

Fisheries Management Zone 6 Fisheries Management Plan Amendment #2021-1 – Lake Trout

April 2021

Note: This amendment replaces Lake Trout goal statements, specific objectives and management actions in the 2009 Fisheries Management Zone 6 Fisheries Management Plan.

FMZ 6 Fisheries Management Plan Amendment 2021-1: Lake Trout

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Résumé en français (French Language Summary)

En 2009, le ministère des Richesses naturelles et des Forêts a élaboré un plan de gestion des pêches pour la zone de gestion des pêches n° 6. Ce plan comprenait 11 objectifs et 22 mesures, dont quatre changements aux règlements de la pêche sportive. Parmi ces changements, il y avait une prolongation d'un mois à deux mois de la saison de la pêche sportive hivernale au touladi. En 2019, un examen du plan de 2009 a déterminé que le changement de la saison de la pêche au touladi atteignait son objectif et a mené à la recommandation d'envisager une augmentation supplémentaire du nombre de jours de la saison de la pêche sportive hivernale.

Entre juin 2019 et mars 2020, le personnel du ministère des Richesses naturelles a rencontré des membres du Conseil consultatif de la zone de gestion des pêches n° 6 pour examiner les résultats de la surveillance du touladi, établir de nouveaux objectifs de gestion pour le touladi, et déterminer une série d'options de réglementation qui pourraient servir à atteindre ces objectifs. Une version préliminaire de ce document, résumant le contenu de ces réunions et présentant plusieurs options de réglementation à soumettre à l'examen des collectivités autochtones, des intervenants et du grand public, était accessible aux fins d'examen et de commentaires sur le Registre environnemental de l'Ontario entre le 27 novembre 2020 et le 11 janvier 2021.

Les résultats de la surveillance à grande échelle des tendances dans les lacs de touladis dans la zone de gestion des pêches n° 6 entre 2008 et 2019 n'indiquent aucun changement important de l'état des populations de touladis dans l'ensemble de la zone depuis la modification de la durée de la saison de la pêche sportive hivernale. Les résultats des relevés aériens de l'intensité de la pêche sportive hivernale effectués sur les lacs de touladis en 2009 et en 2014 n'indiquent pas de changements importants dans les efforts de pêche sportive hivernale visant le touladi entre ces années.

Deux nouveaux objectifs pour le touladi remplacent ceux du plan de 2009:

Objectif écologique relatif au touladi : Maintenir l'état actuel des populations de touladis dans la ZGP 6.

Objectif socioéconomique relatif au touladi : Offrir des possibilités accrues de pêche sportive hivernale au touladi pendant l'hiver, au moment où il est peu probable qu'elle ait une incidence négative sur l'état écologique du touladi dans la zone.

Afin d'atteindre ces objectifs, les changements de réglementation suivants concernant le touladi dans la ZGP 6 seront apportés :

A. Modification de la réglementation à l'échelle de la zone :

Adopter le règlement sur le touladi de la ZGP 5 : Du 1er janvier au 30 septembre, pas plus d'une prise de plus de 56 cm en septembre

B. Examen des exceptions existantes

Rivière Nipigon, lac Helen et lac Polly – exception actuelle : Touladi – ouverte du 15 février au 15 mars et du 4^e samedi de mai au 30 septembre.

Modification : Adopter la saison établie pour toute la zone

Lac Grouse, lac Watershed, lac North Mawn – exception actuelle – réserve de poissons du 1^{er} janvier au vendredi précédant le 4^e samedi de mai et du 1^{er} octobre au 31 décembre

Modification : Retirer le statut de réserve et adopter la saison établie pour toute la zone

Lac Black Sturgeon, rivière Muskrat et rivière Spruce – exception actuelle – touladi – fermée toute l'année

Modification : Remplacer l'objectif « empoisonnement » par « empoisonnement, croissance et pêche » – ajouter le lac Black Sturgeon à une liste de lacs où la pêche est ouverte toute l'année. Adopter la saison établie pour toute la zone pour les rivières

Lacs Shebandowan – exception actuelle – la pêche au touladi est fermée toute l'année

Modification : Statu quo, avec changements administratifs apportés à la description géographique (décrits dans le document)

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Introduction

In 2005, the Ministry of Natural Resources and Forestry (MNRF) adopted *A New Ecological Framework for Recreational Fisheries Management in Ontario* (EFFM; MNR 2005), which was intended to ensure resource sustainability and optimize angling opportunities in the province. Among the initiatives derived from EFFM were the realignment of Ontario Fishing Divisions into twenty Fisheries Management Zones (FMZ), the creation of stakeholder Advisory Councils for most of the FMZs, and the development of fisheries management plans for the FMZs that would guide the adaptive management of fish populations and fisheries at a landscape scale for several years.

EFFM was implemented on January 01, 2008. Fisheries Management Zone 6 (FMZ 6; Figure 1) was selected as one of three pilot FMZs across the province, chosen with the intent of developing and testing the new Advisory Council and Management Planning model. The FMZ 6 Advisory Council was struck in late 2007; a fisheries management plan for FMZ 6 was approved in August 2009 (MNR 2009). The plan comprised eleven objectives and 22 actions, including four changes to recreational fishing regulations in FMZ 6, including an extension of the winter angling season for lake trout (*Salvelinus namaycush*) from one month to two months.

In 2015, MNRF adopted the Provincial Fish Strategy (PFS; MNRF 2015), which is intended to improve the conservation and management of fisheries and the ecosystems upon which fish communities depend, while at the same time to promote, facilitate and encourage fishing as an activity that contributes to the nutritional needs and the social, cultural and economic well-being of individuals and communities in Ontario. All fisheries management activities in Ontario are now expected to be consistent with the direction of the Provincial Fish Strategy.

The 2009 fisheries management plan indicated that it would be reviewed after five years (i.e. 2014); however, the scope and nature of that review was not detailed at the time, and the target date for the review was not met. Subsequently, MNRF developed a review process, referred to as a *plan examination*. An FMZ plan examination is an MNRF internal process intended to:

- Assess the effectiveness at meeting plan objectives.
- Assess the plan's alignment with the Provincial Fish Strategy goals and objectives, and the level of adherence with the current FMZ planning guidelines.
- Summarize fisheries monitoring data and analyses conducted since the completion of the FMZ fisheries management plan.

The plan examination may highlight areas of the plan that require further review and possible revision and, if required, recommend initiating a formal planning process to rewrite or amend the fisheries management plan.

FMZ 6 Fisheries Management Plan Amendment 2021-1: Lake Trout

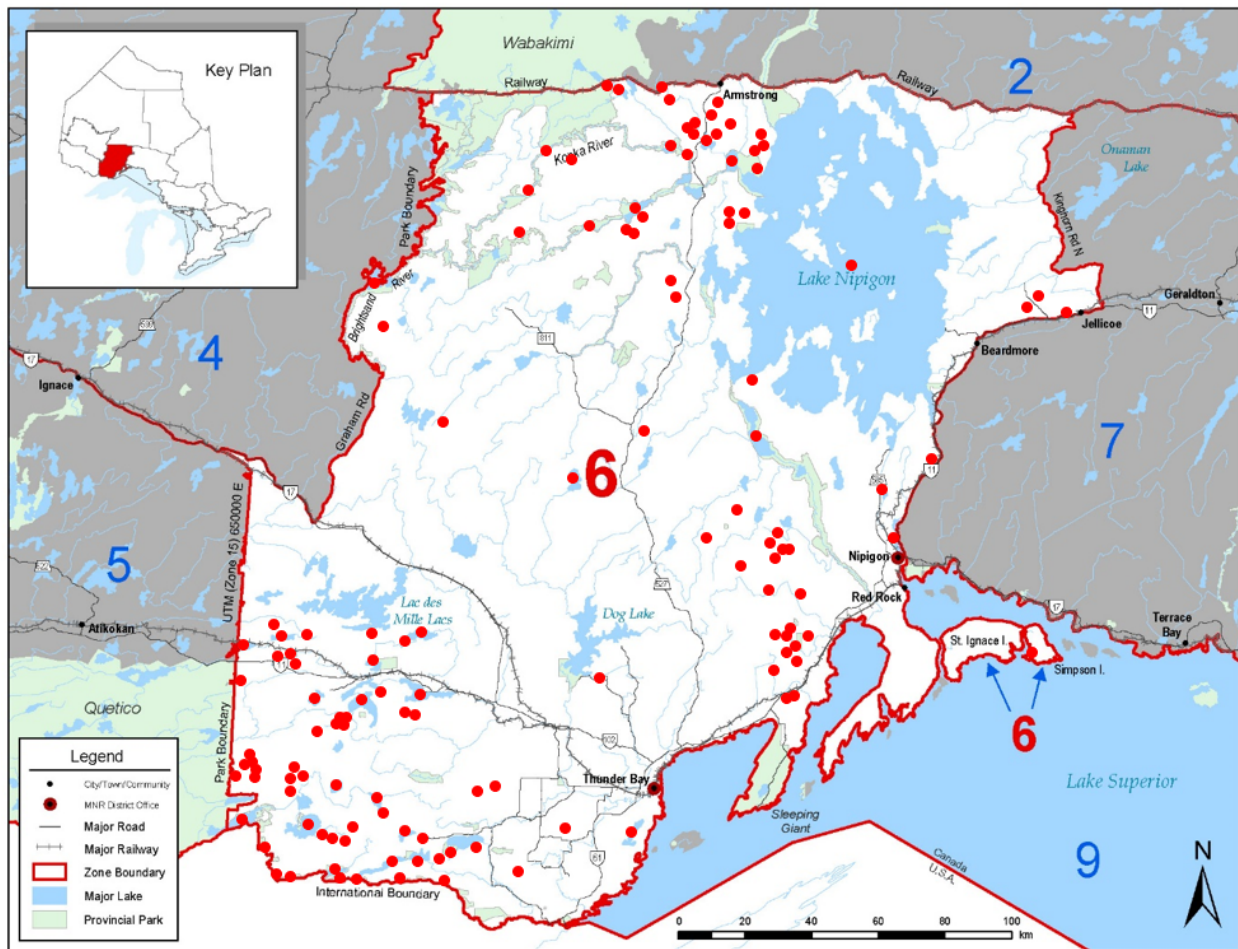


Figure 1: Map of Fisheries Management Zone 6 illustrating location of known lake trout lakes.

In November 2018, MNRF staff met with the FMZ 6 Advisory Council to introduce the plan examination concept and indicated the intention to commence with an examination of the 2009 FMZ 6 fisheries management plan. Following that meeting, MNRF developed a preliminary framework of the FMZ 6 plan examination; the preliminary findings were presented to the Advisory Council in April 2019, with particular emphasis for input on the identification of emerging fisheries issues and opportunities. The FMZ 6 Plan Examination Final Report was completed in September 2019 (MNRF 2019). The plan examination includes the following under the list of emerging issues:

Lake trout winter season

During the development of the 2009 FMZ 6 plan, there was consensus amongst the Advisory Council members that winter angling effort for lake trout had decreased since 2001, and that a longer winter angling season could be supported. However, a zone-wide return to the pre-1984 lake trout season (January 1 – September 30), as is currently in place in FMZs 4 and 5, was ruled out because of an anticipated need to impose restrictive creel and length limits in order to prevent overharvest. An option to have a longer season on most lakes, but a short season on small (<150 ha) lakes was discounted due to provincial direction at the time that fisheries management plans should not recommend new regulatory exceptions.

In order to address Objective #3 (provide increased winter lake trout angling opportunities), the winter season for lake trout was increased by 4 weeks, beginning in 2010. However, some stakeholders have proffered the opinion that the season should be further increased, to match that which is currently in place for FMZs 4 and 5.

The FMZ 6 Advisory Council has agreed that new planning will take the form of a series of amendments to the 2009 Fisheries Management Plan, and that all elements of the 2009 plan will remain force until they are replaced by an amendment. In September 2019, the FMZ 6 Advisory Council determined that addressing the lake trout winter season issue was one of two top priorities for planning. This document represents the results of planning and consultation for lake trout between June 2019 and January 2021. It replaces the lake trout content found in the 2009 FMZ 6 Fisheries Management Plan.

1. Background

This section includes a summary of the background information considered during the development of this Amendment, including updates of information presented in the FMZ 6 Plan Examination Report (MNR 2019). A more fulsome summary of the background information can be found in the FMZ 6 Background Report (MNR 2009a) and the forthcoming revised version of that document (MNR in prep).

1.1 Broadscale Monitoring Program

Prior to 2008, monitoring of lake trout in the area now comprising FMZ 6 consisted of evaluation of individual lakes using one of two standardized protocols intended specifically for the assessment of lake trout: Spring Littoral Index Netting (SLIN; Hicks 1999) and Summer Profundal Index Netting (SPIN; Sandstrom and Lester 2009). The FMZ 6 Background Report (MNR 2009a) summarizes SLIN results for eight of the approximately 131 lake trout lakes in FMZ 6. However, the SLIN and SPIN protocols have not been used to assess the lake trout resource on a landscape scale.

In 2008, in support of EFFM (MNR 2005), MNR initiated the inland lakes Broadscale Monitoring Program (BsM; Sandstrom et al. 2013), a long-term landscape-scale effort to monitor the health of Ontario's lakes and their fisheries. The BsM program samples representative lakes across the province every five years, using standardized data collection methods (Bonar et al. 2009). A wide range of variables are monitored: fish are netted to determine relative abundance, sex, length and weight, and to test for contaminants; water quality is analyzed; invasive species are recorded; fishing effort was estimated through aerial activity counts. BsM of inland lakes provides information to understand the status and trends of aquatic ecosystems, fisheries and biodiversity through time and over broad areas of the province. This information is valuable in determining whether the province's fish management goals and objectives are being achieved, or if management strategies need to be adjusted.

Individual lake monitoring using protocols such as SLIN and SPIN is typically analyzed using a weight of evidence approach, whereby various indicators (yield, abundance, age structure, total mortality, mean age of catch, variation in year class strength, growth and age at maturity) are used in some combination to provide evidence of overexploitation (MNR 1983). This approach to fisheries assessment has been used throughout North America for decades, though it does have shortcomings; notably, it is most useful when applied to time series, rather than point-in-time data (only one of the eight SLIN lakes in FMZ 6 was sampled more than once), and tendency of over-reliance on a single indicator to make definitive statements about the status of a population.

As the provincial BsM program was implemented, it became clear that extrapolating the weight of evidence approach to a landscape level was problematic; determining trends in the interaction of multiple variables for a multitude of lakes did not yield useful results, and consequently, early interpretations of BsM data tended to concentrate on a single

variable (most often, relative abundance), which was not an appropriate use of the weight of evidence approach.

MNR's Science and Research Branch, which is responsible for the BsM program, has undertaken the development of a more appropriate methodology of interpreting BsM results for application on a landscape scale. This method, referred to as the "biological reference point framework", uses estimates of harvestable biomass and mortality, indexed to maximum sustainable yield (MSY) to illustrate the status of fisheries on a quadrant plot (t-RFMO 2007); the quadrant plot is variously referred to as a "quad plot", "phase plot", "Kobe plot" or "inverse Kobe plot". The balance of this report will use the term Kobe plot.

While useful, the Kobe plot has some limitations; the most significant of these has been insufficient catches of recruit-sized fish (with associated aging structures), in order to generate an estimate of instantaneous mortality (Chapman and Robson 1960) and the lack of an appropriate biomass model for lake trout. Consequently, the 2019 FMZ 6 Plan Examination and the 2020 Advisory Council deliberations pertaining to the current plan amendment for lake trout have focussed on the BsM estimates of recruit-sized lake trout biomass.

1.1.1 BsM netting

To date, two cycles of BsM netting have been completed in FMZ 6, with a third cycle nearing completion (Appendix A):

Cycle 1: 2008-2012; 13 lake trout trend lakes

Cycle 2: 2013-2017; 10 lake trout trend lakes

Cycle 3: 2018-2022; 20 lake trout trend lakes complete (2018-2019), 5 pending

It is important to note that the majority of the Cycle 1 netting was completed in 2008 and 2009, prior to the implementation of the longer winter angling season in 2010. Therefore, Cycle 1 represents the baseline or pre-treatment state of the resource in the series.

Figure 2 illustrates Cycle 1, 2 and Cycle 3 (to 2019) lake trout trend lake area-weighted catch per unit effort by weight (ACUEW) for inland FMZs across Ontario. No significant difference has been observed in FMZ 6 since the program began in 2008; FMZ 6 ACUEWs in each cycle have been well above the provincial average.

Figure 3 illustrates Cycle 1, 2 and Cycle 3 (to 2019) lake trout trend lake ACUEW for FMZ 6, by lake size bins. No significant difference has been observed, among size bins or across cycles, with the exception of the 5-50 ha size bin. It should be noted that this sampling size bin comprises a single lake (Cliff Lake), with total catches of 16 and 11 lake trout in Cycles 1 and 2 (respectively). Cliff Lake has not been sampled in Cycle 3, as of 2019.

