channel catfish sampled during Fox River hoop netting survey, June 17–July 25, 2025.

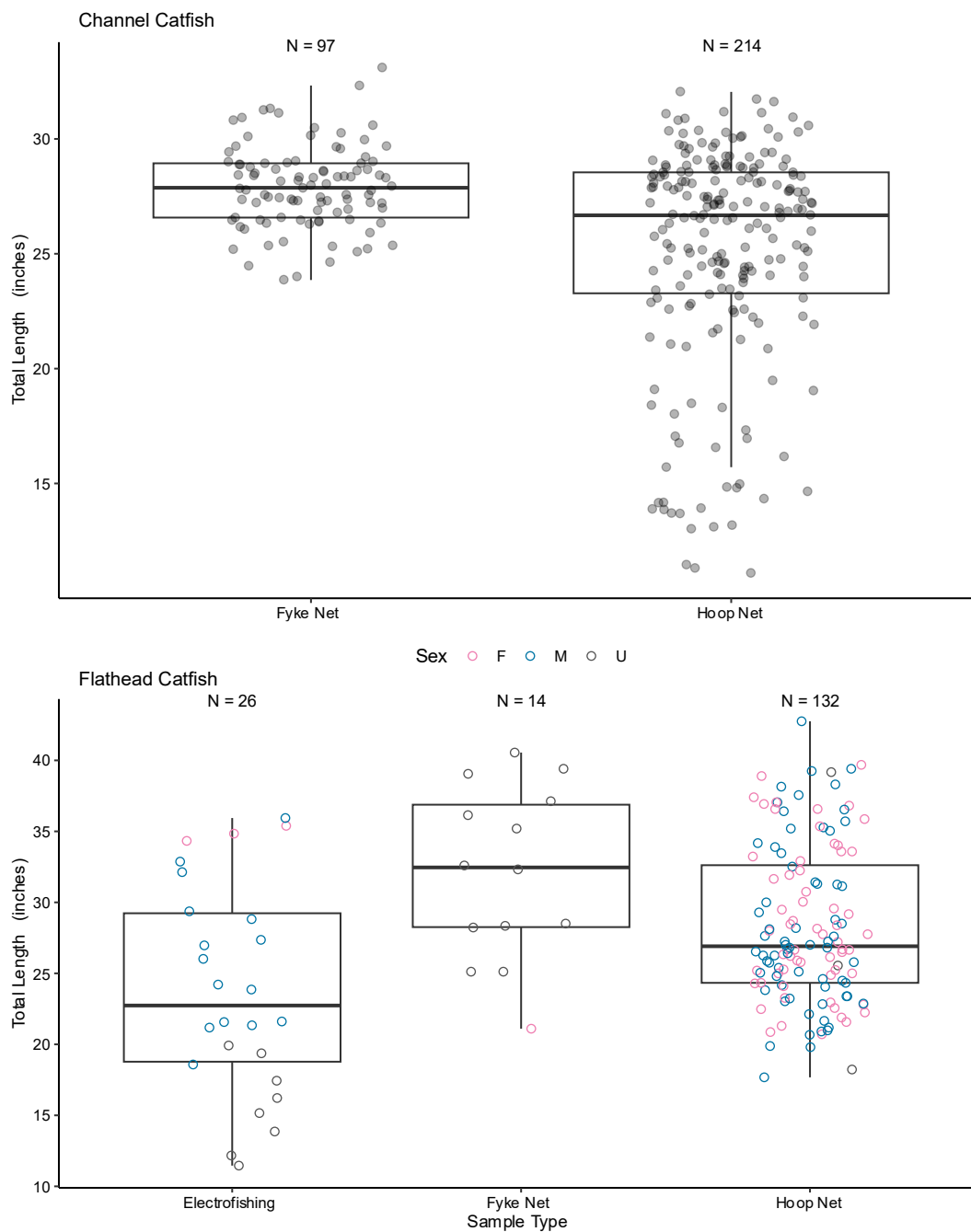


Figure 12. Length (inches) box plots of channel catfish (top) and flathead catfish (bottom) caught during Fox River catfish hoop netting (95 net-nights; June 17–July 25, 2025), fyke netting at Renard Island (6 net-nights, June 3–5, 2025; 2 net-nights, June 24, 2025) and boat electrofishing with U.S. Army Corps of Engineers in the Area of Concern (July 9–10, 2025). The line inside boxes represents median length and flathead catfish points are colored by sex.

