

**Fisheries Management Zone 6**  
**Fisheries Management Plan**  
Amendment #1 – Lake Trout  
Draft for Consultation

July 2020

## FMZ 6 Lake Trout Amendment – Draft for Consultation

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## Résumé en français (French Language Summary)

En 2009, le ministère des Richesses naturelles et des Forêts avait adopté un plan de gestion des pêches pour la zone de gestion des pêches 6 (ZPG 6). Ce plan comprenait 11 objectifs et 22 mesures, dont quatre modifications aux règlements de la pêche récréative. Parmi ces modifications figurait la prolongation d'un à deux mois de la saison de pêche à la ligne hivernale pour le touladi. En 2019, un examen du plan de 2009 a conclu que cette modification de la saison de pêche au touladi avait atteint son objectif, et a recommandé que l'on envisage d'étendre encore davantage la saison de pêche à la ligne hivernale.

De juin 2019 à mars 2020, le personnel du ministère des Richesses naturelles et des Forêts a rencontré des membres du conseil consultatif de la ZGP 6 pour examiner les résultats de la surveillance du touladi, établir de nouveaux objectifs de gestion pour cette espèce et définir un éventail d'options de réglementation applicables pour atteindre ces objectifs. Le présent document résume la teneur de ces réunions et présente plusieurs options de réglementation en vue de leur examen par les collectivités autochtones, les intervenants et le grand public.

Les résultats de la surveillance à grande échelle de lacs choisis pour détecter les tendances concernant le touladi dans la ZGP 6 entre 2008 et 2019 ne révèlent aucun changement notable de l'état des populations de touladi dans l'ensemble de la zone depuis la modification apportée à la saison de pêche hivernale. Les résultats des sondages aériens portant sur l'intensité de la pêche dans les lacs contenant du touladi en 2009 et 2014 ne semblent indiquer aucun changement notable de l'effort de pêche hivernale au touladi entre ces deux années.

Deux nouveaux objectifs relatifs au touladi remplacent ceux énoncés dans le plan de 2009 :

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

**Objectif socio-économique relatif au touladi** : Accroître les possibilités de pêche à la ligne hivernale du touladi là où cela n'aurait probablement aucune influence néfaste sur l'état écologique du touladi dans toute la zone.

Pour atteindre ces objectifs, les options suivantes sont à l'étude :

### A. Options de réglementation à l'échelle de la zone

1. Statu quo
2. Adopter la réglementation applicable au touladi dans la ZGP 5 – du 1er janvier au 30 septembre, un seul dépassant 56 cm en septembre (option privilégiée)
3. Adopter la réglementation applicable au touladi dans la ZGP 4 – du 1er janvier au 30 septembre, un seul dépassant 56 cm toute l'année

## **B. Examen des exceptions existantes**

**Rivière Nipigon, lac Helen et lac Polly** – exception actuelle : pêche au touladi – ouverte du 15 février au 15 mars et le quatrième samedi du mois de mai au 30 septembre.

Option 1) Statu quo

Option 2) Adopter la saison visant toute la zone (option privilégiée)

**Lacs Grouse, Watershed et North Mawn** – exception actuelle – réserve de poissons – pêche interdite du 1er janvier au vendredi précédant le 4e samedi de mai et du 1er octobre jusqu'au 31 décembre

Option 1) Statu quo

Option 2) Supprimer la désignation de « réserve de poissons » et adopter la saison visant toute la zone (option privilégiée)

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

Option 1) Statu quo

Option 2) Cesser l'empoisonnement et adopter la saison visant toute la zone (option privilégiée)

Option 3) Modifier l'objet de l'empoisonnement à « empoisonnement-croissance-pêche » – Ajouter le lac Black Sturgeon à la liste des plans d'eau ouverts toute l'année. Les rivières adopteront la saison visant toute la zone (option privilégiée)

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

Option 1) Statu quo avec l'apport de modifications administratives à la description géographique (présentées 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.