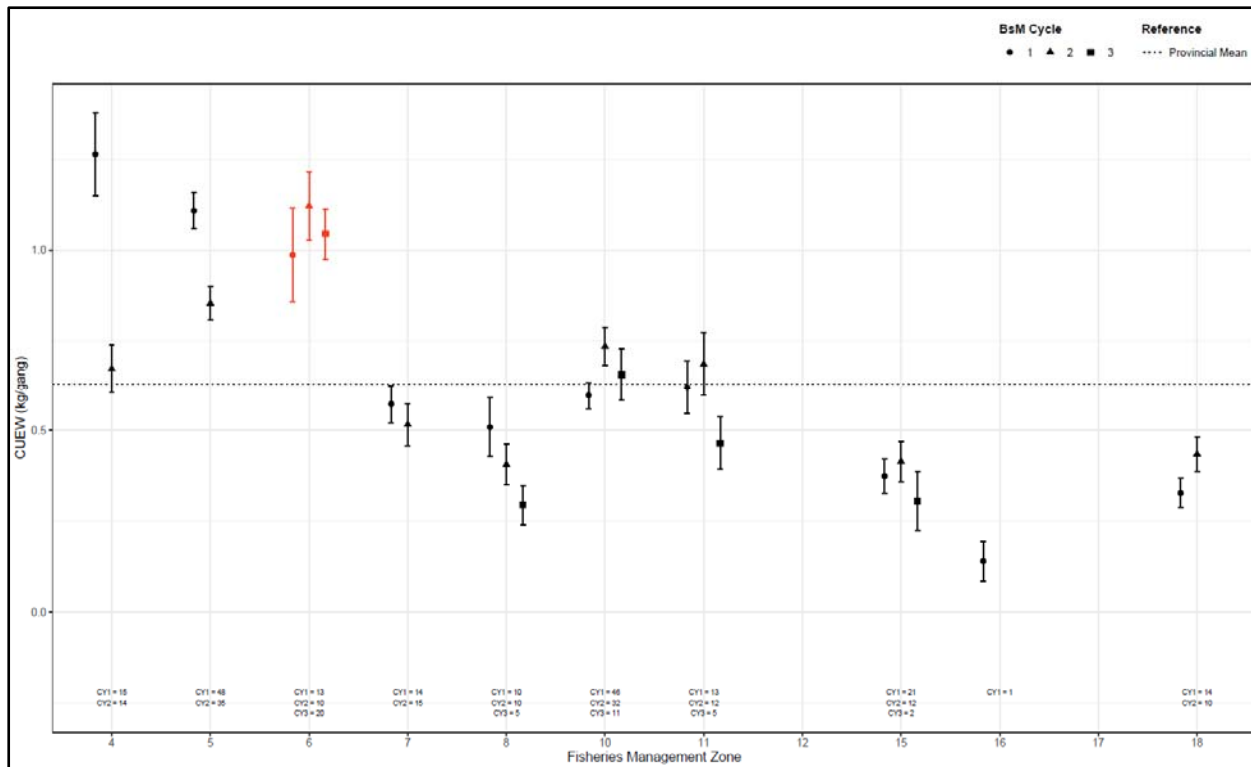


Figure 2: Mean area-weighted (\pm standard error) catch per unit effort in weight (kg/gang) of all recruit-sized lake trout (> 350 mm) captured in large mesh nets by Fisheries Management Zone. This information comes from BsM trend lake trout lakes. The ‘CY’ value refers to the number of lakes with applicable data sampled within each zone, and within each BsM cycle.

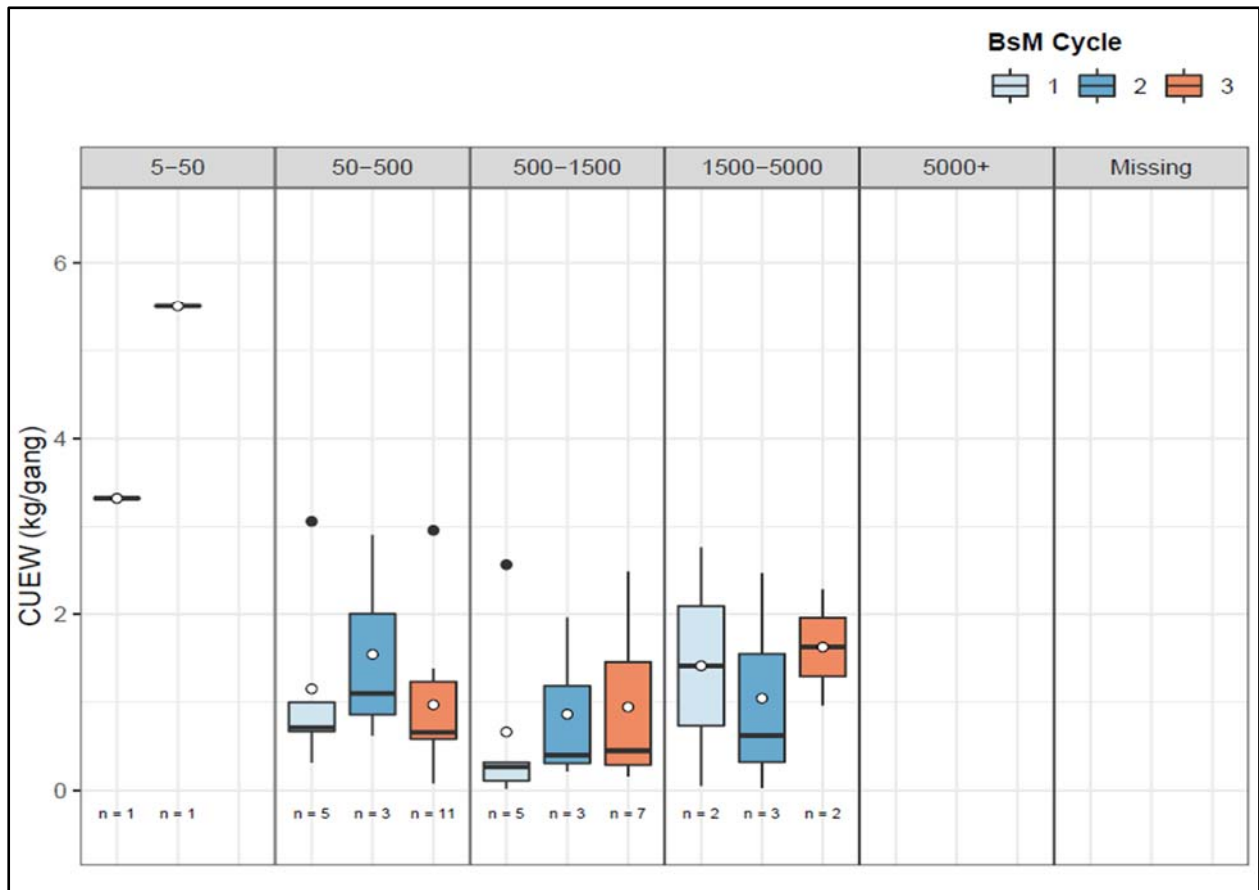


Figure 3: Mean area-weighted catch per unit effort in weight (kg/gang) of all recruit-sized lake trout (> 350 mm) captured in large mesh nets within Fisheries Management Zone 6, by lake size class. This information comes from BsM (Cycle 1, 2, and 3) trend lake trout lakes. The 'n' value refers to the number of lakes with applicable data sampled within each size class (ha), and within each BsM cycle.

The data presented in Figures 2 and 3 are updated from those found in the FMZ 6 Plan Examination Report (MNRF 2019). The updated data were presented to the FMZ 6 Advisory Council on December 10, 2019.

1.1.2 Aerial Angler Intensity

Aerial angler intensity surveys have been conducted in FMZ 6 using two approaches: Thunder Bay District conducted winter aerial angler counts on 72 lake trout lakes in their portion of FMZ 6 in 1999, 2001 (Scholten 2003) and 2011. Summer and winter aerial angler counts of BsM lake trout trend lakes were also conducted in BsM Cycle 1 (2009) and partial surveys in Cycles 2 (2014) and 3 (2018)

Results of the Thunder Bay District surveys (including the 2009 BsM survey) are shown in Figure 4, including an indication of whether the estimated angler effort is considered sustainable, based on the benchmarks found in Shuter et al. (1998). Note that the lake size bins in Figure 4 differ from those used in the BsM program.

Figures 5, 6 and 7 illustrate the results of the aerial angler intensity surveys from BsM Cycles 1 and 2; Figure 5 shows the winter angler intensity for FMZ 6 compared to other inland fisheries management zones. FMZ 6 had lower winter angler intensity than the provincial average in both Cycle 1 (pre-regulation change) and Cycle 2 (post-regulation change).

Figure 6 and 7 show open water and winter angler intensity (respectively) by BsM lake size bins. However, it should be noted that the same lakes were not sampled between the two BsM cycles.

When considering changes in winter angler intensity between cycles, it is important to recognize that fishing regulation changes are not the only variable which can influence angler choices. Weather and gas prices are two factors that may also affect an angler's motivation to fish, as well as the location at which they choose to fish (Hunt and Dyck 2011). Figure 8 shows the mean daily temperature at the Thunder Bay Airport for February and March, 2009 and 2014, corresponding to the survey period for the BsM Cycle 1 and 2 angler intensity surveys. 2009 was generally a warmer winter than 2014: February and March 2009 had 30 days where the mean daily temperature was above -10°C, and only 3 days below -20°C, whereas 2014 had 18 days above -10°C and 15 days below -20°C.

Gas prices are a variable in the angler's perceived price when they decide how many fishing trips to take in a season (Donnelly et al. 1985). Generally, anglers are more willing to pay higher costs for higher quality fishing trips; conversely, where fishing quality remains constant, fluctuating costs of fuel, bait and other variables may influence anglers' decisions on where or whether to fish. Table 1 show the average monthly price of

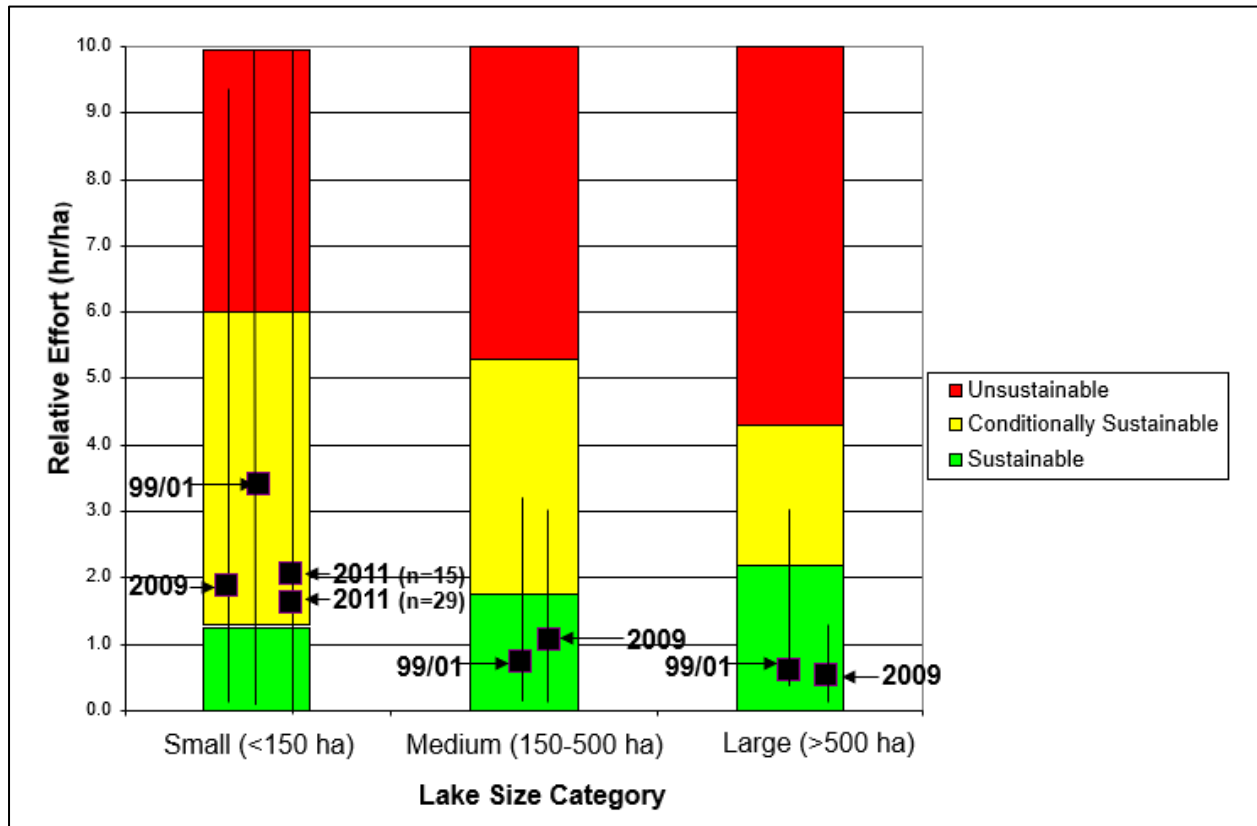


Figure 4: Mean and range of relative winter angling effort (angler hours per hectare) for select FMZ 6 lakes in Thunder Bay District, compared to benchmarks of sustainability (Shuter et al. 1998). Data is based upon winter aerial angler intensity surveys by MNR Thunder Bay District (1999, 2001) and BAMS (2009, 2011).

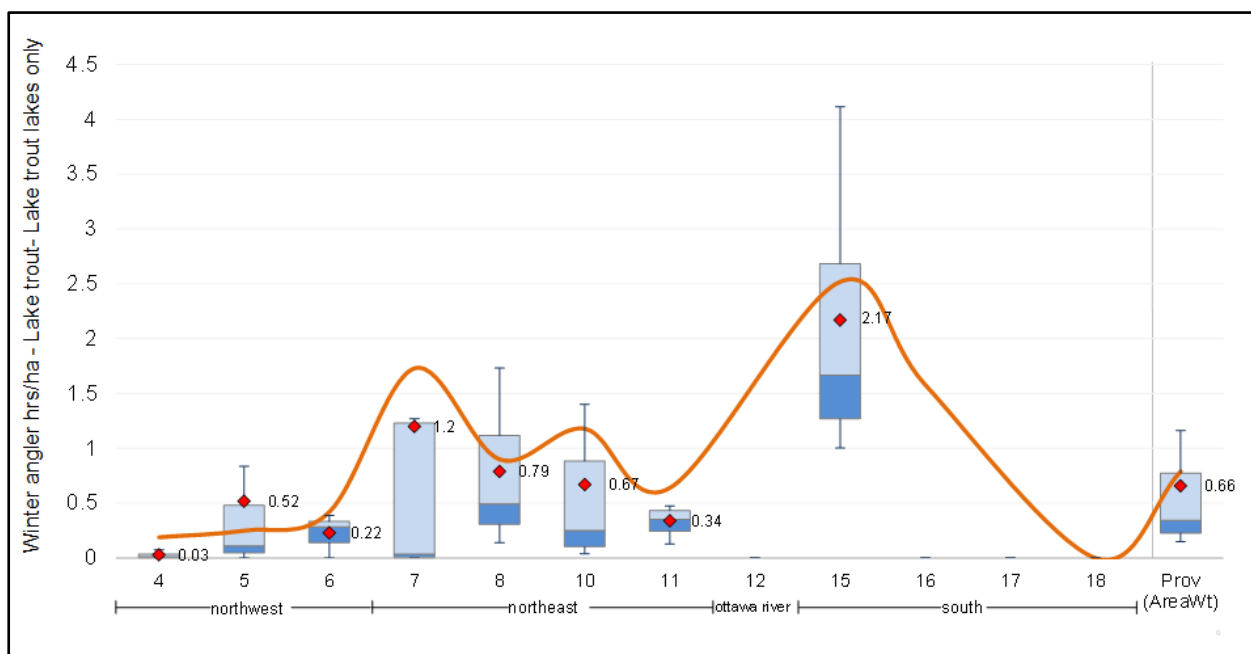


Figure 5: Winter angler hours per hectare for lake trout trend lakes in each FMZ. Red line represents the Cycle 1 mean. Box plots represent the Cycle 2 data. Red dots represent the Cycle 2 mean.