Duck Creek, Fox River, and Green Bay Young-of-Year Centrarchids

Sampling of juvenile centrarchids with mini fyke nets occurred August 4–15, 2025 at Joliet Park, Renard Island, Cat Island, Duck Creek, Duck Creek Delta, Ashwaubenon Creek, Dutchman Creek, De Pere Wetland, and Heritage Hill DHAs (Figure 13). Two mini fyke nets with turtle exclusions were fished for four nights at each DHA, resulting in a total of 72 net-nights of effort (Figure 13). Fish were identified to species, although a proportion of small *Lepomis* (likely bluegills or pumpkinseeds) that could not be identified with high confidence were classified as sunfishes. Fifty random individuals of each species caught per net check were measured and the rest were counted. When catches were large, individuals were measured and counted in the first net scoop, and the total catch was estimated from the number of additional net scoops. Water temperature recorded with our chart plotter ranged from 73.4 to 82.0 °F during the survey.

Bluegills were predominant at all sites (189.7/net-night), followed by pumpkinseeds (30.0/net-night) and yellow perch (20.4/net-night). Bluegill catch rates were highest at Duck Creek (797.3/net-night), De Pere Wetland (300.5/net-night), and Duck Creek Delta (185.0/net-night; Table 14). Renard Island had the lowest bluegill catch rate at 13.8/net-night but the highest catch rate of black crappies among DHAs at 5.5/net-night (Table 14). Pumpkinseed catch rates were relatively high at Duck Creek (266.0/net-night), but low at other DHAs with a range of 0 to 3.3/net-night (Table 14). Largemouth bass and smallmouth bass mean catch rates were relatively low at 0.5 and 0.2/net-night and no juvenile bass were caught at Joliet Park or Renard Island (Table 14). The highest largemouth bass and smallmouth bass catch rates were at Duck Creek (1.5/net-night) and De Pere Wetland (0.8/net-night), respectively (Table 14).

Mean length of bluegill caught at all sites was 1.2 inches (N measured = 2901, range = 0.6–2.2 inches), pumpkinseed was 2.0 inches (N measured = 355, range = 1.4–3.2 inches), black crappie was 2.1 inches (N measured = 107, range = 1.6–4.3 inches), largemouth bass was 3.0 inches (N measured = 24, range = 2.0–4.3 inches), and smallmouth bass was 2.9 inches (N measured = 14, range = 2.0–3.8 inches). Bluegill mean length was noticeably higher in Duck Creek at 1.6 inches compared to the other DHAs with a range of 1.0 to 1.2 inches (Figure 14).

Nongame fishes were not enumerated for all samples or species, however, banded killifish, a species of information needs, seemed to be in highest abundance at Duck Creek and Duck Creek Delta but were also caught at the Cat Islands, various locations in the Fox River, and at Joliet Park. Duck Creek and Duck Creek Delta have relatively protected wetland habitats that are preferred by banded killifish. However, the areas banded killifish were found at the Joliet Park shoreline are relatively unprotected and comprised of gravel and cobble with little wetland habitat. Although nongame fishes were not consistently enumerated, other nongame species sampled included logperch, white perch, round goby, golden shiner, troutperch, and others (Table 15).