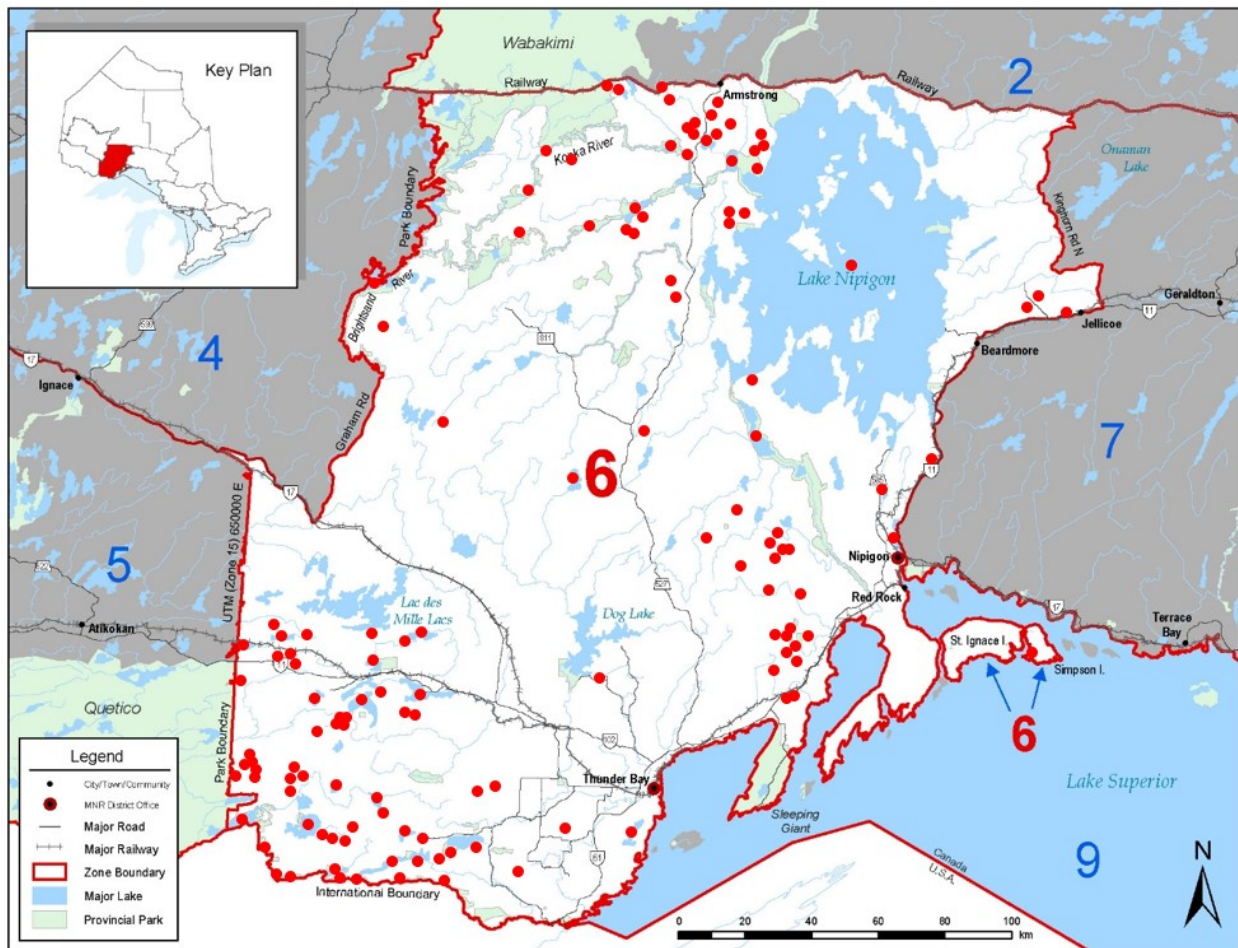
EFFM was implemented on January 01, 2008. Fisheries Management Zone 6 (FMZ 6; Figure 1) was selected as one of three pilot FMZs across the province, chosen with the intent of developing and testing the new Advisory Council and Management Planning model. The FMZ 6 Advisory Council was struck in late 2007; 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. 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



