

Fishery Management Plan

Round Lake

Sawyer County, Wisconsin

December 4, 2017

Prepared by:

Max Wolter, Senior Fisheries Biologist at Hayward
Wisconsin Department of Natural Resources

And

Dave Neuswanger, Fisheries Team Leader (retired)
Upper Chippewa Basin at Hayward
Wisconsin Department of Natural Resources

FOREWORD AND ACKNOWLEDGMENTS

This is a long-term strategic plan that will guide our fishery management efforts on Round Lake and Little Round Lake for many years to come. We believe our fishery management plans should be based upon a shared vision that is developed by combining information from fisheries surveys, statewide angler surveys, onsite creel surveys, and interactive input from local stakeholders and tribes. From those sources we determine user preferences in light of ecosystem capability. We believe the goals of a good plan must reflect the shared vision between users and managers; and measurable objectives must be set so we know whether selected strategies are succeeding or failing. We believe in making good tries and learning from failure. Part of that process involves amending strategic plans (like this document) when failure dictates that we either develop more realistic objectives or change our strategies to achieve reasonable objectives. This plan should be updated as needed in the decades that follow.

We call this a “long-term strategic plan” because the goals and objectives are relatively timeless, and because we possess neither the wisdom nor the authority to commit DNR or partner resources to a specific operational schedule of funding and action. Each year will bring its own fiscal constraints and operational priorities, so we must remain flexible in our implementation of proposed actions. We will do our best to justify actions we believe necessary to realize our shared vision to DNR leaders and the general public as time and circumstances permit. We promise only to consult this plan at least once annually as we allocate our time and resources to the many important projects before us.

We want to thank the Round Lake Property Owner’s Association for hosting our local stakeholder visioning session at Round Lake Town Hall on July 29, 2005. We also want to thank the 26 local stakeholders who gave up an entire Friday evening in order to help us develop the vision that forms the backbone of this plan. Finally, we thank the aquatic resource management professionals at Lac Courte Oreilles (LCO) Conservation for meeting with us to provide input on behalf of the Lac Courte Oreilles Band of Ojibwe, thus ensuring that all interests are considered in this Plan. We are very pleased to incorporate everyone’s input at this appropriate stage in the planning process; and we look forward to continuing support for the actions we believe will be necessary to achieve the shared vision. We can settle for nothing less in an area where the quality of fishing means so much to our livelihoods and our quality of life.

-- Max Wolter and Dave Neuswanger

BACKGROUND

Limnology and Water Management

Round Lake is a large, deep, ultra-clear, oligotrophic, “manipulated-seepage” lake in north-central Sawyer County (Table 1). Prior to the great drought and the raising of the Tiger Cat Flowage in the 1930’s, Round Lake lacked a well-defined, permanent outlet. What originally existed, was a series of adjacent, loosely connected, smaller, seepage lakes. There appears to have been occasional outflow from the east side of Little Round to Osprey Lake during extremely wet periods. After the Tiger Cat Chain was raised, groundwater infiltration into Round Lake appears to have increased. Water levels rose 3 - 5 feet, joining adjacent lakes into one larger lake, and in turn, sending permanent out-flow, downstream into Osprey Lake in the Couderay River watershed. Based on this watershed history, Round Lake is now probably best described as a “manipulated seepage lake”. Lake level is now “controlled” by the Little Round Lake outlet structure.

Table 1. Round Lake Limnology- physical factors and water chemistry based on Sather and Threinen, 1969.

Chemical/Physical Parameter (units)	Value mean (range)
Surface area (acres)	3,054
Volume (acre-feet)	97,493
Max depth (feet)	74
Mean depth (feet)	32
Littoral Zone (% area < 20')	30
Watershed (square miles)	12.2
Clarity (Secchi depth, ft.)	18 (11-32)
MPA (ppm)	43 (35-92)
pH	7.8 (6.5-8.5)
Chlorophyll a (ppb)	3 (<1-5)
Total Phosphorus (ppb)	2 (<1-17)

The littoral substrate of Round Lake is comprised mostly of sand, gravel, and rock except for several bays (Schoolhouse, Richardson and Filter Bays) where softer, detritus-based substrates predominate. A recent study of Round Lake’s sediment (Garrison, 2005) found that Round Lake’s water quality remains good but is increasingly endangered by human shoreline development activities. This study showed Round Lake as having the third lowest sedimentation rate of the 45 Wisconsin lakes studied, indicative of relatively low soil erosion over the course of the last 150 years and relatively small watershed area. However, there has been a rapid increase in erosion in the last 25 years which is cause for concern since it corresponds to a period of intense shoreline development. Other water quality parameters such as deep-water oxygen and manganese also suggest recent increase in the rate of eutrophication.

Round Lake is considered Sawyer County’s clearest lake with Secchi disk readings regularly exceeding 20 feet and occasionally over 30 feet. Clear water is attractive to broad based water recreation. Fishing is the dominant water recreation activity in nearly every Sawyer County lake but boating, water skiing, sailing, and personal water craft use exceeds fishing activity on Round Lake. The ultra-clear water also makes fish less likely to occupy shallow water during daytime conditions. So, the best fishing and most fishing pressure targets deep water, night-time, and time periods not in conflict with other water-based recreation.

Human Development and Public Access

Table 2. Residential shoreline development history on Round Lake.

Year	Residences	Resorts/Private
1969	179	23
2005	667	3
Percent Change +/-	+353%	- 87%

Based on Sather and Threinen (1969) and Jan Eck, Sawyer County Land Conservation (Personal Communication).

Residential development is moderate to heavy at about 200 feet of shoreline per residence. This formerly put Round Lake in Category 1 lake classification in Sawyer County and subject to shoreline zoning with a 100 foot' shoreline and 75-foot minimum set-back. Little Round is much less heavily developed with 728' feet of shoreline per structure and a Category 3 zoning classification. A steady increase in new development, and a transition from smaller, seasonal residences to larger, newer, and more permanent residences has been occurring over the long-term (Table 2). In 2015, changes were made to shoreline zoning rules statewide, eliminating the category system used by Sawyer County and now only a minimum setback of 75' is required on both Round and Little Round. Like many other lakes in the area, working resorts on Round Lake have declined markedly, with most being divided into condominiums.

Table 3. Land use in the Round Lake watershed.

Land Use Category	% of Total watershed
Forest	75
Wetland	2
Agriculture- row crop/hay	15
Residential	8

If we do not consider timber harvest a human watershed effect, then more than 75% of Round Lake's watershed is wild, and less than 25% is directly impacted by human development and associated man-induced activities (Table 3). However, as previously stated, human shoreline development has recently increased sedimentation, nutrient input, and the rate of eutrophication.

Public frontage is minimal. There are only about 0.26 miles of public frontage, and one State-owned island (1.2 acres). There are 11 undeveloped, platted access sites, and four public boat landings. Current access is considered adequate for management purposes, but in the past low-water conditions made launching and take-out difficult at several of the public ramps.

Historical Perspective on the Fishery

Fisheries survey records for Round Lake date back to 1951, making it one of the most intensely scrutinized fisheries in Sawyer County. To date, electro-fishing has been the dominant survey method, but there has been significant netting effort as well.

Originally, Round Lake was not a native walleye (*Sander vitreus*) lake, but rather was dominated by smallmouth bass as the main predator species. Walleye are native to this region but were typically a river species and were often absent from lakes not directly connected to large river habitats. They became established in Round Lake, and in many other lakes, after years of stocking. Walleye stocking in Round Lake began in the mid-1930's and resulted in self sustaining fisheries by the mid-1960's. Reproduction faltered briefly in the 1980s. Round is one of the first lakes where the DNR attempted rehabilitation stocking to bolster a naturally reproducing walleye

population. Several years of stocking did accomplish that objective and that strategy is now being employed on several area lakes.