Despite the limited catch of bluegills during adult centrarchid sampling, juvenile bluegills were surprisingly abundant at all DHAs. It is possible we are simply more effective at sampling young-of-year bluegills with mini fyke nets than we are sampling adult bluegills with electrofishing in this system. Although our survey provides insight from just one year, it is also possible that there are suitable spawning habitats in or near DHAs, but rearing areas for juveniles may be insufficient to allow bluegills to survive to adulthood. While young-of-year fish generally outnumber adults as mortality rates are high at early life stages, finding zero adult bluegill at the Duck Creek Delta during electrofishing and 185 juveniles per net-night of mini fyke netting is

intriguing. Conversely, the highest catch rate for both adult and juvenile bluegill occurred in Duck Creek. Bluegill size in Duck Creek may have been higher than other DHAs due to earlier spawning time or faster growth rates.

In future years, we plan to repeat our sampling efforts at the sites that were fished with mini fyke nets this year. Additionally, next year we will add control sites, for example, in the Fox River, near the Ken Evers woody breakwater, and near Renard Island. We also plan to reduce the number of fish measured per net and species from 50 to 25 to allow more time to sample other sites.

Our interest in banded killifish has increased after this survey and further research, thus we plan to record their abundances next field season. Two subspecies of banded killifish are known to Lake Michigan: the native western banded killifish *Fundulus diaphanus menona* and the nonnative eastern banded killifish *Fundulus diaphanus diaphanus*. The nonnative eastern banded killifish has spread throughout Lake Michigan from its proposed introduction site near Chicago, IL and admixed individuals (hybrids) have been found in Green Bay through genetic testing, suggesting that the invasive subspecies is in the area. Banded killifish could serve as an index of wetland habitats for pre- and post- habitat improvements; however, eastern banded killifish have been found utilizing a broader range of habitats including offshore areas and along hardened shorelines. Thus, to use banded killifish as an index species for wetland habitat, we seek to establish what subspecies is present in the DHAs now and in the future. Despite eastern banded killifish diet and trophic position being more variable than western banded killifish, there is considerable overlap in diets and trophic position, giving potential for competition between the subspecies. There is also currently little evidence that habitat suitability for western killifish provides resistance to invasion by, or admixture with invasive eastern killifish. Further investigating Green Bay banded killifish could be useful in determining if habitat improvements benefit resilience of the native subspecies, tracking the invasion of the nonnative subspecies, developing a better understanding about a Wisconsin listed species of information needs, and inform us if western banded killifish are under threat of extirpation in Green Bay. We are developing a plan to sample a subset of banded killifish from the AOC in 2026 for genetic testing with the AOC Fisheries Technical Team and partners.

Table 14. Catch per net-night of centrarchids and yellow perch caught at designated habitat areas (DHAs) in mini fyke nets, August 4–15, 2025 in the Lower Green Bay and Fox River Area of Concern (AOC). Bluegill and pumpkinseed that could not be identified to species were recorded as sunfishes.

DHA	Black Crappie	Bluegill	Green Sunfish	Pumpkinseed	Rock Bass	Sunfishes	Largemouth Bass	Smallmouth Bass	Yellow Perch
Ashwaubenon Creek	0.1	103.1	0.4	0.1	0.3	4.1	0.6	0.3	2.4
Cat Island	2.1	128.1	-	0.3	1.1	5.3	0.1	0.1	5.5
De Pere Wetland	1.9	300.5	0.8	-	0.3	0.8	0.5	0.8	4.1
Duck Creek	-	797.3	6.3	266.0	-	20.4	1.5	-	150.5
Duck Creek Delta	3.0	185.0	0.4	3.3	-	6.0	0.3	0.1	8.9
Dutchman Creek	0.3	56.0	0.5	0.3	-	3.8	0.8	0.4	4.1
Heritage Hill	0.5	47.4	0.6	0.3	0.1	2.3	0.5	0.1	2.1
Joliet Park	-	76.0	0.1	-	-	6.0	-	-	1.0
Renard Island	5.5	13.8	0.1	-	-	1.1	-	-	5.0

Table 15. Count of species caught in the Lower Green Bay and Fox River Area of Concern (AOC) during mini fyke netting, August 4–15, 2025.

