WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Fisheries Survey Report for Lake DuBay, Marathon/Portage Co., WI 2022

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Introduction

Lake DuBay is a 6,700-acre hydroelectric reservoir (Wisconsin River impoundment) with approximately 42.3 shoreline miles and is the fourteenth largest inland body of water in Wisconsin, located in southern Marathon and northern Portage Counties (Figure 1). Maximum depth is approximately 30 feet. Among its 12 inlets, the Wisconsin, Big Eau Pleine, and Little Eau Pleine rivers are the major inlets. Since its construction in 1942 for hydroelectric generation and flood control, Lake DuBay has suffered water quality issues resulting from industrial and municipal discharges. However, water quality has improved in recent decades and increased public interest in the fishery (Hauber 1989).

Water chemistry data was collected from Lake DuBay during 2021 following baseline lake status monitoring protocol. The combination of high total phosphorus and chlorophyll *a* (measurement of algae in the water) concentrations and low water clarity found in Lake DuBay are typical of a eutrophic lake according to the Wisconsin State Trophic Index. Eutrophic conditions in Lake DuBay are a result of excessive nutrient loading (primarily phosphorus) from point and nonpoint sources in the watershed. Many water quality indicators suggest that Lake DuBay is a nutrient-rich lake. Nutrient rich lakes often exhibit seasonal algal blooms, and algal blooms often develop during the midsummer of most years on Lake DuBay. Overall aquatic vegetation is generally scarce and low density. The water is dark stained and turbid at times, which limits light penetration and the development of rooted aquatic vegetation (Hauber 1989). Littoral bottom materials are primarily sand, gravel, rubble, and muck. However, there are some stump-filled flats in the upper one-third of the lake.

For a fisheries lake class, Lake DuBay is considered a riverine system with a complex sportfish assemblage. Lake class is helpful for comparing fish populations with other lakes that have similar productivity characteristics and fish communities. Lake DuBay has a relatively simple stocking history dating back to 1977, consisting of Walleye, Northern Pike and Muskellunge (Table 1). Since 1989, Muskellunge have been the focal species stocked into Lake DuBay in a collaborative effort by the Wisconsin DNR and local Musky Fishing Clubs to create a quality Muskellunge fishery on the Wisconsin River in Central Wisconsin. Passive integrated transponder (PIT) tagging efforts began in 2014 to gather additional information on Muskellunge stocking success, potential natural reproduction, age and growth information and general movements (e.g., downstream movements).

Current fishing regulations on Lake DuBay in 2022 follow the general statewide regulations, except for the Walleye protected slot regulation that was implemented in 2003 (Table 2). Wisconsin DNR comprehensive fisheries surveys on Lake DuBay date back to 1983 and have occurred in 1997, 2003, 2008, 2014 and 2022 (Table 3). These surveys are helpful for monitoring the fishery status in Lake DuBay and how that status may change over time. Additional surveys have been conducted since 1983 to evaluate the success of regulation changes, assess angler exploitation and monitor recruitment.

The objective of the 2022 comprehensive survey was to determine the status of the fish community in the Lake DuBay. Specifically, to gain more insight on the status and current population characteristics of the dominant gamefish species. This status update will allow us to assess the effectiveness of fish management practices and to determine the health of the fishery.

Methods

A comprehensive fishery survey was conducted on Lake DuBay during the spring, summer and fall of 2022, including spring fyke netting for Walleye and Northern Pike (SN1) and Muskellunge (SN2), early spring electrofishing for Walleye (SE1), Lake Sturgeon spawn electrofishing assessment (LSE), late spring electrofishing for bass and panfish (SE2), summer hoop netting for Channel Catfish (HN) and fall electrofishing for juvenile Walleye (FE; Table 3).

DATA COLLECTION

A DNR standard spring fyke netting survey was conducted (SN1 and SN2). Following ice-out, 14 standard 4-foot frame fyke nets were set on April 10, 2022 and fished until May 4, 2022. Due to the large size of Lake DuBay and only being able to run one boat/crew each day, netting effort was focused on the upper end of the lake from Highway 34 bridge upstream to Moon Dam and Mosinee Dam (Figure 1). Nets were set in varying habitats (i.e., substrate and vegetation) and water depths targeting spawning adult gamefish. Nets were checked once every 24 hours and all fish removed. Nets that showed decreases in catch rates, did not fish well (e.g., nets rolled, water level changed or flows increased) were periodically moved to new locations. Total netting effort was 263 net nights. Water temperature ranged from 35 to 52° F during the netting survey.

All gamefish captured were measured to the nearest 0.1 inch, and sex was recorded when evident based on expression of eggs or milt. Counts were recorded for non-gamefish species. All Walleye and Northern Pike were marked with a top caudal fin clip. Muskellunge were checked for a PIT (passive integrated transponder) tag and if one was not found, a PIT tag was internally placed adjacent to the dorsal fin. Aging structures (otoliths) were collected from a subsample of Walleye, Black Crappie, Bluegill and Yellow Perch for age estimation; cleithra were collected from a subsample of Northern Pike for age estimation. All newly captured adult Muskellunge had their first anal fin ray removed for age estimation. A subsample of Channel Catfish were collected for diet analysis.

Four nonstandard early spring electrofishing surveys (SE1) took place on the nights of April 12, 18, 19 and 25, 2022 using pulsed direct current (DC) on a maxiboom electrofishing boat. Total effort was 2.3 hours of electrofishing. Water temperature ranged from 39 to 47° F. Electrofishing effort was focused below Moon Dam and Mosinee Dam (Figure 1). The purpose of this survey was to capture spawning adult Walleye and Muskellunge to supplement our collection of aging structures and tag additional Muskellunge. Only Walleye and Muskellunge were collected, marked and measured to the nearest 0.1 inch.

One Lake Sturgeon electrofishing survey (LSE) took place during the day on May 17, 2022 using pulsed DC on a maxiboom electrofishing boat. Total effort was 0.8 hours of electrofishing. Water temperature was 67° F. Electrofishing effort was focused below Mosinee Dam (Figure 1). The purpose of this survey was to capture and PIT tag all Lake sturgeon, with a primary goal of capturing and identifying spawning adult Lake Sturgeon. Only Lake Sturgeon and Muskellunge were collected, PIT tagged and measured to the nearest 0.1 inch.

A DNR standard late spring electrofishing survey (SE2) took place on the nights of May 24, 2022 and May 26, 2022 using pulsed DC on a maxiboom electrofishing boat. Total effort was

2.8 hours and 6 miles of electrofishing. Water temperature ranged from 60 to 63° F. This time period and water temperature are within the standard protocol window for spring electrofishing surveys for bass and panfish, when water temperatures should range from 55 to 70° F. In total, six 1-mile shoreline stations were surveyed (Figure 1). All gamefish and panfish were collected and measured to the nearest 0.1 inch. If possible, non-gamefish and other fish observed during the survey were counted or recorded as being present. In addition, all Muskellunge collected were checked for a PIT tag or given a PIT tag if one was not found.

A summer hoop netting survey targeting Channel Catfish was conducted (HN). Sixteen unbaited hoop nets were set in pairs at each location with one net covering each side of the river channel (Figure 1). Nets were set on July 18, 2022 and fished until July 22, 2022; some nets were pulled early due to net failure and fish loss. Nets were checked once every 24 hours and all fish were removed. Total netting effort 56 net nights. Water temperature ranged from 77 to 78° F during the netting survey. The primary purpose of this survey was to capture adult Channel Catfish. The secondary purpose of this survey was to capture gamefish caught incidentally. All Channel Catfish and gamefish captured were measured to the nearest 0.1 inch. A subsample of Channel Catfish were collected for diet analysis. In addition, all Muskellunge collected were checked for a PIT tag or given a PIT tag if one was not found.

A DNR standard fall electrofishing survey (FE) took place on the night of October 19, 2022 using pulsed DC on a maxiboom electrofishing boat. Total effort was 1.9 hours and 4 miles of electrofishing. Water temperature ranged from 43 to 45° F. In total, four 1-mile shoreline stations were surveyed (Figure 1). All Walleye and Muskellunge were collected and measured to the nearest 0.1 inch. The purpose of this survey was to capture juvenile Walleye and Muskellunge to monitor recruitment and survival of age-1 fish. In addition, all Muskellunge collected were checked for a PIT tag or given a PIT tag if one was not found.

DATA ANALYSIS

Data recorded from each survey was compiled and analyzed using several techniques. Length frequency distributions were generated for gamefish and panfish species, including Walleye, Muskellunge, Northern Pike, Smallmouth Bass, Bluegill, Black Crappie, Yellow Perch and Channel Catfish. Relative abundance, size structure and growth were also evaluated. Relative abundance was indexed using catch per unit of effort (CPE) calculated by gear type for gamefish and panfish species. CPE was calculated as the number of fish captured per net night for netting surveys and as the number of fish captured per shoreline mile for electrofishing surveys. The CPE values and overall average length of each fish species were compared to the 25^{th}-75^{th} percentile lake class standard for Wisconsin's riverine systems with complex fish assemblages that fall within the same lake class as Lake DuBay.

Proportional size distribution (PSD) is an index used to describe size structure of fish, calculated as the percentage of quality, preferred, or memorable size fish observed within the total catch of stock or greater size fish for a given species. Length designations for stock, quality, preferred, and memorable sizes of fish species collected from Lake DuBay can be found in Table 4 (Anderson and Neumann 1996). Growth was evaluated for Walleye, Muskellunge, Northern Pike, Bluegill, Black Crappie and Yellow Perch by estimating fish age.

Growth was compared to the lake class standard for Wisconsin's complex riverine systems in the same class as Lake DuBay.

Channel Catfish collected for diet analysis during SN1, SN2, and HN surveys were dissected, and diet items were removed. All diet items were identified, enumerated and wet weighed to the nearest 0.1 g by species or diet type. Diet compositions of Channel Catfish were described using mean percent composition by wet weight (p_{ij}) and calculated as (Chipps and Garvey 2007; Hartman and Hayward 2007):

$$p_{ij} = [1/N \sum_{j}^{N} (W_{ij} / \sum_{i}^{n} W_{ij})] * 100$$

where W_{ij} is the wet weight (g) of prey type *i* consumed by Channel Catfish during month *j*, *n* is the total number of prey types observed in all diets collected from Channel Catfish during month *j*, and *N* is the total number of Channel Catfish during month *j* observed with prey in their stomachs. Diet composition was calculated separately for Channel Catfish collected in May (SN1 and SN2) and July (HN).

Results

A total of 7,428 fish representing 20 different species were collected during the spring fyke netting surveys (Table 5). Non-gamefish species represented 48.7% of the total number of fish captured, with Common Carp dominating the catch (32.3% of the total catch). Walleye, Black Crappie, Channel Catfish, Northern Pike, Yellow Perch and Muskellunge accounted for 50.0% of the total number of fish captured, with Walleye dominating the gamefish catch (21.4% of the total catch).

WALLEYE

During the 2022 early spring surveys, 1,592 Walleye were captured during SN1 and SN2 and 240 were captured during SE1 (Table 5; Figure 2), with an additional 298 captured during SE2 and 13 captured during summer HN. Walleye ranged in length from 6.3-29.6 inches with an average length of 13.9 inches (Table 5; Figure 2). The average length for Walleye in Lake DuBay was above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 5).

The relative abundance of Walleye was CPE = 6.1/net night which was below the average catch rate for spring fyke netting surveys since 1983 (Average CPE = 10.5/net night) but was well above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 6). When compared to the relative abundance during the 1983, 1997, 2003, 2008 and 2014 spring netting surveys, CPE of Walleye ≥15 inches (CPE = 1.7/net night) and ≥20 inches (CPE = 0.5/net night) captured in 2022 was the second highest on record since 1983, while CPE of Walleye ≥25 inches (CPE = 0.2/net night) was the highest ever recorded (Figure 3).