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



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 March 2020. 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; and, until 2018, 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

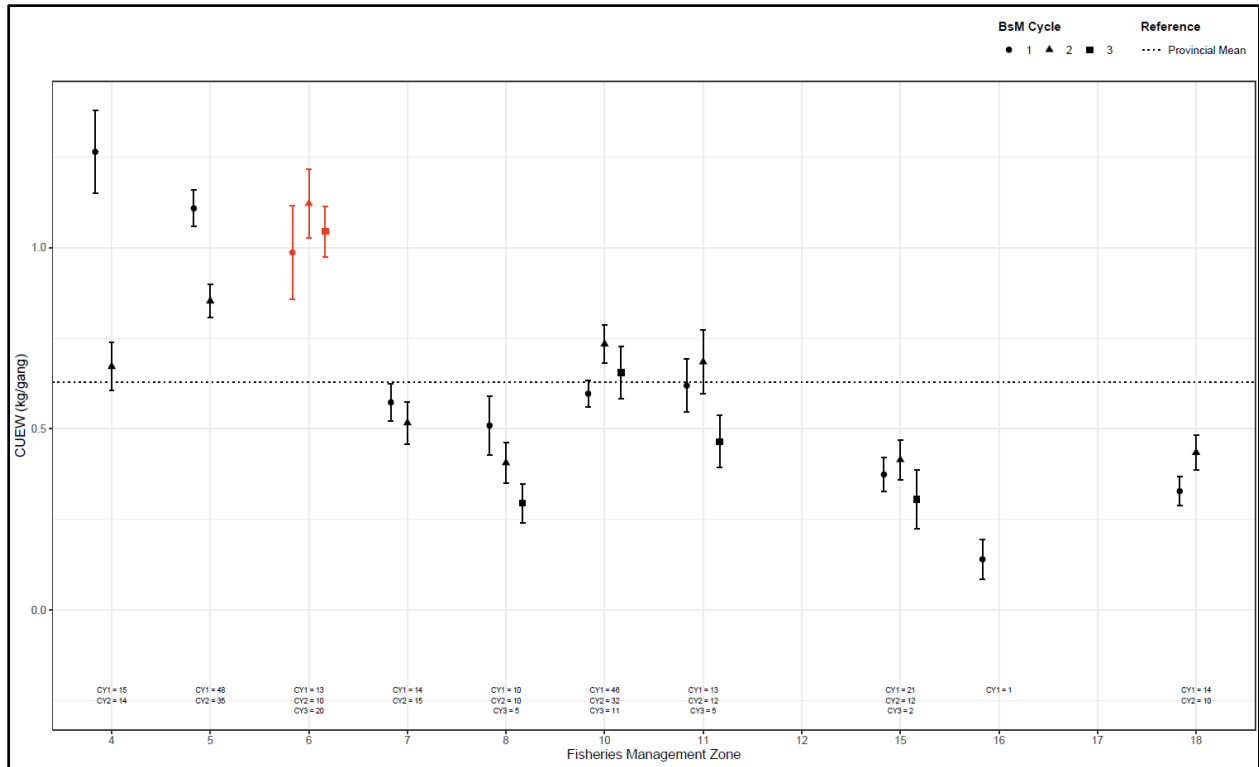
Cycle 2: 2013-2017; 10 lake trout trend lakes