Species	Count
Banded Killifish	118
Bigmouth Buffalo	1
Black Crappie	107
Bluegill	13667
Bluntnose Minnow	3
Brown Bullhead	1
Catfishes	36
Channel Catfish	2
Common Carp	1
Emerald Shiner	2
Fathead Minnow	2
Gizzard Shad	2
Golden Shiner	11
Green Sunfish	73
Johnny Darter	4
Largemouth Bass	34
Logperch	30
Northern Pike	1
Pumpkinseed	2161
Quillback	6
Redhorses	1
Rock Bass	14
Round Goby	17
Smallmouth Bass	14
Spotfin Shiner	3
Sunfishes	397
Troutperch	10
Walleye	6
White Bass	3
White Perch	29
White Sucker	5
Yellow Perch	1471
Total	18232

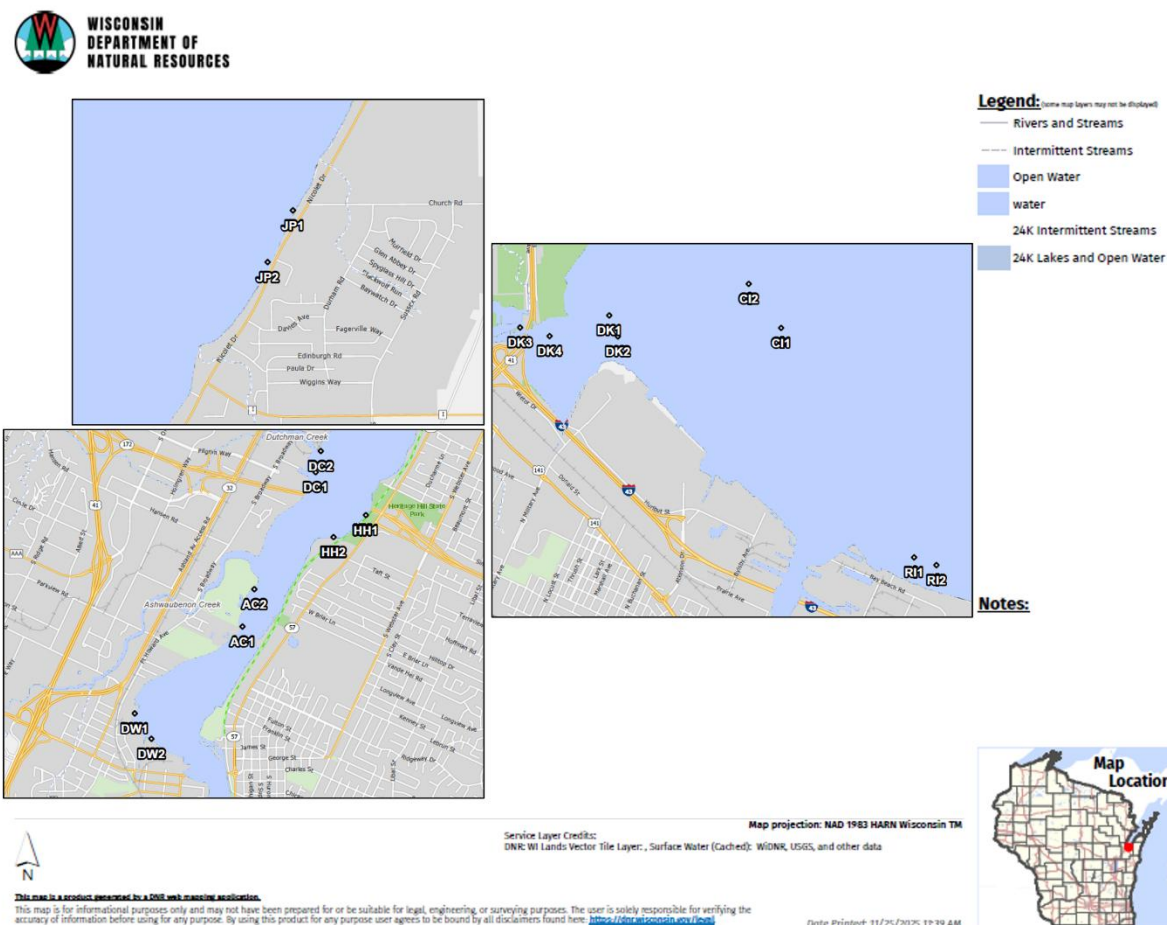


Figure 13. Location of mini fyke nets used to sample juvenile centrarchids at Ashwaubenon Creek (AC), Cat Island (CI), De Pere Wetland (DW), Duck Creek (DK), Heritage Hill (HH), Joliet Park (JP), and Renard Island (RI) designated habitat areas (DHAs) in the Lower Green Bay and Fox River Area of Concern (AOC), August 4–15, 2025.

