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Proposal to safeguard big Bluegills

As part of the DNR's Quality Bluegill Initiative, anglers can provide input regarding keeping fewer Bluegills from some Minnesota lakes as a way to protect and improve the sizes of one of the state's most prized and frequently caught fish.

DNR fisheries staff are hearing from more and more stakeholders, every-day anglers, resort owners, fishing guides and fishing celebrities that they would like more opportunities to catch larger sunfish. Harvest of too many large sunfish is a common factor causing size quality to decline, so reduced limits may be needed to meet angler expectations. Special sunfish regulations have been used successfully in Minnesota for well over a decade, but have only been in place on a small number of lakes. Regulation evaluations have found that five and ten fish limits have been effective at reducing harvest enough to protect or improve size quality when applied prescriptively.

The Quality Bluegill Initiative plans to expand this effort. The initiative is the result of years of discussions with stakeholders and the review of angler and lake survey data. The DNR mailed questions to a random selection of anglers and asked about the level of support for reducing bag limits statewide. While anglers did not overwhelmingly support a statewide change, there was strong support for reducing limits on selected lakes. Fisheries staff have identified about 120 additional lakes across the state that would likely benefit from reduced daily limits based on lake survey data, but need to be sure that anglers support the regulations. Five or 10 fish daily limits will only be applied to lakes with sound biological potential for large fish and public support for the regulation.

A regulation only works with public support, so collecting comments is important. The DNR has posted a list of proposed lakes designated for regulation changes, as well as how people can provide input at mndnr.gov/sunfish. People can respond through fall 2020. The DNR will post informational signs at water accesses on lakes included in the proposal throughout 2020. Based on input collected, the DNR will make necessary changes to the proposals, and new regulations could go into effect March 1, 2021.

Grand Rapids area lakes proposed for reduced limits include Bear, Cut Foot and Little Cut Foot Sioux, Island (Deer River), Jay Gould and Little Jay Gould, and Little Bowstring. Find more information about sunfish biology and management at mndnr.gov/sunfish.



Netting, measuring, and weighing Bluegills during a survey is one way biologists evaluate regulations.

Monitoring angler use on Grand Rapids area stream trout lakes

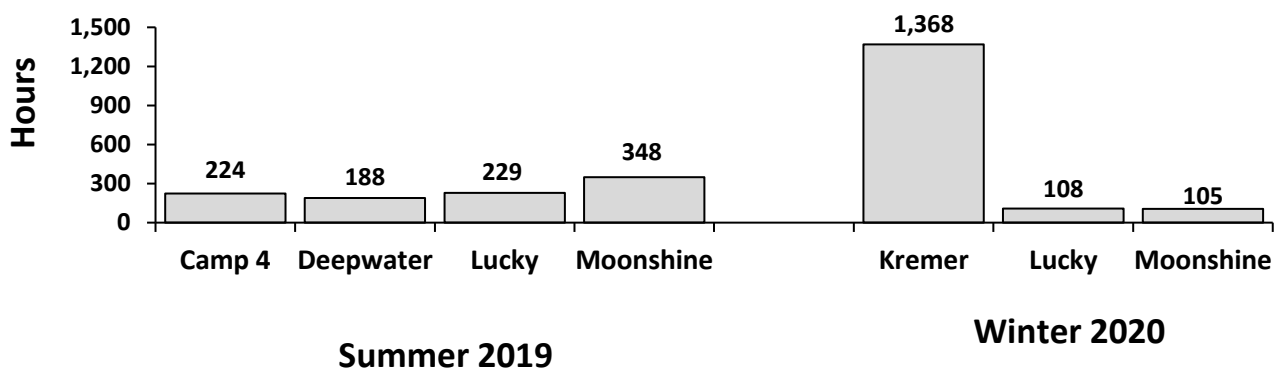
Grand Rapids Area Fisheries manages three mine pits and seven natural lakes for stream trout. Stream trout can't spawn in lakes so these fisheries are maintained through stocking. Managed stream trout species include Rainbow, Brown, and Brook Trout, in addition to Splake (Brook x Lake Trout). Information on angler use of these fisheries is necessary to evaluate program efficiencies. A survey of Minnesota anglers who purchased a trout stamp in 2013-14 indicated that 46% fished inland trout lakes, 80% of those anglers targeted stream trout on inland trout lakes, and anglers averaged 5.5 days per year doing so. Therefore, there is considerable interest in maintaining these fisheries.