The current protected no harvest slot regulation from 20-28 inches was implemented in 2003 to protect spawning adult Walleye and increase size structure. Since its implementation, CPE of Walleye ≥20 inches has steadily increased and size structure has improved (Figures 3 and 4). In 1983, the size structure of Walleye was the best on record, with 57% of stock sized Walleye being ≥15 inches and 14% being ≥20 inches. However, only 0.7% of stock sized Walleye captured in 1983 were ≥25 inches. With the increase in Walleye size structure since the protected slot regulation in 2003, 2.4% of stock sized Walleye captured in 2022 were ≥25

inches (Figure 4). The overall size structure in 2022 was good, with 26% of stock sized Walleye being ≥15 inches and 7% being ≥20 inches (Table 7).

Growth rate and mean length-at-age of Walleye was well below the 50th percentile lake class standard for similar lakes in Wisconsin (Figure 5). Female Walleye growth and mean length-at-age in Lake DuBay was highly variable, with individual fish exhibiting a wide range of growth rates from very slow to very fast growth. However, the majority of Walleye exhibited slower growth than normal for similar lakes in Wisconsin. Male Walleye growth and mean length-at-age in Lake DuBay was much less variable but still slower than normal growth rates. Collecting more aging structures from larger size classes of Walleye would be beneficial for future surveys, as our sample size was small for Walleye >20 inches. On average, female Walleye in Lake DuBay appear to reach legal size (15 inches) between ages 4-5 and males between ages 5-6. Walleye growth appears to slow substantially once they reach legal size and, in some instances, could still be within the 15–20-inch harvestable size range at 19 years old (Figure 5). In contrast, some individuals grow relatively fast and enter the protected slot (20-28 inches) by ages 9-10.

During the 2022 fall electrofishing survey targeting juvenile Walleye, 532 young-of-year (YOY), 28 age-1, 34 age-2 and 31 age3+ Walleyes were captured. Young-of-year Walleye ranged in length from 4.3-8.0 inches with an average length of 6.1 inches. The relative abundance of YOY Walleye was CPE = 133/mile and CPE = 7/mile for age-1 Walleye (Figure 6). The catch rate for YOY Walleye in 2022 was the second highest on record and well above the average since 2016 (Average CPE = 114/mile; Figure 6). The low catch rate of age-1 Walleye in 2022 was the result of the low catch rate of YOY Walleye in 2021.

MUSKELLUNGE

During the 2022 early spring surveys, 148 Muskellunge were captured during SN1, SN2 and SE1 (Table 5; Figure 7), with one additional Muskellunge captured during SE2 and one captured during summer HN. Muskellunge ranged in length from 20.1-49.3 inches with an average length of 36.8 inches (Table 5; Figure 7). The average length for Muskellunge in Lake DuBay was well above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 5).

The relative abundance of Muskellunge was CPE = 0.6/net night which was the highest catch rate on record for spring fyke netting surveys (Table 6). This catch rate was also above the 75th percentile lake class standard for similar lakes in Wisconsin. When compared to the relative abundance during the 1983, 1997, 2003, 2008 and 2014 spring netting surveys, CPE of Muskellunge captured in 2022 was at least six times higher than any other year (Table 6). The size structure of Muskellunge in 2022 was the best on record in Lake DuBay, with 91% of stock sized Muskellunge being ≥30 inches, 39% being ≥38 inches and 19% being ≥42 inches (Table 7; Figure 7). These values fall within a typical trophy A1 class Muskellunge fishery.

Growth rate and mean length-at-age of Muskellunge was above the 50th percentile lake class standard for similar lakes in Wisconsin (Figure 8). Female Muskellunge in Lake DuBay exhibit faster growth than males which is typical for Muskellunge. When compared to the lake class standard for similar lakes in Wisconsin (mean length-at-age calculated using combined data for females and males), female and male Muskellunge in Lake DuBay grow faster than a typical Muskellunge population in Wisconsin's complex riverine systems. The average female

in Lake DuBay reaches 40 inches by age-8 and 48 inches by age-16. Alternatively, the average male Muskellunge in Lake DuBay reaches 40 inches by age-10 (Figure 8).

During the fall electrofishing survey targeting juvenile Walleye, five Muskellunge were captured. Four of the five captured during FE were large fingerling Muskellunge stocked earlier that fall in 2022 (Table 1) and one was a recaptured adult Muskellunge originally captured and PIT tagged during the 2022 early spring SN1 and SN2 surveys. Since no nontagged young-of-year Muskellunge were captured in the fall of 2022, no evidence of natural reproduction was identified.

NORTHERN PIKE

During the 2022 early spring surveys, 345 Northern Pike were captured during SN1 and SN2 (Table 5; Figure 9), with one additional Northern Pike captured during SE2. Northern Pike ranged in length from 12.6-38.4 inches with an average length of 22.8 inches (Table 5; Figure 9). The average length for Northern Pike in Lake DuBay was above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 5).

The relative abundance of Northern Pike was CPE = 1.3/net night which was below the average catch rate for spring fyke netting surveys since 1983 (Average CPE = 1.7/net night; Table 6). This catch rate was also low for similar lakes in Wisconsin, falling within the 25th and 50th percentile lake class standard (Table 6). The size structure of Northern Pike in 2022 was poor and the worst on record, with 68% of stock sized Northern Pike being ≥21 inches, 11% being ≥28 inches and 1.5% being ≥34 inches (Table 7; Figure 10). Size structure has decreased since 1983 and Northern Pike captured in 2022 were overall smaller than previous survey years. Based on the mean age of 18.0-18.9-inch female (3.4 years) and male Northern Pike (4 years) in Lake DuBay, growth rate is very-slow to slow and falls within the 25th percentile for Wisconsin populations.

SMALLMOUTH BASS

During the 2022 early spring surveys, 20 Smallmouth Bass were captured during SN1 and SN2 (Table 5; Figure 11), with an additional 32 Smallmouth Bass captured during SE2 and 9 captured during summer HN. Smallmouth Bass ranged in length from 7.7-18.1 inches with an average length of 15.2 inches (Table 5; Figure 11). The average length for Smallmouth Bass in Lake DuBay was well above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 5).

The relative abundance of Smallmouth Bass was CPE = 0.1/net night which was below the average catch rate for spring fyke netting surveys since 1983 (Average CPE = 0.3/net night; Table 6). Catch rate for Smallmouth Bass in SN1 and SN2 surveys is traditionally low in Lake DuBay. However, the relative abundance of Smallmouth Bass captured during late spring electrofishing was CPE = 5.3/mile which falls within the 50th and 75th percentile lake class standard for similar lakes in Wisconsin. The number of Smallmouth Bass captured during 2022 was below the required sample size to determine size structure.

BLUEGILL

During the 2022 early spring surveys, 49 Bluegill were captured during SN1 and SN2 (Table 5; Figure 12) with no additional Bluegill captured during other standard surveys. Bluegill ranged in length from 5.0-9.4 inches with an average length of 7.6 inches (Table 5; Figure 12).

The average length for Bluegill in Lake DuBay was well above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 5).

The relative abundance of Bluegill was CPE = 0.2/net night which was below the average catch rate for spring fyke netting surveys since 1983 (Average CPE = 2.5/net night; Table 6). Size structure was good, with 92% of stock sized Bluegill being ≥6 inches and 31% being ≥8 inches (Table 7). In addition, Bluegill size structure in 2022 was above average for spring fyke netting surveys since 1983 (Average PSD-Q = 90%; Average PSD-P = 22%).

Growth rate and mean length-at-age of Bluegill was well above the 50th percentile lake class standard for similar lakes in Wisconsin (Figure 13). Growth appears to slow dramatically at age-5 once fish reach approximately 8 inches. Fast growth is typical for Bluegill in Lake DuBay and is common for complex riverine systems. On average, Bluegill in Lake DuBay reach 6 inches between ages 2-3 and 8 inches by age-5 (Figure 13).

BLACK CRAPPIE

During the 2022 early spring surveys, 849 Black Crappie were captured during SN1 and SN2 (Table 5; Figure 14), with an additional 54 Black Crappie captured during SE2 and 39 captured during summer HN. Black Crappie ranged in length from 3.3-13.7 inches with an average length of 9.0 inches (Table 5; Figure 14). The average length for Black Crappie in Lake DuBay was well above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 5).

The relative abundance of Black Crappie was CPE = 3.2/net night which was below the average catch rate for spring fyke netting surveys since 1983 (Average CPE = 11.3/net night) and was just above the 25th percentile lake class standard for similar lakes in Wisconsin (Table 6). Size structure was very good, with 54% of stock sized Black Crappie being ≥8 inches, 40% being ≥10 inches and 10% being ≥12 inches (Table 7). In addition, Black Crappie size structure in 2022 was overall above average for spring fyke netting surveys since 1983 (Average PSD-Q = 70%; Average PSD-P = 37%; Average PSD-M = 7%).

Growth rate and mean length-at-age of Black Crappie is well above the 50th percentile lake class standard for similar lakes in Wisconsin (Figure 15). Black Crappie in Lake DuBay appear to be relatively fast growing early in life, with growth tapering off around ages 4-6. On average, Black Crappie reach 10 inches by age-4 and 12 inches by age-7 (Figure 15).

YELLOW PERCH

During the 2022 early spring surveys, 190 Yellow Perch were captured during SN1 and SN2 (Table 5; Figure 16), with an additional 10 Yellow Perch captured during SE2. Yellow Perch ranged in length from 4.5-10.4 inches with an average length of 7.4 inches (Table 5; Figure 16). The average length for Yellow Perch in Lake DuBay was well above the 75th percentile lake class standard for similar lakes in Wisconsin (Table 5).

The relative abundance of Yellow Perch was CPE = 0.7/net night which was below the average catch rate for spring fyke netting surveys since 1983 (Average CPE = 1.2/net night) and was just below the 25th percentile lake class standard for similar lakes in Wisconsin (Table 6). Size structure was poor-moderate, with 31% of stock sized Yellow Perch being ≥8 inches and 2.1% being ≥10 inches (Table 7). Furthermore, Yellow Perch size structure in 2022 was overall

below average for spring fyke netting surveys since 1983 (Average PSD-Q = 42%; Average PSD-P = 3.5%).

Growth rate and mean length-at-age of Yellow Perch is above the 50th percentile lake class standard for similar lakes in Wisconsin (Figure 17). Fast growth is typical for Yellow Perch in Lake DuBay and is common for complex riverine systems. However, growth was notably faster in 2022 than during the previous comprehensive survey in 2014. On average, Yellow Perch in Lake DuBay reach 8 inches between ages 3-4 (Figure 17), which is one year earlier than observed during 2014 (i.e., on average Yellow Perch were 8 inches between ages 4-5).

CHANNEL CATFISH

During the 2022 early spring surveys, 594 Channel Catfish were captured during SN1 and SN2 (Table 5; Figure 18). Length ranged from 9.4-32.7 inches with an average length of 20.3 inches. An additional 314 Channel Catfish were captured during summer HN using unbaited nets. Length ranged from 15.3-29.1 inches with an average length of 20.2 inches.

The relative abundance of Channel Catfish during SN1 and SN2 was CPE = 2.3/net night which was just below the average catch rate for spring fyke netting surveys since 1997 (Average CPE = 2.6/net night; Table 6). The catch rate during summer HN was CPE = 5.6/net night which was lower than the summer HN survey in 2020 (CPE = 10.6/net night; Figure 19). Surprisingly, the catch rates during the 2020 and 2022 HN surveys using unbaited nets were higher than the 2007 (CPE = 4.8/net night) and 2014 (CPE = 5.4/net night) HN surveys using baited nets (Figure 19). Size structure in 2022 spring surveys was moderate, with 100% of stock sized Channel Catfish being ≥16 inches, 6% being ≥24 inches and 0.5% being ≥28 inches (Table 7).

Diets were collected in 2022 from 17 Channel Catfish during spring SN1 and SN2 surveys and from 39 Channel Catfish during summer HN (Figures 20 and 21). During the spring, Channel Catfish were primarily piscivorous and consumed multiple different fish species (Figure 20). Yellow Perch were the dominant prey item and comprised 22% of their diet, followed by crayfish (21%), Channel Catfish (12%), Bluegill (11%), Walleye (9%), Smallmouth Bass (6%) and Black Crappie (3%). Other diet items included Shorthead Redhorse, macroinvertebrates and unknown diet items. During the summer, Channel Catfish diets shifted and were dominated by filamentous algae which comprised 62% of their diet, followed by Black Crappie (12%), Walleye (6%) and crayfish (3%). Other diet items included grass, macroinvertebrates, unidentifiable fish and unknown diet items (Figure 21).

