WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Lake Namakagon* Fishery Management Plan

*The lake name of Namakagon and Namekagon are used interchangeably

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Background

The Lake Namakagon walleye population historically maintained a relatively high abundance that provided a quality fishery with socio-economic and cultural importance. In the 2010s, the walleye population declined causing concern for users and resource managers. A Great Lakes Indian Fish and Wildlife Commission (GLIFWC) survey in 2017 estimated 2.3 adults/acre, which was a historic low. A working group of riparian property owners, Lake Namakagon business owners, Wisconsin DNR fisheries personnel, GLIFWC fisheries personnel and local anglers developed the Lake Namakagon Fishery Initiative (LNFI) in 2018 to collaboratively manage the Lake Namakagon fishery with the overall mission "to provide healthy fish communities for current and future users". The LNFI identified six goals: 1) Increase walleye abundance, 2) Increase fish habitat and protect water quality, 3) Update fish survey and angler metrics for all species, 4) Provide increased angler harvest opportunity for largemouth bass, 5) Define economic impact of the fishery through study and 6) Develop fishery management plan using fish survey and social survey data. Since the LNFI was established, management actions have primarily focused on goals 1 and 2 through walleye stocking efforts in collaboration with Red Cliff Tribe and UW-Stevens Point Northern Aquaculture Demonstration Facility (NADF) and implementing large woody habitat additions to nearshore areas through fish sticks and tree drop projects and improving natural buffers through shoreline restoration. A comprehensive fisheries survey with angler creel survey was completed in 2021 (Thomas 2023) to accomplish goal 3 and a no minimum length limit angling regulation for largemouth bass was enacted in 2018 to accomplish goal 4. As of February 2025, the economic impact study (goal 5) has not been completed. This fishery management plan accomplishes goal 6 and serves as an updated version of the LNFI to guide future management efforts under the same LNFI mission.

Social Survey

METHODS

An online social survey was conducted from March-June 2023 using Survey Monkey to gauge public interest and preferences regarding fisheries management in Lake Namakagon (Appendix B). The primary focus of the survey was to better understand interest in species, the desired type of fishery from catch-and-release to harvest oriented and preferences for fish size, abundance, or a balance between size and abundance for each species. This format was similar to previous DNR social surveys used for fisheries management plan construction to maintain consistency in collecting public input. The survey was distributed through several channels in collaboration with the Namakagon Lake Association, LNFI founding members and other local contacts. A total of 167 participants completed the social survey.

RESULTS

INTEREST IN EACH SPECIES

- Participants expressed the most interest in walleye followed by black crappie, bluegill, muskellunge, smallmouth bass, northern pike, yellow perch and largemouth bass (Table A1).
- These results were different than the WDNR 2021 angler creel survey where muskellunge received the most fishing effort followed by black crappie, walleye, bluegill, northern pike, largemouth bass, smallmouth bass and yellow perch (Figure A1). Fishing effort for muskellunge, black crappie and walleye was 63% of all species-specific fishing effort during the 2021 angler creel survey, highlighting the importance of these three species (Figure A1).

PREFERENCE FOR CATCH-AND-RELEASE VS HARVEST

- Most participants preferred a balance between catch-and-release and harvest for walleye, bluegill, black crappie and yellow perch. Catch-and-release was preferred for smallmouth bass, largemouth bass and muskellunge and there was a relatively even mix of the three types for northern pike although harvest was the most preferred (Table A2).

PREFERENCE FOR ABUNDANCE OR SIZE

- Most participants overwhelmingly preferred a balance of abundance and size for walleye, black crappie, bluegill and yellow perch. Most participants also preferred a balance of abundance and size for northern pike, largemouth bass and smallmouth bass, however, there was moderate interest in emphasizing size over abundance for pike and bass. Most participants preferred a trophy muskellunge fishery emphasizing size over abundance, however, there was moderate interest in managing for a balance between muskellunge size and abundance (Table A2).

Goals, Objectives, Monitoring and Management Strategies

Overall goals and measurable objectives are based off historical fish and angler creel surveys from Lake Namakagon and other reference lakes that have similar environmental characteristics and fish communities and the results from the Lake Namakagon social survey. Reference lakes for walleye were Ceded Territory lakes primarily sustained by natural recruitment, for muskellunge all classified muskellunge waters in the Ceded Territory were used as reference lakes and for other species reference lakes were Ceded Territory lakes of the same “Complex-Cool-Dark” DNR fisheries lake class (Rypel et al. 2019). Monitoring is the proposed fish survey sampling schedule for each species. Management strategies are the feasible actions that could be implemented in effort to meet objectives.

WALLEYE

Walleye are of high interest to users of Lake Namakagon. They were the third most targeted species during the 2021 angler creel survey (Figure A1) and were ranked as the highest priority species by social survey participants (Table A1). Additionally, tribal members harvest walleye annually by spearing on Lake Namakagon. Since 1989 a total of seven walleye population estimates have been conducted on Lake Namakagon and abundance typically ranged from 4-6 adults/acre (Figure A2). The 2017 population estimate (2.3 adults/acre) was outside of the historic range (Figure A2). The most recent population estimate in 2021 was at 4.3 adults/acre (Figure A2), which is a relatively high density compared to other Ceded Territory lakes. Size structure in the 2021 survey was the lowest ever observed, driven by the high proportion of younger and smaller adults as the population was rebounding from low abundance in the late 2010s. Although there is a long history of walleye stocking from the 1930-1960s, natural recruitment has primarily sustained this population in recent decades. Walleye stocking was discontinued after the 1993 population estimate survey due to strong evidence of natural recruitment. Natural recruitment decreased in the late 2000s and has moderately increased since the mid-2010s but is still lower than levels observed in the 1990s (Figure A3). Since 2020, walleye have been stocked as part of a project evaluating two different rearing methods (more on that in the management strategies section). Social survey participants would generally like to see management efforts focus on providing a balance between catch-and-release and harvest and overwhelmingly want management efforts to emphasize a balance between abundance and size (Table A2).

WALLEYE GOAL

Provide a quality walleye fishery by maintaining abundance and proportion of quality length fish within moderate historical range for Lake Namakagon that is sustained through natural recruitment.

WALLEYE OBJECTIVES

- Abundance objective: 4-6 adults/acre
- Size objective: Of all walleye ≥ 10 inches captured in spring fyke net surveys, 35-50% should be ≥ 15 inches (PSD=35-50%).
- Recruitment objective: Five-year mean age-0 catch-per-unit-effort (CPUE) ≥ 4.0 fish/mile during fall electrofishing surveys. Despite good natural reproduction, age-0 CPUE in Lake Namakagon is typically low (Figure A4), resulting in a lower recruitment objective for age-0 CPUE compared to other similar lakes.