Angler use surveys were traditionally conducted using creel clerks to collect angler data. Due to reduced budgets and staff size, traditional creel surveys on stream trout lakes have not occurred since the early 1980s in the Grand Rapids Fisheries Area. Since then, evaluation of stream trout lakes has relied primarily on fall netting surveys. Interpretation of netting data is challenging due to variability in the survival of stocked fish, species susceptibility by gear, and survey frequency.

Since 2006, additional information on fishing effort, catch, harvest, and angler satisfaction has been collected using voluntary creel cards at self-survey kiosks adjacent to each water body. The response rate and accuracy of the information provided has largely been unknown. However, only 3% of anglers observed on camera during the summer of 2019 filled out creel cards at the four lakes monitored by Grand Rapids Area Fisheries. Because of the lack of current and comprehensive information on these fisheries, fisheries management would benefit from additional information to guide decisions on survey frequency, stocking frequency, stocking timing, life-stage stocked (i.e. fingerling vs. yearling), species stocked, and other management considerations.

Trail cameras now provide a low cost option for collecting angler information. Cameras allow biologists to collect remote, efficient, and cost-effective data. Camera images can be used to estimate angler effort, provide cost-benefit analyses, and facilitate overall program evaluations. Grand Rapids Area Fisheries started using cameras to evaluate angler use of stream trout lakes in 2019. During the summer of 2019, Camp 4 (Camp A), Deepwater, Lucky, and Moonshine lakes were monitored, while Kremer, Lucky, and Moonshine lakes were monitored during the winter of 2020. Angler use is also being monitored on Kremer, Lucky, and Moonshine lakes during the summer of 2020.

During the summer of 2019, an average of 99 anglers used each lake (range 26-183). Angler effort averaged 247 hours per lake (range 188-348), or 13 hours per acre (range 9-19). During the winter of 2020, an average of 146 anglers used each lake (range 30-367). Angler effort averaged 527 hours/lake (range 105-1,368), or 11 hours per acre (range 4-19). Costs to maintain stream trout fisheries on both Lucky and Moonshine lakes were \$7 per angler and \$3 per angler-hour, based on summer 2019 and winter 2020 use combined. Cost estimates will be calculated for Kremer Lake once the summer 2020 season concludes.



The total number of hours anglers spent fishing the stream trout lakes monitored from May 11 through October 31, 2019 (Summer 2019) and from January 18 through March 31, 2020 (Winter 2020).

Which Grand Rapids lakes have special regulations and why?

Anglers fish for a variety of reasons and harvesting fish for a meal is a common one. Angler harvest can have great effects on the species they harvest and the overall fish community. Too much harvest can affect fish numbers and size quality.

Statewide regulations occur on the vast majority of lakes in Minnesota to help manage fish populations. The intent of statewide regulations are to allow for angler harvest, while also maintaining healthy fisheries. Many anglers assume that statewide limits are sufficient to maintain good fishing. While they are sufficient on many lakes, harvest may not be restrictive enough to reach management goals and angler expectations on others. While most statewide regulations are based on biology, a social component considering the fair number of fish to harvest is also incorporated. Overall, angler expectations on lakes managed with statewide limits should be to have gamefish populations with average size distributions and numbers, when compared to similar area lakes.

Fisheries managers know there are some lakes that are capable of supporting specific gamefish species that are above average and consistently meet or exceed angler expectations if harvest is further restricted. Special regulations are appropriate on this subset of lakes to maintain or improve these quality populations.

Although data collected by biologists may suggest a special regulation is appropriate, public acceptance and compliance is necessary when proposing and maintaining these regulations. Other management considerations include angler opinions, enforcement ability, and economic impact. Once biologists propose a special regulation for a species, the initial proposal does not always become the final regulation after going through the public review process due to public input and the considerations previously stated.

Protected slot limits and reduced bag limits are the two types of special regulations currently used by Grand Rapids Area Fisheries, each of which have numerous and different goals depending upon the lake. Goals of protected slot limits may include reduced densities of smaller fish, improved growth and size distribution, protecting spawning sized individuals, improved catch rates of preferred sized fish, and providing a more stable population. Goals for reduced bag limits may include reduced harvest, improved size quality, distributing harvest over a larger number of anglers, and serving as a reminder to anglers that resources are finite.