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

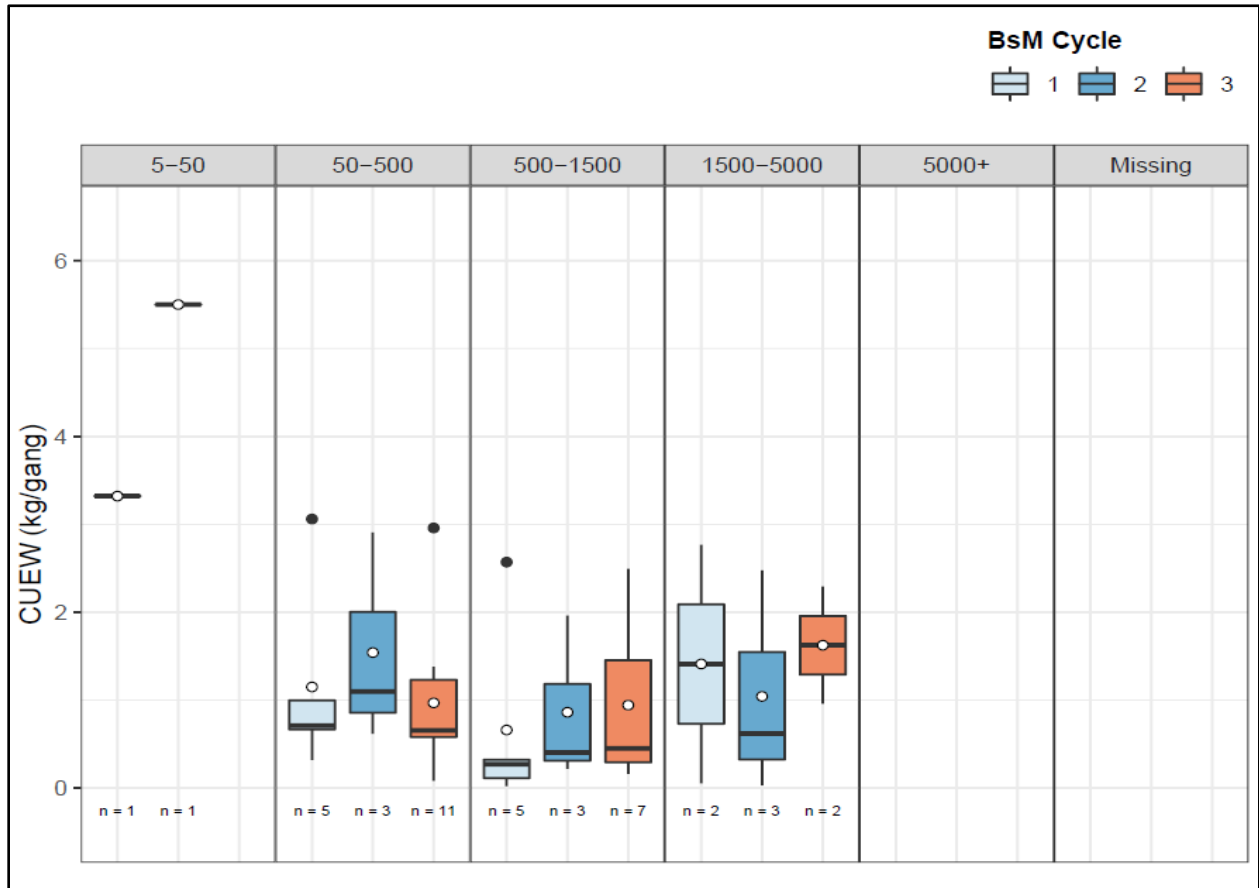
It is important to note that the majority of the Cycle 1 netting was completed in 2008 and 2009, prior to the implementation of the longer winter angling season in 2010. Therefore, Cycle 1 represents the baseline or pre-treatment state of the resource in the series.

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)