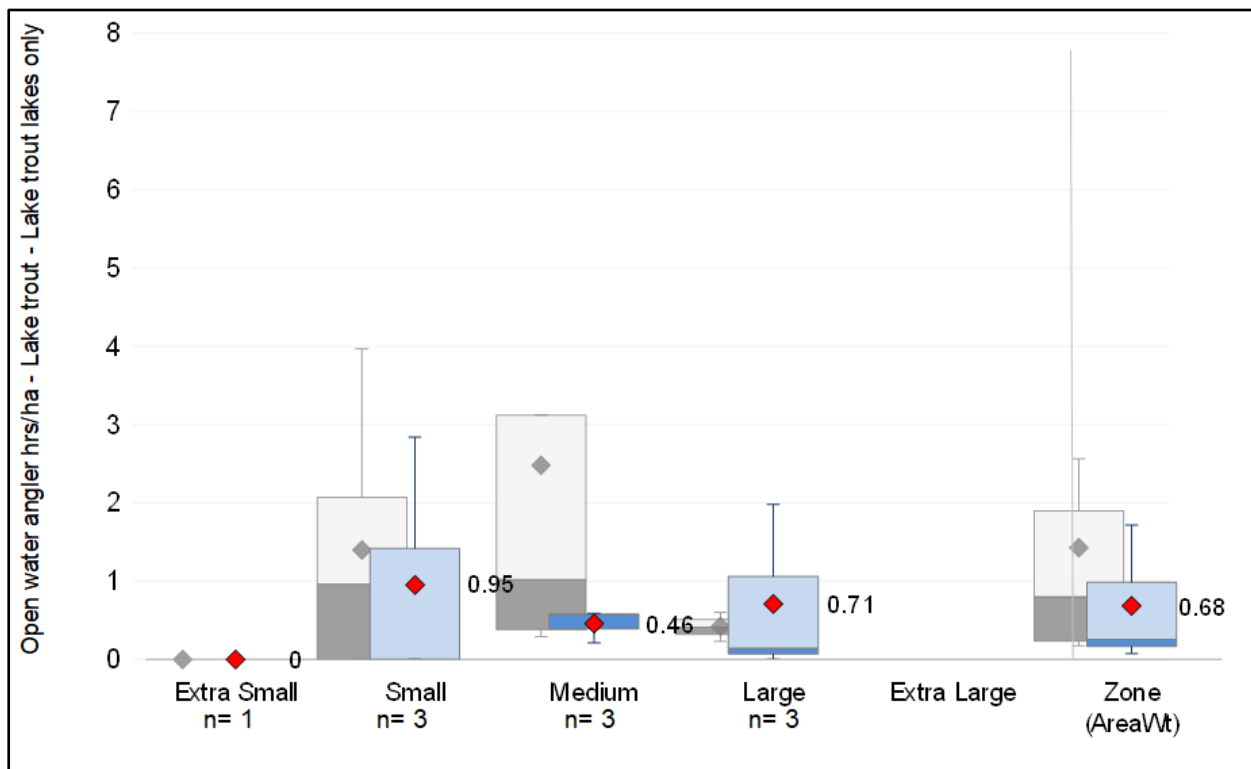


Figure 6: Open water angler hours per hectare for FMZ 6 lake trout trend lakes based on lake size. Greyed out box plots represent the cycle 1 lake trout trend lakes and the blue box plots represent Cycle 2.

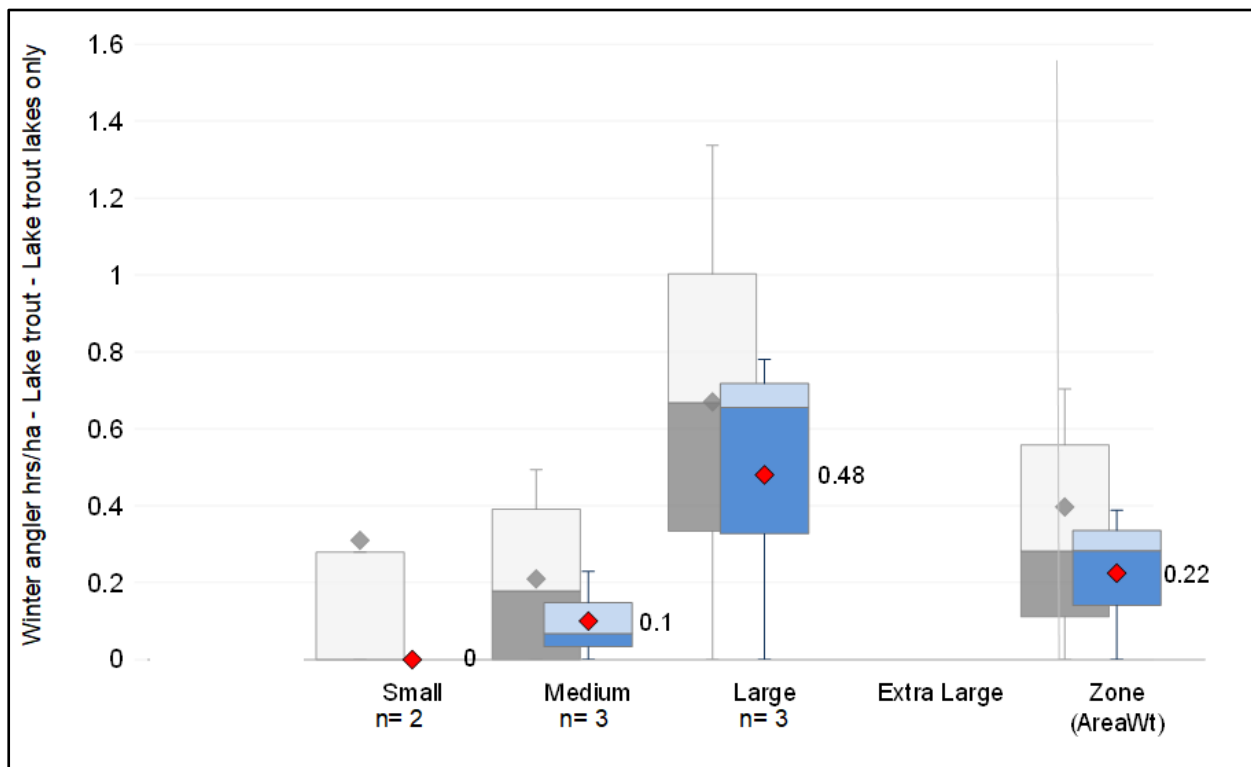


Figure 7: Winter angler hours per hectare for FMZ 6 lake trout trend lakes based on lake size. Greyed out box plots represent the cycle 1 lake trout trend lakes and the blue box plots represent Cycle 2.

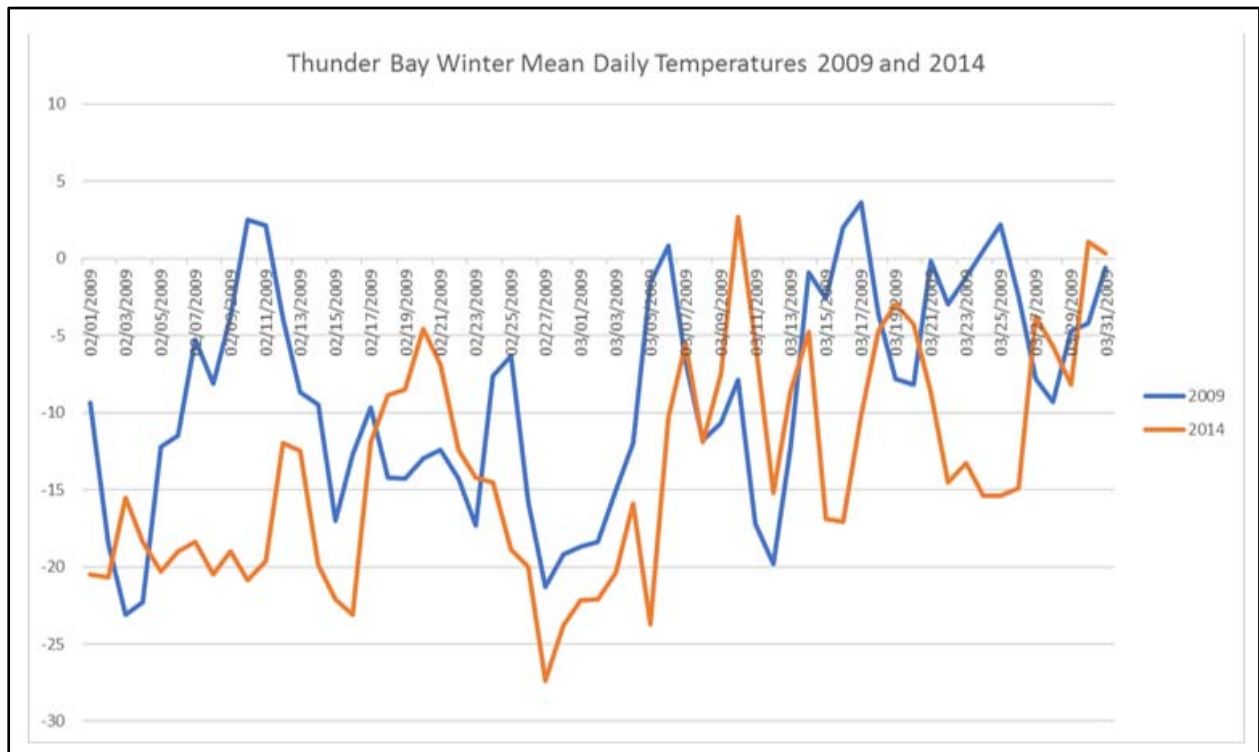


Figure 8: Thunder Bay mean daily temperatures from 2009 and 2014. Data from the Thunder Bay airport and obtained through Environment Canada.

unleaded gasoline in Thunder Bay for February and March, 2009 and 2014, compared to current (2019) values for the same months:

Table 1: Thunder Bay mean monthly fuel prices (Statistics Canada, 2019)

| | Fuel price (¢/L) |
|---------------|------------------|
| February 2009 | 89.2 |
| March 2009 | 87.1 |
| February 2014 | 130.6 |
| March 2014 | 135.4 |
| February 2019 | 116.7 |
| March 2019 | 123.9 |

A combination of cold temperatures and high fuel costs may have negatively influenced anglers' motivation to fish in winter 2014, and may partly explain the observed decline in fishing effort, particularly on small lakes.

2. Goals and Objectives

The Provincial Fish Strategy (MNR 2015) directs the Ministry of Natural Resources and Forestry to *develop and implement fisheries management plans with measurable objectives for Fisheries Management Zones*. In the context of fisheries management planning, objectives are specific, measurable and verifiable statements of intermediate tasks which serve to focus the activities of fisheries managers on the desired “what” and “how” of achieving the organizations goals (Barber and Taylor 1990). FMZ fisheries management objectives must be consistent with the goals and objectives of the PFS, and should have associated performance measures attached through with the plan can be evaluated for its progress and effectiveness.

2.1 FMZ 6 Fisheries Management Goals

The 2009 FMZ 6 fisheries management plan (MNR 2009) included the following description of the broad fisheries management goal for the zone:

The fisheries management goal for FMZ 6 is:

- a. To optimize social, cultural and economic opportunities and values derived through the biologically sustainable use of aquatic resources; and
- b. To protect genetic, species and ecosystem diversity within FMZ 6.

Part a of the broad management goal incorporates the concept that there are biological limits to the use of fisheries resources. Unless use of the fisheries resources is biologically sustainable people are unable to derive social, cultural or economic benefits and opportunities over the long term.

Part b recognizes that there is a hierarchy of biological diversity that needs to be considered and protected. It is this hierarchy which encompasses genetic, species and ecosystem diversity that contribute to the biological well being of the fisheries resources in FMZ 6.

The Examination of the 2009 plan (MNR 2019) found that these statements were generally consistent with Goals 1 and 2 of the PFS, but recommended that for future planning, the wording of the PFS goals should be adopted, in order to more explicitly link the goals for the fisheries management zone to those of the province, and at the same time broaden the scope of the FMZ 6 goals to include consideration for aquatic ecosystem structure and function. To that end, the following goal statements have been adopted for FMZ 6, and replace the wording found in the 2009 plan:

Goal #1: Healthy ecosystems that support self-sustaining native fish communities.

FMZ 6 supports an array of recreational, commercial and First Nations and Métis fisheries that are dependent upon healthy aquatic ecosystems, including high quality fish habitat. The focus of Goal #1 is to protect and rehabilitate or restore native fish communities and their supporting ecosystems and habitats, and to avoid introductions of new species. Some of FMZ 6's aquatic ecosystems have been irreversibly altered. In some cases, species have been introduced and are now naturalized, providing significant economic, social, and in many cases ecological benefits. Like native species, naturalized species and their supporting ecosystems and habitats should be afforded protection and rehabilitated consistent with established fisheries management objectives.

Goal #2: Sustainable fisheries that provide benefits for Ontarians.

A well-managed fishery, supported by high-quality fish habitat and a healthy aquatic ecosystem, is a renewable resource that replenishes itself annually and provides outdoor activity, wholesome food, employment and income, and social and cultural benefits for present and future generations. The economic benefits of FMZ 6's recreational, commercial, and First Nations and Métis fisheries are valued at more than \$90 million (MNR 2015a) and are of particular importance to the local economies of northern Ontario. For First Nations and Métis communities, fishing for food, social and ceremonial purposes is a part of their traditional way of life and often provides an essential component to their nutritional intake. First Nations and Métis peoples are also involved in commercial fishing, and in an array of other activities related to fisheries.

The social and cultural benefits of recreational fishing are more difficult to define. In addition to the opportunity to catch fresh, healthy food, fishing provides a variety of nonmaterial benefits such as spiritual enrichment, relaxation, anxiety and stress relief, aesthetic experience, exercise, healthy lifestyles, and activities that build social cohesion and connections. Fishing is an activity that initiates, builds and strengthens intergenerational relationships, where values and skills are passed on and generations share healthy outdoor activity together.

2.2 FMZ 6 Lake Trout Objectives

During the development of the 2009 FMZ 6 plan, the Advisory Council indicated that anglers were generally happy with the quality of the lake trout fishery, but were dissatisfied with the one-month winter season that was in place at the time. In order to address this socio-economic issue while maintaining the health of the lake trout resource, two objectives for lake trout were included in the plan:

Objective #2: Maintain current lake trout abundance.

Objective #3: Provide increased winter (lake trout) angling opportunities.

The Examination of the 2009 plan (MNRF 2019) determined that these objectives were consistent with the objectives of the PFS:

FMZ 6 Objective # 2 aligns with PFS Objective 2.1 – harvest fish within safe biological limits. Establishing fisheries objectives that recognize safe biological limits is essential in maintaining sustainable fisheries.

FMZ 6 Objective #3 aligns with PFS Objective 2.3 – Increase economic, social and cultural benefits derived from fish resources.

However, the Plan Examination also found that the wording of Objective #2 was inconsistent with the current metrics assessed through the BsM program (see Section 1.1); and further, that Objective #3 had the potential to be in conflict with Objective #2. Accordingly, the Plan Examination includes the following recommendations:

Recommendation 6: Objective #2 should be reworded to reflect the maintenance of lake trout population status, rather than referring to individual indicator metrics.

Recommendation 7: Where objectives potentially contradict one another, future plans should clearly identify which objective takes priority. Assumptions should be detailed in the supporting text of the objectives.

2.2.1 Lake Trout Ecological Objective

The FMZ 6 Plan Examination (MNR 2019) concluded that the ecological objective for lake trout described in the 2009 plan (i.e. Objective #2) was being met; there was no significant difference in the ACUEW for lake trout trend lakes between Cycle 1 (pre-regulation change) compared to Cycles 2 and 3 (post-regulation change), and the zone-wide results for FMZ 6 were above the provincial average for all three cycles (Figures 2 and 3).

Members of the FMZ 6 Advisory Council discussed the status of the lake trout resource in FMZ 6, both during their review of the Plan Examination Document (April 2019) and during the development of new lake trout objectives as part of the current exercise (October and December 2019). The members generally agreed with the BsM findings, anecdotally observing that lake trout fishing quality had not declined since the longer winter season was effected in 2010. However, some Advisory Council members provided anecdotal evidence from their constituents that the average size of angled lake trout had declined in recent years. Figure 9 shows size distribution of lake trout over BsM Cycles 1-3; however, the addition of several small lakes to Cycle 3 may have artificially added numerous small-bodied fish to the BsM sample.

The FMZ 6 Advisory Council agreed that the intent of the 2009 ecological objective for lake trout (i.e. Objective #2) should be carried forward in the current exercise, but that the wording should be updated to account for new analytical tools available through the BsM program or other future monitoring protocols:

Objective 2020-1 (Lake Trout Ecological Objective):
Maintain the current status of lake trout populations across FMZ 6.