WALLEYE MONITORING (in collaboration with GLIFWC)

- Adult population estimate conducted every 6 years.
- Recruitment survey conducted every year.

WALLEYE MANAGEMENT STRATEGIES

- Angler regulation
    - The Ceded Territory base regulation (15-inch minimum length limit, 20–24-inch protected slot, 1 fish >24 inches) currently fits this population well given the social and biological data. This regulation allows males and females to spawn 1-3 times prior to being susceptible to harvest but still allows harvest opportunities. The 20-24-inch protected slot helps maintain size structure and provides further protection of mature female walleyes.
- Stocking
    - Since 2020, Red Cliff Tribe, NADF and Namakagon Lake Association members have collaborated to stock large fingerling walleye every year besides 2022. This project raises walleye in outdoor ponds (LV fin clip) and indoor recirculating aquaculture systems (RAS; RV fin clip). The pond-raised fish are fed minnows and are more expensive to raise compared to the pellet fed RAS-raised fish. During the next adult population estimate, survival to maturity of these stocked fish will be estimated to determine cost effectiveness between these two rearing methods and the contribution of stocked fish to the adult population.
    - The population is currently sustained by natural reproduction but stocking of DNR raised fish will be pursued if the five-year mean age-0 CPUE < 4.0 fish/mile during fall electrofishing surveys and no individual year class in the previous two years is ≥ 10.0 age-0/mile. The individual year class criteria is to prevent stocking on top of a strong year class which would increase competition and reduce survival of both stocked and natural fish.

MUSKELLUNGE

Muskellunge are an important species in Lake Namakagon, receiving the most species-specific fishing effort during the 2021 angler creel survey (Figure A1) and were ranked as the fourth highest priority species by social survey participants (Table A1). This population has remained relatively stable through time at a low to moderate abundance (0.15 – 0.21 adults/acre) with high size structure. The 2021 survey estimated 0.21 adults/acre with high size structure where 30% of the muskellunge captured in spring fyke nets were ≥ 42 inches (PSD-42). This PSD-42 value was higher than 95% of other muskellunge populations sampled from 2014-2024 within the Ceded Territory. The high size structure is likely driving the popularity of this fishery which provides anglers an opportunity to catch a trophy fish. This population is stocking dependent as no significant natural recruitment has been documented. Social survey participants would like to see management efforts focus on providing a catch-

and-release trophy fishery emphasizing low abundance and high size structure (Table A2).

MUSKELLUNGE GOAL

Provide a trophy musky fishery by maintaining abundance and proportion of memorable length fish within moderate historical range for Lake Namakagon and Trophy Musky Classification standards (mean PE=0.23 and mean PSD-42=25%).

MUSKELLUNGE OBJECTIVES

- Abundance objective: 0.10-0.25 adults/acre
- Size objective: Of all muskellunge ≥ 30 inches captured in spring fyke net surveys, 20-35% should be ≥ 42 inches (PSD-42=20-35%).

MUSKELLUNGE MONITORING

- Adult population estimate conducted every 12 years.

MUSKELLUNGE MANAGEMENT STRATEGIES

- Angler regulation
    - The trophy regulation of a 50-inch minimum length limit fits this population well given the social and biological data. Muskellunge in Lake Namakagon can exceed 50 inches; thus, this regulation allows fish to maximize growth potential and provide anglers the opportunity for trophy sized fish.
- Stocking
    - Continue stocking DNR raised large fingerling muskellunge at 0.8/acre on an alternate year basis to sustain this popular fishery that is dependent on stocking.

BLACK CRAPPIE

Black crappie were the second highest priority species of social survey participants (Table A1) and received the second most species-specific fishing effort during the 2021 angler creel survey (Figure A1). Data from the 2021 spring fyke net survey indicated this population was at a moderate abundance with moderate size structure. Angler creel survey data indicate crappie fishing effort, catch rate and harvest/acre increased slightly from 2002 to 2021, however, relative abundance CPUE and size structure metrics (mean length and PSD) from spring fyke net surveys remained stable from 2002 to 2021. There was a moderate level of crappie effort/acre, catch/hour and harvest/acre on Lake Namakagon in 2021 compared to reference lakes of the same lake class from 2014-2024; crappie catch/hour and harvest/acre ranked between the 50th and 55th percentile and crappie effort ranked between the 40th and 45th percentile. Aging structures (otoliths) were collected in June 2024 during an electrofishing demonstration and growth rates appeared to be faster

than other crappie populations in reference lakes of the same lake class. In future surveys, collecting a larger sample size of aging structures across a wider range of fish lengths will allow for a more accurate assessment of growth and mortality. Social survey participants would generally like to see management efforts focus on providing a balance between catch-and-release and harvest with some interest in maximizing sustainable harvest. There was a strong desire for management efforts to emphasize a balance between abundance and size (Table A2).

BLACK CRAPPIE GOAL

Provide a quality crappie fishery by maintaining abundance and proportion of quality length fish within moderate historical range for Lake Namakagon and lake class standards.

BLACK CRAPPIE OBJECTIVES

Objectives should be updated (if needed) with data from more frequent spring fyke net surveys targeting crappie in the future.

- Relative abundance objective: Spring fyke net CPUE of 2.5-10.0 fish/net night
- Size objective: Of all black crappie ≥ 5 inches captured in spring fyke net surveys, 50-70% should be ≥ 8 inches (PSD=50-70%).

BLACK CRAPPIE MONITORING

- Spring fyke net survey conducted every 6 years with age and growth analyses incorporated.

BLACK CRAPPIE MANAGEMENT STRATEGIES

- Angler regulation
    - The panfish base regulation (25 fish daily bag limit) fits this population well, given the social and biological data. This regulation provides harvest opportunity of a population with moderate size structure and relative abundance that has remained stable through time. Social survey participants mostly desired a balance between catch-and-release and harvest with some interest in maximizing harvest but expressed a strong desire for a balance between abundance and size. Given these social desires, the current level of harvest from the 25 fish bag limit regulation is likely playing a beneficial role in maintaining the desired balance between abundance and size, however, this could be difficult to determine given the cyclical boom and bust pattern of crappie recruitment. Collecting aging structures during future surveys to estimate growth, mortality and recruitment patterns will be valuable to better understand this fishery and evaluate the influence of angler harvest. If size structure and

CPUE decreases, and growth rates increase after the next fyke net survey a more restrictive regulation could be pursued. Other factors will need to be considered as well such as the negative relationship between crappie abundance and walleye natural recruitment (Broda et al. 2022). Given the importance of walleye in Lake Namakagon, a more restrictive crappie regulation may counteract the management goal of maintaining walleye natural recruitment.