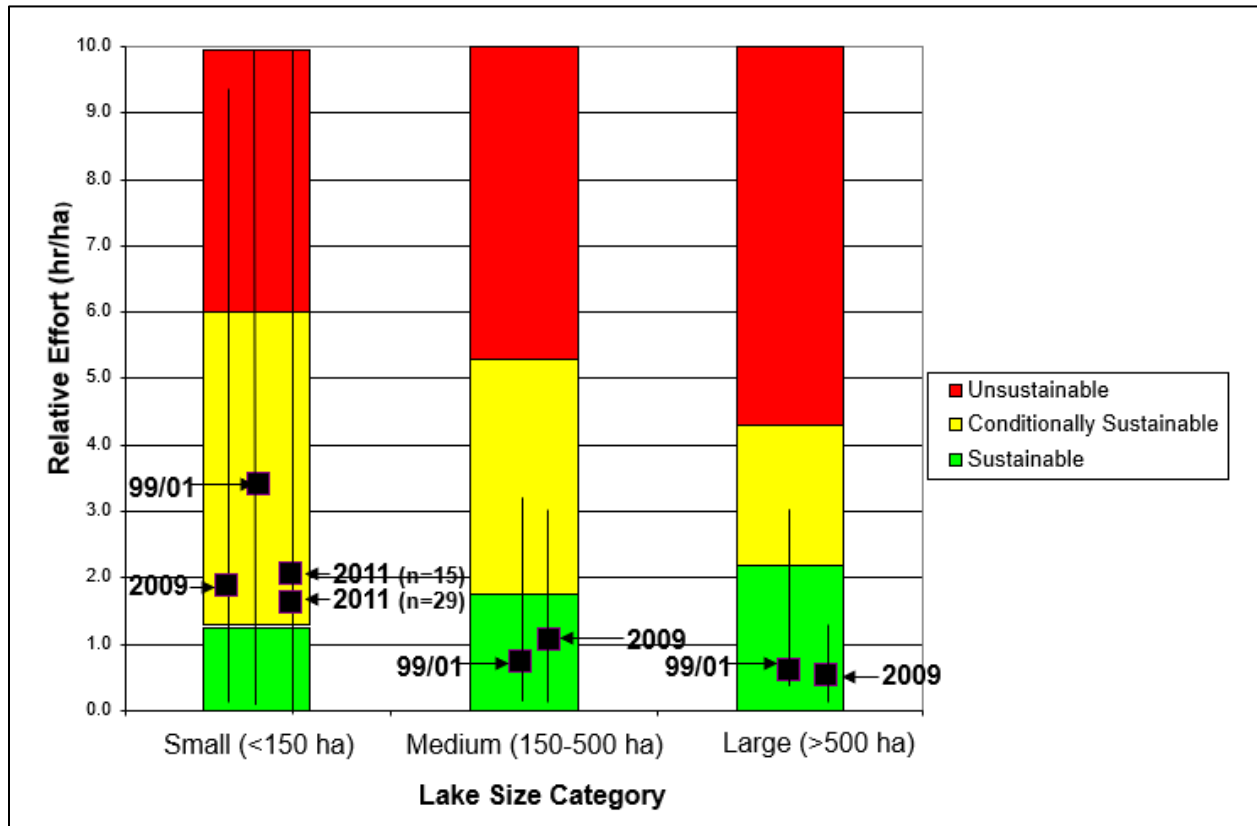
Results of the Thunder Bay District surveys (including the 2009 BsM survey) are shown in Figure 4, including an indication of whether the estimated angler effort is considered sustainable, based on the benchmarks found in Shuter et al. (1998). Note that the lake size bins in Figure 4 differ from those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