Grand Rapids Area Fisheries manages 618 lakes in Itasca and western St. Louis counties. Of these lakes, 23 (4%) are currently managed with special regulations. Special regulations occur for Northern Pike, Walleye, Bluegill, Smallmouth Bass, and Black Crappie.

The five lakes managed with special regulations for Northern Pike include Balsam, Coon-Sandwich, Island (Northome), North Star, and Spider lakes. The special regulation for these lakes state pike from 24 to 36 inches must be immediately released, the possession limit is three, and only one pike over 36 inches is allowed in possession. The goal of this regulation is to maintain or improve the existing quality size distribution, which provides anglers the opportunity to catch larger pike.



Special regulations occur for Northern Pike on five lakes in the Grand Rapids area.

The eight lakes managed with special regulations for Walleye include Island (Northome), Moose, Round, Sand, Split Hand, Swan, Trout (Coleraine), and Winnibigoshish. The special regulation on Island, Round, and Sand lakes states Walleye from 17 to 26 inches must be immediately released, the possession limit is six, and only one over 26 inches is allowed in possession. The overall goal of this regulation is to maximize angler catch rates through catch and release of quality sized Walleye while still allowing harvest of smaller fish. Other goals include providing a more stable population, improved size distribution, and increased contribution of naturally reproduced Walleye.

The special regulation on Moose, Split Hand, Swan, and Trout (Coleraine) lakes states Walleye from 20 to 24 inches must be immediately released, the possession limit is six, and only one over 24 inches is allowed in possession. Moose and Split Hand lakes have the potential for good natural reproduction and the goal of this regulation allows for additional harvest while also protecting important spawning age fish. Although Trout (Coleraine) and Swan (Pengilly) lakes are primarily maintained by fry stocking and the protection of spawning fish is less of a concern, strong public interest resulted in this regulation.

The special regulation on Lake Winnibigoshish states Walleye from 18 to 23 inches must be immediately released, the possession limit is six, and only one over 23 inches is allowed in possession. The goal of this regulation is to maintain higher angler catch and harvest rates. The number of mature female spawners is as high as it has been in recent decades, and the population can support additional harvest while maintaining high quality.

The eight lakes managed with special regulations for sunfish include Bass (Cohasset), Battle, Deer (Effie), Dixon, Grave, Little Split Hand, Pickerel, and Split Hand. Deer, Battle, and Pickerel have a sunfish possession limit of ten, while Bass, Dixon, Grave, Little Split Hand and Split Hand lakes have a sunfish possession limit of five. A recent statewide evaluation of how special sunfish regulations have performed found that populations managed with a ten fish bag limit maintained their existing size and age quality while five fish bag limits improved their average size and age quality.

The one lake managed with a special regulation for Smallmouth Bass is Turtle Lake. The special regulation states Smallmouth Bass from 14 to 20 inches must be immediately released, the possession limit is 6 (combined total with Largemouth Bass), with one over 20 inches allowed in possession. The goal of this regulation is to maintain the present population that has lower density and quality size distribution.

The one lake managed with a special regulation for Black Crappie is Split Hand Lake. The possession limit is five. The goal of this regulation is to reduce individual angler harvest, spreading out harvest opportunities among anglers and over a longer duration of time.

As anglers become more mobile and technologies more sophisticated, the importance of special regulations increases when attempting to conserve unique and finite resources. Without special regulations, the likelihood of overharvest increases. That said, regulation evaluations through fish population surveys need to occur regularly and management plans need to have measurable objectives to determine if special regulations continue to be appropriate.



Special regulations occur for Walleye on eight lakes in the Grand Rapids area.

Collaborative efforts successful for Muskellunge survey on Lake Vermilion

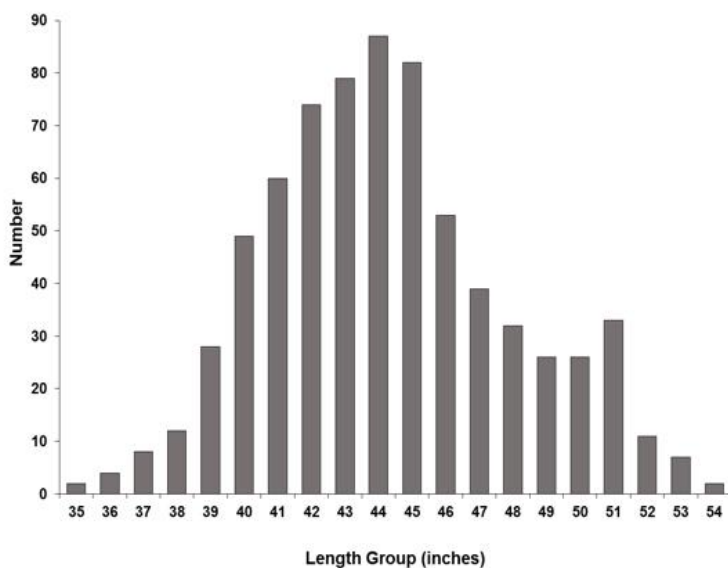
Lake Vermilion is one of Minnesota's premier fishing lakes. Although the lake is not in the Grand Rapids Fisheries Management Area, area staff occasionally contribute to projects in other parts of the state. The Lake Vermilion Muskellunge project is a good example of a collaborative fisheries effort.