Other past management includes some coldwater, two-story fishery initiatives. Brown trout (*Salmo trutta*) were stocked briefly in the mid 1960's. Even at that time, they produced a meaningful put-grow-take fishery. However, that early effort was discontinued due to lack of interest. In 1989, WDNR, the Lac Courte Oreilles tribe, and US Fish and Wildlife Service stocked 500 brood lake trout from the Iron River Federal Fish Hatchery. This produced a popular but short-lived put-and-take trophy fishery. The lake trout (*Salvelinus namaycush*) survived well enough to return to the creel at a rate of at least 20%. However, these old domestic fish did not feed very effectively and lost weight. After two years, they faded out of the fishery. Due to the initial popularity of that fishery, efforts then shifted to fall fingerling and spring yearling brown and rainbow trout (*Onchorhynchus mykiss*). That produced a biologically successful put-grow-take fishery (three-year-old brown trout up to 25 inches). However, there has been little sustained public interest, and some backlash. So, the trout program was once again phased out and no trout are believed to be currently present in Round Lake. Cisco (*Coregonus artedi*) and slimy sculpin (*Cottus cognatus*) are the only self-sustaining cold-water species known to inhabit Round Lake. Both are believed to be native. Cisco are present at a relatively low density in comparison to other area lakes (Whitefish, Grindstone).

Fish Community Status

Table 4. Snapshot of the Round Lake fish community as of 2018.

Species	Abundance	History	Current Population Status
Walleye	Common	Introduced	NR; declining
Muskellunge	Rare	Native	Stocked; increasing
N. pike	Present	Introduced	NR; stable
Smallmouth bass	Common	Native	NR; increasing
Largemouth bass	Present	Native	NR; increasing
Bluegill	Common	Native	NR; stable
Black crappie	Rare	Introduced	NR; stable
Yellow perch	Common	Native	NR; stable
Cisco	Present	Native	NR; unknown
Rock bass	Common	Native	NR; stable
Trout	Present becoming rare	Introduced	Stocked; discontinued

NR= Self-sustaining exclusively through natural reproduction; stocking usually not needed.

Smallmouth bass (*Micropterus dolomieu*) are the other dominant predator in Round Lake after walleye. Largemouth bass (*Micropterus salmoides*) and smallmouth bass have exploded statewide since the late 1980's partly due to more restrictive regulations and higher voluntary release rates by anglers. Round Lake is in the northern bass zone, meaning smallmouth bass harvest season on this lake is delayed until mid-June. This lake has always been considered a trophy smallmouth bass lake. Largemouth bass are also present in lesser numbers with fish concentrated in the few shallow weedy areas including Little Round.

Records indicate that Round probably was a native muskellunge (*Esox masquinongy*) lake (originally a wild, self-sustaining, muskellunge population with NO northern pike). Spawning habitat for muskellunge may be limiting and natural reproduction is believed to be very low and not sufficient to sustain the population at fishable levels. Stocking had been curtailed in the 1990's but was reinitiated as a recurring management action in 2002 based on renewed public interest.

Round has a history of producing trophy muskellunge, including one world class hybrid and several kept fish in the upper 40 lb range. The current muskellunge population is believed to be low density since stocking had been cut back, but may be showing signs of increasing. Northern pike (*Esox lucious*) showed up in the 1960's and are currently at moderate to low density and do not significantly interfere with muskellunge management.

Other species present in Round Lake include bluegill (*Lepomis macrochyrus*), black crappie (*Pomoxis nigromaculatus*), yellow perch (*Perca flavescens*) white sucker (*Catostomus commersonii*), greater redhorse (*Moxostoma valenciennesi*), bluntnose minnow (*Pimephales notatus*), spottail shiner (*Cyprinella spiloptera*), blacknose shiner (*Notropis heterolepis*), golden shiner (*Notomigonus cryoseleucas*), common shiner (*Luxilus cornutus*), and other small cyprinid spp., log perch (*Percina caprodes*), johnny darter (*Etheostoma nigrum*), rainbow darter (*Etheostoma caeruleum*), and other small darter species, pumpkinseed (*Lepomis gibbosus*), longear sunfish (*Lepomis megalotis*), tadpole madtom (*Noturus gyrinus*), black bullhead (*Ameiurus melas*), yellow bullhead (*Ameiurus natalis*), and brown bullhead (*Ameiurus nebulosus*).

Harvest and Regulations

Based on the most recent creel census (2010), Round Lake is moderately fished (10 hrs./acre/year) compared to many other lakes in the area. Creel data, including harvest rate, for different species is shown in Table 5.

Table 5. Round Lake creel survey results, 2010.

Species	Catch (harvest)	Percent Harvested	Avg. hours to catch
Walleye	2,480 (1,247)	50	5.9
Smallmouth bass	8,786 (251)	3	1.3
Northern pike	3,489 (473)	7	1.9
Muskellunge	75 (0)	0	50
Largemouth bass	3,347 (69)	2	1.5

Panfish catch rates are not reported here but are thought to be typical for the region. Catch rates for muskellunge were low. Catch rates on most other regional musky fisheries typically fall in the range of 20-40 hours per catch.

Statewide angling regulations apply to northern pike and walleye. Previously, walleye had been managed with a sliding bag limit system (0, 1, 2, or 3 per day depending on annual tribal harvest) and a 15-inch minimum length limit. In 2015, that system was replaced with a new regulation that includes a 15-inch minimum length limit and a closed slot limit between 20-24 inches, but keeps the angling bag limit consistent at 3 per day from one year to the next.

Special regulations for both bass species were proposed in 2015 and took effect in 2016 after approval through the Wisconsin Conservation Congress. Bass regulations now treat largemouth bass and smallmouth bass separately. Smallmouth bass are managed with an 18-inch minimum length limit, while largemouth bass have no minimum length limit. The combined daily bag limit for bass is 5, of which only 1 can be a smallmouth bass.

Round Lake (and Little Round Lake) were selected for an experimental panfish regulation based on underperforming size of panfish, namely bluegill and yellow perch. Panfish are currently managed with a daily bag limit of 25, but no more than 10 of any one species (crappie, bluegill, perch, pumpkinseed) may be harvested. This experimental regulation will be evaluated on Round

Lake and other experimental lakes to see if panfish size indeed improves. The regulation took effect in 2016 and has a 10-year sunset date if it is not renewed.

A 50-inch muskellunge minimum length limit was originally proposed for this lake but was dropped when it was clear that there was insufficient public support. It was proposed again later but pulled from consideration due to lack of sufficient gear safeguards on live-bait fishing.

Round Lake is popular for Off-Reservation Tribal spearing. It has clear water, a good fish population, and low levels of contaminants. Treaty harvest has ranged between 100-1000 walleyes annually and averages about 500. For muskellunge, the spear fishery has ranged 1-20 fish annually and averages 8.

Aquatic Community and Habitat

Many species of aquatic plants inhabit this moderately productive lake. Weed beds tend to be sparse to low density in the main lake, but heavier and denser in the bays (Richardson's, Filter, and Schoolhouse) and in Little Round. Some of the most common native macrophytes include Canada waterweed (*Elodea canadensis*), fern pondweed (*Potamogeton robbinsonii*), coontail (*Ceratophyllum demersum*), muskgrass (*Chara spp.*), water buttercup (*Ranunculus spp.*), water milfoil (*Myriophyllum spp.*), Bullrush (*Juncus spp.*), and wild celery (*Vallisneria americana*). Planktonic algae is rarely abundant enough to assert any noticeable "bloom" effects, and there is no indication of any nuisance blue-green algae species. Sunlight normally defines a photic (littoral) zone to over 20 feet. Plants are a major component of fish production and habitat at all life stages.

At present, there are at least two known invasive species – rusty crayfish (*Orconectes rusticus*) and Eurasian milfoil (*Myriophyllum spicatum*). The exotic crayfish have been present since 1973. After an initial surge in the 1980's, the population has now receded to near-remnant status. During the last fishery survey, native crayfish outnumbered the exotics 4 to 1. The lake association has been active with spot chemical treatment of the milfoil, under the State's Aquatic Nuisance Control program. Millfoil in Round Lake is a threat to adjacent un-infested waters because the lake is popular for boating, and many boaters are very mobile. Like all accessible waters in the region, the lake is at constant risk from other exotics. It has already been acknowledged that walleye and northern pike are naturalized, but not specifically native to this water. Also, black crappie are not native to this region but were introduced from southern Wisconsin in the early 1900's.