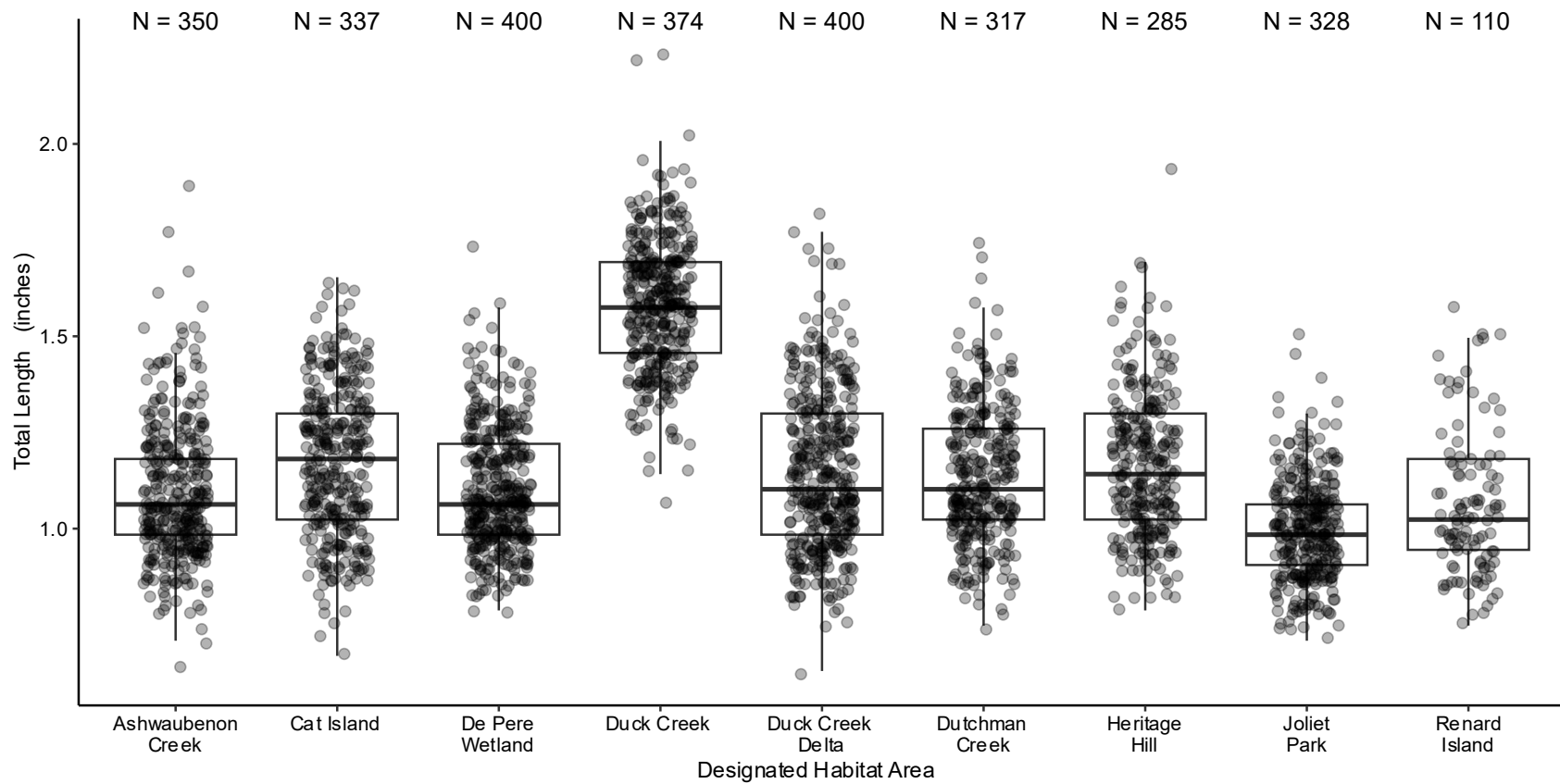


Figure 14. Length (inches) boxplots of subsampled bluegill in designated habitat areas (DHAs) caught with mini fyke nets in August 2025 in the Lower Green Bay and Fox River Area of Concern (AOC). The line inside boxes represents median length.

Duck Creek, Fox River, and Green Bay Young-of-Year Musky and Walleye

Between October 8 and October 23, we surveyed Ashwaubenon and Dutchman Creeks, Cat Islands, Duck Creek, Duck Delta, De Pere Wetland, Heritage Hill, Joliet Park DHAs, and several control sites with shoreline electrofishing. In total, we shocked a total of 7.46 miles and 3.98 hours targeting young-of-year musky and walleye.

We did not sample young-of-year musky at any sites, which was fairly expected as this population is largely maintained through stocking with minimal evidence of natural reproduction. In contrast, we observed substantial numbers of young-of-year walleye at many of our DHAs, indicating a strong year-class of walleye in 2025. The Joliet Park shoreline had the highest catch rates at 124/hour of electrofishing, followed by our Joliet control sites, Fox River control, and De Pere Wetland (Table 16, Figure 15). We did not sample any young-of-year walleye in the Cat Island or Duck Creek DHAs. The mean length of young-of-year walleye was 7.9 inches (range = 6.2–10.0 inches; Figure 16).

Overall, our surveys indicate a strong 2025 year-class of walleye, with long-term trend sites showing the second highest Green Bay and third highest Fox River fall young-of-year walleye catch rates since these standardized surveys began in 1993 (Breeggemann, personal communication). Although catch rates were high, we believe they may be biased low as many river sites had thick surface algae, reducing visibility for those dip netting fish. Lastly, we only sought to sample musky and walleye, but caught a sauger in the Fox River, which is an uncommon species in the AOC.

Table 16. Overall catch and catch per unit effort (CPUE) of young-of-year (YOY) walleye per hour of night electrofishing in Duck Creek, Fox River, and Green Bay October 8–23, 2025.

DHA	YOY Walleye	CPUE
Ashwaubenon Creek	17	68
Cat Control	26	82.1
Cat Islands	-	-
Duck Creek	-	-
Duck Control	-	-
Dutchman Creek	9	38.6
De Pere Wetland	38	91.2
Fox River Control	32	91.4
Heritage Hill	16	38.4
Joliet Reef	3	45
Joliet Shore	38	152
Joliet Control	66	123.8