In the spring of 2019, 27 fisheries employees representing 14 DNR offices along with some volunteers collectively completed the marking phase of a lakewide Muskellunge population estimate on Lake Vermilion. The survey occurred from May 8 through May 24, with individuals working anywhere from 2 to 17 consecutive days. This effort consisted of three 3-person crews running nets daily. A total of 45 to 50 large-framed trap nets were checked daily. One crew included two Grand Rapids Area Fisheries staff throughout the duration of the survey. A lot of collaboration and coordination was required to accomplish the first half of this large-scale project. As the Minnesota Department of Natural Resources, Division of Fish and Wildlife adjusts to reductions in funding and staff size, greater collaborative efforts are necessary to complete larger scale projects like this.

Spring 2019 was only the first half of a project designed to estimate the number of adult Muskellunge in the lake. Due to the COVID-19 Pandemic, the second half of the population estimate was suspended for one year with the goal of completing the recapture phase of this project in the spring of 2021. To calculate a population estimate using mark and recapture techniques, one first captures and marks (e.g., tags, fin clips, etc.) a portion of the population during an initial survey (marking phase). Following a period of time, a second survey is conducted to resample the population and identify marked fish from the first survey and unmarked fish (recapture phase). A population estimate can be made using the initial number of marked fish along with the proportion of marked to unmarked individuals from the recapture effort. This estimate will provide perspective on the density of Muskellunge in the lake compared to other fisheries throughout the state.

Muskellunge provide an important catch-and-release sport fishery on Lake Vermilion. The fishery is widely considered an important statewide asset that draws anglers from around Minnesota and beyond. The population was established through a stocking program that began in 1987 using Leech Lake strain fish. The goal of this program was to provide a low density, high quality fishery. The most recent management plan calls for a base stocking quota of 3,000 fingerlings annually with up to 2,000 surplus fingerlings per two year period as available, which should continue to accomplish this goal.

Overall, a total of 715 different Muskellunge were captured and inserted with passive integrated transponder (PIT) tags, which allow for identification of individual fish. Of the fish captured, 567 were in East Vermilion and 148 in West Vermilion. Additional information collected included length, weight, sex, maturity, and around 5 to 8 scales were collected from each fish. Scale samples can provide genetic related information.



The length distribution and one of the larger Muskellunge sampled by the DNR in 2019 on Lake Vermilion.

Muskellunge ranged in length from 24.2 to 54.1 inches with an average of 44.7 inches. Only one fish less than 35 inches was captured. Fish from 39 to 51 inches were most common. About 11% (n = 79) of the fish caught were 50 inches or longer. The average length of fish sampled in West Vermilion (45.7 inches) was slightly longer than the average length in East Vermilion (44.5 inches). West Vermilion also had a slightly higher percentage of fish larger than 50 inches (14%; n = 21) compared to East Vermilion (10%; n = 58). The overall sex ratio was 60% male (n = 421) and 40% female (n = 285).

Fish were also examined for the presence of pelvic fin clips because stocked Muskellunge fingerlings from 1993 to 2012 were marked by removing either the right or left pelvic fin. In 2019, 31% (n = 222) of captured fish had a pelvic fin clip, indicating they had been stocked. Twenty-six percent (n = 149) of fish captured in East Vermilion had a fin clip, while 49% (n = 73) had a fin clip in West Vermilion. For more information about the Lake Vermilion fishery, please contact DNR Tower Area Fisheries at 218-300-7802.