BLUEGILL

Bluegill also rank high among Lake Namakagon anglers. They were the fourth most targeted species during the 2021 angler creel survey (Figure A1) and social survey participants ranked them as the third highest priority species (Table A1). From the 2021 late spring electrofishing (SE2) survey the bluegill population had low abundance with moderate size structure compared to reference lakes of the same lake class. However, with data from only one SE2 survey, bluegill population metrics cannot be analyzed through time with fish survey data, but trend analyses were possible with data from the multiple angler creel surveys. There was a slight decrease in bluegill fishing effort and harvest/acre and a slight increase in mean length of harvested fish from 2002 to 2021. Similar to crappie, there were moderate levels of bluegill fishing effort, catch and harvest on Lake Namakagon during the 2021 angler creel survey with all three metrics ranking between the 30th and 50th percentile when compared to reference lakes of the same lake class from 2014-2024. Aging structures (otoliths) were collected in June 2024 during an electrofishing demonstration and growth rates appear to be slightly faster than other bluegill populations in reference lakes of the same lake class. In future surveys, collecting a larger sample size of aging structures across a wider range of fish lengths will allow for a more accurate assessment of growth and mortality. Like crappie, social survey participants would generally like to see bluegill management efforts focus on providing a balance between catch-and-release and harvest. However, there was some interest in maximizing sustainable harvest but overwhelmingly participants wanted management efforts to emphasize a balance between abundance and size (Table A2).

BLUEGILL GOAL

Provide a quality bluegill fishery by maintaining abundance and proportion of quality length fish within moderate historical range for Lake Namakagon and lake class standards.

BLUEGILL OBJECTIVES

Because of limited survey data, bluegill objectives should be updated (if needed) as more SE2 surveys are completed.

- Relative abundance objective: SE2 CPUE of 40-70 fish/mile

- Size objective: Of all bluegill ≥ 3 inches captured during SE2 surveys, 40-60% should be ≥ 6 inches (PSD=40-60%).

BLUEGILL MONITORING

- SE2 survey conducted every 6 years with age and growth analyses incorporated.

BLUEGILL MANAGEMENT STRATEGIES

- Angler regulation
    - The panfish base regulation (25 fish daily bag limit) fits this population well given the social and biological data. This regulation provides harvest opportunity of a population that has maintained moderate size structure through time. If size structure and CPUE decreases and growth rates increase after the next SE2 survey, a more restrictive regulation could be pursued.
- Predation
    - A key strategy for achieving bluegill objectives will be to maintain a moderately dense effective predator on small bluegill. Walleye are a likely predator candidate in Lake Namakagon and the high walleye density serves an important role in reducing abundance of smaller bluegill and maintaining moderate bluegill size structure.

NORTHERN PIKE

Northern pike are of moderate interest to users of Lake Namakagon. They were the fifth most targeted species during the angler creel survey (Figure A1) and social survey participants ranked them as the sixth highest priority species (Table A1). Data from the spring fyke net survey in 2021 indicate this population was at a moderate abundance with moderate to high size structure. Social survey participants were most interested in maximizing sustainable harvest, however, there was also considerable interest in both preferring a balance between catch-and-release and harvest as well as emphasizing catch-and-release (Table A2). Most participants want management efforts to produce a fishery balanced between abundance and size, however, there was a substantial interest in emphasizing size over abundance (Table A2).

NORTHERN PIKE GOAL

Provide a quality northern pike fishery with opportunity for large fish by maintaining abundance and proportion of quality length fish within moderate historical range for Lake Namakagon and lake class standards.

NORTHERN PIKE OBJECTIVES

- Relative abundance objective: Spring fyke net CPUE of 1-4 fish/net night

- Size objective: Of all northern pike ≥ 14 inches captured in spring fyke net surveys, 35-65% should be ≥ 21 inches (PSD=35-65%).

NORTHERN PIKE MONITORING

- Spring fyke net survey conducted every 6 years.

NORTHERN PIKE MANAGEMENT STRATEGIES

- Angler regulation
    - The northern zone base regulation (5 fish daily bag limit and no minimum length limit) fits this population well given the social and biological data. This regulation provides harvest opportunity of a population that has maintained moderate abundance and moderate to high size structure through time.

SMALLMOUTH BASS

Smallmouth bass are of moderate interest to users of Lake Namakagon. They were the seventh most targeted species during the angler creel survey (Figure A1) and social survey participants ranked them as the fifth highest priority species (Table A1). From the 2021 SE2 survey, the smallmouth population was at moderate abundance with moderate to high size structure. Social survey participants expressed the most interest in management that emphasized catch-and-release and a balance between abundance and size although there was also substantial interest in emphasizing size over abundance (Table A2).

SMALLMOUTH BASS GOAL

Provide a quality smallmouth fishery by maintaining abundance within moderate historical range for Lake Namakagon and lake class standards with a moderate to high proportion of quality length fish.

SMALLMOUTH BASS OBJECTIVES

Because of limited survey data, smallmouth bass objectives should be updated (if needed) as more SE2 surveys are completed.

- Relative abundance objective: SE2 CPUE of 3-9 fish/mile
- Size objective: Of all smallmouth bass ≥ 7 inches captured in SE2 surveys, 55-85% should be ≥ 11 inches (PSD=55-85%).

SMALLMOUTH BASS MONITORING

- SE2 survey conducted every 6 years.

SMALLMOUTH BASS MANAGEMENT STRATEGIES

- Angler regulation
    - The 18-inch minimum length limit and 1 fish daily bag limit fits this population well given the social and biological data. This regulation allows minimal harvest and protects the larger size

classes in the population, thus maintaining moderate to high size structure.

LARGEMOUTH BASS

Largemouth bass are of low interest to users of Lake Namakagon. They were the sixth most targeted species during the angler creel survey (Figure A1) and were the lowest ranked species by social survey participants (Table A1). From the 2021 SE2 survey, the largemouth population was at a low abundance. Social survey participants expressed the most interest in management that emphasized catch-and-release although there was also moderate interest in managing for a balance between catch-and-release and harvest as well as maximizing harvest (Table A2). Most participants prefer management strive for a balance between abundance and size although there was moderate interest in emphasizing size over abundance (Table A2).

LARGEMOUTH BASS GOAL

Management of largemouth should focus on maintaining a fish community structure that is conducive to species more desired by users (e.g., walleye, muskellunge, black crappie and bluegill); thus, efforts should strive to maintain abundance within moderate historical range for Lake Namakagon.

LARGEMOUTH BASS OBJECTIVES*:* Because of limited survey data largemouth objectives should be updated (if needed) as more SE2 surveys are completed.

- Relative abundance objective: SE2 CPUE of 2-7 fish/mile
- Size objective: Mean length of 10-14 inches for fish sampled in SE2 surveys.

LARGEMOUTH BASS MONITORING

- SE2 survey conducted every 6 years.