LAKE STURGEON

During the 2022 spring surveys, one Lake Sturgeon was captured during SN1 and SN2 (Table 5) and five were captured during the LSE spawning survey. Length ranged from 24.2-59.0 inches with an average length of 32.0 inches. Catch rate during the 2022 spawning assessment was low (CPE = 6.5/hour electrofishing), but similar to the catch rate during 2021 (CPE = 6.9/hour electrofishing).

OTHER SPECIES

Many other species of fish were captured during the 2022 spring surveys. Other gamefish and panfish species captured in low numbers included 16 White Bass, two White Crappie, two Pumpkinseed, one Largemouth Bass and one Grass Pickerel (Table 5). In addition, non-gamefish species included 2,398 Common Carp, 997 Redhorse (Shorthead Redhorse, Silver

Redhorse and Golden Redhorse; Shorthead Redhorse were most common), 125 White Sucker, 63 Bowfin, 28 Bullhead (Yellow Bullhead and Black Bullhead) and seven Golden Shiner (Table 5). The high catch of Shorthead Redhorse and White Sucker observed in 2022 likely provides an important forage base for larger predatory gamefish species in Lake DuBay including Walleye, Muskellunge, Northern Pike and Channel Catfish. Additionally, Common Carp are known to cause habitat deterioration by increasing turbidity, aggressive bottom feeding or decreasing aquatic plant biomass through directly dislodging or consuming plants (Bellrichard 1996).

Discussion and Recommendations

The fishery on Lake DuBay appears to be diverse and healthy with good populations of many species of fish, including gamefish and panfish populations that have been almost exclusively maintained through natural reproduction. Lake DuBay offers a range of fishing opportunities for anglers and has a complex fish assemblage with the main predatory fish being Walleye, Muskellunge, Northern Pike and Channel Catfish. The quality Black Crappie and Bluegill in Lake DuBay provide anglers an additional opportunity to enjoy the abundant panfish populations. Furthermore, the highly abundant Common Carp population produces a bowfishing or hook and line fishery that is always available to the public.

WALLEYE

The Walleye population in Lake DuBay provides an abundance of fish in a wide range of size classes for angling opportunities. The 2022 Lake DuBay comprehensive survey shows the Walleye population was more proportioned than during the 1983, 1997, 2003, 2008 and 2014 surveys. Size structure was more balanced in 2022 with good numbers of adult Walleye from 20-28 inches present in the population, likely due to the implementation of the protected Walleye no harvest slot in 2003. The fishing regulation changes that occurred in 2003 appear to have had an overall positive impact on the Walleye population. The increase in relative abundance and decrease in size structure of Walleye from 1983-2003 was a major concern in the early 2000s. However, the Walleye population since 2003 has dramatically recovered, with an overall decrease in relative abundance and increase in size structure.

The last survey that shows the Walleye population as well balanced as in 2022 was in 1983, possibly due to reduced harvest in a substantially more polluted Wisconsin River at that time. However, Walleye relative abundance was lower and far fewer fish were captured during the 1983 survey, which may have led to reduced competition and faster growth rates resulting in the well-balanced size structure that was observed. However, growth rates were slow during 2022, which are not uncommon for Lake DuBay and have also been observed during previous surveys (e.g., 2014). Slow growth is common in lakes that consistently exhibit exceptional Walleye recruitment (high CPE of young-of-year fish) and associated competition for food resources, and Lake DuBay has annually produced strong year classes of Walleye since juvenile monitoring efforts began in 2015.

MUSKELLUNGE

The Muskellunge population has substantially increased since the last comprehensive survey in 2014. A combined total of only eight Muskellunge have been captured during the 1983, 1997, 2003, 2008 and 2014 spring fyke netting surveys, whereas 148 Muskellunge were captured in 2022 alone. Muskellunge are the only species that continue to get stocked into

Lake DuBay, and these stocking efforts likely contributed to the increase in Muskellunge catch observed in 2022. Additionally, since every Muskellunge captured received a PIT tag, we were able to track the general movements of recaptured fish. Following the spring fyke netting survey and Muskellunge spawn, five of the 148 fish PIT tagged on Lake DuBay were recaptured by anglers downstream in the Stevens Point Flowage. Muskellunge relative abundance and size structure in Lake DuBay during 2022 was the best on record and fish were captured in nearly every netting location. Compared to similar complex riverine systems in Wisconsin, the Muskellunge population in Lake DuBay during 2022 had an average size, relative abundance, size structure, growth rate and mean length-at-age that was well above average.

NORTHERN PIKE

The Northern Pike population has been variable through time; however, size structure has substantially decreased since and by 2022 it was the worst on record. Only 20 Northern Pike captured were ≥30 inches, five of which were ≥34 inches. The 1983 survey yielded the best size structure of all comprehensive surveys. The reason for this substantial decrease in size structure and lack of larger individuals is unknown. Previous surveys suggest Northern Pike recruitment may be an issue. Following the 1983 survey, fisheries management staff had recommended stocking of large fingerlings to supplement recruitment. Following the 1997 survey, fisheries management staff had hypothesized that decisions made by the Consolidated Water Power Company to stabilize water levels during the Northern Pike spawning window had led to an increase in year class strengths. Successful Northern Pike year classes from surveys since 1997 suggest that recruitment is likely not the issue. Protecting the larger and older Northern Pike may help increase annual recruitment and overall size structure of the population. Furthermore, Northern Pike growth has substantially slowed since previous surveys. However, differences in aging techniques may account for these differences in growth rates. Cleithra should be aged for all future surveys.

SMALLMOUTH BASS

Smallmouth Bass appear to be a balanced and sustainable fish population in Lake Dubay. All comprehensive surveys that recorded Smallmouth Bass catches resulted in a well-proportioned size range of fish captured. However, the early spring fyke netting survey occurs while water temperatures are lower than when Smallmouth Bass typically spawn, which is likely why fyke netting catch rates have been consistently low. Electrofishing surveys occurring during the late spring targeting Smallmouth Bass are typically a better method to fully evaluate their population. Results from the late spring electrofishing survey in 2022 showed a Smallmouth Bass relative abundance that was above average when compared to similar complex riverine systems in Wisconsin. However, not enough fish were captured to fully determine size structure and growth rates.

BLUEGILL & BLACK CRAPPIE

The Bluegill population in Lake DuBay has experienced a slow transitional change since 1983. For example, relative abundance was an all-time low in 1983 but increased each comprehensive survey year until reaching an all-time high in 2008, and then decreased each survey year until reaching an all-time low again in 2022. All comprehensive survey results from Lake DuBay have shown fast growing, short-lived Bluegills, and none surviving long enough to grow ≥10 inches. Bluegill size structure remains relatively good despite not observing any fish exceeding 10 inches, with the average size fish captured being 7.6 inches

and far exceeding the typical Bluegill population in similar complex riverine systems in Wisconsin. Similarly, Black Crappie size structure was also good, with a wide range of size classes present in the population and an average size that far exceeds the typical Black Crappie population in similar complex riverine systems in Wisconsin.

The Bluegills and Black Crappies captured in Lake Dubay are similar in their population characteristics. Both species are relatively less abundant now than in the past couple survey years and both exhibited similar growth patterns (i.e., fast growth early in life that dramatically tapers off) compared to similar complex riverine systems in Wisconsin. Having a similar growth pattern may suggest that both Bluegills and Black Crappies are affected by similar factors (e.g., predators, angling harvest or forage availability). However, Black Crappie have always shown to be relatively far more abundant than Bluegill in Lake DuBay. Further studies focusing on spawning populations and angling harvest may provide information on outside factors influencing Bluegill and Black Crappie populations.

YELLOW PERCH

The Yellow Perch population in Lake DuBay is characterized by low relative abundance and poor-moderate size structure. However, growth rates appear to be fast but variable from year to year. Harvest rates of preferred size fish can lead to skewed sex ratios and cause poor size structure in Yellow Perch populations, as females reach preferred size by anglers quicker than males. However, the harvest rate of Yellow Perch in Lake DuBay is unknown. In addition, Yellow Perch are a highly preferred forage species for many predators in Lake DuBay (e.g., Northern Pike, Walleye and Channel Catfish), which is likely a factor that naturally regulates their relative abundance.

CHANNEL CATFISH

Historical records indicate that Channel Catfish were once absent in the Wisconsin River in central Wisconsin. However, efforts to establish Channel Catfish populations in the Wisconsin River began in 1979, and about 11,000/year were stocked into Lincoln County waters in 1988-1990. These efforts were highly successful, and Channel Catfish are now established within the majority of the Wisconsin River from Marathon County down to its confluence with the Mississippi River. Channel Catfish were still absent in Lake DuBay during the 1983 comprehensive survey and first appeared in small numbers during the survey conducted in 1997. Since then, the Channel Catfish population in Lake DuBay appears to be abundant, stable and relatively unchanged since the 2003 comprehensive survey.

With the introduction of any species that did not previously occupy food web space in a waterbody, there is always the question for how that species will impact other species and the structure of the food web. The diet work conducted on Channel Catfish in Lake DuBay during the 2022 comprehensive survey aimed to answer this question. Diet work showed that Channel Catfish in Lake DuBay are piscivorous (i.e., predators or fish eaters), especially during the spring months. This is different than other Channel Catfish populations in Wisconsin that have been determined to be more omnivorous and will eat a mix of plant/organic matter, macroinvertebrates and occasionally fish. The reason for their piscivorous nature in Lake DuBay compared to other areas of the state is unknown. However, the species of fish Channel Catfish were consuming in Lake DuBay was a bit of a surprise, as many of the gamefish species the DNR manages for throughout the state comprised a large portion of their diets. Future surveys should continue to monitor Channel Catfish diets in

central Wisconsin. Their high relative abundance and feeding habits that target other gamefish species in Lake DuBay should be considered, in addition to angler harvest, when determining future management actions.

LAKE STURGEON

Historical Lake Sturgeon populations were extirpated in the Wisconsin River upstream of the Wisconsin Dells Dam. Efforts to rehabilitate Lake Sturgeon populations upstream began with stocking in the 1990s. Lake Sturgeon are not stocked in Lake DuBay but are annually stocked upstream below the Merrill Dam in Lincoln County. The Lake Sturgeon captured in Lake DuBay are likely fish that have migrated downstream from the stocking efforts below the Merrill Dam. Lake Sturgeon from the original stocking efforts in the 1990s would be just reaching maturity during the current survey in 2022. Monitoring Lake Sturgeon spawning and recruitment will continue as more fish enter the mature spawning population.

Acknowledgements

The data collected for this report would not have been possible without the work of many DNR staff, including former staff who were present during the 1983, 1997, 2003, 2008 and 2014 comprehensive surveys. Jake Thompson, Wausau Advanced Fisheries Technician, prepared all survey gear, coordinated all volunteer assistance for successful completion of the 2022 comprehensive survey, operated the electrofishing boat and processed and aged all the fish sacrificed for otolith collection. Daniel Bellich, Wausau LTE Fisheries Technician, assisted during the survey as a dipper during electrofishing surveys, hoop netting survey and helped process and prepare fish and fish aging structures. Jen Bergmann, Wisconsin Rapids Senior Fisheries Biologist, filled in to help with completion of the summer hoop netting survey. A huge thank you to all volunteers that filled in and provided help in completing our survey.