Based on the indicators available for lake trout from the provincial BROADSCALE Monitoring Program, populations of lake trout are generally stable across FMZ 6. Currently, the principle indicator of lake trout population health is biomass (ACUEW) of harvestable-sized fish; however, it is recognized that BsM analytical tools for lake trout are currently in development, in particular a carrying capacity model and associated interpretation (Lester et al. *in press*).

The intent of the ecological objective for lake trout is that landscape analysis using future analytical tools and associated indicators should not suggest degradation in lake trout populations at a landscape scale in BsM Cycles 4+ when compared to Cycles 1-3.

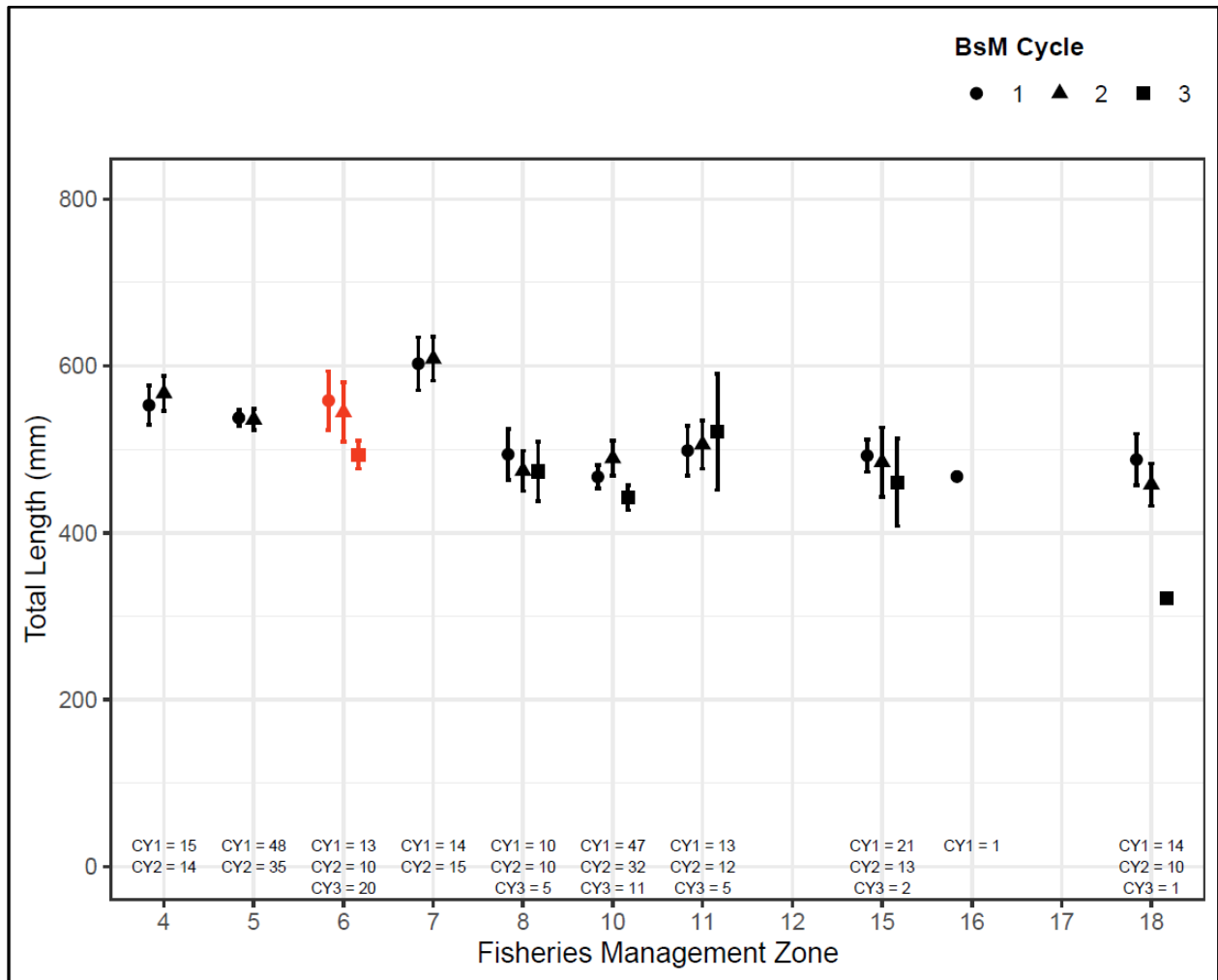


Figure 9: Mean (\pm standard error) total length (mm) of all lake trout caught in large mesh nets by Fisheries Management Zone. This information comes from BsM trend lake trout lakes. The ‘CY’ value refers to the number of lakes with applicable data within each zone, and within each BsM cycle.

The 2009 plan includes indicators, targets and benchmarks for assessing progress toward each objective; however, given the current state of development of the BsM analytical tools, specifying these for the current exercise is impractical, aside from noting that the intent is that future analyses should consider BsM Cycle 1 data as the pre-regulation change benchmark against which future plan examination exercises should consider progress toward the objectives.

Objective 2020-1 aligns with PFS Objective 2.1 – *harvest fish within safe biological limits. Establishing fisheries objectives that recognize safe biological limits is essential in maintaining sustainable fisheries.*

2.2.2 Lake Trout Socio-Economic Objective

During the development of the 2009 FMZ 6 plan, there was consensus amongst the Advisory Council members that winter angling effort for lake trout had decreased since 2001, and that a longer winter angling season could be supported. However, a zone-wide return to the pre-1984 lake trout season (January 1 – September 30), as is currently in place in FMZs 4 and 5, was ruled out because of an anticipated need to impose restrictive creel and length limits in order to prevent overharvest. An option to have a longer season on most lakes, but retain a short season on small (<50 ha) lakes was discounted due to provincial direction at the time that fisheries management plans should not recommend new regulatory exceptions (MNR 2009).

The FMZ 6 Plan Examination (MNRF 2019) assessed the socio-economic objective for lake trout described in the 2009 plan (i.e. Objective #3) against a simple measure of complete/not complete. The 2010 regulation change extending the winter lake trout angling season by one month was considered as completion of Objective #3 for the purposes of the Plan Examination.

During the issue identification phase of the Plan Examination, some stakeholders proffered the opinion that the season should be further increased, to match that which is currently in place for FMZs 4 and 5. This was supported by anecdotal evidence that winter angling effort for lake trout had not increased since 2010. This anecdotal evidence seems to be supported by the aerial angler intensity data collected by Thunder Bay District and the BsM program (Section 1.1.2).

The FMZ 6 Advisory Council discussed a new socio-economic objective for lake trout in October 2019, and determined that insufficient information was available at that meeting; Advisory Council members canvassed their constituents between October and December 2019, and found that there was generally support among anglers for a second increase in the winter lake trout angling season, and that the tourism sector in FMZ 6 felt that the short winter season put them at a competitive disadvantage to outfitters in FMZs 4 and 5. However, the Advisory Council acknowledged MNRF concerns that a longer winter season had the potential to increase angler effort on some lakes in some years. Previous

models suggest that small increases in absolute effort on small lake trout lakes can have significant negative effects on lake trout populations (Olver et al. 1991; Shuter et al. 1998; MNR 2007).

A more recent model (Lester et al. *in press*) suggests that, generally, small lakes (<1000 ha) may be able to absorb more winter effort than previously thought. Application of that model to FMZ 6 lake trout trend lakes supports the conclusion of Lester et al. (Appendix B). It should be noted that this set of lakes only includes three with a surface area <100 ha, the threshold for “small” lake trout lakes in MNR’s Lake Trout Synthesis exercise (Olver et al. 1991). Despite this, anecdotal reports from MNR Conservation Officers (R. LeBlanc, MNR pers. comm) and local anglers (T. Chisholm, pers. comm.) suggest that angler activity patterns have changed over the past decade, and that very small lakes in FMZ 6 are rarely targeted by anglers now. This, combined with the results of the Lester et al. model, have convinced MNR fisheries managers and the FMZ 6 Advisory Council that increasing the winter season on very small lakes represents a low risk, and that these lakes should not be managed differently from other lakes in the zone.

The FMZ 6 Advisory Council agreed that the intent of the 2009 socio-economic objective for lake trout (i.e. 2009 Objective #3) should be renewed in the current exercise; however, in light of Plan Examination Recommendation #7 (Section 2.2), where conflicts exist, the socio-economic objective will be considered of lower priority than the ecological objective:

Objective 2020-2 (Lake Trout Socio-Economic Objective):

Provide increased winter lake trout angling opportunities, where these are unlikely to negatively influence the ecological status of lake trout across the zone.

Based on the results of BsM netting and aerial angler intensity surveys, the 2010 increase in the length of the winter angling season has not resulted in a significant change to lake trout CUEW or angler effort.

Where there is conflict between the socio-economic objective and the ecological objective, the ecological objective shall take precedence.

The lake trout socio-economic objective will continue to be evaluated under a simple complete/incomplete indicator, consistent with the examination of the 2009 plan.

Objective 2020-2 aligns with PFS Objective 2.3 – *Increase economic, social and cultural benefits derived from fish resources.*

3. Management Actions

Fisheries management decisions must balance ecological, social and economic objectives, and require more than just science information. MNRF's structured, adaptive approach to fisheries management and planning provides opportunities for Indigenous communities and stakeholders to provide input and influence fisheries management objective setting and decisions. This active involvement of resource users in the decision-making process contributes valuable perspectives and knowledge to complement MNRF's understanding of fisheries resources, and help to achieve broader public acceptance of management decisions.

The FMZ 6 Advisory Council is involved throughout the fisheries management planning process from the development of fisheries objectives to the determination of appropriate management actions. At key stages in the planning process, broader Indigenous and public input is sought, which informs the Advisory Council's advice, and ultimately MNRF decision making. The end results are fisheries management plans and objectives that reflect a shared vision for future fisheries and, having included meaningful input, garner support from Indigenous communities and the public.

As part of the development of this plan amendment, MNRF and the FMZ 6 Advisory Council considered several regulatory options which would address the revised ecological and socio-economic objectives for lake trout. These options were described in the draft version of this document (MNRF 2020a), which was available for public comment on the Environmental Registry for Ontario from November 27, 2020 until January 11, 2021. Comments received during this period are found in Appendix E.

MNRF fisheries managers have considered the input provided during the public comment period. The following management actions will be undertaken to achieve the revised objectives for lake trout described in Sections 2.2.1 and 2.2.2.

3.1 Regulatory Actions

Given the inter-relatedness and potential for contradiction between the ecological and socio-economic objectives for lake trout, regulatory actions will consider both of these objectives concurrently.

3.1.1 Zone Wide Regulatory Action

In order to meet the socio-economic objective to increase winter lake trout angling opportunities while at the same time meeting the ecological objective to maintain the status of lake trout populations across FMZ 6, the following change will be made to the zone-wide regulation for lake trout:

3.1.1.1 Adopt the FMZ 5 Lake Trout Regulation

The lake trout regulation for FMZ 5 is:

Season: January 1 to September 30

Limits:

Sportfishing license – 2; not more than 1 greater than 56 cm from September 1-30

Conservation license – 1; no size limit

The lake trout angling season for FMZ 5 (and its predecessors) has been in place since the 1970s. The seasonal size limit was regulated in 1999 across northwestern Ontario, with the intent of protecting mature female trout during the spawning season.

Both the season and the “1 greater than 56 cm” size limit are supported by the regulatory tool-kit for lake trout (MNR 2007); however, the use of a seasonal size limit is not.

Adopting the FMZ 5 lake trout regulation addresses the socio-economic objective by adding 82-88 days to the annual open season for lake trout (variable based on the date of the fourth Saturday in May in the current FMZ 6 regulation), and places 13 affected FMZ 6 tourist operators (Appendix C) on equal footing with those in FMZ 5, while potentially giving them a competitive advantage over those in FMZ 4 due to the year-round size limit in that zone.

Adopting the January 1 – September 30 open season was considered in the 2009 FMZ 6 plan, but was ruled out because the Advisory Council felt it would necessitate very restrictive creel and length limits in order to prevent excessive harvest. However, the FMZ 5 Background Report (MNR 2012) suggests that the majority of lake trout lakes in that zone were healthy after approximately 35 years of that season being in place.

This regulatory action was presented as the preferred option in the draft version of this plan amendment (MNR 2020a); the majority of comments received (9 of 11; Appendix E) indicated support for this action.

3.1.2 Review of existing regulatory exceptions for lake trout

Periodic review of existing regulatory exceptions in the context of current fisheries management objectives is a standard step in fisheries management planning in Ontario.

3.1.2.1 Nipigon River and associated waterbodies

During the development of the 2009 plan, the Nipigon River, Jessie Lake, Lake Helen and Polly Lake were considered part of the Lake Nipigon Specially Designated Water (SDW) complex. The FMZ 6 Advisory Council, Indigenous communities and stakeholders were advised that these waterbodies were not included in the FMZ 6 fisheries

management planning exercise, as the expectation at the time was that they would be subject to a stand-alone planning process.

Subsequent to the completion of the 2009 plan, MNRF re-evaluated the SDW concept; given the ongoing need for intensive management of some fisheries and the challenges experienced implementing the network of SDWs, the Ministry committed to develop a more structured and risk-informed approach to selecting waterbodies, to be known as Provincially Significant Inland Fisheries (PSIF), for intensive management. This commitment was highlighted in the PFS (MNRF 2015).

A number of criteria were used to identify a manageable number of waterbodies for analysis. These criteria included the size of the waterbody/complex, the current status as an SDW, the size of the recreational fishery, and the presence of multiple fisheries (e.g. commercial and recreational) targeting the same fish stocks. This resulted in identifying approximately 55 waterbodies for further analysis.

Candidate PSIFs were then subject to a more detailed risk analysis that looked at the economic and social aspects of the fishery, in addition to risks to the fisheries. These included measures of environmental stress, fish community stressors (e.g., invasive species), fish community imbalance, stock status, and harvest pressure. The 12 highest ranking fisheries in the risk analysis were deemed PSIFs. The final list of PSIFs includes Lake Nipigon, but not the Nipigon River and associated waterbodies; these waters are now to be considered in FMZ 6 zone-wide planning.

When the FMZ 6 zone-wide winter season was changed in 2010, reciprocating exceptions were created for the Nipigon River, Jessie Lake, Lake Helen and Polly Lake, in order to maintain the old zone-wide season on these waters, under the premise that, as SDW waters, they were exempt from regulatory changes arising from the FMZ 6 fisheries management plan. The current seasonal exception for these waters is:

Lake trout – open from February 15 and March 15 and fourth Saturday in May to September 30.

The current exceptions were initially created to address a planning technicality in the 2009 FMZ 6 plan, rather than addressing any fisheries management objective. Removing the exception is consistent with the socio-economic objective for lake trout (Section 2.2.2) and addresses provincial direction to simplify regulations where practical.

The prescribed management action is to remove the exception and adopt the zone-wide season for the entirety of the Nipigon River, Lake Helen and Polly Lake, but to maintain the existing exception on Jessie Lake. Jessie Lake is heavily targeted by winter anglers during the current one-month winter season (T. Braithwaite, MNRF, pers. comm.). Local fisheries managers have expressed concerns that moving Jessie Lake to a longer winter season would result in unsustainable levels of winter harvest, which would be inconsistent with the ecological objective for lake trout (Section 2.2.1).

Lake trout from Nipigon Bay (FMZ 9) are known to congregate in the Nipigon River in the spring at two locations downstream of Alexander Dam (the first barrier to migration on the river). These fish are thought to be remnants of the discontinued lake trout stocking program in Lake Superior (K. Rogers, MNRF, pers. comm.); adopting the zone-wide regulation on this reach of the river is considered low risk to natural stocks, and is consistent with the management approach to lake trout in FMZ 9.

3.1.2.2 Grouse Lake, Watershed Lake and North Mawn Lake

Grouse (86.9 ha) and Watershed Lakes (172 ha) are adjacent to Squeers Lake; North Mawn Lake (189 ha) is located northwest of Thunder Bay, near the western boundary of the zone (Figure 10). These lakes were designated seasonal sanctuaries in 1984 due to the same concerns over new road access and logging camps that led to the sanctuary designation on Squeers Lake. Three other small lake trout lakes were designated seasonal sanctuaries at the same time (Elevation, Hood and Myrt lakes), however these sanctuaries were deregulated in 2008; the EFFM exercise (MNR 2005) included a review of existing regulatory exceptions between 2005 and 2007. The perceived pressures that had resulted in the regulation of sanctuaries on Elevation, Hood and Myrt were no longer a concern to fisheries managers, particularly following the closure of the Camp 517 logging camp (J. Black, MNRF, pers. comm.).

The current seasonal sanctuary regulation for Grouse, Watershed and North Mawn Lakes is:

Fish Sanctuary – No fishing from January 1 to Friday before fourth Saturday in May and October 1 to December 31.