LARGEMOUTH BASS MANAGEMENT STRATEGIES

- Angler regulation
    - The no minimum length limit and 5 fish daily bag limit was implemented as an action item from the LNFI to provide harvest opportunity while encouraging anglers to reduce harvest of walleye. From the 2021 SE2 survey the largemouth population was at a low abundance, which doesn't necessarily justify a no minimum length limit from a biological standpoint. Future fish survey data will be valuable to evaluate trends in largemouth bass abundance and size and assess regulations.

YELLOW PERCH

Yellow perch received the eighth highest species-specific fishing effort during the creel survey (Figure A1) and were ranked seventh by social survey

participants, above only largemouth bass (Table A1). Despite the low interest relative to the other species, yellow perch play an important role in the Lake Namakagon aquatic food chain as a primary prey species for walleye and other gamefish species, thus yellow perch management plays a role in management of those other more desired species. The challenge for managing yellow perch is the lack of reliable data because of no standardized and effective sampling protocol. Yellow perch data are collected during netting and shocking surveys but neither method is overly effective. Until a more reliable sampling method is established, data from spring fyke net surveys targeting walleye, muskellunge, northern pike and crappie could be used to assess yellow perch populations. Social survey participants expressed the most interest in management that emphasized a balance between catch-and-release and harvest with moderate interest in maximizing sustainable harvest (Table A2). Consistent with the other panfish species, participants overwhelmingly prefer yellow perch management strive for a balance between abundance and size (Table A2).

YELLOW PERCH GOAL

Management of yellow perch should focus on maintaining a fish community structure that is conducive to species more desired by users (e.g., walleye, muskellunge, black crappie and bluegill); thus, efforts should strive to maintain abundance and sizes within moderate historical range for Lake Namakagon.

YELLOW PERCH OBJECTIVES

Objectives should be updated (if needed) as spring fyke net data is collected more frequently in the future.

- Size objective: Mean length of 4-6 inches for fish sampled in spring fyke net surveys.

YELLOW PERCH MONITORING

- Spring fyke net survey conducted every 6 years.

YELLOW PERCH MANAGEMENT STRATEGIES

- Angler regulation
    - The panfish regulation may influence the perch population, but likely to a much lesser extent compared to other more popular species. As such, regulations intended for all panfish species should primarily focus on bluegill or crappie objectives. As more consistent survey data is collected yellow perch objectives could be updated and the influence of panfish regulations on the yellow perch population reassessed.

Habitat Restoration Goals and Objectives

The LNFI habitat goal was to increase fish habitat and protect water quality. Initially, the specific habitat objectives in the LNFI were: 1) Select 40 properties to implement Healthy Lakes best practices (www.healthylakeswi.com) and 2) Survey the amount of nearshore wood. These objectives were accomplished and subsequently led to an extensive amount of habitat work through fish sticks, tree drops and shoreline restoration projects. This work has largely been funded through Healthy Lakes grants.

Continued efforts should focus on securing grant funds and implementing fish sticks, tree drops and near shore habitat restoration projects. This work will depend on gaining support from lakeshore owners and identifying nearshore areas in need of restoration and/or areas feasible for implementing fish sticks or tree drops. Collaboration with the U.S. Forest Service should be pursued to identify suitable areas to implement tree drops along the ~5 miles of U.S. Forest Service shoreline.

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Appendix A

Table A1. Levels of fishing interest among social survey participants for each fish species. Weighted score was calculated as the sum of the number of responses multiplied by 3 for high interest, 2 for medium interest, 1 for low interest and 0 for no interest divided by the total number of participants.

SPECIES	LEVEL OF PARTICIPANT FISHING INTEREST				WEIGHTED SCORE
	High	Medium	Low	None	
Walleye	100	31	7	10	2.65
Black Crappie	64	37	22	23	2.07
Bluegill	53	42	31	18	1.97
Muskellunge	59	27	31	28	1.88
Smallmouth Bass	29	50	33	29	1.58
Northern Pike	26	48	39	28	1.53
Yellow Perch	26	37	43	35	1.40
Largemouth Bass	17	42	44	39	1.29

Table A2. Preferences for catch-and-release versus harvest and abundance versus individual fish size among social survey participants for each fish species. The bold number indicates the most responses by category for that species.

SPECIES	PREFERENCE FOR CATCH-AND-RELEASE VERSUS HARVEST			PREFERENCE FOR ABUNDANCE VERSUS SIZE		
	Catch and Release	Balance	Sustainable Harvest	Abundance	Balance	Size
Walleye	19	**89**	38	27	**109**	12
Black Crappie	18	**83**	44	15	**126**	5
Bluegill	16	**81**	44	19	**116**	12
Muskellunge	**107**	21	17	11	44	**89**
Smallmouth Bass	**81**	40	17	5	**86**	48
Northern Pike	37	47	**56**	11	**75**	57
Yellow Perch	24	**73**	43	26	**101**	12
Largemouth Bass	**73**	40	27	7	**83**	48

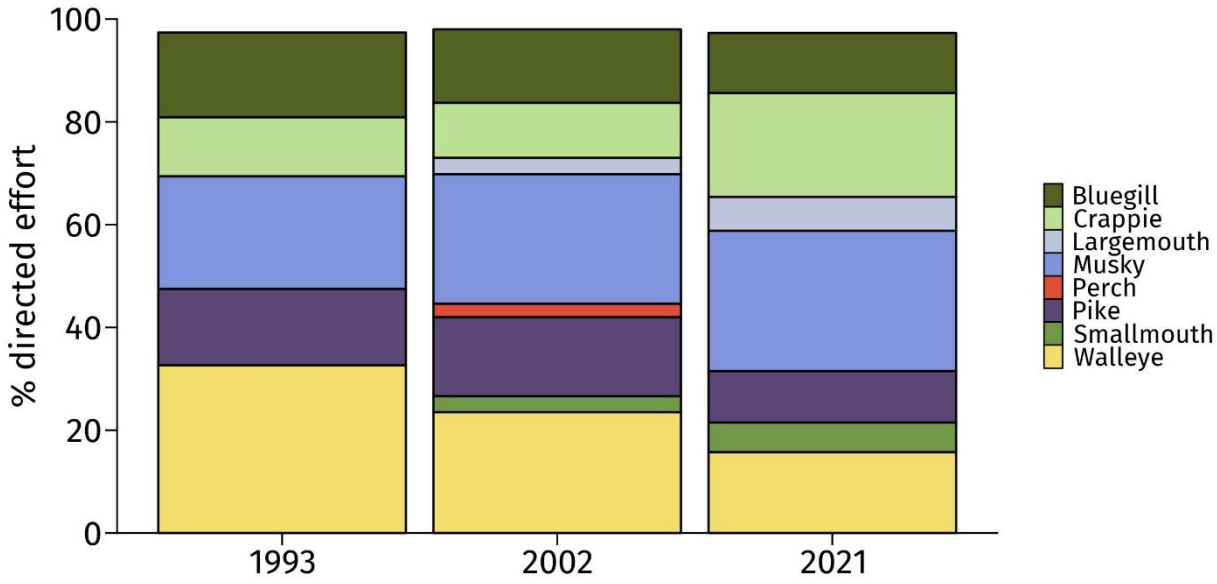


Figure A1. Percent of fishing effort directed at specific species in Lake Namakagon during angler creel surveys in 1993, 2002 and 2021. Species with < 2% directed effort were removed for clarity.