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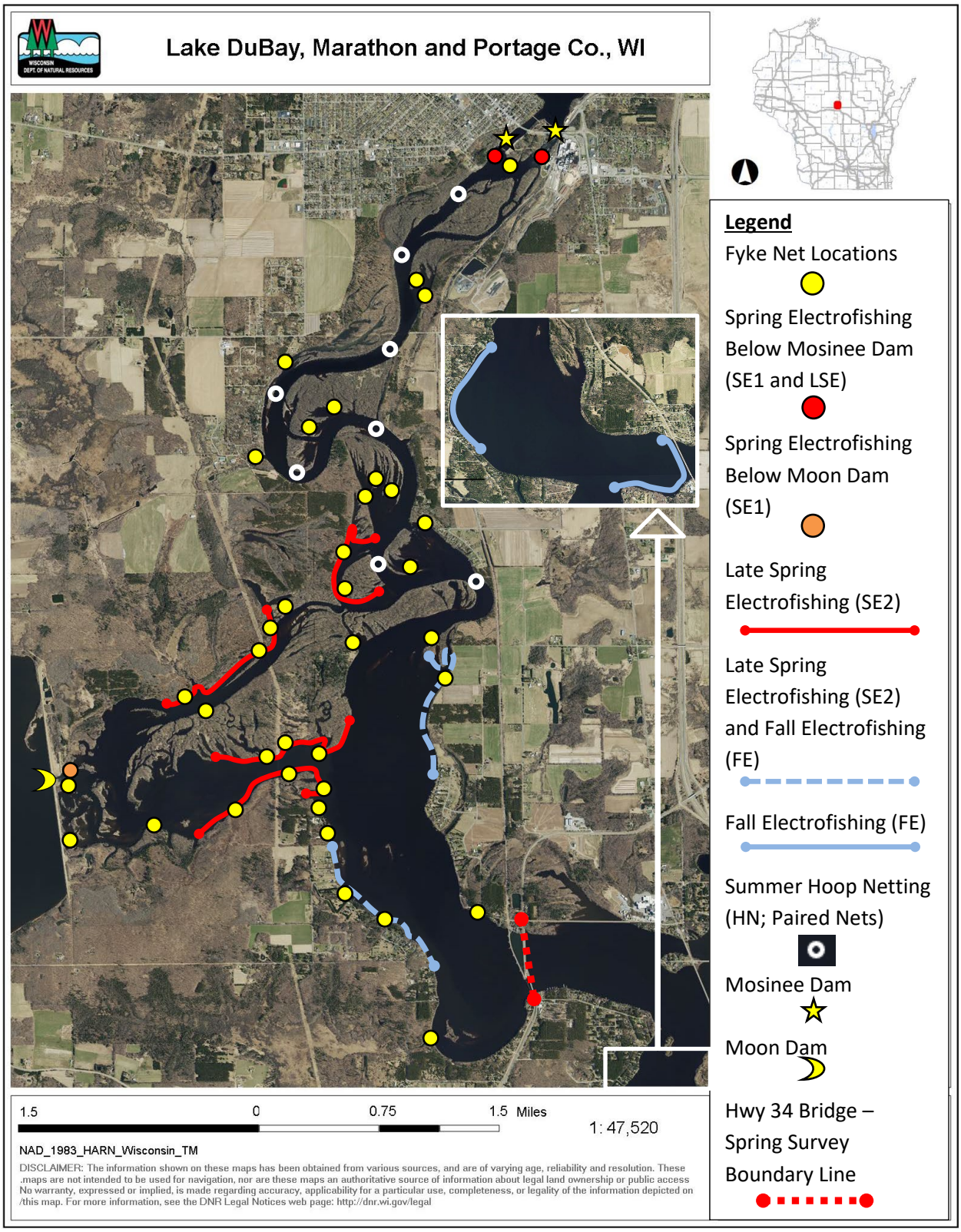

Figure 1. Map of upper Lake DuBay north of highway 34 bridge including spring fyke net locations and spring electrofishing transects in 2022.

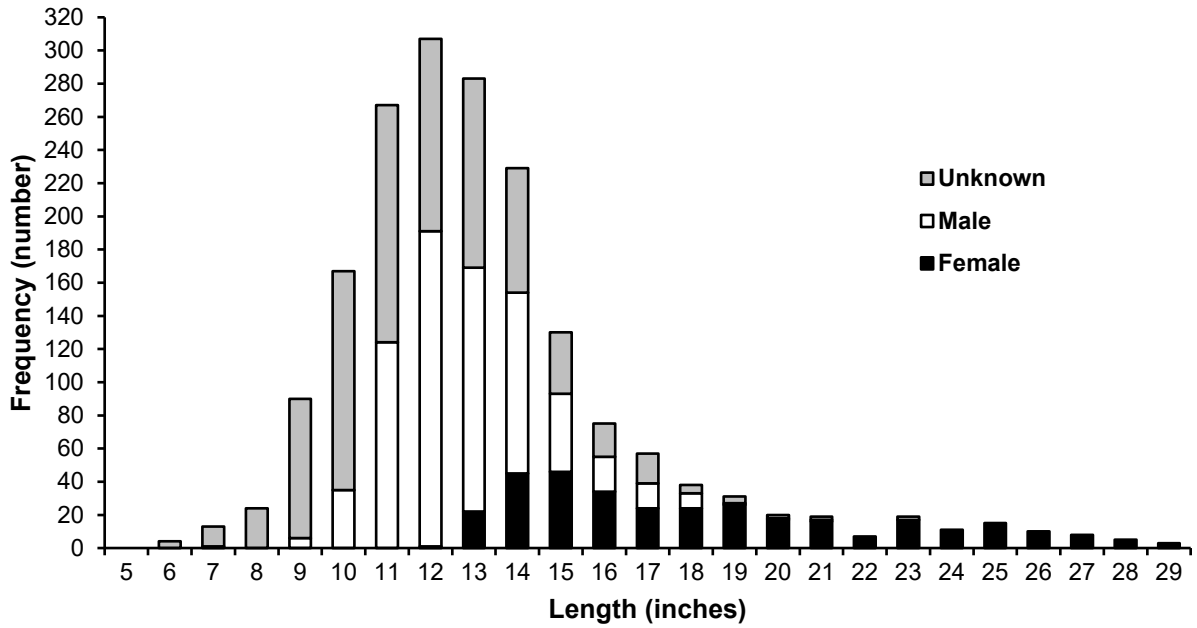

Figure 2. – Length frequency of Walleye (n = 1,832) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2) and early spring electrofishing (SE1).

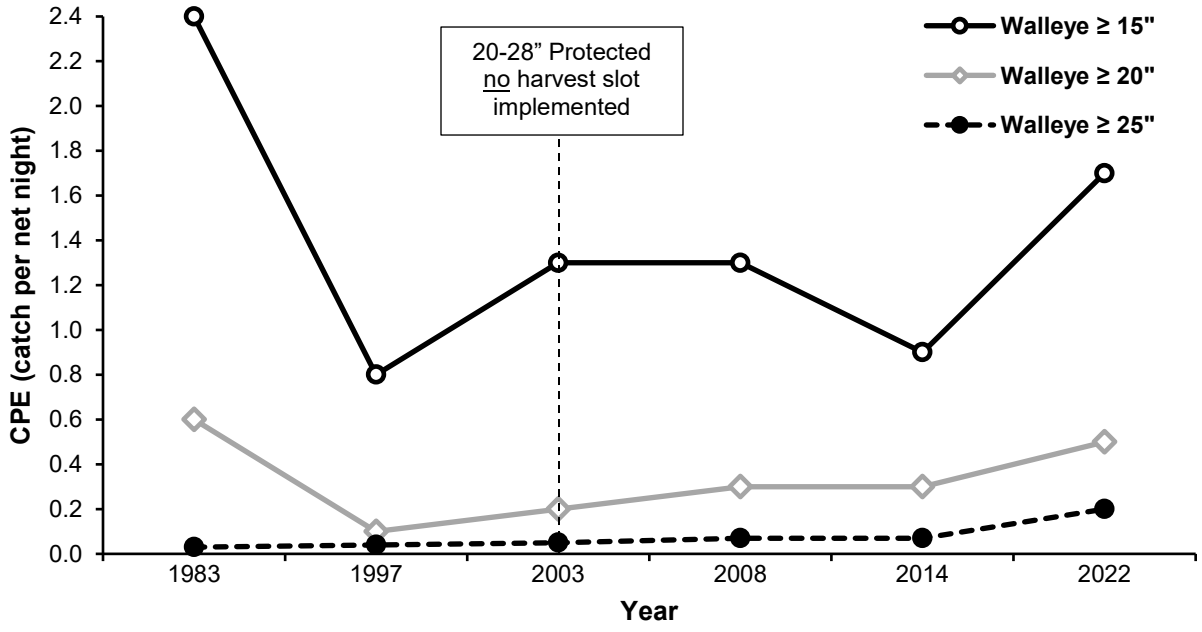

Figure 3. – Relative abundance (catch per effort; CPE) of Walleye at various sizes captured during spring fyke netting (SN1 and SN2) from Lake DuBay, Marathon and Portage County, Wisconsin in 1983, 1997, 2003, 2008, 2014 and 2022.

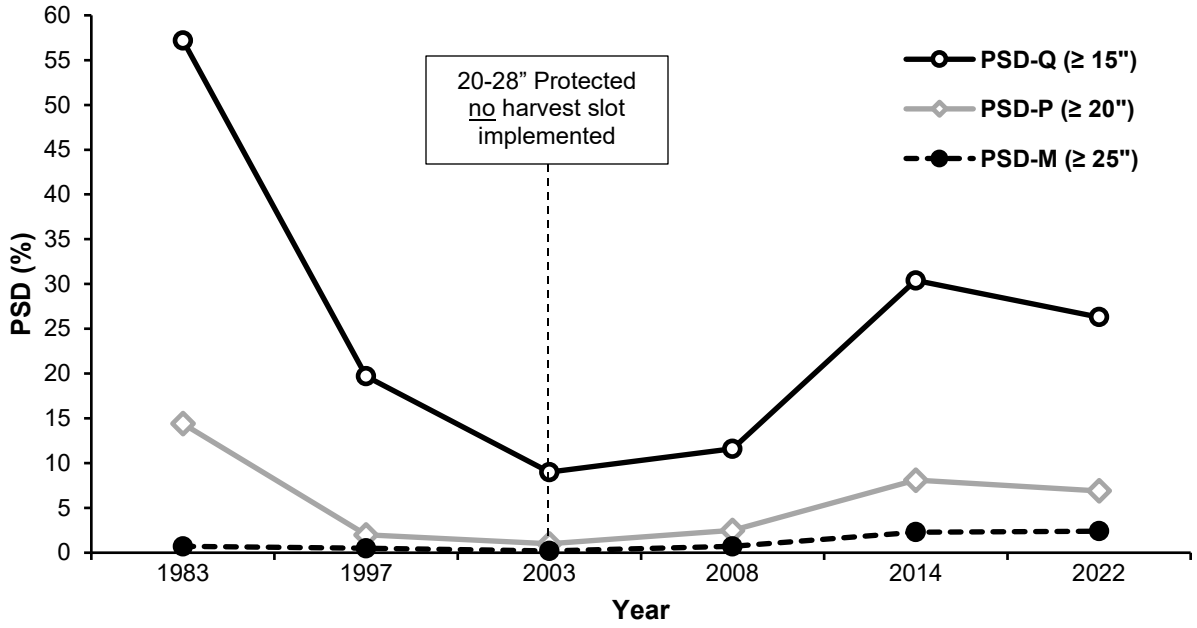

Figure 4. – Proportional stock distribution (PSD; %) of Walleye at quality (PSD-Q), preferred (PSD-P) and memorable (PSD-M) sizes captured during spring fyke netting (SN1 and SN2) from Lake DuBay, Marathon and Portage County, Wisconsin in 1983, 1997, 2003, 2008, 2014 and 2022.