The lake group has been active in habitat enhancement efforts by funding, constructing, and placing plastic modular fish cribs over the last 20 years. Since 1987, close to 200 aqua-crib structures have been placed in 14-35 foot depth in the north-central part of the lake. Over the last 40 years, there have been 500-1000 wood structures placed by private individuals, and lake groups. These include both traditional log and palette type structures. The lake association previously funded a SCUBA project to refurbish brush inside older log structures, and partnered with LCO Conservation for additional palette structures. Round Lake is classed as an Outstanding Waters Resource, so all fish habitat structures require a Chapter 30 permit. This plan will mark a notable shift from the traditional habitat focus on deep-water structure toward a focus on near-shore, littoral and riparian zone habitat.

Given this water's popularity and recent history of intense development, shoreline protection and buffer zones are critically important. The occurrence of heavily manicured lawns abutting the lakeshore is slowly dying, but littoral habitat will still be compromised and water

quality degraded for as long as it continues (Garrison, 2005). Shoreline buffers filter out excess run-off, nutrients, and sediment, and provide shading and overhead cover for fish. Having natural shoreline buffers also aids in recruiting big woody cover into the lake. Maintaining and redeveloping buffers is a critical step in preserving water quality and in turn fishing quality.

Other Plans

This Round Lake Fishery Management Plan has already been preceded by three other Sawyer County waters- Nelson (Neuswanger and Pratt, 2005); Lac Courte Oreilles (Neuswanger and Pratt, 2006); and The Chippewa Flowage (Neuswanger and Pratt, 2007). Prior to that, the local manager submitted his own plan (Pratt, 2001). All the plans have some strong common themes, most notably:

1. Walleye are the most popular species in all visioning sessions conducted thus far in the area. They are usually followed by one or more panfish species, often with a trophy Esocid and/or smallmouth bass as a secondary game species.
2. There is a need for better evaluation methods for the fish community that will allow us to provide better management for species other than walleye. Most objectives are measures of abundance and size structure by target species. We need quick and reliable ways to track progress on reaching these goals. Yellow perch monitoring will be of particular interest in Round Lake given their importance to stakeholders. In 2018, DNR researchers are planning to begin a project evaluating yellow perch populations and assessment methods. We will follow and support those efforts and may nominate Round Lake as a study lake in that project if the opportunity arises.
3. Universal emphasis on habitat protection via watershed conservancy, shoreline zoning, and buffer zones. Habitat manipulations should shift to a focus on big woody cover, tree drops, and the like. Fish cribs are already abundant in Round Lake and do not provide the same types of benefits.

A Vision for the Round Lake Fishery

On July 29, 2005, DNR representatives Frank Pratt and Dave Neuswanger met with approximately 26 local stakeholders (18 initially, but the audience grew to 26 within the first hour) who were willing to volunteer their time to help develop a long-term vision for the fishery of Round Lake and Little Round Lake in Sawyer County. Objectives of the meeting were to prioritize species of interest, and then to identify the relative importance of numbers versus size and catch versus harvest for those species. Attention was then focused on identifying the desired conditions (goals and objectives) that appear in this plan. Goals and objectives were developed for walleye, smallmouth bass, muskellunge, and northern pike by consensus of local stakeholders in consultation with Frank Pratt, who served as technical advisor to the group on what was possible. However, no attention was given to methods for achieving goals and objectives (management strategies such as harvest regulations, fish stockings, and habitat preservation or enhancement). It was understood and generally agreed that professional fishery managers would select the most appropriate strategies once goals and objectives had been developed by local stakeholders and adjusted to incorporate what is known about statewide angler preference and the capacity of Round Lake to produce what is desired.

Walleye were the sport fish of greatest interest among local stakeholders in the Round Lake fishery (Table A1). Visioning session participants were split in their preferences between balance and placing greater value on number than on size of walleye in Round Lake (Table A2). And they were more interested in maximizing the harvest of walleye than any other stakeholder group in the Upper Chippewa Basin, even if that means foregoing the opportunity to catch many large fish. Realistic objectives were chosen that reflect this preference for a fishery in which moderate to high numbers of fish are available for harvest, even though relatively few fish may survive to preferred (20 inches) and larger sizes.

Round Lake visioning session participants expressed extraordinarily strong interest in a yellow perch fishery characterized by high numbers of harvestable-size fish. A desire for this type of fishery seems to have developed many years ago when anglers reportedly enjoyed harvesting good numbers of nice-sized yellow perch on a routine basis. In fact, a nostalgic desire for more perch seems to be at the root of considerable hostility toward the trout fishery, as many have assumed that large brown trout eat a substantial number of yellow perch. In our opinion, a reduction in submersed plants (spawning substrate and hiding cover for young perch) in recent years is more likely than trout predation to be responsible for any perceived decline in the number of yellow perch attaining harvestable size; but anglers have formed their own opinions in relation to their preferences. Though time constraints prevented us from developing specific desired outcomes for yellow perch at the visioning session, we believe our proposed goal and objectives for perch are consistent with local stakeholder preferences and with attaining objectives for walleye and other members of the fish community.

Muskellunge were important to local stakeholders in the Round Lake fishery (Table A1). This surprised us, because past pressure by what may have been a vocal minority forced a reduction in muskellunge stocking several years ago. Because Round Lake has the potential to be a better musky fishery, we were pleased to work with visioning session participants in developing objectives for increased muskellunge density, but only to the extent that such an increase does not reduce growth rate or the proportion of memorable and trophy-size fish.

Smallmouth bass were relatively important to local stakeholders in the Round Lake fishery (Table A1). Visioning session participants have become accustomed to catching a high proportion of memorable-size (17-inch-and-larger) fish in Round Lake. So as a group, they placed considerably more value on size than on number (Table A2). About half the participants would rarely, if ever, keep a smallmouth bass; but the other half preferred a balanced approach to harvest management that allows them to keep a fish occasionally. Some participants asked if the excellent smallmouth bass population in Round Lake was detrimental to the walleye fishery. We expressed our firm belief that smallmouth bass coexist very well with walleyes in clear, rocky lakes like Round. In such waters, adult smallmouth bass are focused primarily on crayfish as prey; and young smallmouths are able to evade predation by walleyes by hiding in the rocky interstices near shore. Based upon stakeholder desires and our belief that walleye and smallmouth bass are very compatible in Round Lake, we established a goal and objectives that would maintain smallmouth bass density and size structure at the levels they seem to be currently.

Bluegills were of moderate importance to Round Lake anglers despite their relatively low density and spotty occurrence in such a deep, clear-water lake (Table A1). Perhaps because nobody expects high numbers of bluegill in Round Lake, visioning session participants were more interested in size than in numbers of bluegill; but they were divided on whether to keep or release most fish caught, with a majority preferring a balanced approach (Table A2). There was insufficient time for visioning session participants to specify desired outcomes for bluegill, but we developed a goal and objectives that we believe are consistent with stated preferences.

Half of the visioning session participants viewed northern pike as moderately or highly important; while the other half thought pike were of low or no importance at all (Table A1). And while most agreed that size of pike should be emphasized over numbers, participants were strongly divided on whether they would prefer to release or harvest most pike caught (Table A2). In the end, participants agreed upon a goal to maintain a pike population of relatively low density but with a relatively high proportion of preferred-size (28-inch-and-larger) fish.

No other species were of great enough importance for local Round Lake stakeholders or us to develop management goals or objectives (Table A1). Crappie are relatively scarce and probably always will be low in numbers due to habitat and fish community constraints. Largemouth bass are scarce, too; and they were viewed negatively. Brown trout stocked to take advantage of a previously unoccupied cold-water niche were considered to be of low importance to most visioning session participants; and a few local stakeholders were very upset with the presence of brown trout or any trout species in Round Lake. Fishery managers often act according to the principle that, "If you build it, they will come". In this case, however, trout were so unimportant to most and despised by some that we decided to end the trout stocking program at Round Lake at the end of the current hatchery production cycle. Stocked trout grew fast to a large size, were extraordinarily plump, and offered the potential of a unique and high-quality fishery if anglers had developed a sufficient interest in it. They did not.

Following the general stakeholder visioning session, Frank Pratt and Dave Neuswanger also met with designated representatives of the Lac Courte Oreilles Band of Ojibwe Indians whose reservation includes the southern tip of Little Round Lake. To the best of our ability, the traditional fishing interests of the Tribe have been incorporated into this plan based upon input from their representatives.