The Regulatory Guidelines for Managing the Lake Trout Recreational Fishery in Ontario (MNR 2007) includes the following advice pertaining to the use of sanctuaries for the management of lake trout:

In most cases, sanctuaries should not be used to close a fishery for an extended period of time for rehabilitation purposes. Season closures are a more appropriate option for rehabilitation or where short-term protection is required to establish a new population (i.e. introductions and transfers), since sanctuaries limit angling opportunities for other species.

Management recommendations from the Lake Trout Synthesis (Olver et al. 1991) included closing winter fishing for lake trout on lakes less than 100 ha, due to the vulnerability of these fisheries. Selenger et al. (2006) found that, in general a higher proportion of angling effort occurred during the open water season, except for small remote lake trout lakes which had higher angling effort in winter, primarily due to snowmobile access. In some situations, it may be appropriate to institute a winter sanctuary

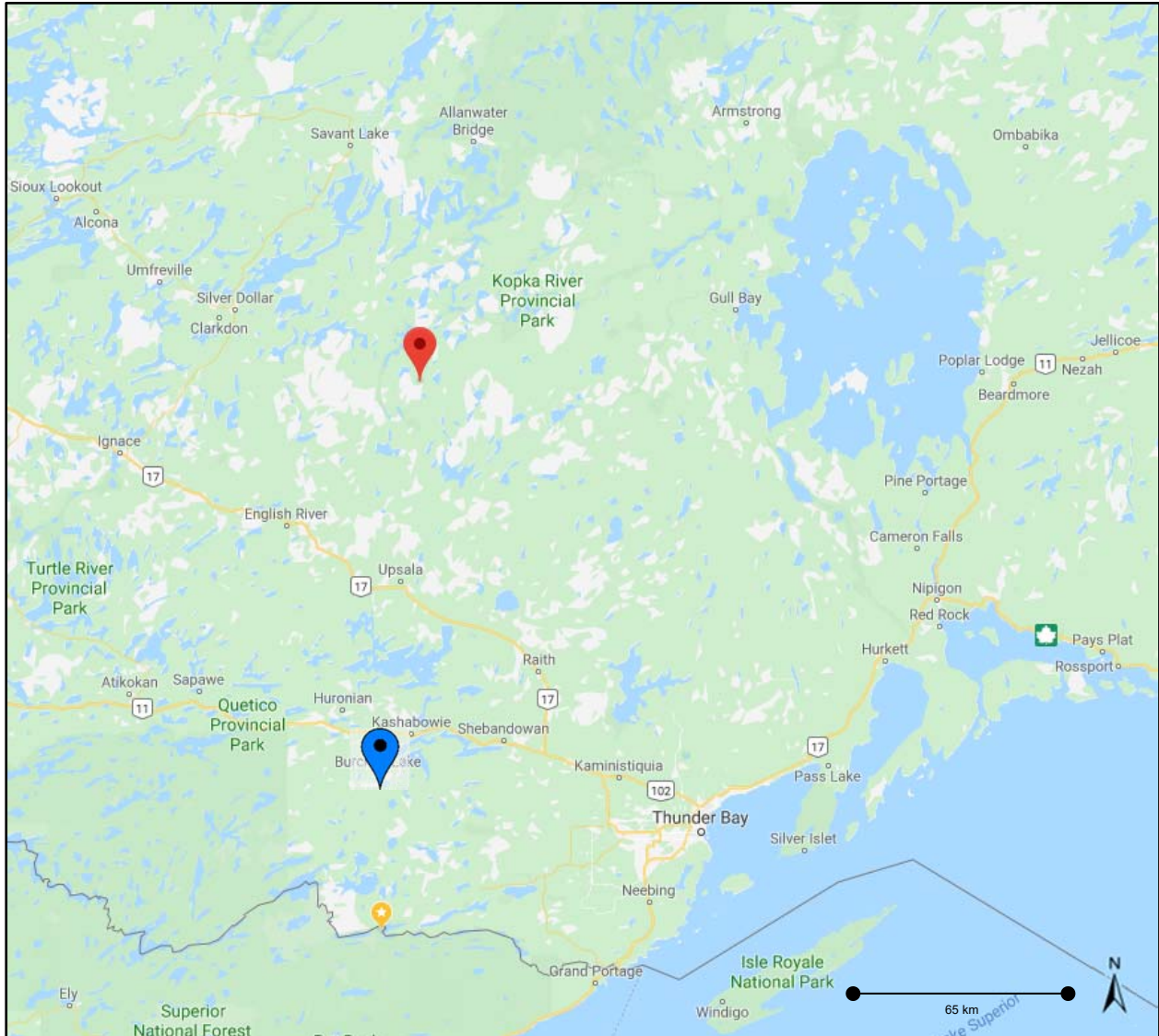


Figure 10: Location of Grouse and Watershed Lakes (blue pin) and North Mawn Lake (red pin) in relation to the City of Thunder Bay.

rather than a closed season where other angling opportunities will not be lost.

Recommendation: We recommend that, if fisheries managers wish to institute a winter sanctuary on a lake trout lake, the following sanctuary could be used for lakes which do not support a fishery for other species:

Sanctuary from January 1 to 3rd Saturday in May.

The prescribed action is to remove the exception and adopt the new zone-wide season for lake trout. The issues that required the creation of these sanctuaries in 1984 are no longer a concern to local fisheries managers. This option best meets the socio-economic objective for lake trout (Section 2.2.2) and the direction in the Regulatory Guidelines for Lake Trout, while at the same time addressing provincial direction to simplify regulations where practical.

3.1.2.3 Black Sturgeon Lake, Muskrat River and Spruce River

Black Sturgeon Lake is a large (5105 ha) lake south of Lake Nipigon; the Muskrat and Spruce Rivers are tributaries which flow into the south-western corner of Black Sturgeon Lake (Figure 11). Despite its size, historical development on Black Sturgeon Lake has been sparse; Great Lakes Paper maintained four timber camps and an executive lodge on the lake between 1936 and 1965 (MNRF 2015b). Lake levels were managed for forestry purposes from 1941 to 1965; all stoplogs were removed from the dam in 1983, and it was fully decommissioned in 2001. A limited commercial fishery targeting lake whitefish (*Coregonus clupeaformis*) was carried out sporadically between 1965 and 1978. Lakehead University and Outward Bound Wilderness School each occupied former timber camp properties in the 1990s. Currently, Black Sturgeon Lake is located within the boundaries of Black Sturgeon River Provincial Park (Waterway Class). Most of the shoreline of the lake is zoned Natural Environment (MNR 2004). Camping, hunting, fishing and motorized watercraft are permitted in this zone.

The park management plan (MNR 2004) predates EFFM (MNR 2005) and PFS (MNRF 2015) and consequently does not consider many of the fisheries management planning principles currently established in Ontario. However, it does make several pertinent statements:

- “Angling pressure is very light throughout the park.”
- “Black Sturgeon River Provincial Park contains a variety of natural and cultural resources that are provincially significant. These include...blackfin cisco, which is a threatened species of fish that may inhabit Black Sturgeon Lake.” (NB: confirmation of the presence of blackfin cisco in BSM netting on Black Sturgeon Lake was inconclusive).

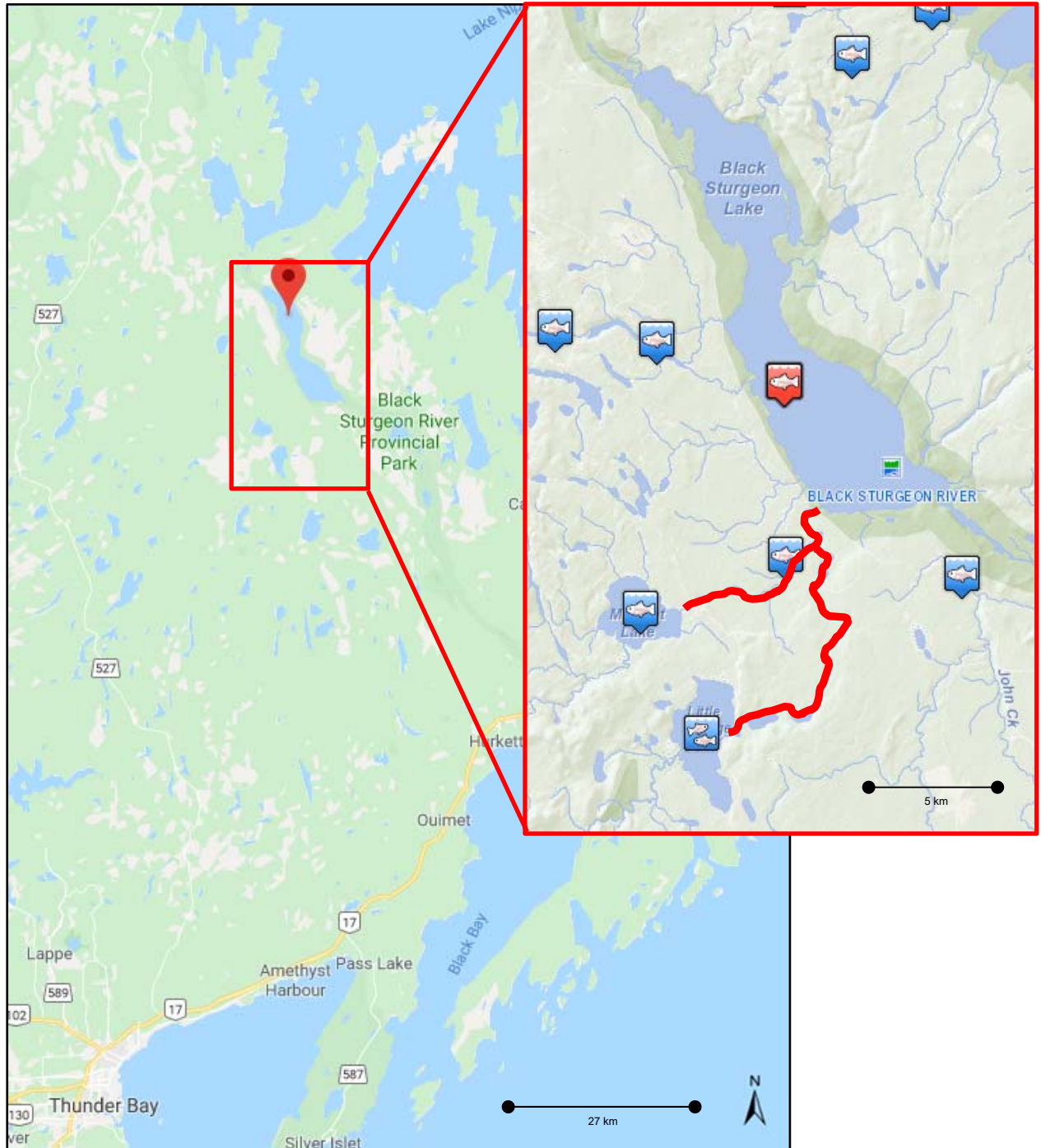


Figure 11: Location of Black Sturgeon Lake. Inset highlights the portions of the Muskrat and Spruce Rivers currently subject to a year round angling closure for lake trout.

- **“Recreation Objective:** To provide visitors to Black Sturgeon River Provincial Park with opportunities for recreation such as...fishing.”
- **“Tourism Objective:** To provide both Ontario residents and out-of-province visitors with opportunities to discover and to experience the unique natural and cultural heritage features of Black Sturgeon River Provincial Park, through the provision of high quality paddling, angling and hunting experiences.”
- “Stocking of non-native species and native spawn collection is prohibited. Stocking of native species is permitted in access, development and natural environment zones.”

Lake trout are not native to Black Sturgeon Lake (Dymond 1926); attempts to establish a self-sustaining population of lake trout began as early as 1956 (MNR 2001). Between 1987 and 1992, eyed eggs and surplus lake trout brood stock were stocked sporadically. An assessment completed in 1993 and 1994 showed survival of stocked fish but no evidence of reproduction. MNRF Nipigon District developed a plan to stock fin clipped yearlings, beginning in 1994, for a planned fifteen years (i.e. until 2010). The year-round closure to lake trout angling was regulated in 1986 to support the establishment of this population. The stocking record for Black Sturgeon Lake is summarized in Table 2:

Table 2: Lake trout stocking in Black Sturgeon Lake, 1987-2019

| Year | # Stocked | Age | Strain |
|-------------|------------------|------------|---------------------|
| 1987 | 609 | 11 year | Michipicoten Island |
| 1987 | 801 | 10 year | Michipicoten Island |
| 1988 | 196 | 7 year | Michipicoten Island |
| 1988 | 494 | 6 year | Michipicoten Island |
| 1988 | 340,000 | eggs | Michipicoten Island |
| 1989 | 1,500,000 | eggs | Michipicoten Island |
| 1990 | 210 | 7 year | Michipicoten Island |
| 1990 | 120 | 6 year | Michipicoten Island |
| 1992 | 7,298 | Yearlings | Michipicoten Island |
| 1993 | 1,910 | 3 year | Michipicoten Island |
| 1993 | 391,000 | eggs | Michipicoten Island |
| 1994 | 12,000 | Yearlings | Michipicoten Island |
| 1997 | 36,800 | Yearlings | Michipicoten Island |
| 1997 | 1,100,000 | eggs | Michipicoten Island |
| 1998 | 51,167 | Yearlings | Michipicoten Island |
| 1999 | 41,600 | Yearlings | Michipicoten Island |
| 1999 | 102,000 | eggs | Michipicoten Island |
| 2000 | 75,000 | Yearlings | Michipicoten Island |
| 2001 | 60,000 | Yearlings | Michipicoten Island |
| 2002 | 61,902 | Yearlings | Michipicoten Island |
| 2003 | 59,897 | Yearlings | Michipicoten Island |

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| | | | |
|------|---|-----------|---------------------|
| 2004 | 74,946 | Yearlings | Michipicoten Island |
| 2005 | 74,977 | Yearlings | Michipicoten Island |
| 2006 | 67,917 | Yearlings | Killala Lake |
| 2007 | 74,990 | Yearlings | Killala Lake |
| 2008 | No Stocking – Dorion Fish Culture Station Rebuild | | |
| 2009 | 66,224 | Yearlings | Killala Lake |
| 2010 | 75,848 | Yearlings | Killala Lake |
| 2011 | 80,348 | Yearlings | Killala Lake |
| 2012 | 61,688 | Yearlings | Killala Lake |
| 2013 | 88,138 | Yearlings | Killala Lake |
| 2014 | 91,604 | Yearlings | Killala Lake |
| 2015 | 82,332 | Yearlings | Killala Lake |
| 2016 | 87,602 | Yearlings | Killala Lake |
| 2017 | 89,958 | Yearlings | Killala Lake |
| 2018 | 88,242 | Yearlings | Killala Lake |
| 2019 | 75,731 | Yearlings | Killala Lake |

Despite decades of stocking, a closed angling season, and very little development on the lake, a self-sustaining population of lake trout does not appear to have become fully established on Black Sturgeon Lake. The lake has been included as a walleye trend lake in BsM Cycles 1-3; catches of lake trout have been very low (Figure 12).

The prescribed management action is to change the stocking objective from rehabilitative to Put-Grow-Take (PGT); to add Black Sturgeon Lake to the list of Additional Fishing Opportunities (open all year); and to remove the exceptions and adopt the new zone-wide season for lake trout for the Muskrat and Spruce Rivers.

Efforts to establish a self-sustaining lake trout population in Black Sturgeon Lake appear to have failed. This action best meets the socio-economic objective for lake trout (Section 2.2.2) while at the same time addressing provincial direction to simplify regulations where practical.

3.1.2.4 Shebandowan Lakes

Upper, Middle and Lower Shebandowan Lakes are a chain of lakes (total area 5971 ha) located west of Thunder Bay (Figure 13). The lakes are highly developed for cottages and other recreational purposes and are a popular destination for walleye and bass anglers. Middle and Upper Shebandowan Lakes support cold water ecosystems.