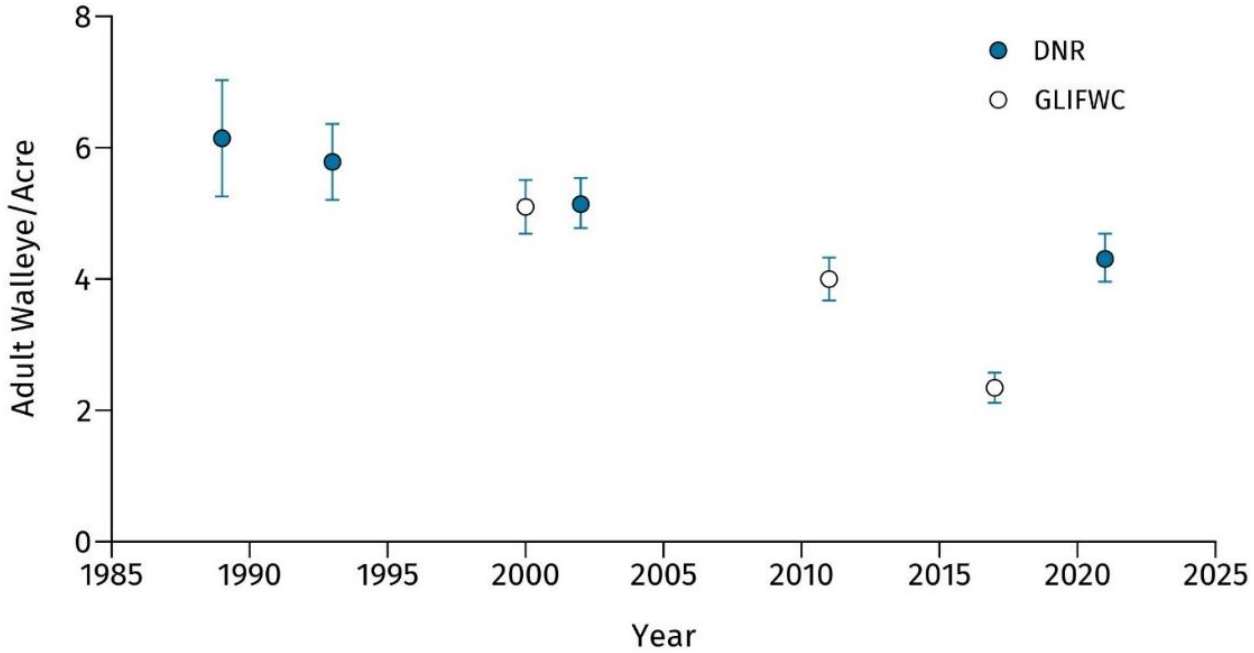


Figure A2. Number of adult walleye/acre (circles) with 95% confidence interval (blue error bars) estimated from DNR (blue circles) and GLIFWC (white circles) mark recapture surveys in Lake Namakagon since 1989.

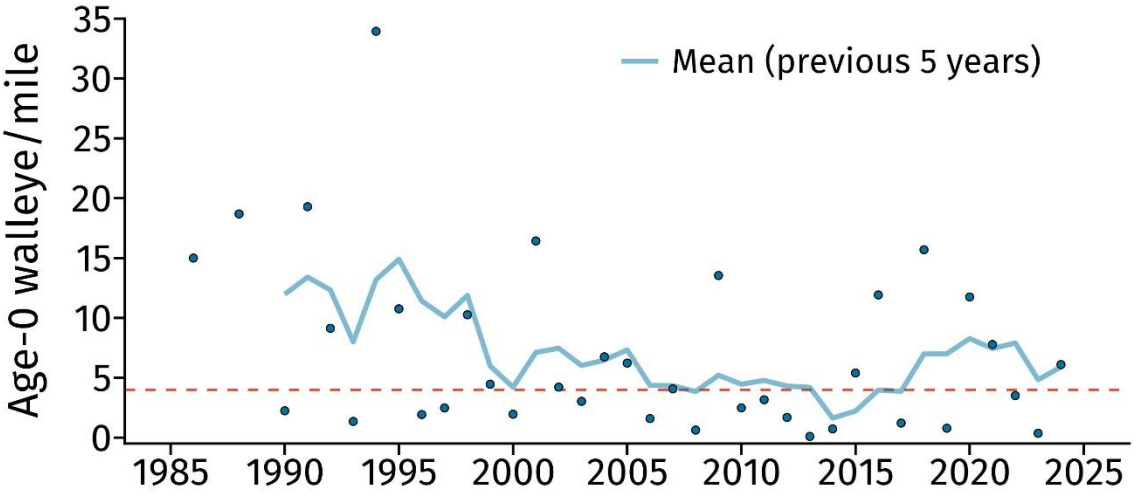


Figure A3. Number of age-0 walleye/mile (blue circles) caught during fall electrofishing surveys on Lake Namakagon since 1986 with the mean age-0/mile from the previous five years (blue line). If the five-year mean age-0/mile is < 4.0 (red dashed line) and the previous two year classes are both < 10.0 age-0/mile stocking of DNR raised walleye will be pursued.

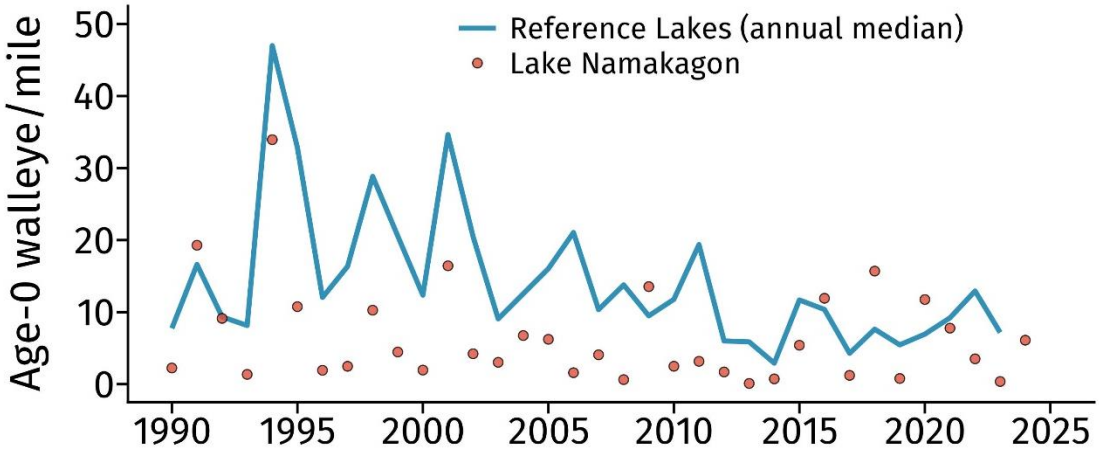


Figure A4. Number of age-0 walleye/mile (red circles) caught during fall electrofishing surveys on Lake Namakagon since 1986 with the annual median age-0 walleye/mile in other Ceded Territory lakes primarily sustained by natural recruitment (blue line).