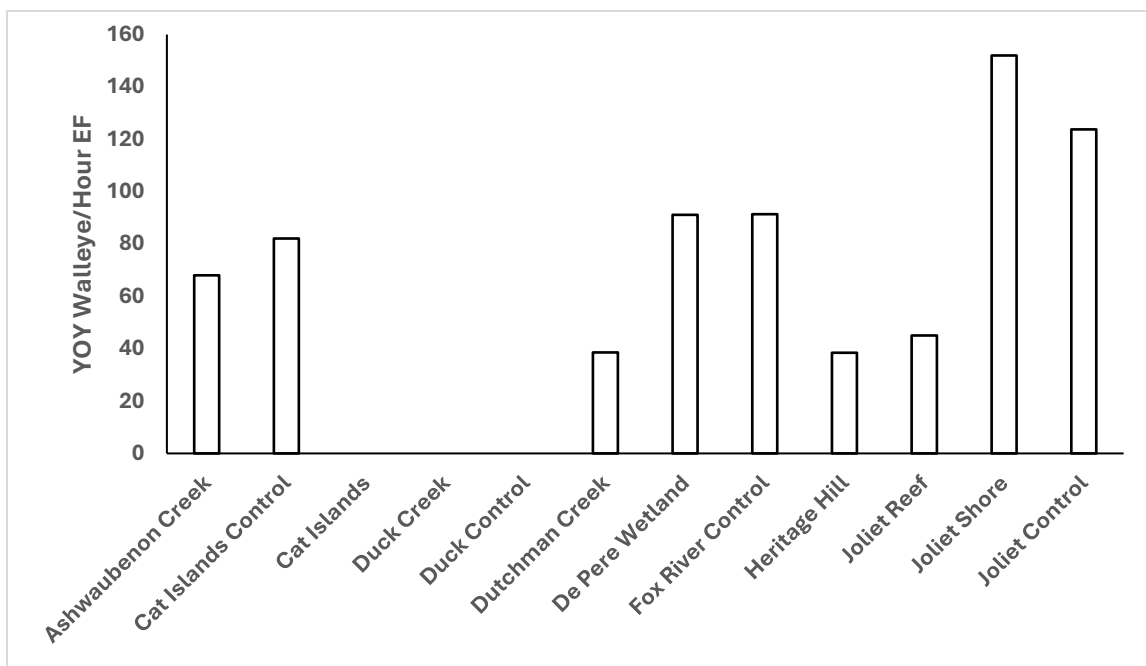


Figure 15. Catch per unit effort (CPUE) of young-of-year walleye per hour of night electrofishing in Duck Creek, Fox River, and Green Bay October 8–October 23, 2025.

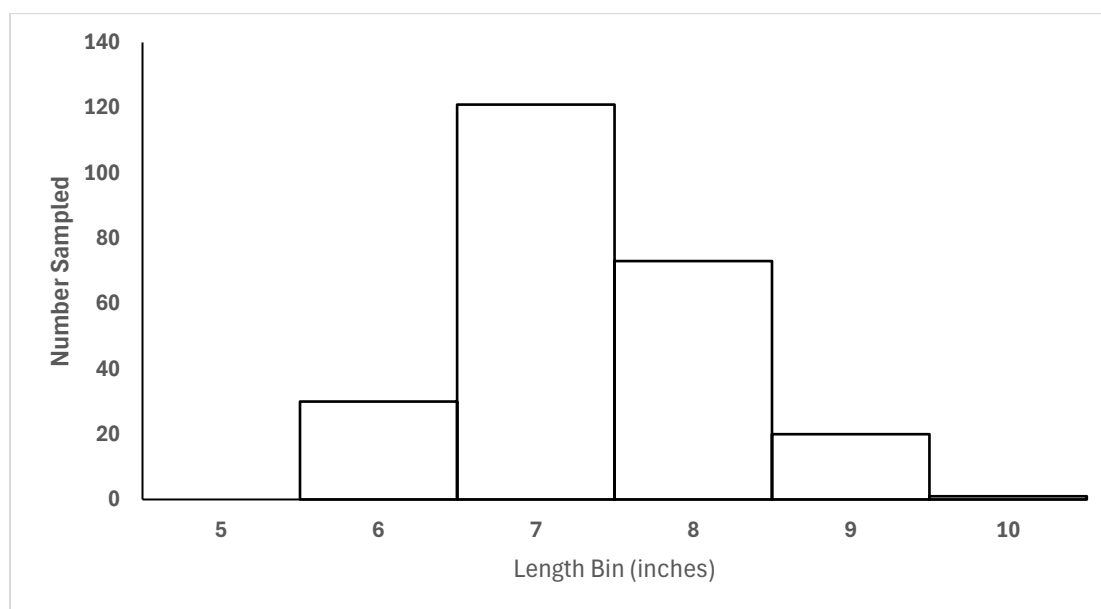


Figure 16. Length frequency distribution of young-of-year walleye sampled during night electrofishing in Duck Creek, Fox River, and Green Bay October 8–October 23, 2025.