The angling season for lake trout was closed year-round in 1999, as a result of recommendations in the 1996 Shebandowan Lake Management Plan (MNR 1996). The focus of this document is water quality; however, a significant recruitment issue was

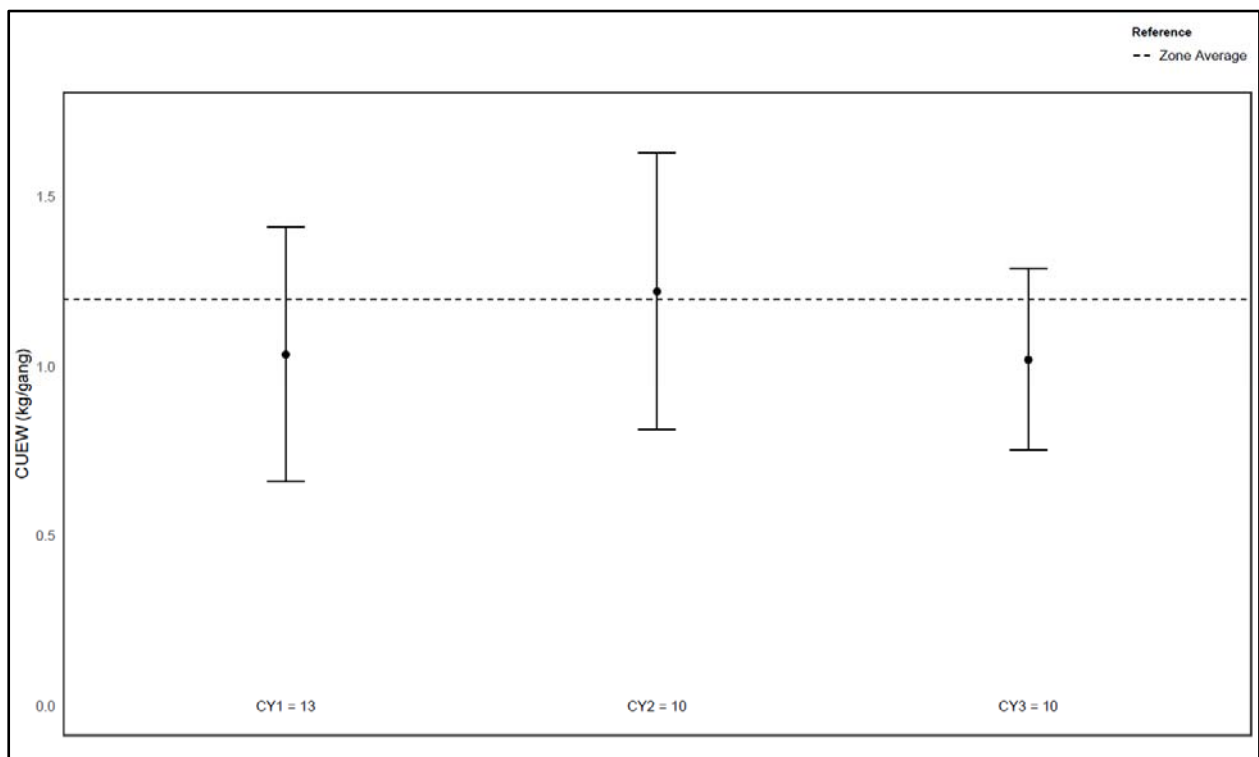


Figure 12: Mean area-weighted (\pm standard error) catch per unit effort in weight (ACUEW; kg/gang) of all recruit- or harvestable-sized (≥ 350 mm total length) lake trout captured in large mesh nets from Black Sturgeon Lake. The ‘CY’ value represents the number of recruit-sized lake trout captured in each cycle. The horizontal dashed line represents the area-weighted mean (pooled) CUEW of all trend/target lake trout lakes from three cycles of Broad-scale monitoring within Fisheries Management Zone 6.

NB: A total of 33 recruit-sized lake trout were captured across all three BSM cycles; of these, 7 fish were recorded as “unclipped”.

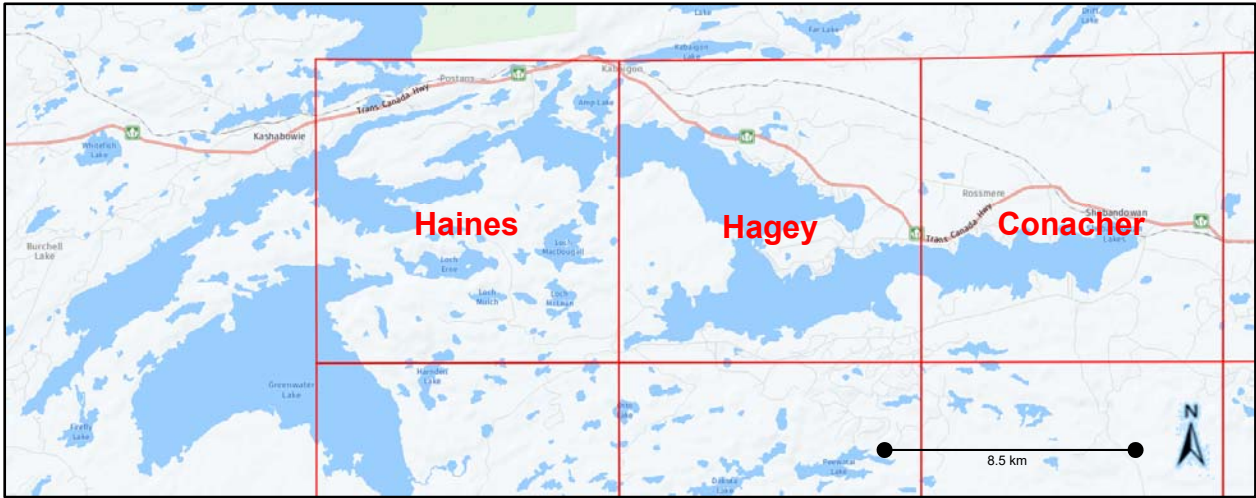


Figure 13: Shebandowan Lakes showing geographic townships.

identified in the lake trout population, and a full closure of the lake trout fishery was deemed necessary to preserve the remaining brood stock. This decision was maintained in the 2004 Revised Shebandowan Lake Management Plan (MNR 2004a). It is important to recognize that the 1996 and 2004 lake management plans were not fisheries management plans per se and predate both EFFM (MNR 2005) and PFS (MNR 2015). With the realignment of the former fishing divisions into the fisheries management zones in 2008, fisheries management direction for the Shebandowan Lakes was incorporated into the planning processes for FMZ 6.

The Shebandowan Lakes have been included as walleye trend lakes in BsM Cycles 1-3. Three adult lake trout were captured in Cycle 2; zero adult lake trout were captured in Cycles 1 and 3. Zero juvenile lake trout have been captured in any of the BsM surveys.

The management directions for the Shebandowan Lakes is to maintain the year-round closure for lake trout angling; while greatly diminished, the native lake trout population is persisting. The year-round closure supports the ecological objective for lake trout, as well as the caveat in the socio-economic objective that specifies that increasing angling opportunities should not be at the expense of individual lake trout populations. A year round closure is also recommended in the Regulatory Guidelines for Lake Trout (MNR 2007) for lakes under rehabilitation or brood stocks requiring protection.

However, the current wording of the Ontario Fishery Regulation (OFR) exception requires correction. The Variation Order for FMZ 6 identifies the location of the exception as:

Shebandowan Lake (48°38'53"N., 90°19'22"W.) - Haines Township

Two administrative corrections are required:

1) The Gazetteer of Ontario (Energy, Mines and Resources Canada 1988) identifies Upper, Middle and Lower Shebandowan Lakes individually, and *Shebandowan Lakes* (plural) as a collective place name; however, *Shebandowan Lake* (singular) is not a recognized place name. The exception should correctly identify *Shebandowan Lakes* (plural).

2) As written, the exception only applies to that portion of the Shebandowan Lakes that is found within the geographic township of Haines. Portions of the lakes are located within the geographic townships of Haines, Hagey and Conacher; a portion of Upper Shebandowan Lake is located in unsurveyed territory (Figure 13). The reference to Haines Township should be removed from the exception.

3.2 Non-regulatory actions

3.2.1 Update provincial policy list

Given the importance and ecological sensitivity of lake trout lakes, MNRF has historically worked to protect lake trout lakes from the adverse impacts of lakeshore development. Dating as far back to the early 1980's, MNRF land use and resource management planning documents and guidelines have advanced a precautionary approach to the management of Crown land adjacent to lake trout lakes, including moratoriums on the sale of Crown cottage lots on lake trout lakes. The Ministry has also worked with municipalities and other ministries to advance the protection of lake trout lakes through the Planning Act (RSO 1990, c.P.13) and Ontario's municipal land use planning process.

Through its Crown land disposition policy (PL 4.02.01), MNRF limits the disposition of vacant, undeveloped Crown land, where the disposition of Crown land could subsequently lead to impacts to habitat or lakeshore carrying capacity for lake trout. For purposes of applying this policy, a lake must be designated by policy by MNRF for management as a lake trout lake.

The list of lakes in Ontario designated by MNRF policy for management as either a naturally reproducing lake trout lake or a PGT lake trout lake are identified in *Inland Ontario Lakes Designated for Lake Trout Management, July 2015* (MNRF 2015c), as amended and revised.

A recent review of lake trout lakes listed in FMZ 6 in both the provincial policy document and Fish ONLine identified numerous discrepancies between the two lists. MNRF will rectify these discrepancies. This action will ensure that management decisions are based on the most reliable information available, and by ensuring that anglers and other interested individuals have access to correct information through Fish ONLINE.

The tables and appendices in this document reflect the corrected information and represent the best available information pertaining to the distribution of lake trout in FMZ 6 at the time this document was prepared.

Note that the review and updating of the list of Ontario Lakes Designated for Lake Trout Management is a provincial-scale exercise; posting of the updated list, including the changes for FMZ 6 lakes, will occur in a separate Environmental Registry posting, expected later in 2021.

3.2.2 Recommendation for future planning exercises

Although specific actions directed at forest management planning, land use planning, and other planning exercises are outside the scope of a fisheries management plan amendment, Ontario's Provincial Fish Strategy (MNRF 2015) directs the province to *incorporate aquatic ecosystem protection objectives into planning for land use, forest management, other resource management activities, and watershed planning at*

appropriate scales. In order to better achieve the FMZ 6 ecological objective for lake trout (Section 2.2.1) resource managers should consider the impacts of creating new access to previously inaccessible lake trout lakes. Specifically, this includes the recommendation originally found in the 1988 *Thunder Bay District Fisheries Management Plan*, that resource managers should consider “maintain(ing) the present mix of accessed and unaccessed lake trout lakes by discouraging the creation of new or additional access to lake trout lakes through careful road planning, removal of unauthorized access, and by road closures.”

4 Information gaps

FMZ 6 Advisory Council meetings during the development of the Plan Examination (November 2018 – September 2019) and discussion pertaining to management objectives for lake trout (October 2019 – December 2019) highlighted several information and knowledge gaps that affect assessment of the state of the resource and the effectiveness of management actions. These include, but are not limited to:

1) Ongoing development of a landscape analysis tool for lake trout

The ability to analyze and interpret BsM trend lake data for lake trout is still in development. Recognizing the shortcomings of the weight of evidence approach to the analyses of landscape-level fisheries data, MNRF is moving toward a biological reference point framework using estimates of harvestable biomass and mortality, indexed to MSY to illustrate the status of fisheries on a Kobe plot (Section 1.1). Currently, this approach is being used to assess BsM walleye trend lake data; a carrying capacity model has recently been published for lake trout data (Lester et al. *in press*), which will enable the development of Kobe plots for lake trout.

2) Discontinuation of the aerial angler intensity component of the BsM program

Aerial counts of anglers have been used as a surrogate to estimate relative angler effort (Section 1.1.2). This component of the provincial BsM program was discontinued in 2018, and has been replaced with a landscape model to predict angler activity using data from the National Recreational Fishing Survey.

3) Small sample size of very small (5-50 ha) and small (50-500 ha) lake trout trend lakes in the BsM program

BsM Cycle 1 sampled 12 lake trout trend lakes, of which 6 were in the two smallest size bins (Appendix A). In Cycle 2, only 10 lake trout trend lakes were sampled, with 4 in the two smallest size bins. The number of trend lakes sampled in Cycle 3 has increased to 25 with 11 in the two smallest size bins; however, only three of these are <150ha, the critical size threshold identified in the 2009 plan, with only two <100ha, the critical size threshold identified in MNR’s Lake Trout Synthesis exercise (Olver et al. 1991). While it is possible that more lake trout lakes of this size will be randomly selected for Cycle 4

(state lake) sampling, these small sample sizes have brought up questions of the reliability of interpretations of BsM data for this subset of lakes, in the context of landscape-level management of the resource.

4) A need for predictive models of productivity changes due to climate change

Minns et al. (2009) suggest that by 2100 lake trout habitat in Ontario will be reduced by about 30%, with steep declines (up to 60%) in the southern and eastern parts of the province, partly offset by increases (>30%) in the northwest region. Habitat loss may result in the direct extirpation of local populations where entire waterbodies become unsuitable but may also indirectly affect mortality by increasing angler efficiency, where many individual fish are concentrated into reduced summer refuge habitats for extended periods of time (Shuter and Lester 2004).

Minns et al. (2009) indicate that, at a regional scale, the ability to provide rapid and inexpensive re-assessments of potential effects of climate change on the lake trout resource would allow for timely revisions of local management tactics in response to revised climate forecasts. Given the predicted importance of northwestern Ontario in the long-term preservation of the species, protocols supporting such a tool are desirable.

Affecting changes to the provincial BsM program is outside the scope of actions that can be committed to in an FMZ-level fisheries management plan. However, given the uncertainty associated with current interpretations of the available data from the BsM programs, especially with regard to the sensitivity of small lake trout lakes, the following recommendation is made for future monitoring, should resources become available

Address knowledge gaps associated with very small (<100 ha) lake trout lakes.

Currently, landscape monitoring of lake trout lakes in FMZ 6 focuses on 25 naturally reproducing BsM Trend Lakes, of which 3 are under 100 ha. Given the sensitivity of very small lake trout lakes to harvest and climate change, the current monitoring program may require supplementary sampling and/or new analytical tools in order to adequately assess the resource in the context of the FMZ 6 Lake Trout Ecological Objective.

Specific monitoring activities that should be considered for very small lake trout lakes may include:

- a) Environmental DNA (eDNA) – This approach involves assessing residual DNA in water samples to assess lakes for the presence or absence of a species (i.e. lake trout) within a lake. This information may be used during future plan examinations or reviews of the provincial lake trout policy list

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(MNRF 2015c) to determine if certain lakes should continue to be managed for lake trout.

- b) Late summer temperature and dissolved oxygen profile – Lake trout habitat in some lakes may be constrained by the volume of cold, well-oxygenated water found below the thermocline in late summer, prior to fall destratification (Evans et al. 1991; Clark 2004). Stefan et al. (2001) modeled changes in the annual temperature and oxygen regimes typical of small lakes in the continental United States and concluded that climate warming would produce a significant contraction of usable habitat for many populations of cold water fish. Minns et al. (2009) projected the effects of climate change on Ontario lake trout populations and concluded that lake trout thermal habitat may increase in the far northwest of the province, but that the watersheds that make up FMZ 6 could experience a 30-60% loss of lake trout lakes. Monitoring late summer temperature and dissolved oxygen in small lake trout lakes will better enable fisheries managers to make management decisions that account for climate change.
- c) Water chemistry – Phosphorus, nitrogen and dissolved organic carbon (DOC) have been identified as critical environmental variables in lake trout lakes (Dillon et al. 2004; Shindler and Gunn 2004). Collection of these water quality parameters will aid in MNRF's ability to assess impacts to lake trout populations and adjust management strategies appropriately.
- d) Aerial angler intensity – Winter aerial surveys of lake trout lakes were carried out by Thunder Bay District in 1999, 2001 (Scholten 2003) and 2011. Summer and winter aerial angler counts of BsM lake trout trend lakes were completed in BsM Cycle 1 (2009) and partially completed in Cycle 2 (2014). The aerial angler counts were discontinued as part of the provincial BsM program in Cycle 3. Determining the effects of regulatory changes on winter angler effort will be necessary to fully assess the success of the lake trout amendment in the context of the ecological and socio-economic objective.

It should be noted that (b) and (c) are currently included in the provincial BsM protocol.

The nature of landscape monitoring and management of fisheries requires risk management of knowledge gaps and there is recognition that information will never be

“complete”. Further, there is recognition that MNRF’s ability to address data gaps is limited by available funds, staff resources, and work-planning priorities across multiple program areas.

5 Summary of consultation

Ontario’s Provincial Fish Strategy (MNRF 2015) directs MNRF to establish and support fisheries management advisory groups at appropriate scales, and to use well-defined structured processes to inform decision-making and resolve conflicts. Since its inception in 2007, the FMZ 6 Advisory Council has been a key vehicle for achieving enhanced public involvement and resource stewardship within the FMZ.

The FMZ 6 Advisory Council Terms of Reference (MNRF 2019a) identified eleven Indigenous communities and organizations, and twelve non-Indigenous stakeholder sectors and organizations that are represented on the Advisory Council, though not all of these communities, organizations and stakeholders participate actively in the council. Each representative named in the Terms of Reference has received copies of all meeting minutes and presentations.

The Terms of Reference include the following statement pertaining to First Nations and Métis involvement in the FMZ 6 Advisory Council:

First Nations and Métis communities will be invited to participate in the FMZ 6 Advisory Council. It is recognized that participation in the Advisory Council does not satisfy the Crown’s Duty to Consult.