Appendix B

Results of Lake Namakagon Fishery Management Plan Public Input Survey

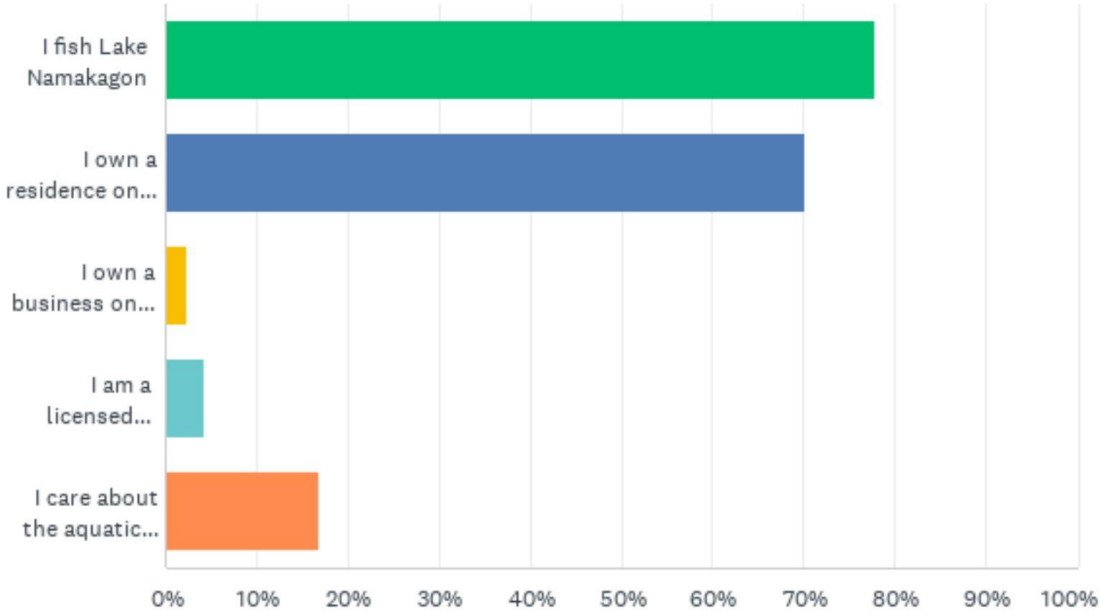
Survey open period: March 1 – June 30, 2023

About this plan, and about you

The intent of this survey is to gather public input that will be used in developing a fishery management plan for Lake Namakagon in Bayfield County. We are seeking information on public use, preferences, desired experiences, and perceptions of fishery issues that will help us understand what the public would like the Lake Namakagon fishery resource to provide. Please provide input on the following questions and feel free to use the comment field at the end to share additional information you would like the planning team to know.

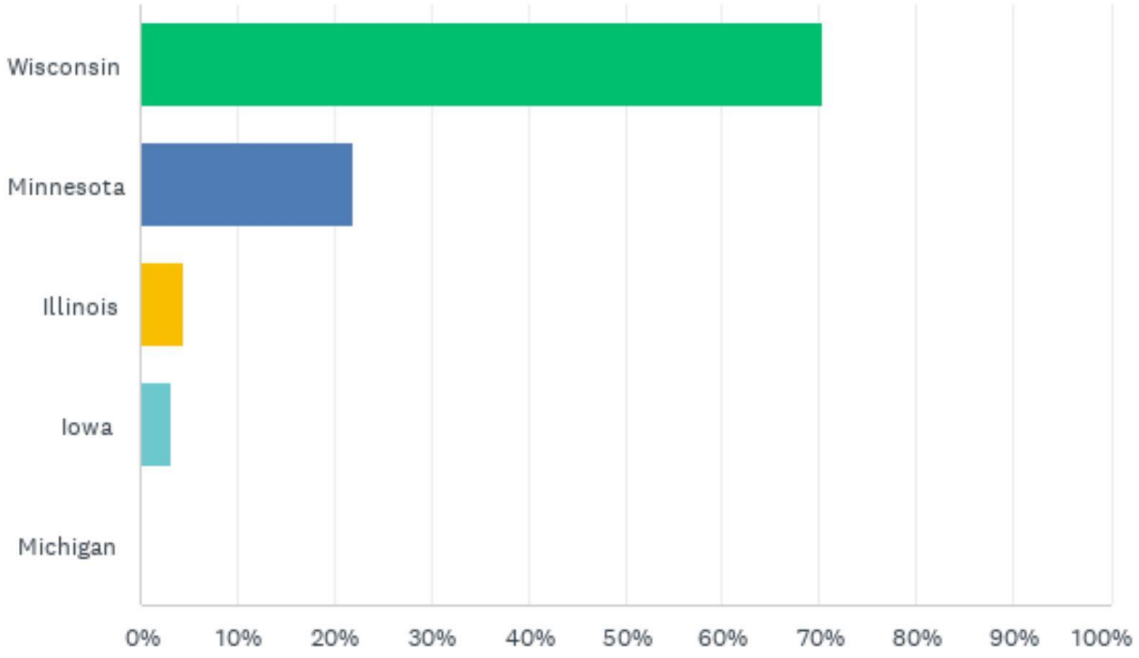
1. *Tell us about your relationship with Lake Namakagon (check all that apply)*

☐I fish Lake Namakagon
☐I own a residence on Lake Namakagon
☐I own a business on Lake Namakagon
☐I am a licensed fishing guide who takes clients fishing on Lake Namakagon
☐I care about the aquatic community of Lake Namakagon, but I don't fish