Spring 2020 Walleye egg take cancelled, but anglers likely unaffected

Due to the COVID-19 Pandemic, the Minnesota Department of Natural Resources canceled Walleye egg take operations and fry stocking statewide in the spring of 2020. Collecting eggs and sperm from Walleye is a labor-intensive effort that requires teams of six to eight people working in close proximity. After a careful examination of whether egg take procedures could be reengineered, the DNR determined that it was not possible to safely handle fish while also practicing appropriate social distancing measures to protect staff from COVID-19. The cancellation of the Walleye egg take operations in 2020 was not preferred from a fisheries management perspective, but safety concerns always take precedence in the DNR workplace and Walleye populations will continue to provide angling opportunities in stocked waters.

DNR employees annually spawn Walleye at more than a dozen locations statewide, and offspring produced are immediately stocked as fry or reared until fall in ponds and then stocked as fingerlings. Walleye are typically stocked in waters that have low or no natural Walleye reproduction, but have good habitat and conditions for survival. Although stocking these waters increases angling opportunities throughout Minnesota, most angler caught Walleye are from lakes with natural reproduction.

Grand Rapids Area Fisheries stocks nearly 50 area lakes with either Walleye fry or fingerlings. While nearly 20 lakes are stocked annually with fry, others are stocked less frequently depending on management goals and strategies. The number of fry stocked and stocking frequency is established in each lakes' management plan, and is based on each lakes productivity or carrying capacity.

The lack of stocking in 2020 is not expected to impact area anglers. While stocking is an important tool to maintain Walleye populations and angling opportunities in many stocked waters, individual stockings are conducted as part of a long-term strategy called "put, grow, and take". Unlike species such as trout, which are often stocked at a larger size and are immediately available to anglers, Walleye are stocked at a very young age and must live 3 to 5 years and grow large enough to interest anglers. Healthy Walleye populations are often comprised of over a dozen year classes, so a poor or missing year class will not result in a noticeable downturn in the population or likely have an impact on angling.



The Walleye egg take operation at Cut Foot Sioux and subsequent images of Walleye spawning, rearing, and fry stocking by Grand Rapids Area Fisheries.

Because of nature's ability to balance fish populations, Walleye populations will have likely "caught up" by the time the fish are large enough to interest anglers. In nature, Walleye do not produce strong year classes annually, producing both a mix of strong and weak year classes. Strong year classes are produced when competition is low and conditions are favorable. Strong year classes often follow weak ones, as nature balances the biological equation through higher survival rates and faster growth. This is a common tendency in both stocked and unstocked waters and is likely an important survival strategy to help balance predator and prey numbers. Ideal spring conditions contributed to a strong 2019 year class in several area lakes. The 2019 year class will provide good angling opportunities in the near future but reduce the natural odds of having a strong 2020 year class, even if stocking had occurred.

Fisheries management challenges with changing environments

To quote Bob Dylan, "the times, they are a changing", and biologists and anglers alike are taking notice. News of environmental changes to lakes and streams, commonly attributed to exotic species, is a common occurrence in headlines. Meanwhile, biologists document these changes and monitor their effects on fisheries. A recent Minnesota study documented changing catch rates for a variety of species between 1970 and 2013. It found that crappie, bass, pike, and Bluegill numbers increased, while perch and White Sucker numbers decreased. Although Walleye numbers have increased over the past 40 years, they were lowest in the 1970s, highest in the 1990s, and occurred at more moderate levels in the 1980s and 2000s.

Changes in Walleye populations have also been documented throughout the upper Midwest and in Ontario. A recent study in Wisconsin found that Walleye production declined in both stocked and natural populations. This study did not determine the cause of production declines, but suggested climate change and changes in the food chain were likely responsible. Another recent study in Wisconsin found that bass populations have expanded, while Walleye populations have declined. This study showed a strong relationship between population trends and temperatures throughout the growing season.

In Minnesota, the DNR recognizes the social and economic importance of Walleye and remains committed to doing what it can to provide angling opportunities. However, recent research in Minnesota has shown that a decade long attempt to improve Walleye numbers through increased fingerling stocking densities found an optimal stocking density above which more fingerlings frequently failed to produce more fish for anglers.

In 1948, DNR fish researcher John Moyle wrote that "We cannot replace nature; we can only aid her. Modern fish-culture is essentially the business of helping the fish take care of themselves". The fundamental fact is that nature is changing; our lakes do not contain the same environment as they did in past decades, and some lakes are becoming less suited for Walleye. This presents biologists and anglers alike with some big questions. A fish manager might ask, "How can the DNR continue to provide opportunities for Walleye fishing whose popularity grew under different and more favorable environmental conditions?" An angler might ask, "How can I continue to fish for Walleye in a changing environment and how should I adjust my tactics or should my target species change?"