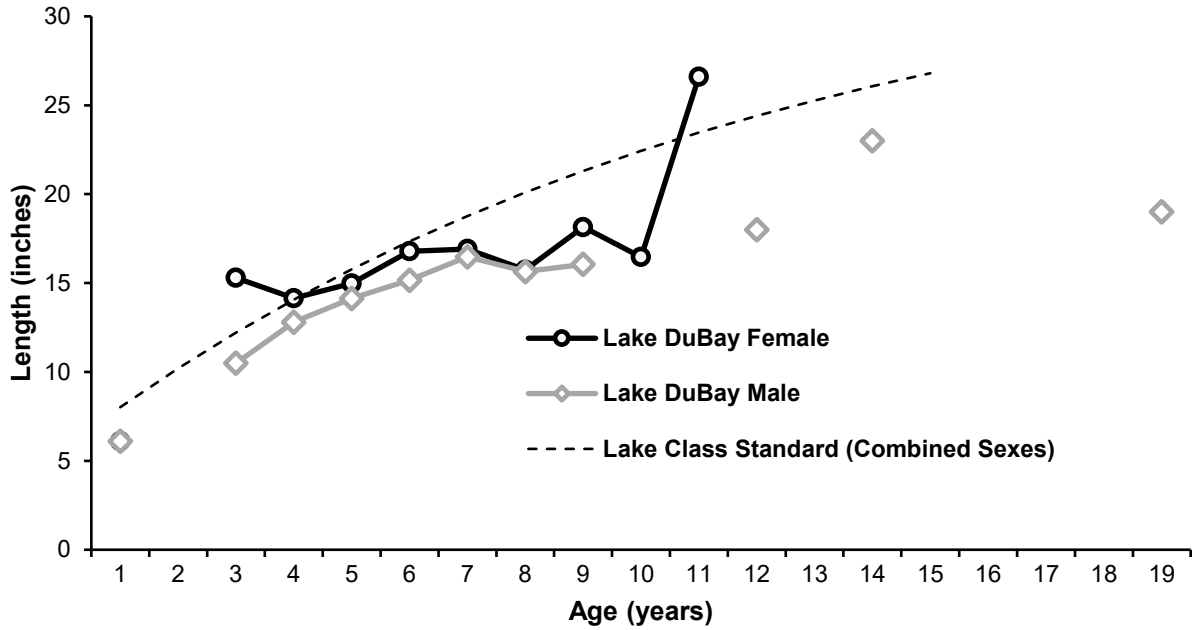

Figure 5. – Mean length at age of male and female Walleye captured in Lake DuBay during 2022 compared to the 50th percentile lake class standard for Wisconsin's complex riverine systems (combined sexes).

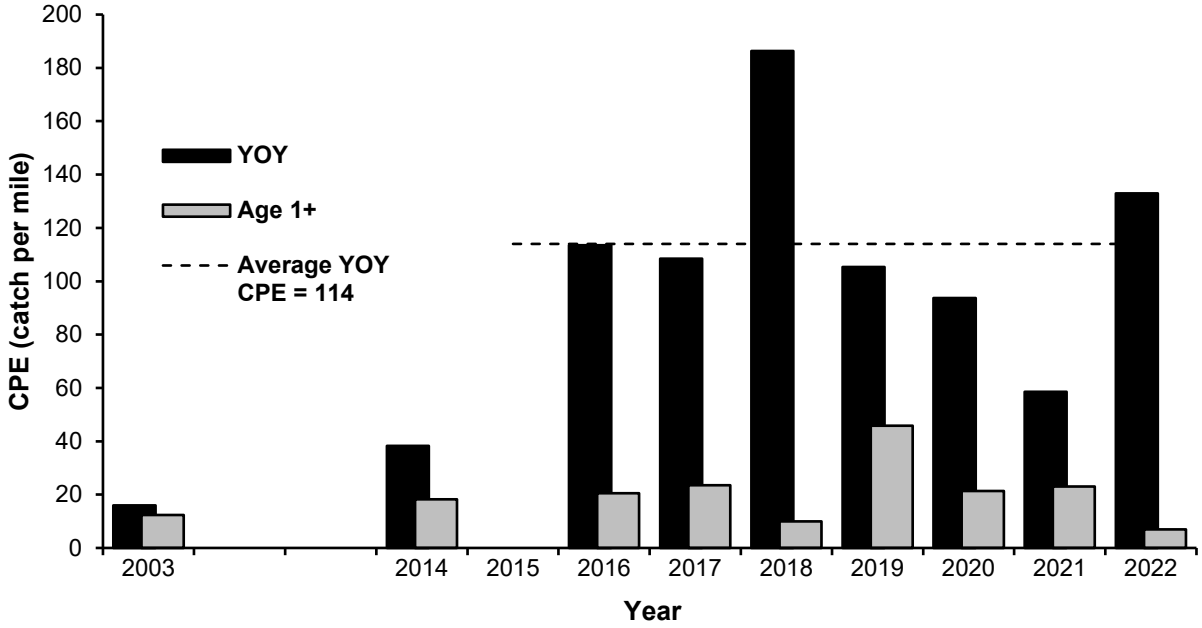

Figure 6. – Catch per effort (CPE; catch per mile) of young-of-year (YOY) Walleye captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2003, 2014 and 2016-2022 fall electrofishing (FE).

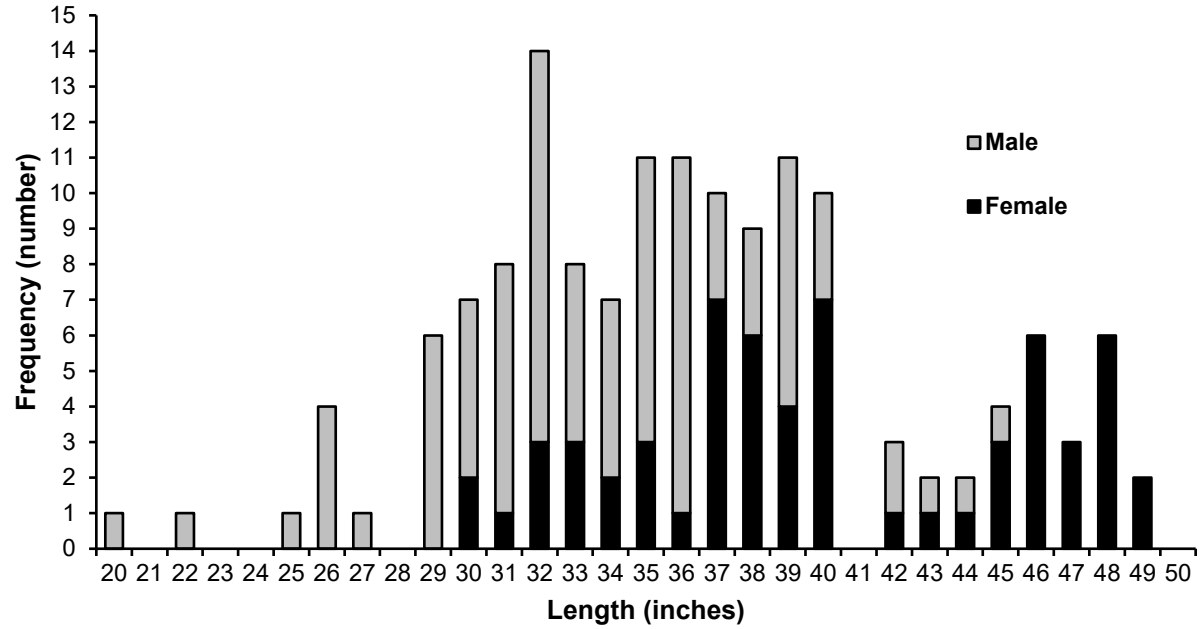

Figure 7. - Length frequency of Muskellunge (n = 148) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2) and early spring electrofishing (SE1).

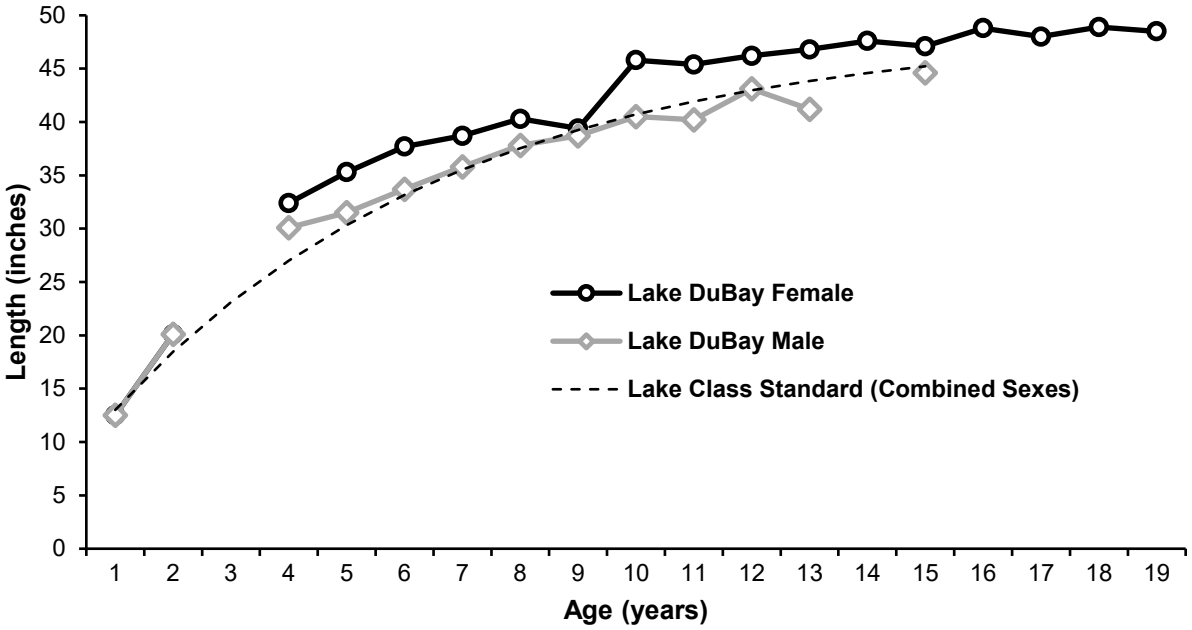

Figure 8. – Mean length at age of male and female Muskellunge captured in Lake DuBay during 2022 compared to the 50th percentile lake class standard for Wisconsin's complex riverine systems (combined sexes).

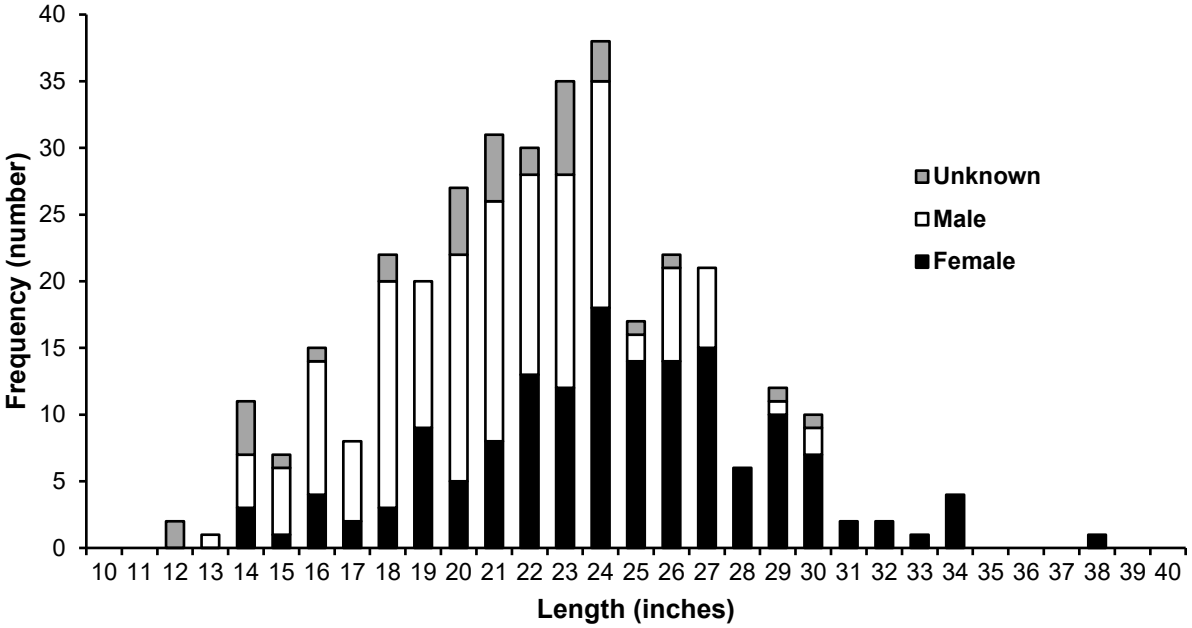

Figure 9. - Length frequency of Northern Pike (n = 345) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2).