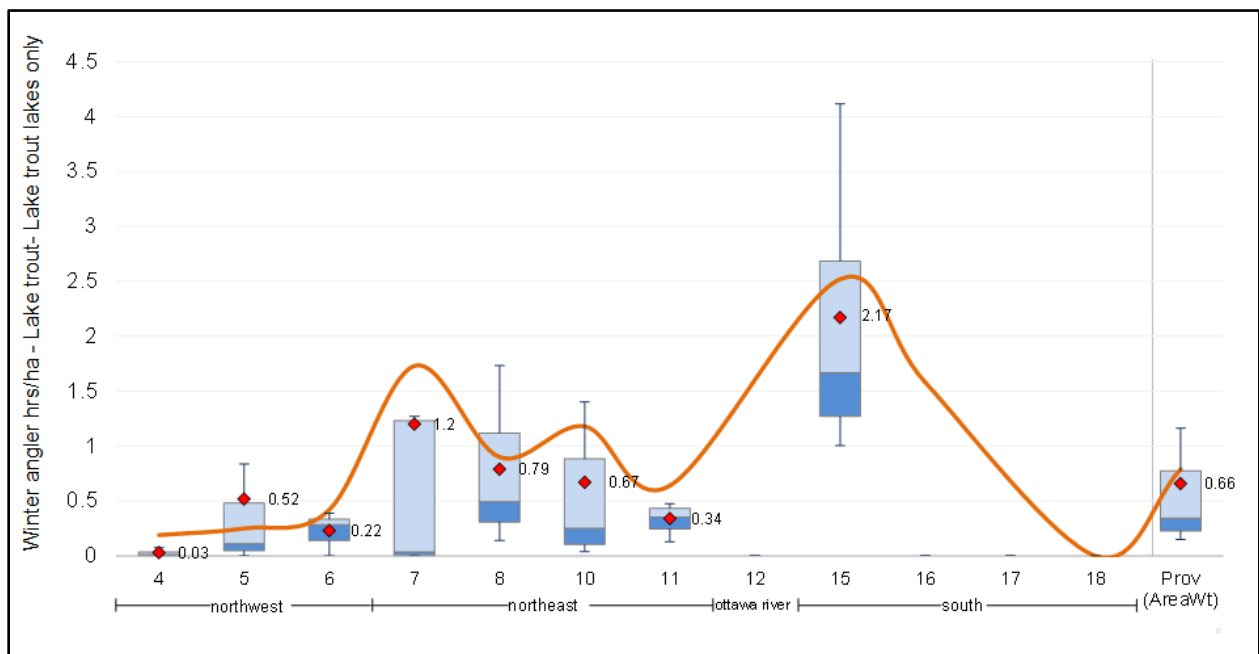
Figure 6 and 7 show open water and winter angler intensity (respectively) by BsM lake size bins. However, it should be noted that the same lakes were not sampled between the two BsM cycles.