Two criticisms of the later drafts of these Fishery Management Plans in Sawyer County is the amount of time that elapsed between Visioning Sessions (2005, in this case) and plan implementation (2018), and whether the number of stakeholders at the Visioning Session was

adequate. To address these concerns, we conducted a follow-up survey of anglers on Grindstone and other area lakes to gauge whether preferences were consistent over time and under a larger sample size. We found overwhelming similarities in the feedback we received between the online format and in-person sessions. We believe this gives support for management goals and species preferences included in this plan. A summary of the results from the online survey can be found in Appendix C.

WALLEYE

GOAL 1: A walleye population of moderate to high density with a low to moderate proportion of quality-size fish.

Objective 1.1: 3-5 adult walleye per acre in spring population estimates (or, > 15 adult walleye per net-night during early spring fyke netting surveys (SN1) in years when a population estimate is not conducted)

Objective 1.2: Of all walleye 10 inches and longer captured by fyke netting in early spring, 20-40% should be 15 inches or longer (PSD = 20-40%).

Walleye Status and Management Strategies

Treaty estimates have shown 0.5-3 adult walleye/acre (most recent estimate was 0.83 adults/acre in 2010, Table 6)- well under the desired objective of 3-5. We are particularly concerned that walleye population estimates have been declining over the last two decades (Table 6).

Table 6. Population estimates for walleye in Round Lake since 1991.

Year	Population estimate (number adults/acre)
1991	3.14
1998	2.09
2003	1.32
2010	0.83
2015	1.20

Population estimates will continue to be the primary metric by which we assess whether walleye in Round Lake meet Objective 1.1. However, due to cost and logistical limitations these estimates can only be completed periodically. In years when an estimate is not completed, a quick, easily attained CPE standard will be used to measure abundance. An appropriate objective based on the long-term data is 15 adult walleye per net-night during early spring fyke netting surveys, which has been correlated to a population density of 3-4 adults per acre (Rogers et al. 2011). This catch rate objective is based on other lakes in the area with strong walleye populations making this a good starting point that can be refined in the future as specific data related to Round Lake becomes available.

An intensive 2010 survey of the Round Lake walleye population found that size structure objective (1.2) was actually being exceeded with 50% of the population being 15 inches or greater (Figure 1).

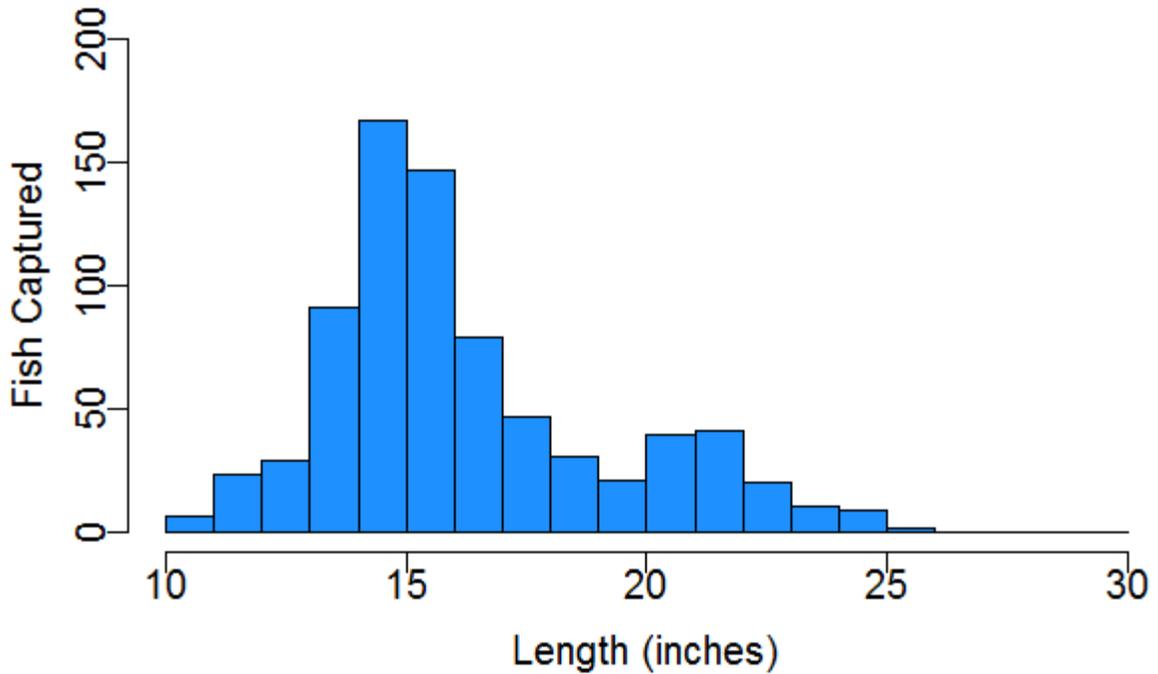


Figure 1. Length frequency of walleye (1,168 in total) in fyke nets, April 2010.

Historical surveys (Table 7) show that size structure objective 1.2 will be more likely to be met when population density is higher (as it was in the 1980’s and 1990’s). An inverse relationship between density and size is common. Therefore, if we are successful at meeting density Objective 1.1 population size structure Objective 1.2 will likely be met as well.

Table 7. Number of walleye measured in surveys of Round Lake between 1987-2016 along with two measures of size structure.

Survey Year	Number of fish measured	Average length (inches)	PSD/RSD15*
1987	1,345	14.6	33
1991	1,778	14.2	24
1998	1,524	14.6	35
2010	776	16.2	58
2016	175	17.9	80

* PSD/RSD15 for walleye is the proportion of the adult population that is 15 inches or greater in length.

2013 data was not included since that data may not be representative of average size.

Growth rate analyses (Figure 2) indicate that the reduction in density of this population has improved growth rates, likely by decreasing competition for prey resources.

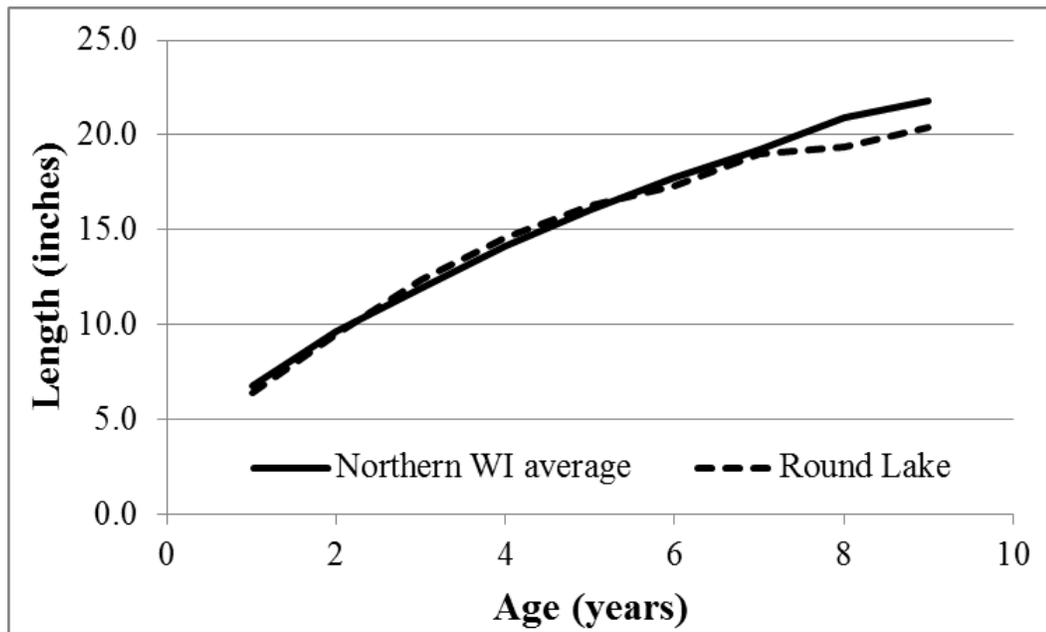


Figure 2. Back calculated growth of walleye captured in Round Lake in 2013 in comparison to the average growth rate in northern Wisconsin. Growth rate was estimated using dorsal spines.