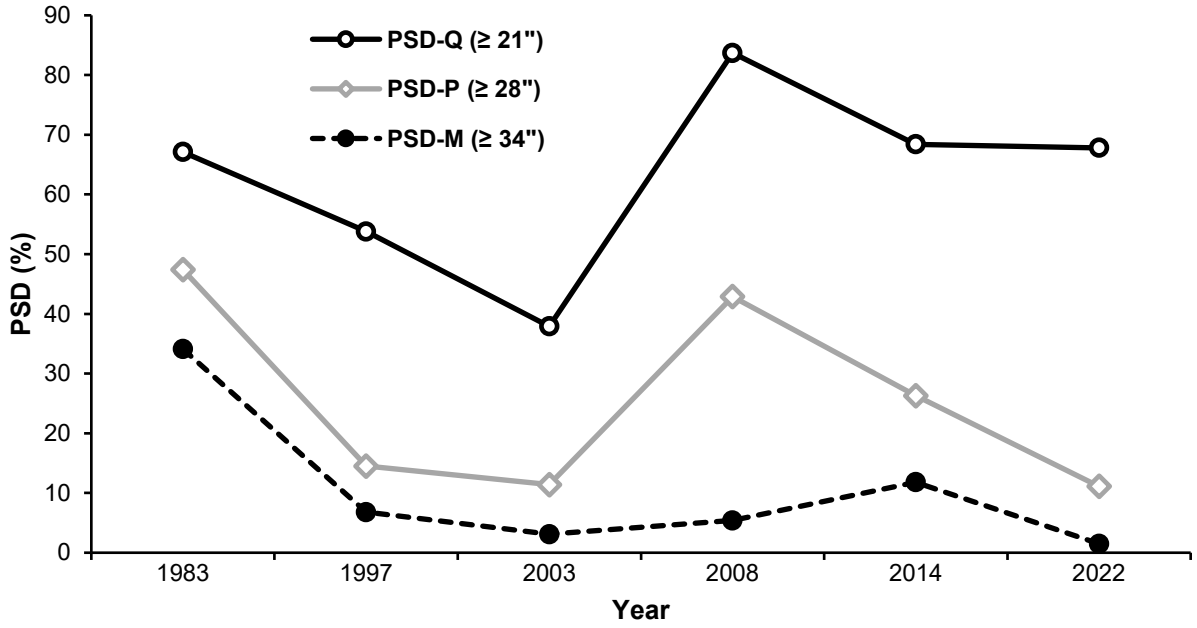

Figure 10. – Proportional stock distribution (PSD; %) of Northern Pike at quality (PSD-Q), preferred (PSD-P) and memorable (PSD-M) sizes captured during spring fyke netting (SN1 and SN2) from Lake DuBay, Marathon and Portage County, Wisconsin in 1983, 1997, 2003, 2008, 2014 and 2022.

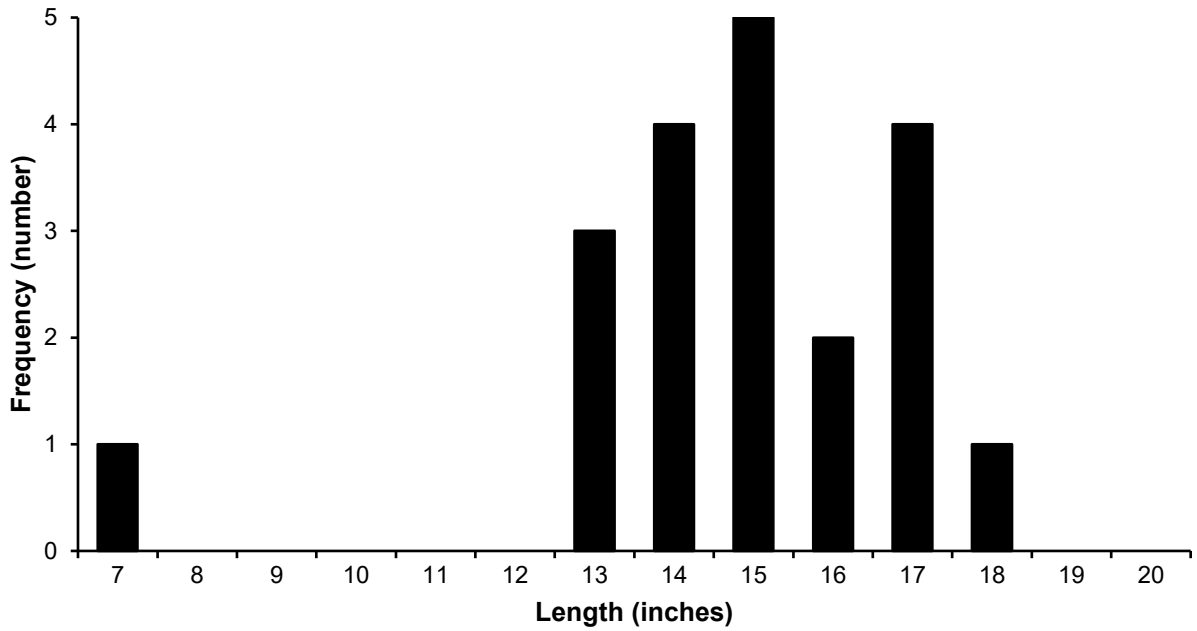

Figure 11. – Length frequency of Smallmouth Bass (n = 20) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2).

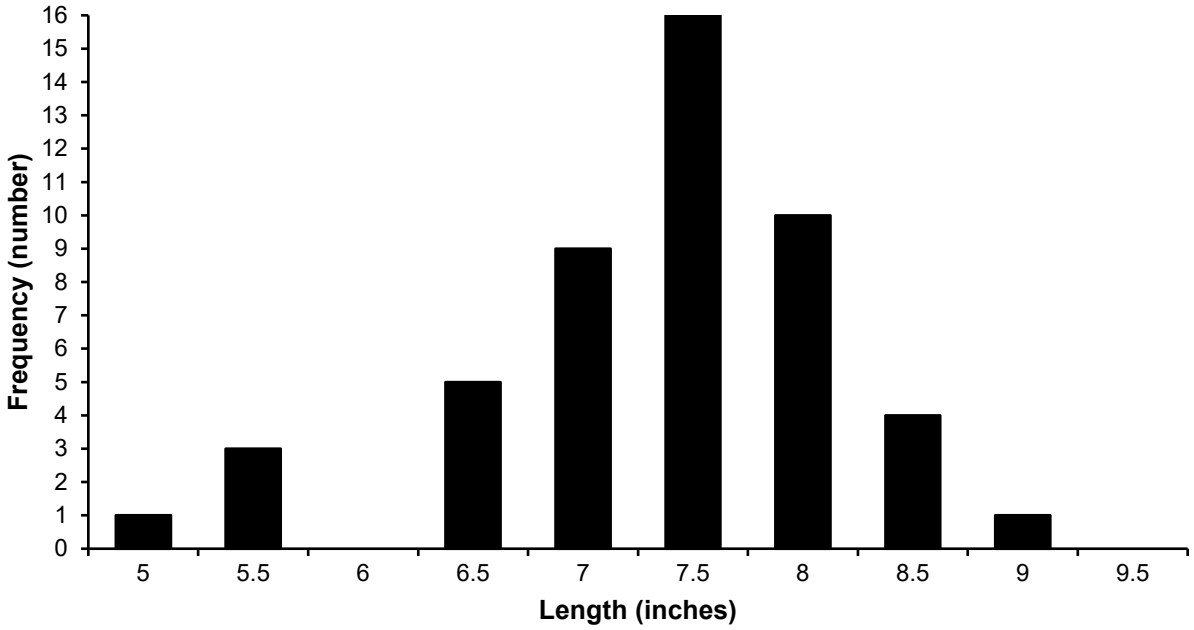

Figure 12. – Length frequency of Bluegill (n = 49) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2).

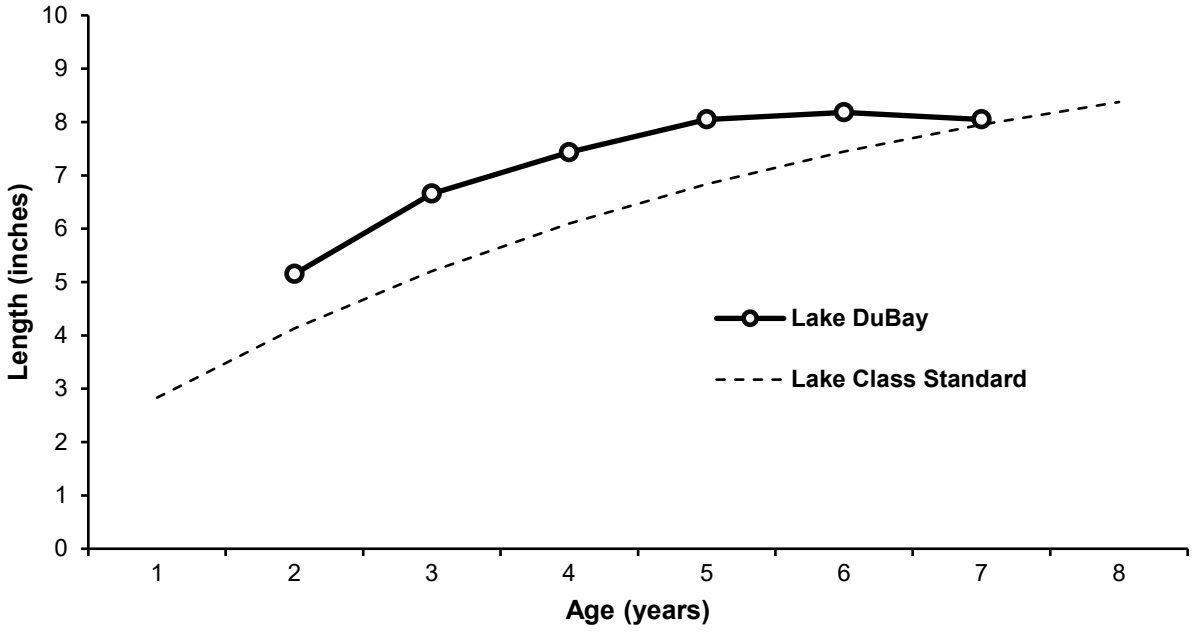

Figure 13. – Mean length at age of Bluegill captured in Lake DuBay during 2022 compared to the 50th percentile lake class standard for Wisconsin's complex riverine systems.