The FMZ 6 Advisory Council met 5 times between June 2019 and March 2020 to advise MNRF in the development of the FMZ 6 Draft Plan Amendment for lake trout. Meeting agendas are included below; meeting minutes and presentations are available through the MNRF’s Northwest Regional Office.

June 18, 2019

1. Review of minutes and action items from April
2. Black Bay steelhead presentation
3. FMZ 6 AC Terms of Reference
4. Membership list and contact information
5. Priorities for future planning
6. ER Posting – Multiple lines for carp

September 24, 2019

1. Review of minutes and action items from June
2. FMZ 6 AC Terms of Reference
3. Membership list and contact information

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4. Black Bay presentation
5. Walleye status presentation
6. Priorities for future planning
 - A. Current River fisheries objectives
7. Information item – DFO Website

October 29, 2019

1. Review minutes and action items from September
2. Review membership list
3. FIPPA primer
4. Objective setting primer
5. Lake Trout objective discussion
6. New business
 - Retired Conservation Officer - offer to present
 - TBFN fish species checklist

December 10, 2019

1. FIPPA primer
2. Review minutes and action items from October
3. Review membership list
4. Thunder Bay Stocking List
5. Lake Trout status
6. Retired Conservation Officer presentation
7. Lake Trout objective discussion
8. New business
 - Smelt
 - Nipigon River (administrative change)
 - Bait for leech harvesters

February 4, 2020

dedicated to Rainbow Trout discussion

March 3, 2020

1. A word about respect
2. Review minutes and action items from February
3. Finalize objectives
4. Zone-wide regulatory options
5. New exception options
6. Review existing exceptions
7. Consultation process
8. Continue rainbow trout discussion from February

Broader consultation on Draft Plan Amendment for Lake Trout included:

- 1) Copies of the document and an invitation to provide feedback were sent to 18 Indigenous communities and organizations on November 27, 2020, concurrent to its

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posting on the Ontario Environmental Registry, along with an opportunity for meeting with MNRF staff to further discuss the Plan Amendment. A follow-up letter was sent to the communities and organizations on January 14, 2021.

The communities and organizations contacted are listed below:

First Nations located within FMZ 6

1. Red Rock Indian Band
2. Animbiigoo Zaagi'igan Anishinaabek (Lake Nipigon Ojibway)
3. Biinjitiwaabik Zaaging Anishinaabek (Rocky Bay)
4. Bingwi Neyaashi Anishinaabek (Sand Point)
5. Whitesand First Nation
6. Gull Bay First Nation
7. Fort William First Nation
8. Lac Des Mille Lac First Nation

First Nations proximal to FMZ 6

1. Pays Plat First Nation
2. Ginoogaming First Nation
3. Long Lake 58 First Nation
4. Seine River First Nation
5. Lac La Croix First Nation
6. Aroland First Nation
7. Ojibway Nation of Saugeen

Métis Located in FMZ 6

1. Métis Nation of Ontario Region 1
2. Métis Nation of Ontario Region 2
3. Red Sky Métis Independent Nation

MNRF has received no comments or requests for further consultation from Indigenous communities and organizations pertaining to this plan amendment.

2) The document was placed on the Ontario Environmental Registry for public review with a 45 day comment period from November 27, 2020 until January 11, 2021 (ERO Number 019-1604). Comments received during the comment period have been included in Appendix E.

Subsequent to the Environmental Registry comment period, NDMNRF received email correspondence from three individuals who were concerned about the impact of a longer season on small lake trout lakes, and who felt that the consultation process was inadequate.

5.1 Summary of regulatory options considered for consultation

**Table 3: Summary of regulatory options consideration in the Draft Plan Amendment
Asterix (*) indicates preferred option**

| Area Affected | Description | Compatibility with Ecological Objective | Compatibility with Socio-Economic Objective |
|-------------------------------|--|--|---|
| Zone wide | Status quo | Very high | Low |
| | Adopt FMZ 5 regulation* | High | Very High |
| | Adopt FMZ 4 regulation | High | Very High |
| Nipigon R., Polly, Helen | Status quo | Very high | Low |
| | Adopt zone regs* | High | High |
| Grouse, Watershed, North Mawn | Status quo | Very high | Low |
| | Adopt zone regs* | High | High |
| Black Sturgeon | Status quo | Low | Low |
| | Adopt zone regs | Low | High |
| | Add to PGT list* | N/A | Very high |
| Shebandowan | Make changes to geographical description of the exception* | Administrative change – no alternatives considered | |

List of Acronyms

AWCUEW - Area-weighted catch per unit effort by weight

BsM – Broadscale Monitoring program

CUE – Catch-per-Unit-Effort

CUEW – Catch per unit effort by weight

eDNA – Environmental DNA

EFFM – Ecological Framework for Fisheries Management

FMZ – Fisheries Management Zone

FWIN – Fall Walleye Index Netting

LIO – Land Information Ontario

MEI – Morpho-Edaphic Index

MNR – Ministry of Natural Resources

MNRF – Ministry of Natural Resources and Forestry

OFR – Ontario Fishery Regulations

PFS – Provincial Fish Strategy

PGT – Put-Grow-Take

PSIF – Provincially Significant Inland Fishery

SDW – Specially Designated Water

SLIN – Spring Littoral Index Netting

SPIN – Summer Profundal Index Netting

SPOF – Strategic Planning for Ontario Fisheries

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Appendix A – BsM Lake Trout Trend Lakes

BsM Cycle 1 = 2008 – 2012

BsM Cycle 2 = 2013 – 2017

BsM Cycle 3 = 2018 – 2022

| Waterbody | BsM Cycle | Surface Area (ha) |
|------------------|------------------|--------------------------|
| Cliff L. | 1 | 41.1 |
| Grouse L. | 1 | 86.9 |
| Walotka L. | 1 | 93.9 |
| Crevasse L. | 1 | 117.3 |
| Cry L. | 1 | 244.9 |
| Hawkeye L. | 1 | 430.8 |
| Beatty L. | 1 | 651.5 |
| Sandstone L. | 1 | 729.9 |
| Shawanabis L. | 1 | 941.5 |
| Burchell L. | 1 | 1044.9 |
| Waweig L. | 1 | 1151.8 |
| Lac des Iles | 1 | 1558.5 |
| Greenwater L. | 1 | 3407.2 |
| | | |
| Cliff L. | 2 | 41.1 |
| Grouse L. | 2 | 86.9 |
| Walotka L. | 2 | 93.9 |
| Cry L. | 2 | 244.9 |
| Beatty L. | 2 | 651.5 |
| Burchell L. | 2 | 1044.9 |
| Waweig L. | 2 | 1151.8 |
| Lac des Iles | 2 | 1558.5 |
| Arrow L. | 2 | 3234.4 |
| Greenwater L. | 2 | 3407.2 |
| | | |
| Cliff L. | 3 | 41.1 |
| Grouse L. | 3 | 86.9 |
| Walotka L. | 3 | 93.9 |
| Fallingsnow L. | 3 | 144.8 |
| Kamikau L. | 3 | 156.3 |
| Tinto L. | 3 | 159 |
| Pringle L. | 3 | 179.3 |
| Innes L. | 3 | 220.4 |
| Stetham L. | 3 | 228.5 |

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| | | |
|-------------------|---|--------|
| Little Moraine L. | 3 | 234.1 |
| Cry L. | 3 | 244.9 |
| Huronian L. | 3 | 361.4 |
| Tilly L. | 3 | 403.5 |
| Disraeli L. | 3 | 444.8 |
| Greenwich L. | 3 | 478.6 |
| Rudge L. | 3 | 501.1 |
| Castle L. | 3 | 611.4 |
| Mowe L. | 3 | 620.6 |
| Icarus L. | 3 | 645 |
| Titmarsh L. | 3 | 968.3 |
| Burchell L. | 3 | 1044.9 |
| Waweig L. | 3 | 1151.8 |
| Arrow L. | 3 | 3234.4 |
| Greenwater L. | 3 | 3407.2 |

Appendix B – Comparison of modelled lake trout life history characteristics and MSY reference points from BSM trend lake trout lakes within Fisheries Management Zone 6, using the Lester et al. (in press) model.

| Lake | Area (ha) | L _{inf} (mm) | W _{inf} (g) | B _{msy} (kg/ha) | M | Z _{MSY} | MSY (kg/ha/yr) | E _{MSY} (hrs/ha/yr) |
|----------------|-----------|-----------------------|----------------------|--------------------------|------|------------------|----------------|------------------------------|
| Arrow L. | 3234.4 | 688.63 | 3.87 | 3.38 | 0.18 | 0.36 | 0.61 | 2.86 |
| Beatty L. | 651.5 | 621.14 | 2.79 | 2.57 | 0.2 | 0.4 | 0.51 | 3.27 |
| Burchell L. | 1044.9 | 642.63 | 3.11 | 3.19 | 0.19 | 0.38 | 0.61 | 3.31 |
| Castle L. | 611.4 | 618.14 | 2.74 | 4.88 | 0.2 | 0.4 | 0.98 | 4.99 |
| Cliff L. | 41.1 | 462.49 | 1.08 | 6.65 | 0.27 | 0.54 | 1.8 | 18.55 |
| Crevasse L. | 117.3 | 530.02 | 1.68 | 5.94 | 0.23 | 0.46 | 1.37 | 9.77 |
| Cry L. | 244.9 | 571.83 | 2.14 | 4.79 | 0.21 | 0.42 | 1.01 | 6.2 |
| des Iles, Lac | 1558.5 | 659.74 | 3.38 | 1.01 | 0.19 | 0.38 | 0.19 | 1.92 |
| Fallingsnow L. | 144.8 | 542.42 | 1.81 | 6.06 | 0.23 | 0.46 | 1.39 | 9.34 |
| Greenwater L. | 3407.2 | 690.57 | 3.91 | 3.4 | 0.18 | 0.36 | 0.61 | 2.85 |
| Greenwich L. | 478.6 | 606.32 | 2.58 | 4.24 | 0.21 | 0.42 | 0.89 | 4.95 |
| Grouse L. | 86.9 | 511.7 | 1.5 | 6.98 | 0.24 | 0.48 | 1.68 | 12.88 |
| Hawkeye L. | 430.8 | 601.11 | 2.51 | 4.93 | 0.21 | 0.42 | 1.04 | 5.62 |
| Huronian L. | 361.4 | 592.25 | 2.39 | 5.07 | 0.21 | 0.42 | 1.06 | 5.95 |
| Icarus L. | 645 | 620.66 | 2.78 | 4.3 | 0.2 | 0.4 | 0.86 | 4.52 |
| Innes L. | 220.4 | 566.1 | 2.07 | 5.28 | 0.22 | 0.44 | 1.16 | 7.18 |
| Kamikau L. | 156.3 | 546.84 | 1.85 | 4.87 | 0.23 | 0.46 | 1.12 | 7.7 |
| Mowe L. | 620.6 | 618.84 | 2.75 | 4.75 | 0.2 | 0.4 | 0.95 | 4.88 |
| Rudge L. | 501.1 | 608.57 | 2.61 | 4.19 | 0.21 | 0.42 | 0.88 | 4.87 |
| Sandstone L. | 729.9 | 626.44 | 2.86 | 2.76 | 0.2 | 0.4 | 0.55 | 3.36 |
| Shawanabis L. | 941.5 | 638.01 | 3.03 | 4.36 | 0.19 | 0.38 | 0.83 | 4.09 |
| Stetham L. | 228.5 | 568.07 | 2.09 | 5.22 | 0.22 | 0.44 | 1.15 | 7.07 |
| Tilly L. | 403.5 | 597.84 | 2.46 | 4.84 | 0.21 | 0.42 | 1.02 | 5.63 |
| Tinto L. | 159 | 547.82 | 1.86 | 6.53 | 0.23 | 0.46 | 1.5 | 9.72 |
| Titmarsh L. | 968.3 | 639.26 | 3.05 | 4.02 | 0.2 | 0.4 | 0.8 | 4.06 |
| Walotka L. | 93.9 | 516.51 | 1.54 | 8.26 | 0.24 | 0.48 | 1.98 | 14.59 |
| Watershed L. | 172.4 | 552.43 | 1.91 | 1.08 | 0.23 | 0.46 | 0.25 | 2.94 |
| Waweig L. | 1151.8 | 646.89 | 3.17 | 4.31 | 0.19 | 0.38 | 0.82 | 3.94 |

Appendix C – Tourist Outfitters on FMZ 6 Lake Trout Lakes

| Lake Name | Outfitter Name |
|-------------------------|---|
| Northern Light Lake | Northern Light Resort |
| Northern Light Lake | Red Pines Canoe Outfitters |
| Upper Shebandowan Lake | Kashabowie River Resort |
| Kashabowie Lake | Lake Kashabowie Lodge And Campground |
| Kashabowie Lake | Idyllwild Resort |
| Kashabowie Lake | Birch Point Resort |
| Weikwabinonaw Lake | Amberlite Resort |
| Arrow Lake | Ryan's Arrow Lake Lodge |
| Middle Shebandowan Lake | Cedar Hill Resort Inc. |
| Sandstone Lake | Larry's Cabins |
| Lower Shebandowan Lake | Burstrom's Resort |
| Lower Shebandowan Lake | Spruce Villa Cabins And Campgrounds |
| Lower Shebandowan Lake | Rudolf's Resort |
| Lower Shebandowan Lake | Beda's Lodge |
| Lower Shebandowan Lake | Shebandowan Air |
| Waweig Lake | Wilderness North |
| Mackenzie Lake | TROPHY FISH OUTPOSTS |
| Mackenzie Lake | Armstrong Outposts |
| Onaman River | Onaman River Resort and Charter Boat Services |
| Pasha Lake | Pasha Lake Cabins Inc |

Appendix D – FMZ 6 Lake Trout waters

| Lake Name | Waterbody ID | Surface Area (ha) | Notes |
|----------------|---------------|-------------------|-------|
| Abigogami | 16-3670-54288 | 427 | |
| Aldridge | 16-2999-55570 | 606 | |
| Anders | 16-3600-54270 | 161 | |
| Arrow | 15-7025-53379 | 3314.4 | 1 |
| Athelstane | 15-7050-54058 | 1765 | |
| Atik | 15-7097-53434 | 77.7 | 1 |
| Baril | 15-6650-54018 | 1142 | |
| Beatty | 15-4566-55070 | 699.6 | |
| Black Sturgeon | 16-3634-54687 | 5105.4 | 6,7 |
| Brightsand | 15-6869-55111 | 1099 | |
| Bukemiga | 16-3411-55531 | 795 | |
| Burchell | 15-6747-53842 | 1045 | |
| Burnt Island | 15-6584-54061 | 119 | |
| Cameron | 15-7164-53390 | 30.8 | 1 |
| Camp | 15-6896-54026 | 95 | |
| Castle (1) | 15-7176-53418 | 33.2 | |
| Castle (2) | 16-3663-55543 | 626.0 | |
| Church | 15-6795-53776 | 59 | |
| Cliff | 16-3700-54335 | 41 | |
| Collins | 16-3277-55707 | 823 | |
| Cooney | 16-3260-55298 | 78 | |
| Crevasse | 16-3297-55263 | 117 | |
| Cry | 16-3557-55322 | 245 | |
| Curve | 16-3520-55558 | 51 | |
| Dakota | 15-7039-53810 | 114 | |
| Deception | 16-3712-53869 | 22 | 1 |
| Disraeli | 16-3551-54440 | 444.8 | |
| Elevation | 15-6577-53565 | 101 | |
| Elm | 16-3710-54376 | 63.7 | |
| Fallingsnow | 16-2930-53355 | 143.3 | 1 |
| Fork | 15-6696-53978 | 162 | |
| Gneiss | 15-6635-53388 | 65 | 5 |
| Greenwater | 15-6904-53837 | 3407 | |
| Greenwich | 16-3638-54070 | 484.0 | |
| Grouse | 15-6812-53794 | 87 | 6 |
| Gunflint | 15-6725-53298 | 1642 | 5 |
| Gunter | 16-2948-55306 | 204 | |
| Hawkeye | 16-3199-53954 | 435.4 | |
| Helen | 16-4067-54365 | 1591 | 1,2,6 |
| Hilma | 16-3752-53979 | 34.0 | 1 |
| Home | 15-6539-53616 | 57 | |
| Hood | 15-6735-53727 | 117 | 1 |