Specific examinations of growth rates will be an important and reoccurring analysis in the future. Under the current circumstances, walleye growth is very close to average for the region (Figure 2) and the 15-inch minimum length limit is appropriate. However, if we determine that fast growth is not possible at higher densities the objectives of this plan may need to be revised or different regulations may need to be sought. In 2015, walleye regulations in Round Lake were modified slightly when a 20-24 inch protected slot limit was added and the bag limit was fixed at 3 per angler per day. The 3 daily bag limit and protected slot may counteract each other in terms of total angler harvest, but by protecting larger females there is potential benefits for walleye recruitment in Round Lake.

Recruitment in Round Lake is influenced by weather, prey availability, and predation/competition with other species. Annual fall electro-fishing is very useful to monitor walleye year class strength and should continue. Mean CPE in Round Lake averages 32 young of year per mile, and typically ranges between 10 and 60 (Figure 3). Sizes of walleye captured in both spring and fall electrofishing surveys will often reveal different year classes of fish present in the system (see Figure 4 as an example). There were large year classes in 1995 and 2001, and consecutive strong classes in 2010 and 2011. Weak year classes (<20 per mile) have become somewhat more common since the mid-90's. Many other lakes in the region have seen drastic reductions in walleye recruitment but Round Lake has thus far been spared from that trend. Monitoring and regulations should be used to ensure that this series of events does not take place in Round Lake. Continuation of strong natural reproduction will be key to achieving Objective 1.1.

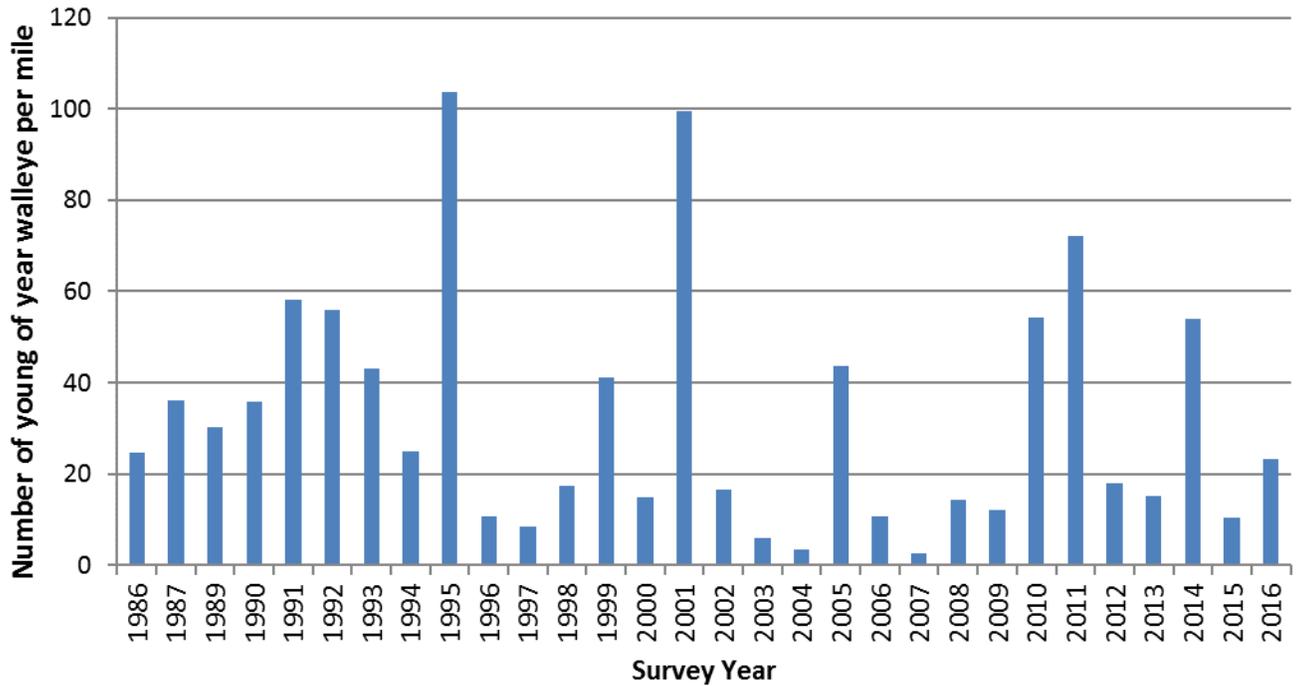


Figure 3. Round Lake walleye recruitment history, 1986-2016. Based on fall electro-fishing surveys conducted by WDNR and Great Lakes Indian Fish and Wildlife Commission.

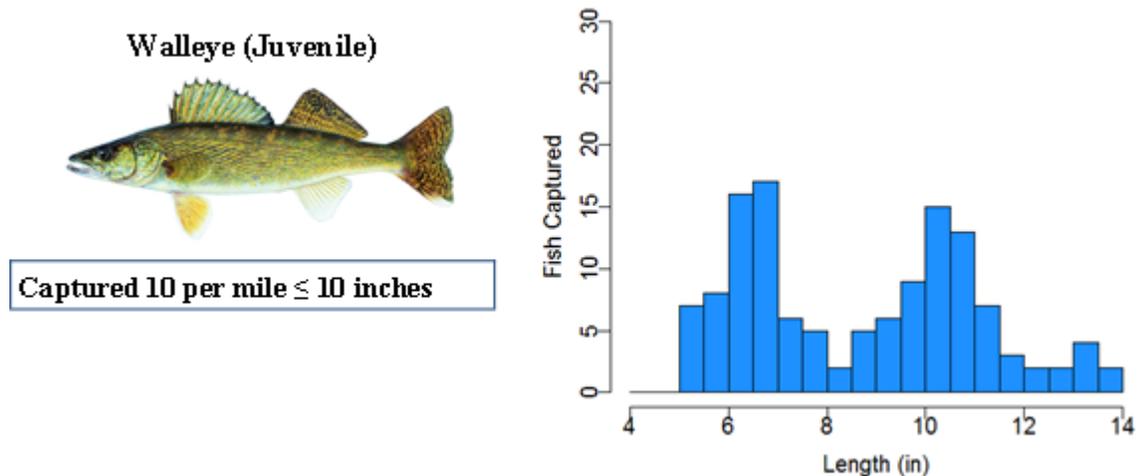


Figure 4. Juvenile walleye capture summary from a 2013 spring electro-fishing survey. This figure shows two separate year classes of juvenile walleye.

Watershed and shoreline protection will be an important strategy for walleye management (and most other species). Right now, quality spawning/nursery habitat is abundant. However, turbidity and erosion are increasing and that does not bode well for a species which is dependent on clean, hard, well-oxidized substrates in the shallow, near-shore zone for spawning/nursery habitat. Shoreline and watershed conservancy, protection, and restoration will be needed to preserve walleye habitat quality. Once a lake eutrophies to the mid- to late-mesotrophic stage walleye tend to become less dominant in the community and the fishery. Managers can still maintain walleye presence with stocking- but usually as a secondary species at densities well below stated objectives. Watershed and shoreline management protects/restores habitat which

optimizes walleye reproduction and recruitment, resulting in a self-sustaining population capable of meeting angling expectations.

Walleye and yellow perch have a strong predator/prey relationship. It is not unreasonable to expect that if perch populations can be improved (see upcoming Objectives 2.1 and 2.2) there will be residual benefits to the walleye population.

YELLOW PERCH

GOAL 2: A yellow perch population of moderate to high density with a moderate proportion of preferred-size fish.

Objective 2.1: Currently we lack an effective method to assess the relative abundance of yellow perch. Such a method should be developed.

Objective 2.2: Of all perch 5 inches and longer captured by fyke netting in early spring, 20-40% should be 9 inches or longer (RSD-9 = 20-40%).