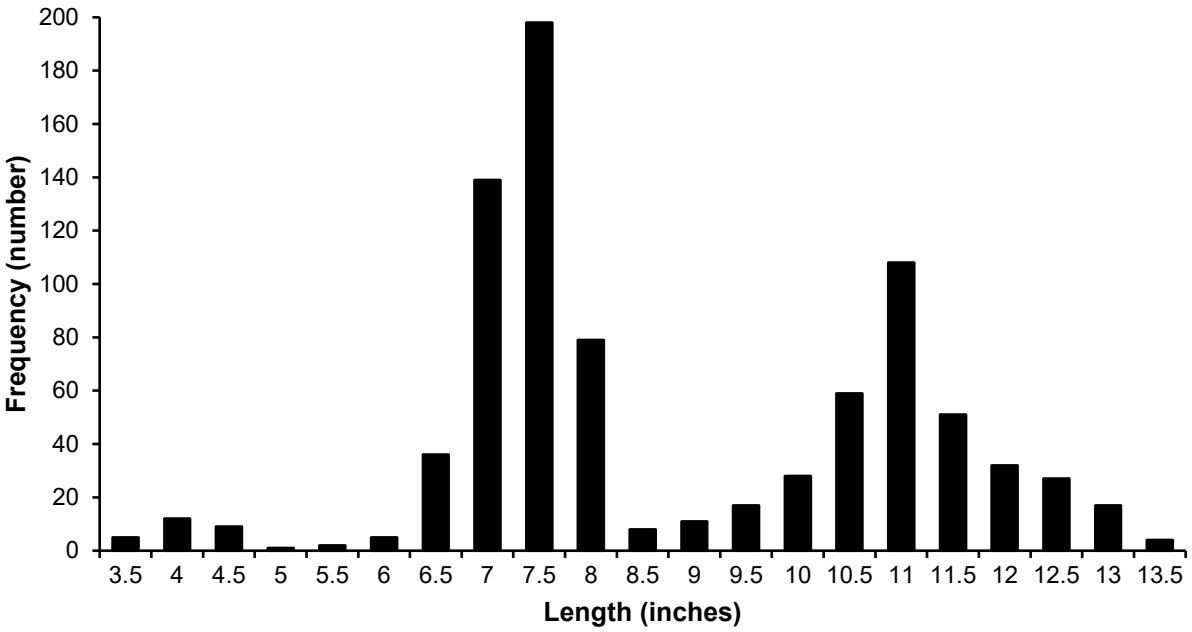

Figure 14. – Length frequency of Black Crappie (n = 848) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2).

Figure 15. – Mean length at age of Black Crappie captured in Lake DuBay during 2022 compared to the 50th percentile lake class standard for Wisconsin's complex riverine systems.

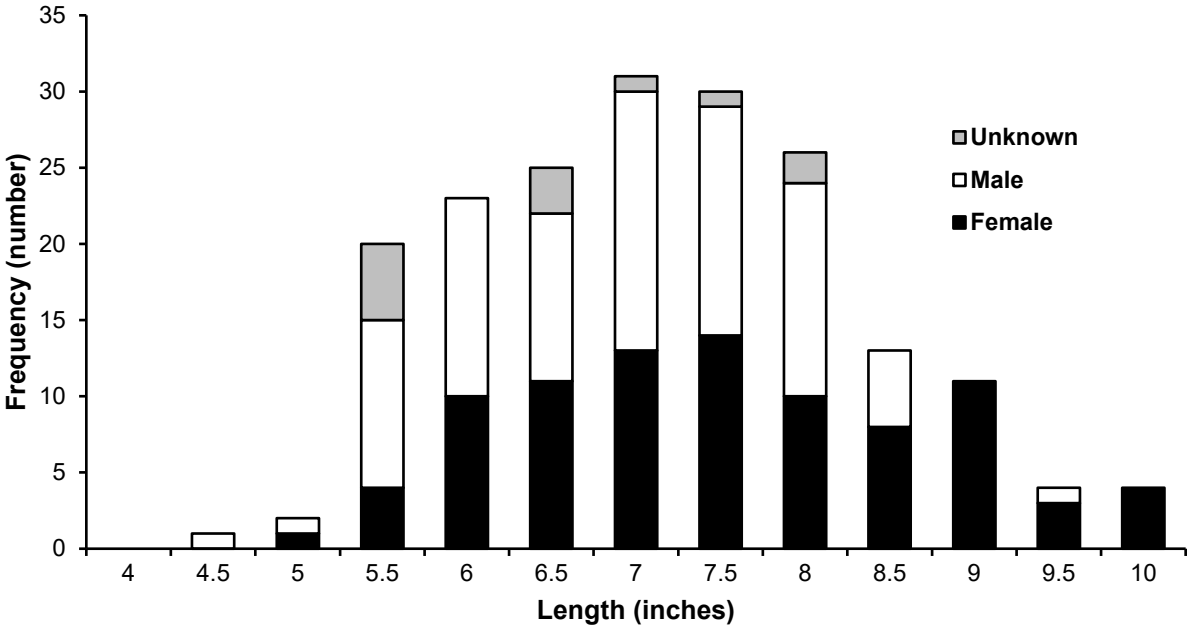

Figure 16. – Length frequency of Yellow Perch (n = 190) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2).

Figure 17. – Mean length at age of Yellow Perch captured in Lake DuBay during 2022 compared to the 50th percentile lake class standard for Wisconsin's complex riverine systems.

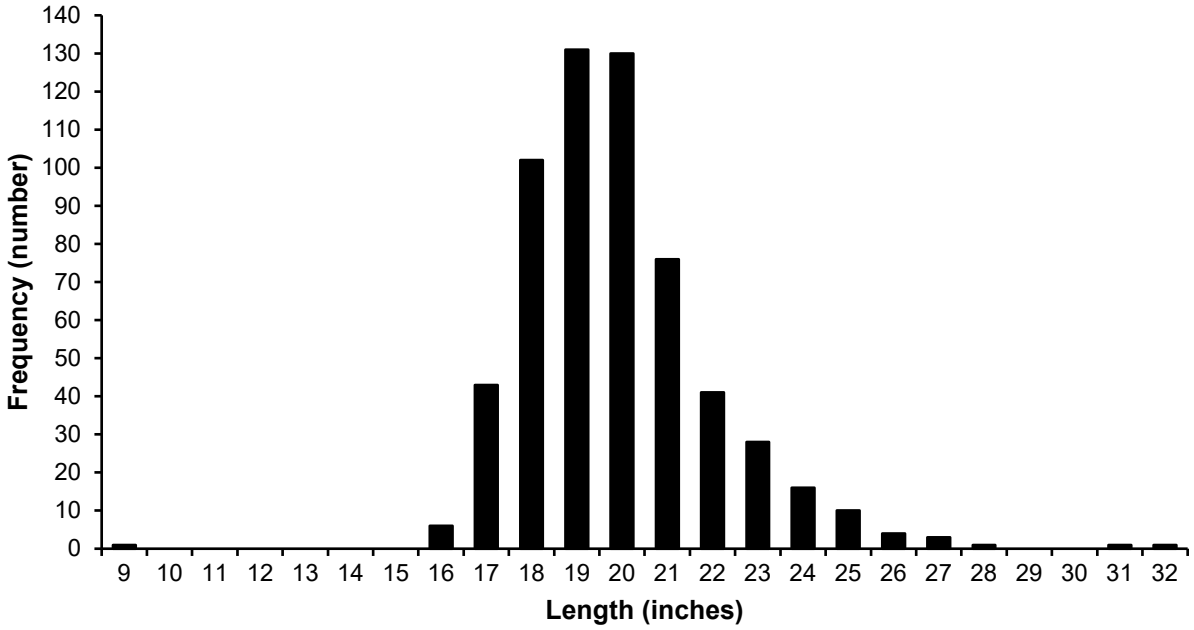

Figure 18. – Length frequency of Channel Catfish (n = 594) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2).

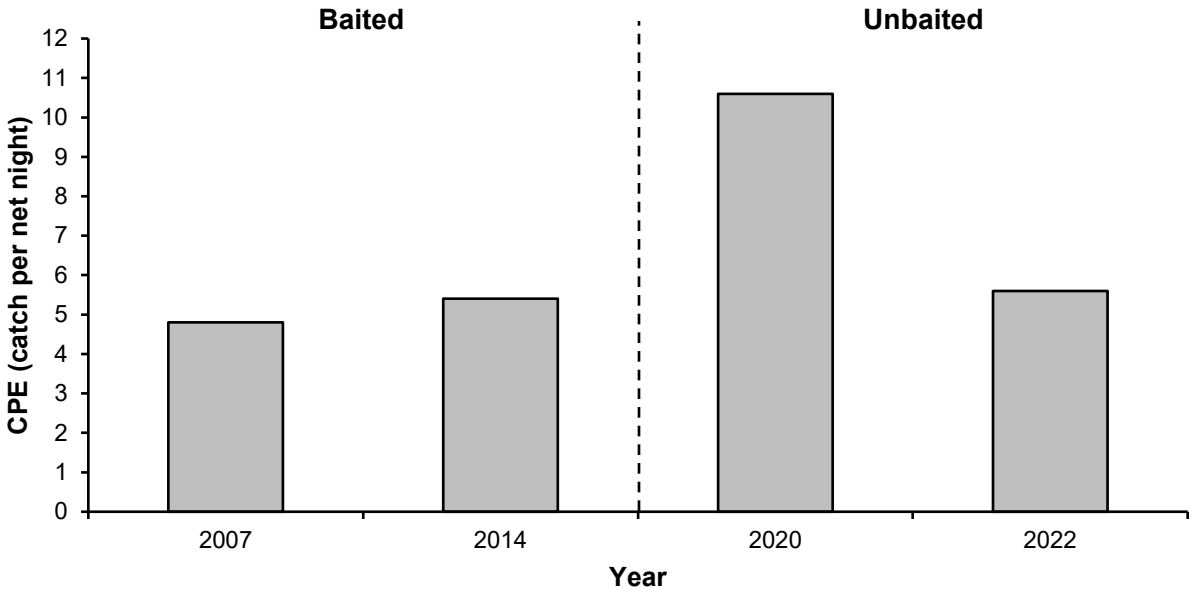

Figure 19. – Catch per effort (CPE; catch per net night) of Channel Catfish captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2007, 2014, 2020 and 2022 baited or unbaited summer hoop netting (HN).

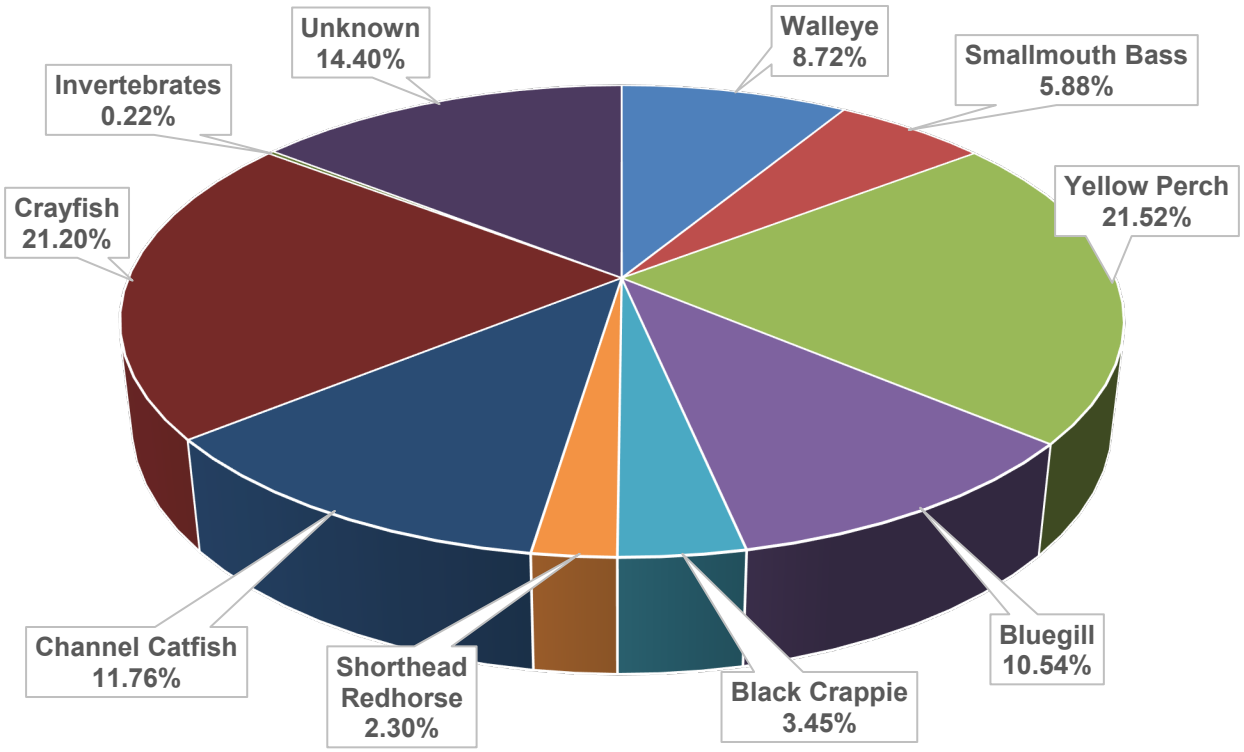

Figure 20. – Diet composition (mean percent by wet weight) of Channel Catfish (n = 17) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2).