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

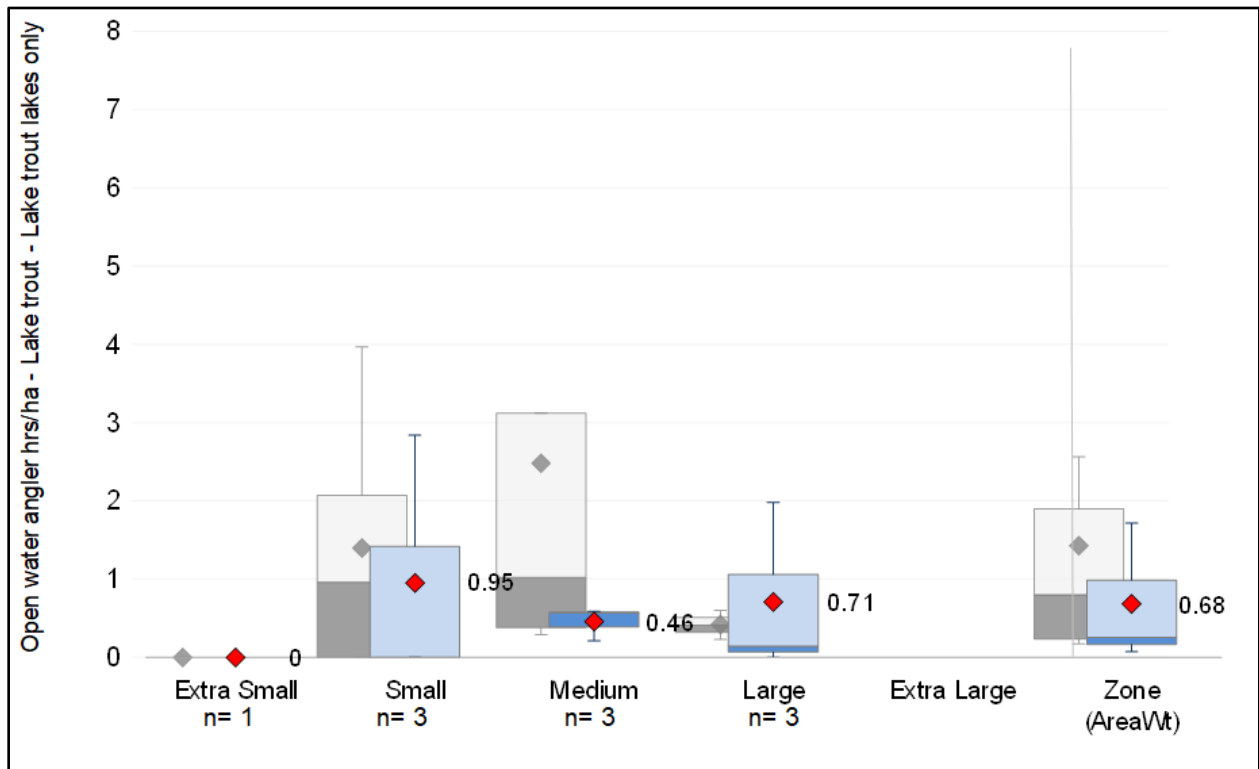


**Figure 4:** Mean and range of relative winter angling effort (angler hours per hectare) for select FMZ 6 lakes in Thunder Bay District, compared to benchmarks of sustainability (Shuter et al. 1998). Data is based upon winter aerial angler intensity surveys by MNR Thunder Bay District (1999, 2001) and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