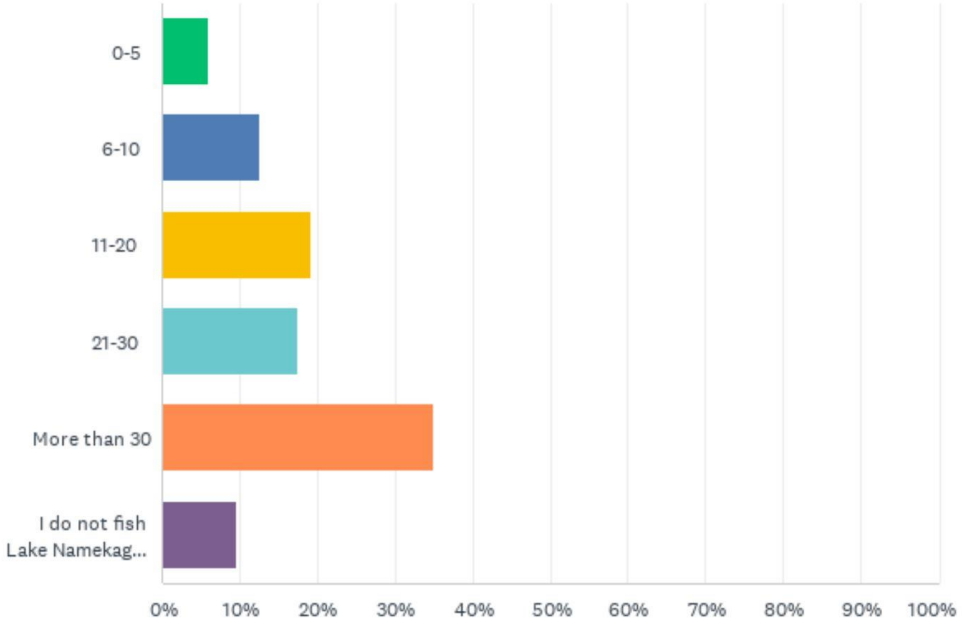
2. *What is your state of primary residence?*

☐Wisconsin ☐Minnesota ☐Illinois ☐Iowa ☐Michigan ☐Other



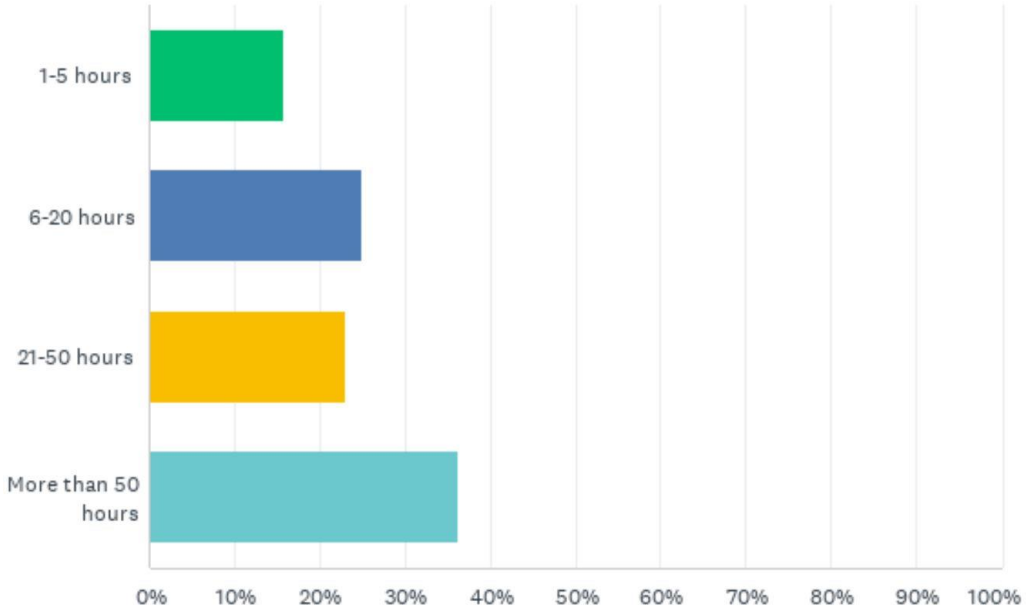
3. *How many years have you fished Lake Namakagon? (does not need to be consecutive)*

☐0-5 ☐6-10 ☐11-20 ☐21-30 ☐More than 30 ☐I do not fish Lake Namakagon



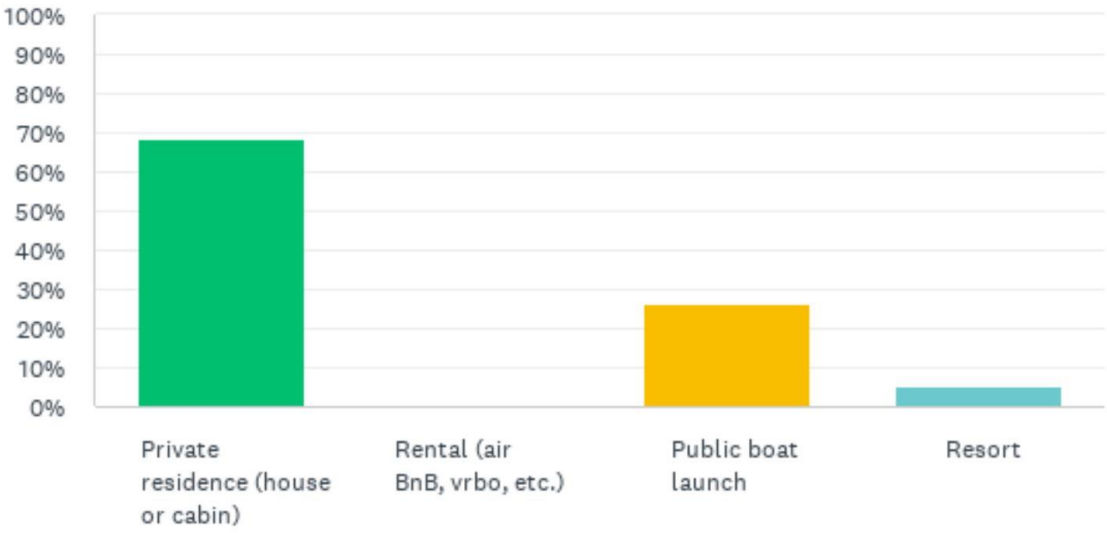
4. *How much time do you spend fishing Lake Namakagon annually?*

☐1-5 hours ☐5-20 hours ☐20-50 hours
☐More than 50 hours ☐I do not fish Lake Namakagon