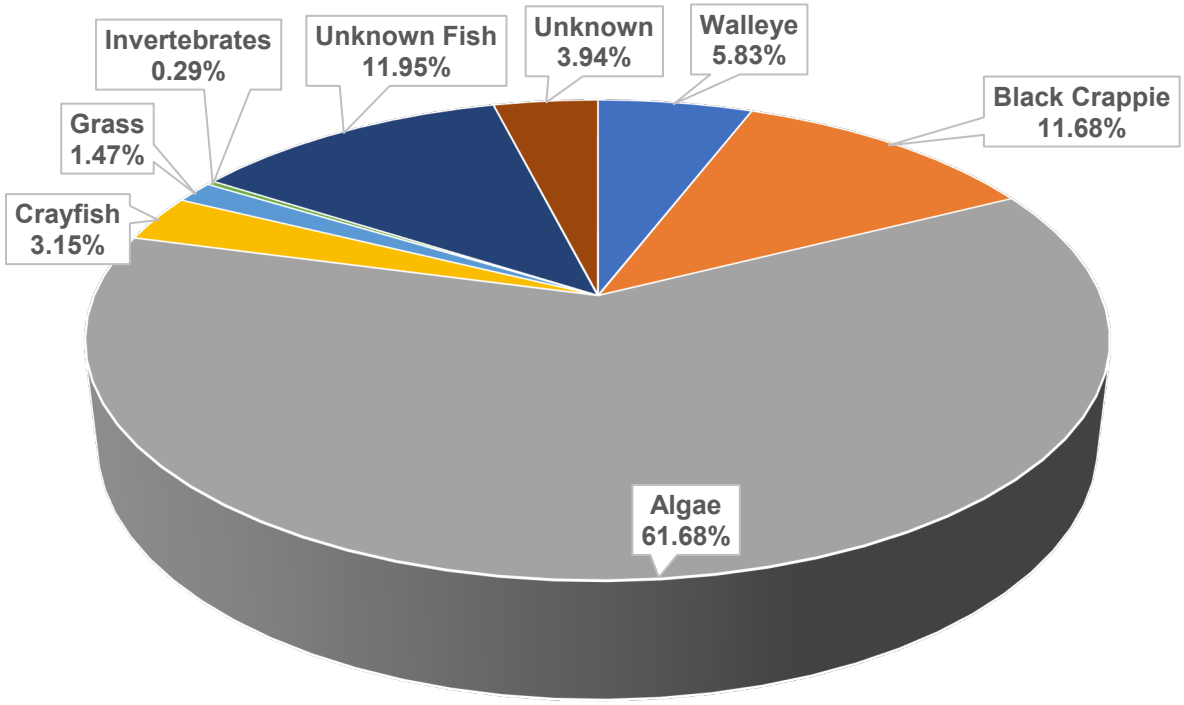

Figure 21. – Diet composition (mean percent by wet weight) of Channel Catfish (n = 39) captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 summer hoop netting (HN).

Table 1. – Stocking history from 1977-2022 for Lake DuBay, Marathon and Portage County, Wisconsin including age class, average length (inches) and number of fish stocked.

Year	Common Name of Fish	Age Class	Average Length	Number Stocked
1977	Walleye	Fry	-	3,000,000
	Northern Pike	Fry	-	2,462,500
1978	Walleye	Fry	-	2,500,000
	Northern Pike	Fry	-	2,500,000
1985	Northern Pike	Fingerling	8.0	6,100
1986	Northern Pike X Muskellunge	Fingerling	8.0	1,102
1987	Northern Pike X Muskellunge	Fingerling	-	4,428
1989	Muskellunge	Fingerling	7.0	675
	Northern Pike X Muskellunge	Fingerling	-	4,950
1991	Muskellunge	Fingerling	11.0	1,000
1997	Muskellunge	Fingerling	-	250
1998	Muskellunge	Fingerling	-	600
2001	Muskellunge	Fingerling	-	100
2015	Muskellunge	Large Fingerling	10.0	500
2016	Muskellunge	Yearling	15.0	200
2017	Muskellunge	Large Fingerling	12.3	1,160
2018	Muskellunge	Large Fingerling	11.0	1,300
	Muskellunge	Yearling	16.3	117
2019	Muskellunge	Large Fingerling	10.0	200
	Muskellunge	Yearling	12.0	200
2022	Muskellunge	Large Fingerling	11.8	1,161

Table 2. – Hook and line fishing regulations on Lake DuBay, Marathon and Portage County, Wisconsin for fish species captured during the 2022 comprehensive survey.

Common Name of Fish	Season	Minimum Length Limit (inches)	Daily Bag Limit
Walleye	Open All Year	15” 20-28” no harvest >28” only 1 fish	5
Muskellunge and Hybrids	May 28, 2022 – December 31, 2022	40”	1
Northern Pike	Open All Year	None	5
Largemouth Bass	Open All Year	14”	5 bass in total
Smallmouth Bass			
Bluegill & Pumpkinseed	Open All Year	None	25 panfish in total
Black & White Crappie			
Yellow Perch			
Catfish	Open All Year	None	10
Lake Sturgeon	Closed	Closed	No fishing allowed
Rock and White Bass	Open All Year	None	Unlimited
Rough Fish			
Bullheads			

Table 3. – Fish survey history from 1983-2022 on Lake DuBay, Marathon and Portage County, Wisconsin. Primary survey types include spring fyke netting (SN1 and SN2), early spring electrofishing (SE1), Lake Sturgeon electrofishing (LSE), late spring electrofishing (SE2), summer hoop netting (HN) and fall electrofishing (FE).

Year	Survey Gear	Type	Primary Target Species	Primary Survey Purpose
1983*	Fyke net	SN1	Walleye and Northern Pike	Mark-recapture census
	Boom shocker	SE1	Walleye and Northern Pike	Population estimate
1997*	Fyke net	SN1	Gamefish species	Mark-recapture census
	Boom shocker	SE1	Walleye and Northern Pike	Population estimate
2003*	Fyke net	SN1	Walleye and Northern Pike	Regulation evaluation & mark-recapture census/ population estimate
	Boom shocker	SE1	Walleye and Northern Pike	
	Mini fyke net	-	All species	Special study
	Boom shocker	FE	All species	Special study
2006	Mini boom shocker	-	All species	General baseline survey
2007	Hoop net	HN	Channel Catfish	Relative abundance
2008*	Fyke net	SN1	Walleye and Northern Pike	Mark-recapture census
	Boom shocker	SE1	Walleye and Northern Pike	Population estimate
2014*	Fyke net	SN1	Walleye, Northern Pike and Black Crappie	Mark-recapture census and Crappie tagging study
	Boom shocker	SE1	Walleye and Northern Pike	Population estimate
	Hoop net	HN	Channel Catfish	Relative abundance
	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring
2016	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring
2017	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring
2018	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring
2019	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring
2020	Hoop net	HN	Channel Catfish	Relative abundance
	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring
2021	Boom shocker	LSE	Lake Sturgeon	Spawn assessment
	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring
2022*	Fyke net	SN1/2	Walleye, Northern Pike and Muskellunge	Relative abundance and gamefish monitoring
	Boom shocker	SE1	Walleye	Relative abundance
	Boom shocker	LSE	Lake Sturgeon	Spawn assessment
	Boom shocker	SE2	Bass and panfish	Relative abundance
	Hoop net	HN	Channel Catfish	Relative abundance
	Boom shocker	FE	Juvenile Walleye	Recruitment monitoring

**Indicates years comprehensive surveys were conducted.*

Table 4. – Proportional size distribution (PSD) length categories (inches) used for sport fish species collected from Lake DuBay, Marathon and Portage County, Wisconsin in 2022 (based on Anderson and Neumann 1996).

Common Name of Fish	Stock	Quality (PSD-Q)	Preferred (PSD-P)	Memorable (PSD-M)
Walleye	10	15	20	25
Muskellunge	20	30	38	42
Northern Pike	14	21	28	34
Bluegill	3	6	8	10
Black Crappie	5	8	10	12
Yellow Perch	5	8	10	12
Channel Catfish	11	16	24	28

Table 5. – Total number, percent of total, average length, and length range of fish species captured in Lake DuBay, Marathon and Portage County, Wisconsin during 2022 spring fyke netting (SN1 and SN2) compared to the 25th – 75th percentile lake class standard for average lengths in Wisconsin's complex riverine systems.

Common Name of Fish	Number	Percent	Average Length (inches)	Length Range (inches)	Lake Class Standard Average Length
Walleye	1,592	21.4	13.9	6.3 – 29.6	8.4 – 12.8
Black Crappie	849	11.4	9.0	3.3 – 13.7	4.0 – 5.7
Channel Catfish	594	8.0	20.3	9.4 – 32.7	-
Northern Pike	345	4.6	22.8	12.6 – 38.4	11.1 – 18.2
Yellow Perch	190	2.6	7.4	4.5 – 10.4	3.5 – 4.6
Muskellunge	148	2.0	36.8	20.1 – 49.3	17.6 – 27.1
Bluegill	49	0.7	7.6	5.0 – 9.4	3.5 – 4.6
Smallmouth Bass	20	0.3	15.2	7.7 – 18.1	6.8 – 10.1
White Bass	16	0.2	12.9	6.4 – 15.4	-
White Crappie	2	<0.1	8.3	5.1 – 11.5	-
Pumpkinseed	2	<0.1	4.5	4.4 – 4.6	2.7 – 3.6
Largemouth Bass	1	<0.1	16.2	-	6.2 – 9.8
Grass Pickerel	1	<0.1	9.2	-	-
Lake Sturgeon	1	<0.1	32.7	-	-
Common Carp	2,398	32.3	-	-	-
Redhorse Species	997	13.4	-	-	-
White Sucker	125	1.7	-	-	-
Bowfin	63	0.8	-	-	-
Bullhead Species	28	0.4	-	-	-
Golden Shiner	7	0.1	-	-	-
Total	**7,428**	**100.0%**	**-**	**-**	**-**

Table 6. – Relative abundance (catch per effort; CPE) of fish captured during spring fyke netting (SN1 and SN2) from Lake DuBay, Marathon and Portage County, Wisconsin in 1983, 1997, 2003, 2008, 2014 and 2022 compared to the 25th – 75th percentile lake class standard for Wisconsin's complex riverine systems.

	Fyke Net CPE (Catch Per Net Night)						
Common Name of Fish	1983	1997	2003	2008	2014	2022	Lake Class Standard
Walleye	5.0	9.9	27.1	11.4	3.3	6.1	0.3 – 3.6
Muskellunge	-	-	<0.1	<0.1	<0.1	0.6	0.1 – 0.5
Northern Pike	1.1	2.3	3.3	1.6	0.4	1.3	0.6 – 4.0
Smallmouth Bass	-	0.1	1.4	0.3	0.1	0.1	-
Bluegill	1.3	1.7	3.9	6.9	1.2	0.2	-
Black Crappie	2.7	0.9	3.0	48.2	9.5	3.2	2.8 – 17.4
Yellow Perch	1.0	1.9	2.4	<0.1	1.5	0.7	0.8 – 6.8
Channel Catfish	-	0.8	3.3	3.3	3.1	2.3	-

Table 7. – Size Structure of gamefish and panfish species for Lake DuBay, Marathon and Portage County, Wisconsin in 2022 during spring fyke netting (SN1 and SN2) and spring electrofishing surveys (SE1).

Common Name of Fish	Sample Size	Quality (PSD-Q)	Preferred (PSD-P)	Memorable (PSD-M)
Walleye	1,701	26.3	6.9	2.4
Muskellunge	148	90.5	39.2	18.9
Northern Pike	342	67.8	11.1	1.5
Bluegill	49	91.8	30.6	-
Black Crappie	822	53.6	39.7	9.7
Yellow Perch	189	30.7	2.1	-
Channel Catfish	593	100.0	6.1	0.5