Yellow Perch Status and Management Strategies

Because of time constraints, we did not actually develop this goal or the objectives at the visioning session. Tables A1 and A2 suggest these objectives are reasonably compatible with public desires. Objective 2.1 is critical to long-term monitoring. Objective 2.2 assumes that early spring netting is likely to be the best gear/index to monitor perch abundance and size structure. That hypothesis is currently being tested, and initially shows promise. Round Lake has the historical reputation as a lake which routinely produces “jumbo” perch. Traditional perch fishing on Round Lake targets deepwater crib structures. In 1998, anglers caught almost 8,000 perch and harvested about 4,000, with an average size of 9.2 inches. Recently, some anglers have complained about a lack of large perch. In 1998, early spring net CPE averaged 7.6 per net-night, but only 2% were over 9 inches. A 2013 survey found even higher relative abundance of perch (27 per net-night) and similarly poor size structure (<1% over 9 inches, Figure 5). It is possible that current sampling protocol does not effectively sample the largest perch in the population. Therefore, abundance and size objectives based on creel data may be appropriate for this species and the most direct method of delivering angler satisfaction. If survey methods to assess perch are not developed soon we will revisit this plan and frame objective 2.1 around angling catch rates as a means to assess perch abundance.

In 2016, an experimental panfish bag limit of 25 per day, but no more than 10 of any one species (including perch) was implemented. This experimental regulation is targeted at improving bluegill size structure, but it is not unreasonable to expect benefits to perch size structure as well. This experimental regulation will be evaluated in 2022 (along with other lakes in the state that received similar regulations).

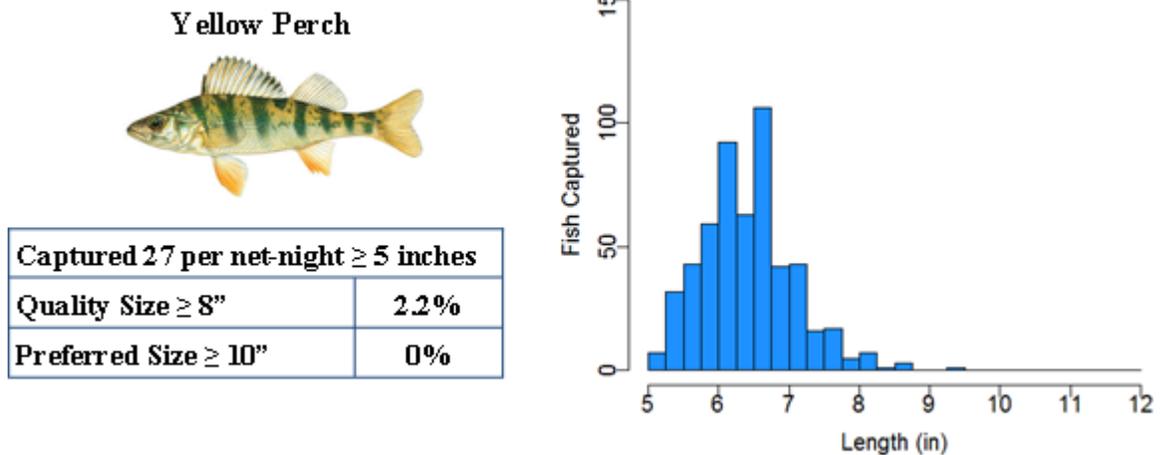


Figure 5. Yellow perch capture summary from a 2013 spring fyke netting survey.

MUSKELLUNGE

GOAL 3: A muskellunge population of low to moderate density with a high proportion of memorable-size fish and a low proportion of trophy-size fish.

Objective 3.1: 0.1 to 0.2 adult muskellunge per acre in population estimates

Objective 3.2: Of all muskellunge 20 inches and longer captured by fyke netting in early spring, 30-50% should be 42 inches or longer (RSD-42 = 30-50%).

Muskellunge Status and Management Strategies

The current muskellunge population in Round Lake is low-density but appears to be increasing, likely as a result of recent stocking efforts (Table 8). There are no current population estimates for Round Lake that would allow us to gauge whether objective 3.1 is being met. These estimates will be necessary as a part of future evaluations. Muskellunge captured in Round Lake as a part of DNR surveys are now being implanted with PIT (Passive Integrated Transponder) tags that will provide critical data. Since 2015, 28 adult muskellunge have been tagged in Round Lake. Two of these fish were recaptured as a part of another survey. Tagging more fish and generating more recaptures will provide critical information including growth rates, survival, and total population size. Additionally, in 2014 a portion of the fish stocked into Round Lake were given tags prior to stocking. These fish will be “known age” for the rest of their life and will provide information on stocking success. PIT tags are implanted within the fish and are only detected by scanning the fish with a reader.

Table 8. Muskellunge stocked into Round Lake since 1993.

Year	Size	Number stocked
2014	Large fingerlings	1,488
2012	Large fingerlings	3,800
2011	Large fingerlings	1,500
2010	Large fingerlings	1,500
2008	Large fingerlings	2,498
2006	Large fingerlings	1,374
2004	Large fingerlings	1,573
2002	Large fingerlings	1,526
1996	Yearlings	251
1995	Large fingerlings	650
1993	Large fingerlings	1,251

Frequency of muskellunge stocking has recently been altered to every three years at 0.5 fingerlings per acre (~1,526 total fingerlings), this rate is lower than stocking rates in many other lakes. The reduced stocking rate is being used to achieve Objective 3.1 and keep the population at a lower density but with presumed good growth. We plan to use fish from Lac Courte Oreilles as brood stock for Round Lake based on similar lake morphology, water clarity, forage base, and connectivity of these waterbodies. Natural reproduction of muskellunge in Round Lake is thought to be low but we will continue to monitor for substantial natural reproduction during fall electrofishing surveys. Should natural reproduction begin to sustain the population at the target levels from objective 3.1 stocking will be curtailed.

The size structure of muskellunge sampled in Round Lake is lower than both sets of size based objectives laid out in this plan (3.2 and 3.3, Figure 6) and does not match the potential this lake has to produce big fish. Most fish sampled in a 2013 survey were between 30 and 40 inches but very few were over 40 inches. We expect size structure to improve as fish stocked within the last decade grow into larger size classes. Muskellunge captured in netting and electrofishing surveys since 2014 were implanted with Passive Integrated Transponder (PIT) tags.

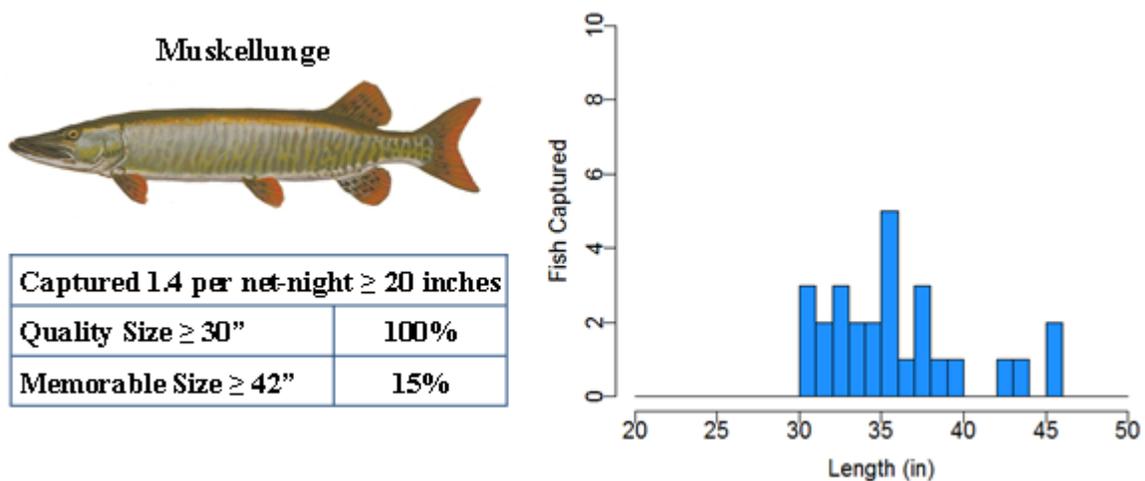


Figure 6. Muskellunge capture summary from a 2013 fyke netting survey.

Results of the visioning session revealed a strong interest in a catch and release fishery with an emphasis on trophy size. This type of fishery can be achieved through restrictive regulations and efforts to reduce catch and release mortality. We previously tabled a proposal for a 50"

minimum size for muskellunge but this proposal may need to be revisited as a tool to help us meet size based objectives (See LCO and Chippewa Flowage FMP's).