5. *When you fish Lake Namakagon, how do you typically access the lake?*

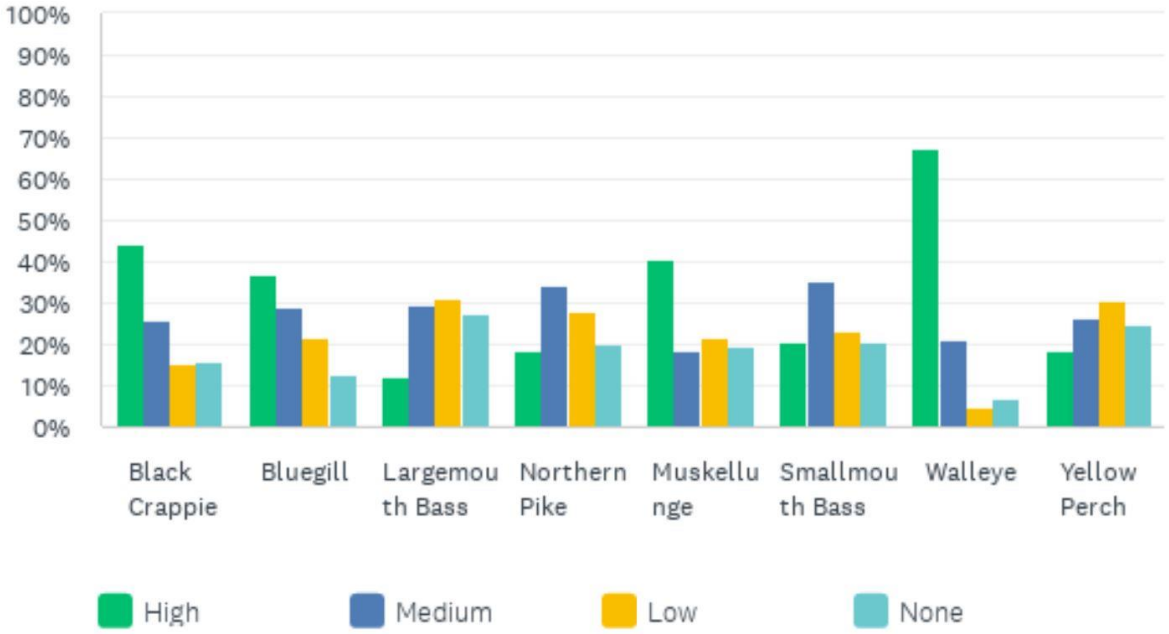
☐Private residence (house or cabin) ☐Rental (air BnB, vrbo, etc.)
☐Public boat launch ☐Resort ☐I do not fish Lake Namakagon



Fishing interest by species

6. *How much interest do you have in targeting each species when fishing Lake Namakagon?*

	High	Medium	Low	None
Black Crappie	☐	☐	☐	☐
Bluegill	☐	☐	☐	☐
Largemouth Bass	☐	☐	☐	☐
Northern Pike	☐	☐	☐	☐
Muskellunge	☐	☐	☐	☐
Smallmouth Bass	☐	☐	☐	☐
Walleye	☐	☐	☐	☐
Yellow Perch	☐	☐	☐	☐

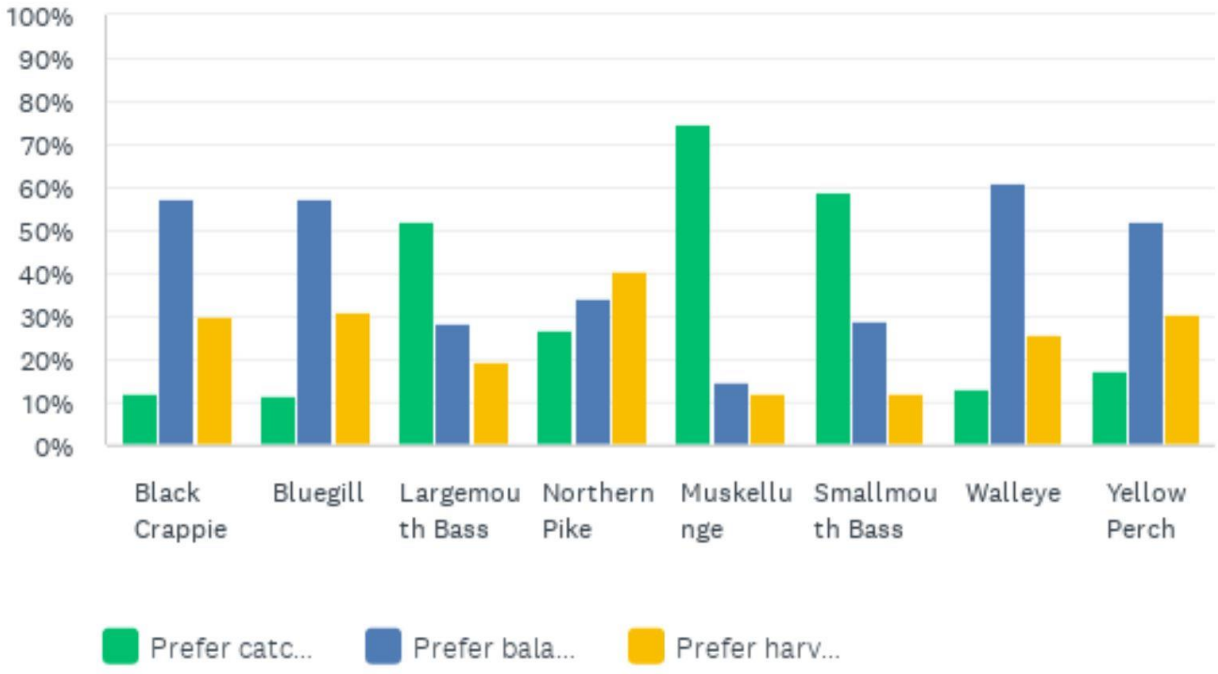


Harvest and catch-and-release preferences

Individual species can be managed in different ways. Certain management decisions, including regulations, can lead to more harvest opportunities for a species, while others can lead to more catch-and-release oriented fisheries.

7. *Do you prefer catch-and-release or harvest for the following species in Lake Namakagon? Assume any allowed harvest would be set at sustainable levels.*

	Prefer catch-and-release	Prefer balance (limited harvest allowed)	Prefer harvest (sustainable)
Black Crappie	☐	☐	☐
Bluegill	☐	☐	☐
Largemouth Bass	☐	☐	☐
Northern Pike	☐	☐	☐
Muskellunge	☐	☐	☐
Smallmouth Bass	☐	☐	☐
Walleye	☐	☐	☐
Yellow Perch	☐	☐	☐



Size vs. catch rates

In general, the population of a particular fish species within a waterbody can be abundant with small average size or less abundant with higher average fish size leading to different fishing experiences. Anglers targeting an abundant population may catch more fish, whereas anglers targeting a less abundant population may catch fewer fish but have better opportunities to catch large fish.

8. *Please indicate your preference for whether fisheries managers should put an emphasis on population abundance or individual fish size for the following species in Lake Namakagon. An intermediate option is also included, where anglers could expect average catch rates and average size.*

	Emphasis on abundance	Emphasis on balance between abundance and size (average for both)	Emphasis on size
Black Crappie	☐	☐	☐
Bluegill	☐	☐	☐
Largemouth Bass	☐	☐	☐
Northern Pike	☐	☐	☐
Muskellunge	☐	☐	☐
Smallmouth Bass	☐	☐	☐
Walleye	☐	☐	☐
Yellow Perch	☐	☐	☐