Changes in water clarity, vegetation amounts, and water temperature are all being observed in Minnesota lakes.

We realize this information does not provide anglers with any assurances and may raise more questions than answers, but it demonstrates that a multitude of factors contribute to management decisions and public concerns are heard and valued.

Some modified regulations now in effect for the Grand Rapids area in 2020

Several fishing regulation changes went into effect on the 2020 fishing opener in the Grand Rapids area. The 17-26 inch protected slot limit (PSL) for Walleye was modified to a 20-24 inch PSL on Swan, Trout, Moose, and Split Hand lakes following public comments and recommendations. The 17-26 inch PSL for Walleye on Deer Lake (Effie) was changed to the statewide limit of 6 fish with one over 20 inches allowed in possession. The 12-20 inch PSL for Smallmouth Bass on Turtle Lake was modified to a 14-20 inch PSL. These regulation changes generally allow for more angler harvest, but are still expected to help maintain good angling opportunities.

Special fishing regulations aim to strike a balance between fisheries protection and angler harvest opportunities. As fish populations respond to regulations, periodic reviews and regulation modifications are appropriate to ensure that angling opportunities are maximized while biological concerns are addressed. The Grand Rapids Area Fisheries office reviewed the 17-26 inch protected slot (PSL) regulation for Walleye in 2019 on all area lakes with this regulation. These lakes had this regulation for over a decade. Over that time, new regulation options were developed that allow for more harvest, while maintaining quality fishing. In some cases, lake survey data indicated that the regulation was no longer necessary.

Given results from the several most recent lake specific surveys, the Grand Rapids Area Fisheries office recommended the following Walleye regulation changes based on fish survey information: Deer (Effie), Trout (Coleraine), and Swan (Pengilly) lakes are primarily maintained by Walleye fry stocking and protection of spawning fish is less of a concern. The DNR proposed that the 17-26 inch PSL regulation could be dropped in favor of the statewide limit (6 fish with one over 20 inches), although the DNR also supported a modified 20-24 inch PSL if it was strongly preferred by the public. On Moose (Deer River) and Split Hand lakes (Grand Rapids), the DNR recommended modifying the regulations to a 20-24 inch PSL. Moose and Split Hand lakes have the potential for good natural reproduction and the modified limit would allow additional harvest while also protecting important spawning age fish.

Turtle Lake has a long history of producing quality Smallmouth Bass. A special 12-20 inch PSL with a one over 20-inch regulation was implemented in 2006 to protect size quality. The DNR proposed changing the regulation to 14 to 20 inch PSL. When the regulation was first proposed and implemented in 2006, the 12-20 inch PSL was the only special regulation managers could implement for bass. Since then, other options were developed by the DNR, including a 14-20 inch PSL with one over 20 inches, which is typically favored for bass fisheries with good reproduction. Lake survey data showed that bass between 12 and 14 inches on Turtle Lake were common and a harvestable surplus could be utilized by anglers without compromising overall size quality.



Smallmouth Bass and Walleye had regulations tweaked on some lakes prior to the 2020 opener.

Lake accesses were posted in May 2019 and public notices were published twice during the summer of 2019. The public comment period began in May and ended 10 days after the last public meeting in the fall. The first open-house meeting was held on Wednesday, Oct. 9, 2019 at the Big Fork City Hall. The second open-house

meeting was held on Wednesday, Oct. 30, 2019, at the Minnesota Interagency Fire Center (MIFC) in Grand Rapids. An additional open-house meeting was held at the DNR Headquarters in St. Paul, MN.

Many individuals indicated that the Walleye regulations should be modified to allow for additional harvest but felt that some level of protection was warranted. Over 200 individuals submitted comments. These anglers favored the 20-24 inch option on Trout, Swan, and Split Hand lakes. Support for the various options was mixed on Deer and Moose lakes, with no clear preference. Anglers also strongly supported the proposed modification to the Smallmouth Bass regulation on Turtle Lake.

The regulation changes implemented on the 2020 fishing opener should allow for additional harvest opportunities, while maintaining good angling, while also continuing to adequately protect spawning populations. Regulations will continue to be evaluated through DNR lake surveys and communication with stakeholders.