Photo 1: A large muskellunge which washed ashore dead on Round Lake in May 2006. This ripe female muskellunge was 51 inches long, weighed 45 pounds, and had a 28” girth. It was cleithrum-aged at 17+ years. While this is not a highly scientific observation, it is evidence of the quality of muskellunge Round Lake has been known to produce.

SMALLMOUTH BASS

GOAL 4: A smallmouth bass population of moderate to high density with a high proportion of memorable-size fish.

Objective 4.1: Electro-fishing capture rates for 7-inch and longer smallmouth bass of 25-40/mile during the bass spawning season.

Objective 4.2: Of all smallmouth bass 7 inches and longer captured by electrofishing during the bass spawning season, 40-60% should be 17 inches or longer (RSD-17 = 40-60%).

Smallmouth Bass Status and Management Strategies

Our current monitoring protocol of nighttime electrofishing during the bass spawn will allow us to determine whether Objectives 4.1 and 4.2 are being met. The most recent data (2013)

shows that abundance objectives (4.1, 20 per mile over 7 inches) are close to being met and structure size objectives (4.2, 44% over 17 inches) are currently being met (Figure 7).

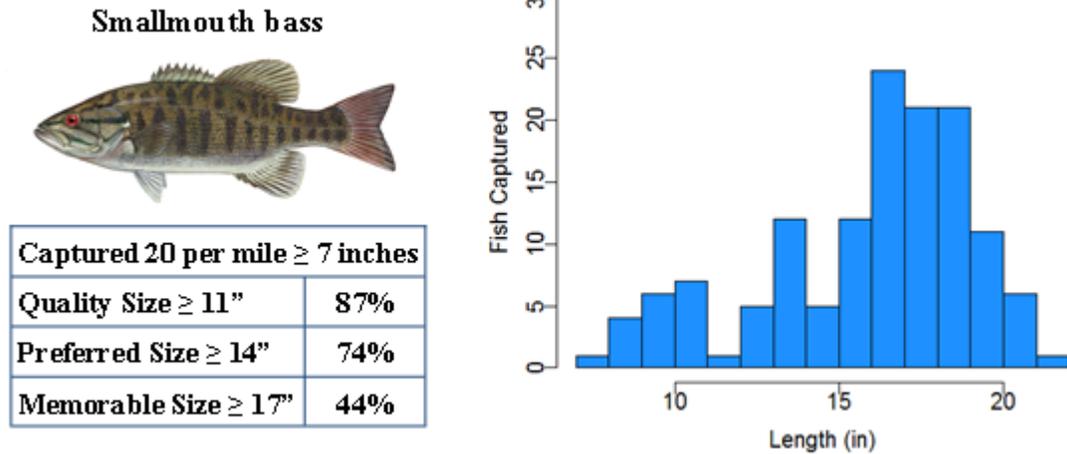


Figure 7. Smallmouth bass capture summary from a 2013 spring electrofishing survey in Round Lake.

More restrictive regulations for smallmouth bass (18-inch minimum length limit, 1-daily bag limit) were enacted for Round Lake in 2016. These more restrictive regulations will provide a better chance for size structure objectives to continue to be met and may offer improvements in both size and abundance of smallmouth.

We do not believe there is a large amount of competition between bass species in Round Lake, primarily because they are segregated in the habitats they tend to occupy. However, separate regulations for smallmouth and largemouth bass were deemed necessary in Round Lake to preserve and enhance the excellent smallmouth potential while maintaining largemouth bass in a low-density, quality-size state by allowing harvest of smaller largemouth bass which are very abundant in certain parts of the Round Lake and Little Round Lake.

BLUEGILL

GOAL 5: A bluegill population of low density with a moderate to high proportion of preferred-size fish.

Objective 5.1: Electrofishing capture rates of between 50 and 150 bluegill per mile in the spring.

Objective 5.2: Of all bluegill 3 inches and longer captured during electrofishing surveys in late spring, 10-20% should be 8 inches or longer (RSD-8 = 10-20%).

Bluegill Status and Management Strategies

Bluegill is another species for which the goal and objectives were not actually developed at the visioning session. So, we have proposed language we believe to be consistent with stakeholder desires (Tables A1 and A2) and ecosystem capability. Objectives for bluegill density (5.1) are representative of catch rates seen in low density populations capable of producing large fish. Therefore, the size objective (5.2) has a high likelihood of being met if density objective 5.1 is met. Current (2013) bluegill catch rates (167 per mile) are slightly higher than objective 5.1 (this

includes Little Round which has a denser bluegill population) but size structure is well below the target level with only 2% of fish surveyed being over 8 inches (Figure 8). Analysis of bluegill growth rates determined that harvest of quality size fish is the most likely driver of current size structure observed in Round Lake and size structure may be improved with more restrictive regulations. Such restrictive regulations were initiated in 2016. A preliminary evaluation of regulation success will be conducted in 2021 as a part of a larger experimental panfish regulations project. Bluegill may also benefit from increased littoral woody habitat such as tree drops.

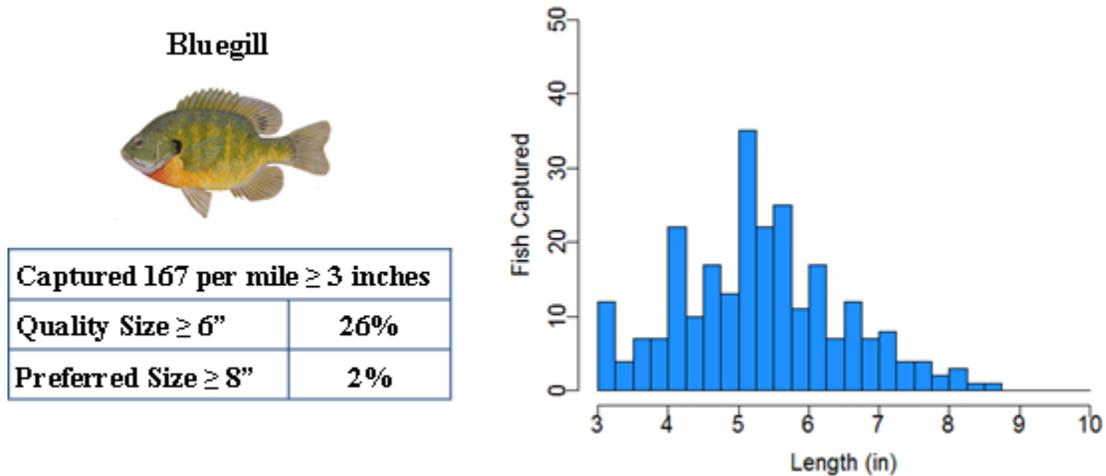


Figure 8. Bluegill capture summary from a 2013 spring electrofishing survey in Round Lake.

NORTHERN PIKE

GOAL 6: A northern pike population of low density with a high proportion of preferred-size fish.

Objective 6.1: Spring fyke net capture rates of between 1 and 3 fish per net night.

Objective 6.2: Of all northern pike 14 inches and longer captured by fyke netting in early spring, 20-30% should be 28 inches or longer (RSD-28 = 20-30%).

Northern Pike Status and Management Strategies

The current northern pike population in Round Lake is low density with concentrations of fish in some of the shallow weedy bays. Overall catch rate in spring of 2013 was 0.8 fish per net-night (Figure 9). Size structure was close to stated objectives with 19% of fish appearing in the 2013 survey being over 28 inches. Achieving size structure objectives should be possible if pike density is kept low (Objective 6.1) and growth rates are adequate. Current harvest rates for pike are relatively low (Table 5) and increased harvest of smaller pike may need to be encouraged if the population begins to expand and jeopardizes achievement of abundance and size objectives.