FMZ 6 Fisheries Management Plan Amendment 2021-1: Lake Trout

| | | | |
|----------------|---------------|--------|-------|
| Hornick | 16-3326-55334 | 314 | |
| Huronian | 15-6641-53950 | 361.4 | |
| Icarus | 15-6814-53436 | 725.2 | |
| Innes | 16-3750-54094 | 107.2 | |
| Inspiration | 16-3567-55633 | 563 | |
| Jessie | 16-4028-54500 | 996 | 1,6 |
| Kamikau | 15-6986-53540 | 156.3 | |
| Kashabowie | 15-6913-53983 | 2163 | |
| Keemle | 16-4188-54594 | 152.2 | 6,9 |
| Kenny | 16-4479-54007 | 20 | 1 |
| Kershaw | 16-2939-55252 | 213 | |
| Kettle | 16-3589-55329 | 61 | |
| Lac des Iles | 16-3103-54530 | 1559 | |
| Little Moraine | 16-3657-54310 | 233 | |
| Loch Erne | 15-6946-53876 | 172 | 1 |
| Loch Lomond | 16-3272-53473 | 1694.1 | |
| MacIntosh | 16-3752-54002 | 48.4 | 1 |
| Mackenzie (1) | 16-3530-55684 | 489 | 1 |
| Mackenzie (2) | 16-3699-53994 | 51 | |
| Magnetic | 15-6663-53296 | 97 | 5 |
| McLaurin | 16-3511-55649 | 302 | |
| Miner | 16-3803-54067 | 5.3 | 1 |
| Moose | 15-7171-53313 | 407.0 | 5 |
| Mooseland | 15-7155-54743 | 1086 | |
| Moraine | 16-3644-54282 | 279 | |
| Morgan | 16-3641-55513 | 107 | |
| Mountain (1) | 15-7072-53309 | 457 | 5 |
| Mountain (2) | 16-3388-55667 | 94 | |
| Mowe | 15-6672-53552 | 620.6 | |
| Myrt | 15-6681-53680 | 273 | |
| Nalla | 16-3680-53921 | 49.0 | 1 |
| Nameiben | 16-3458-55570 | 96 | |
| Nolan | 16-3742-54014 | 24.3 | 1 |
| North | 15-6844-53328 | 1091.2 | 5 |
| North Mawn | 15-6866-54968 | 189 | 6 |
| North Whalen | 16-3133-55504 | 465 | |
| Northern Light | 15-6723-53466 | 6869.8 | |
| Obonga | 16-3346-55390 | 3730 | |
| Oliver | 16-3081-53489 | 199.1 | |
| Paint | 16-4496-55086 | 336.7 | |
| Pangloss | 16-3358-55142 | 359 | |
| Pasha | 16-4483-55053 | 92 | 2,6,9 |
| Pete | 16-2870-53613 | 20 | 1 |
| Pillar | 16-3477-55610 | 248 | |
| Plummes | 15-6686-53595 | 305.3 | |

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| | | | |
|-------------------|---------------|-------|------|
| Pringle | 16-3708-54345 | 182.1 | |
| Redfox | 15-6569-53648 | 59 | |
| Rombough | 16-3330-54687 | 27 | 2 |
| Rose | 15-6923-53304 | 499.1 | 5 |
| Ross | 15-6528-53582 | 301 | |
| Rudge | 15-6659-53963 | 501.1 | |
| Saganaga | 15-6547-53441 | 5598 | 5 |
| Sanctuary | 15-7008-54035 | 65 | |
| Sandstone | 15-7053-53459 | 934.5 | 1 |
| Scarp | 16-3803-54156 | 18 | 2 |
| Shaver | 16-3636-54827 | 97 | |
| Shawanabis | 16-3240-55701 | 942 | |
| Shebandowan (all) | 15-6988-53913 | 5972 | 6,11 |
| Silver | 16-3737-53877 | 78.4 | 1 |
| Snowshoe | 16-3646-55478 | 228 | |
| South | 15-6824-53301 | 183 | 5 |
| Squeers | 15-6804-53764 | 384.4 | 6 |
| Stetham | 15-6708-53937 | 228.5 | |
| Sunbeam | 15-6885-53406 | 88.0 | |
| Sunbow | 15-6843-53443 | 543.9 | |
| Sunset | 16-2818-53430 | 65.6 | 1,4 |
| Tilly | 15-6508-53878 | 403.5 | |
| Tinto | 15-7029-53799 | 159 | |
| Titmarsh | 15-6832-53585 | 968 | |
| Tunnel | 16-3378-55707 | 593 | |
| Twinhouse | 15-6587-53594 | 105 | |
| Uneven | 16-2947-55385 | 1132 | |
| Vale | 16-3421-55611 | 214 | |
| Voltaire | 16-3401-55086 | 289 | |
| Vooges | 16-3562-55352 | 281 | |
| Wabindon | 15-7076-53374 | 182 | |
| Wabinosh | 16-3576-55491 | 1727 | |
| Walkover | 16-3657-55587 | 155 | |
| Walotka | 16-3483-54344 | 94 | |
| Watershed | 15-6815-53784 | 172 | 6 |
| Waweig | 16-3500-55543 | 1152 | |
| Weikeabinonaw | 15-6958-53562 | 1236 | |
| West Pennock | 16-2832-53599 | 19 | 1,3 |
| Whitefish | 15-6707-53610 | 205 | 2 |
| Wiggins | 16-3738-54079 | 21.0 | 1 |
| Wigwasan | 16-3383-55532 | 755 | |
| Windigoostigwan | 15-6508-53978 | 863 | |
| Wye | 15-6550-53632 | 76 | |
| Yellowhammer | 15-6896-53457 | 207.2 | |
| | | | |

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| | | | |
|---------------------|---------------|---------|----|
| Kaministiquia River | 16-3359-53629 | | 8 |
| Maligne River | 15-5778-53574 | | 8 |
| Matawin River | 16-3083-53792 | | 8 |
| Nipigon River | 16-4097-54224 | | 8 |
| | | | |
| Lake Nipigon | 16-3921-55210 | 484,800 | 10 |

Notes:

- 1 – Lake is cross-listed as a brook trout lake
- 2 – Not currently included in the policy list of *Inland Ontario Lakes Designated for Lake Trout Management* (MNRF 2015c)
- 3 – Unofficial lake name
- 4 – Stocked and managed for brook trout put-grow-take fishery
- 5 – Border water with United States
- 6 – Current lake trout regulatory exception
- 7 – Stocked with lake trout for rehabilitative purposes
- 8 – Flowing waters
- 9 – Stocked and managed for lake trout put-grow-take fishery
- 10 – Provincially Significant Inland Fishery, managed separately from FMZ
- 11 – Only Upper Shebandawon (15-6867-53877) appears on the policy list of *Inland Ontario Lakes Designated for Lake Trout Management* (MNRF 2015c)

Appendix E – Comments received from the Environmental Registry

The following comments were submitted to the Environmental Registry of Ontario during the public comment period associated with the posting of the draft Fisheries Management Zone 6 Fisheries Management Plan Amendment for Lake Trout (ERO Number 019-1604):

1) I <<*personal information*>> am in support of extending the lake trout season for zone 6. Thank you.

2) Adopt the same regulations as FMZ 5: January 1 to Sept 30, with not more than 1 fish greater than 56 cm, from Sept 1 to Sept 30 preferred.

3) I believe that this is a great way to get fishing and enjoy the outdoors.

4) As an outfitter that utilizes ice fishing on lake Nipigon to support a sustainable NW Ontario business in a community that is sharply under served - we support this change. This change will help us keep our business operations attractive to local and regional markets, thereby allowing us to offer employment opportunities in the area. Since the fisheries will not be harmed by this regulation change, we fully support it - a win/win change to the regulation.

5) I fully support the second alternative listed and see no adverse effect on the lake trout fishery in zone 6 while potentially providing anglers with enhanced fishing opportunities. Please get this done ASAP.

6) I support the recommended changes for the following reasons:

i. removing the seasonal restriction on Grouse and Watershed Lakes has the secondary benefit of creating a winter fishing opportunity for pike. Pike, some of trophy quality, are present in both lakes, but anglers are not currently able to target them in the winter months.

ii. Generally speaking, less people now target lake trout in the winter than had done so historically. This means if seasonal restrictions are removed as recommended, the lakes will not face angling pressure at historic levels. Moreover, by increasing the available opportunities, anglers will disperse their efforts rather than congregate in known, desired locations. Removing seasonal restrictions as recommended will potentially reduce angling effort on surrounding water bodies.

iii. In my opinion, the fishery can withstand the recommended increased season. I say this for three reasons. First, historically angler success has been calculated by doing angler surveys and assuming all anglers harvested the legal sporting license limit of two fish. This logic overestimates angler harvest. Many anglers do not catch their limit, many do not keep a limit, some have conservation licences, some of the anglers considered in the angler count may not have been targeting lake trout, and some anglers catch no fish. When considering the factors mentioned above, the recommended increase in season of

FMZ 6 Fisheries Management Plan Amendment 2021-1: Lake Trout

one month would not, in my opinion, put the potential actual harvest near the current estimated level of harvest.

Secondly, with the changing weather patterns and late freeze ups experienced in the last decade have made access during January either not possible, or very difficult in many cases. Deep slush has become the norm during early winter, as well have treacherous ice conditions, making large trout lakes unsafe. Because of this, many anglers will not pursue trout in January. However, the recommendation would create further opportunity for angling that would benefit some anglers.

Lastly, some anglers are traveling to the adjacent FMZ to fish lake trout in January because the opportunity is not available in FMZ 6. The fishery in FMZ 5 has shown it can withstand the angling pressure resulting from the recommendations proposed for FMZ 6. This illustrates that it is a sound management strategy for this species in the region. Moreover, the recommendations have the potential to reduce effort on fisheries on the Eastern side of FMZ 5.

iv. I propose including Squeers lake in the recommendation to remove angling restrictions as well. Currently, this lake is no longer being used for scientific data gathering, and there is no plan to do in the future. Therefore, closure of this resource for this reason is no longer valid reasoning. If ease of access or protection of MNR assets are a concern, which they rightfully should be, access to the lake from the Burchell Lake Road could be restricted.

7) I am very pleased to see consideration given to the Lake Trout regulation in FMZ 6 being changed. Of the 3 options I fully support Option #3, making the FMZ 6 regulation the same as FMZ 4, open Jan. 1 to Sept. 30. I also support removing the restrictions on the Lakes that are listed in the ERO.

I do know that there has been a 30+ year study that has happened on Squeers Lake and the fishery that was allowed as part of the study no longer takes place and it does not appear as though much is happening with regards to the study on Lake Trout. Due to the location and the Lake is not easily accessible, I feel that a fishery should be allowed on Squeers Lake.

8) The second proposal resembling FMZ 5 provides enough of an increase in angling as long as studies support that the lake trout population will not be threatened with the extra month added on.

9) Make it the same as FMZ 4. :)

10) I support your preferred option January 1st to September 30 th with a 1 over 56 size regulation for the month of September. This will provide anglers with another month to fish and should prevent the need or desire to stockpile fish More winter activity also allows the opportunity to access more remote locations not accessible in the summer dispersing

FMZ 6 Fisheries Management Plan Amendment 2021-1: Lake Trout

pressure more. I like the 1 over 56 size regulations as I feel it deals with large bodied trout and small bodied trout lakes better.

11) Attached letter from the Ontario Federation of Anglers and Hunters:

ONTARIO FEDERATION OF ANGLERS & HUNTERS

P.O. Box 2800, 4601 Guthrie Drive, Peterborough, Ontario K9J 8L5
Phone: (705) 748.6324 • Fax: (705) 748.9577 • Visit: www.ofah.org • Email: ofah@ofah.org



Ontario Conservation Centre

OFAH FILE: 794
January 11, 2021

MNRF - ROD Northwest Regional Office
435 James Street South
Suite 221a
Thunder Bay, Ontario
P7E 6S8

Subject: ERO #019-1604 Fisheries Management Zone 6 Fisheries Management Plan Amendment for Lake Trout

The Ontario Federation of Anglers and Hunters (OFAH) is Ontario's largest, non-profit, fish and wildlife conservation-based organization, representing 100,000 members, subscribers and supporters, and 725 member clubs. We appreciate the opportunity to comment on the Ministry of Natural Resources and Forestry's (MNRF) proposed changes to the Lake Trout regulations in Fisheries Management Zone (FMZ) 6 to extend the winter angling season and remove certain exceptions in order to provide increased angling opportunities.

Based on indicators from the MNRF's Broad-scale Monitoring Program (BsM), Lake Trout populations appear to be stable across FMZ 6. We support the preferred option for Lake Trout by adopting the same regulation as FMZ 5: January 1 to September 30; not more than 1 fish greater than 56cm from September 1 to September 30. In addition, we agree with the changes to the existing regulatory exceptions to create more sustainable fishing opportunities for Lake Trout in the zone.

Using BsM data to help guide regulatory development, coupled with consultation and engagement with the zone's advisory council, the MNRF has identified additional fishing opportunities for the angling community. This is a good news story that demonstrates the effectiveness and importance of advisory councils. It is also a clear example of how the fisheries management planning process should work: an ever-evolving, iterative process that relies on science and data, and a participatory approach with stakeholders to inform decisions at the FMZ level.

Finding ways to increase sustainable angling opportunities, such as extending the winter angling season and removing seasonal exceptions, creates positive socio-economics benefits for anglers, businesses, and communities. This is a win for anglers and will be viewed favourably, but we would like for the MNRF to evaluate FMZs across the province to determine where other opportunities can be similarly established. Doing so will help promote angling, will get people interested and wanting to get out fishing, and will likely have positive outcomes for funding for the Fish and Wildlife Special Purpose Account.

.....2

ONTARIO FEDERATION OF ANGLERS AND HUNTERS

-2-

With the creation of FMZs over a decade ago, the MNRF made a commitment to enhance public involvement in recreational fisheries management decision making; advisory councils were established to meet that commitment. From this proposal and our participation, it appears that FMZ 6 has a relatively well-functioning advisory council. Unfortunately, this is not the case for every advisory council. The OFAH has representation on every council in Ontario and we have received feedback that identifies infrequent meetings, general inactivity, and outdated fisheries management plans (FMP) as primary concerns. In our opinion, this goes against the Ecological Framework for Fisheries Management in Ontario, particularly core components of fisheries management that include public involvement in management decisions. Every council must ensure there is continued consultation and engagement with the FMZ to: 1) facilitate stakeholder input to guide fisheries management; 2) ensure goals and objectives identified in the FMP are being met; 3) help to inform future decision making; 4) conduct performance evaluations of regulations; 5) identify key trends and emerging issues; and 6) guide FMZ-level stocking plans.

The current global pandemic has given us the opportunity to improve the way that groups can stay connected through online platforms. The OFAH sees the lessons learned throughout the past year as an opportunity for the MNRF to convene FMZ councils more frequently, reengage inactive councils, and establish the councils for FMZs that do not have them. The FMZ 6 Advisory Council should use this opportunity to continue to meet regularly and commit to monitor the outcomes of various actions, regulations, and other aspects of the FMP. We appreciate that the MNRF is considering ways to improve the fishing experience in FMZ 6, and thank you for the consideration of these comments.

Yours in Conservation,



Adam Weir
Fisheries Biologist

AW/jb

cc: OFAH Board of Directors
OFAH Fisheries Advisory Committee
Angelo Lombardo, OFAH Executive Committee
Matt DeMille, OFAH Manager, Fish & Wildlife Services
Mark Ryckman, OFAH Manager, Policy
Chris Robinson, OFAH Manager, Conservation Programs
OFAH Fish & Wildlife Staff

Appendix F – Summary of Goals, Objectives and Management Actions

New FMZ 6 Fisheries Management Goals (replace 2009 Goal Statements):

Goal #1: Healthy ecosystems that support self-sustaining native fish communities.

Goal #2: Sustainable fisheries that provide benefits for Ontarians.

New FMZ 6 Lake Trout Objectives (replace 2009 Lake Trout Objectives):

Objective 2020-1 (Lake Trout Ecological Objective): Maintain the current status of lake trout populations across FMZ 6.

Objective 2020-2 (Lake Trout Socio-Economic Objective): Provide increased winter lake trout angling opportunities, where these are unlikely to negatively influence the ecological status of lake trout across the zone.

Zone-Wide Regulatory Action:

Adopt the FMZ 5 Lake Trout Regulation:

Season: January 1 to September 30

Limits:

Sportfishing license – 2; not more than 1 greater than 56 cm from September 1-30

Conservation license – 1; no size limit

Changes to Regulatory Exceptions:

Nipigon River, Lake Helen, Polly Lake, Grouse Lake, Watershed Lake, North Mawn Lake, Muskrat River Spruce River – Adopt zone-wide regulations

Black Sturgeon Lake – Add to Additional Opportunities List (open all year)

Shebandowan Lakes – Administrative changes to geographic description

Non-regulatory Actions:

Zone-wide updates to provincial policy list for lake trout lakes

Black Sturgeon Lake – change stocking objective to Put-Grow-Take