Northern Pike



Captured 0.8 per net-night \geq 14 inches	
Quality Size \geq 21"	94%
Preferred Size \geq 28"	19%

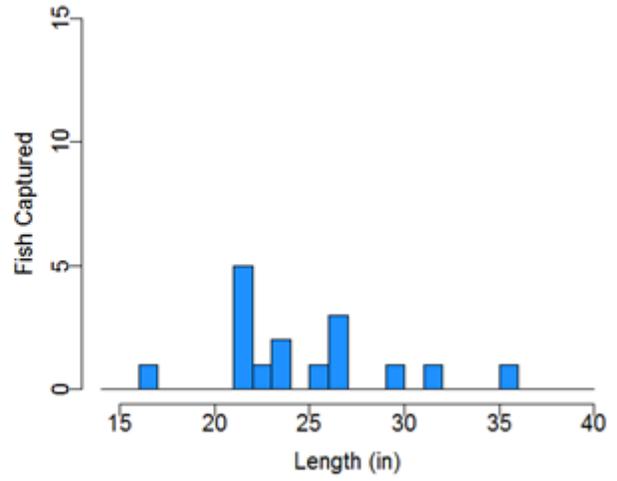


Figure 9. Northern pike capture summary from a 2013 spring fyke netting survey

APPENDIX A

Results of Visioning Session for Stakeholders in the Fishery of Round Lake in Sawyer County, Wisconsin

Date: July 29, 2005

Time: 6:00 p.m. to 10:00 p.m.

Place: Round Lake Town Hall east of Hayward, WI

Facilitator: Dave Neuswanger, Fisheries Supervisor, Upper Chippewa Basin, WDNR

Technical Advisor: Frank Pratt, Senior Fisheries Biologist, Hayward, WDNR

Profile of 26 Participants:

Lakeside Landowners – 16

Area Anglers – 5

Fishing Guides – 1

Business Owners – 2

Others – 2 (LCO Tribe and Lake Sissabagama Property Owners Association)

Table A1. Levels of sport fishing interest among visioning session participants in fish species nominated for consideration at Round Lake.

Fish Species Nominated	Level of Participant Fishing Interest			
	High	Medium	Low	None
Walleye	20	1	1	0
Yellow Perch	10	9	2	0
Muskellunge	12	4	4	2
Smallmouth Bass	6	9	3	2
Bluegill	6	6	8	1
Northern Pike	2	9	7	4
Black Crappie	2	7	6	4
Brown Trout	0	5	13	3
Largemouth Bass	0	5	6	8

Table A2. Preferences for numbers versus size and catch versus harvest among visioning session participants for fish species perceived to be most important at Round Lake.

Important Fish Species	Preference for Numbers versus Size			Preference for Catch-and-Release versus Harvest		
	Emphasis on Number over Size	Prefer Balance	Emphasis on Size over Number	Emphasis on Catch and Release	Prefer Balance	Emphasis on Maximum Sustainable Harvest
Walleye	7	9	0	0	8	12
Yellow Perch	8	10	1	0	6	14
Muskellunge	0	6	13	16	2	1
Smallmouth Bass	3	5	10	9	9	1
Bluegill	1	8	8	3	9	6
Northern Pike	0	3	15	8	5	7

APPENDIX B

Table B1. Creel survey history (by year) detailing catch and harvest for popular sportfish species in Grindstone lake, Wisconsin.

1998 Creel Results

Species	Estimated Total Angler Catch	Estimated Total Angler Harvest
Walleye	12,076	2,255
Yellow perch	7,798	3,341
Black crappie	7	7
Muskellunge	35	0
Smallmouth	3,832	215
Bluegill	4,025	1,129
N. pike	2,953	601
Rock bass	1,141	203
Largemouth	241	33

1991 Creel Results

Species	Estimated Total Angler Catch	Estimated Total Angler Harvest
Walleye	5,925	1,124
Yellow perch	7,177	5,249
Black crappie	88	73
Muskellunge	121	34
Smallmouth	1,248	449
Bluegill	11,517	4,316
N. pike	2,007	633
Rock bass	1,0743	497
Largemouth	307	101

APPENDIX C

An online survey that mirrored the questions asked to elicit the feedback shown in Appendix A was crafted on response to criticism that the stakeholder feedback used to develop this plan was outdated or had insufficient sample size. The survey was administered online through Survey Monkey and was distributed through various email lists that would capture a range of stakeholders, including property owners, guides, resorts, and both local and nonlocal anglers. The survey was specifically targeted at stakeholders interested in at least one of seven lakes where visioning sessions had been completed between 2004-2006 and where management plans were complete or were in draft form. Those lakes included the Chippewa Flowage, Lac Courte Oreilles, Nelson Lake, Grindstone Lake, **Round Lake**, Moose Lake, and the Quiet Lakes (Lost Land and Teal).

A total of 497 responses were received. Results from the online survey are shown below with comparisons to the results from in-person visioning sessions. Species preferences (Table C1) were nearly identical in rank with only black crappie-muskellunge and smallmouth bass-bluegill swapping adjacent spots. Both bass species scored higher in the online format than the in-person sessions. This may be the result of the online surveys capturing a relatively high proportion of “casual anglers” (self-identified through the survey). The higher response rate of casual anglers to an online survey with an average response time of 4 minutes in comparison to the visioning sessions which often took several hours is not surprising. Preference for how each species should be managed (Table C2) was also largely similar, with the only major difference being more interest in trophy management for northern pike among in-person respondents. The online survey actually filled in a few gaps in the results from the in-person sessions where there was not enough time to get specific feedback for all species.

Table C1. Species preferences based on a weighted score of angling interest for both in-person visioning sessions (2004-2006) and a similar online survey (2018). Score determined for each species using: $((N=\text{high interest} \times 3) + (N=\text{medium interest} \times 2) + (N=\text{low interest} \times 1)) / \text{total respondents}$.

Visioning Session	Score	Online Survey	Score
Walleye	2.67	Walleye	2.45
Muskellunge*	2.22	Black crappie	2.07
Black crappie	2.07	Muskellunge*	1.93
Bluegill	2.00	Smallmouth bass*	1.83
Smallmouth bass*	1.42	Bluegill	1.75
Yellow perch	1.37	Yellow Perch	1.44
Northern pike*	1.25	Northern pike*	1.43
Largemouth bass	1.00	Largemouth bass	1.36
Average	1.75	Average	1.78
Total respondents	166		497

*indicates species not present in all lakes where survey was administered.

Table C2. Summary of responses to two questions about preferred management style (size vs. numbers and harvest vs. catch and release) for the most popular species in several Sawyer County lakes between in-person visioning sessions (2004-2006) and a similar online survey (2018). Most common result in each category is shown in bold.

	<u>Visioning Session</u>			<u>Online Survey</u>		
	Trophy	Balance	Action	Trophy	Balance	Action
Walleye	3.36%	76.51%	20.13%	5.87%	69.60%	24.53%
Black crappie	16.41%	82.81%	0.78%	7.49%	74.52%	17.99%
Muskellunge	48.54%	50.49%	0.97%	49.47%	43.35%	7.18%
Bluegill	18.45%	74.76%	6.80%	10.31%	66.23%	23.46%
Yellow perch	NA	NA	NA	11.29%	58.29%	30.41%
Smallmouth bass	40.54%	48.65%	10.81%	32.08%	55.27%	12.65%
Largemouth bass	NA	NA	NA	30.25%	53.81%	15.94%
Northern pike	71.43%	28.57%	0.00%	39.86%	50.12%	10.02%
	C+R	Balance	Harvest	C+R	Balance	Harvest
Walleye	6.67%	72.00%	21.33%	8.96%	59.28%	31.77%
Black crappie	0.80%	92.00%	7.20%	8.92%	53.72%	37.37%
Muskellunge	92.04%	6.19%	1.77%	83.93%	10.71%	5.36%
Bluegill	3.88%	76.70%	19.42%	8.47%	46.19%	45.34%
Yellow perch	NA	NA	NA	8.91%	45.21%	45.88%
Smallmouth bass	78.07%	20.18%	1.75%	46.33%	41.87%	11.80%
Largemouth bass	NA	NA	NA	30.32%	36.20%	33.48%
Northern pike	31.82%	54.55%	13.64%	19.41%	47.63%	32.96%

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Also acknowledged: Personal communications regarding water quality, watershed land types, and changes in residential development – Dan Tyrolt, LCO Conservation Department and Jan Eck, Sawyer County Land Conservation Department; un-cited memos, hard-copy raw data, fish survey sampling summary sheets, etc., Hayward DNR Fishery File and Spooner DNR Treaty Assessment files. Post 2000 fishery data is mostly from WDNR Statewide database, Madison.