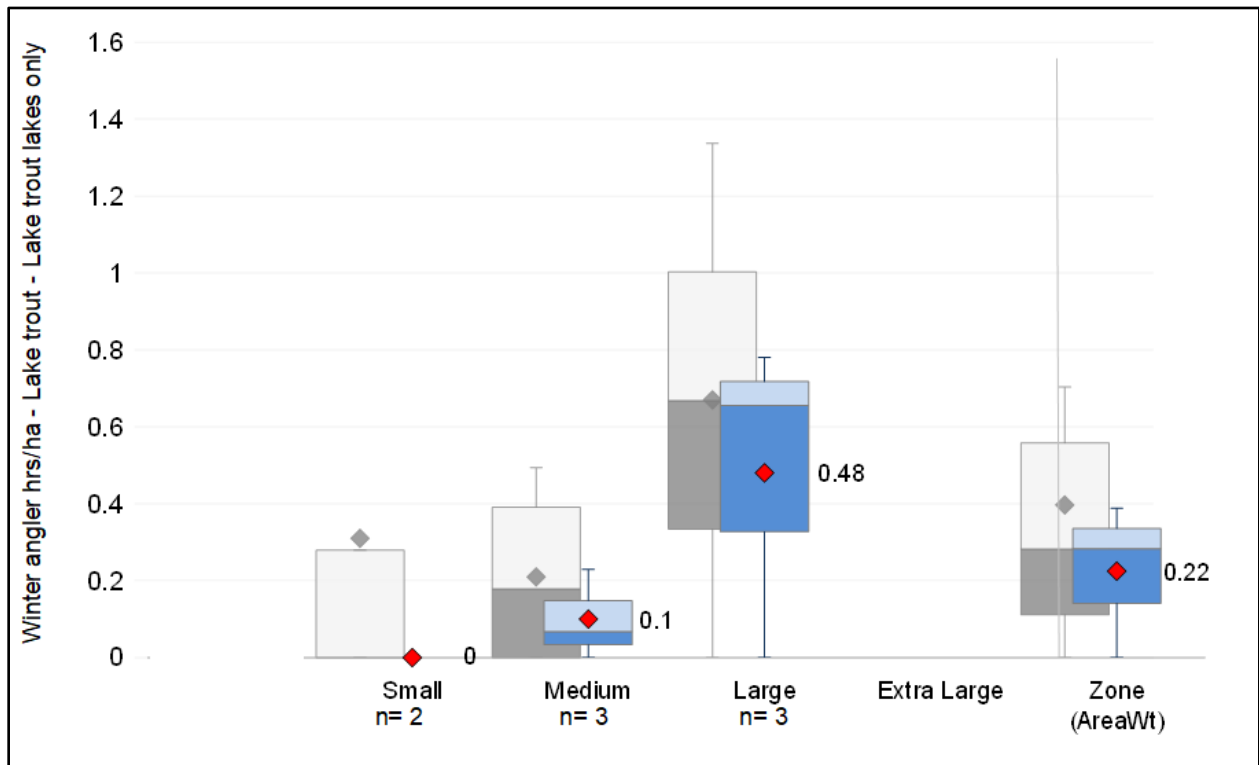


**Figure 5:** Winter angler hours per hectare for lake trout trend lakes in each FMZ. Red line represents the Cycle 1 mean. Box plots represent the Cycle 2 data. Red dots represent the Cycle 2 mean.

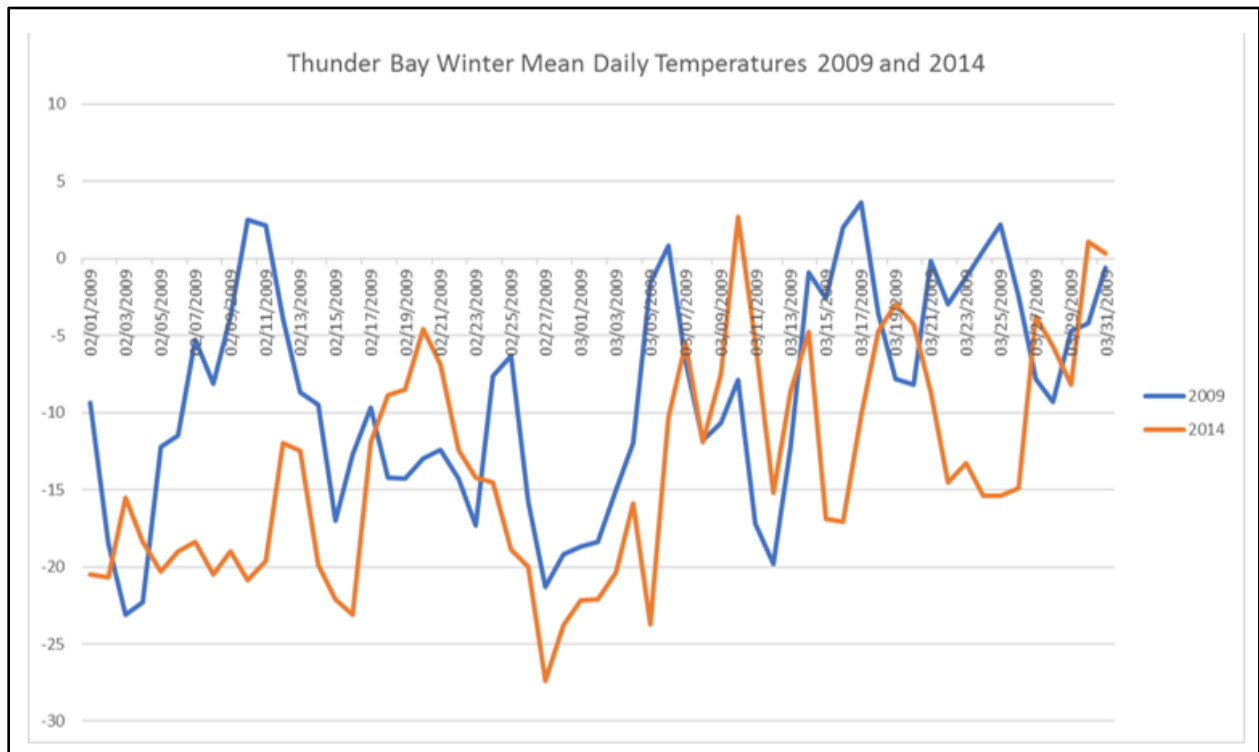




**Figure 6:** Open water angler hours per hectare for FMZ 6 lake trout trend lakes based on lake size. Greyed out box plots represent the cycle 1 lake trout trend lakes and the blue box plots represent Cycle 2.



**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 (MNRF 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 (MNRF 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).

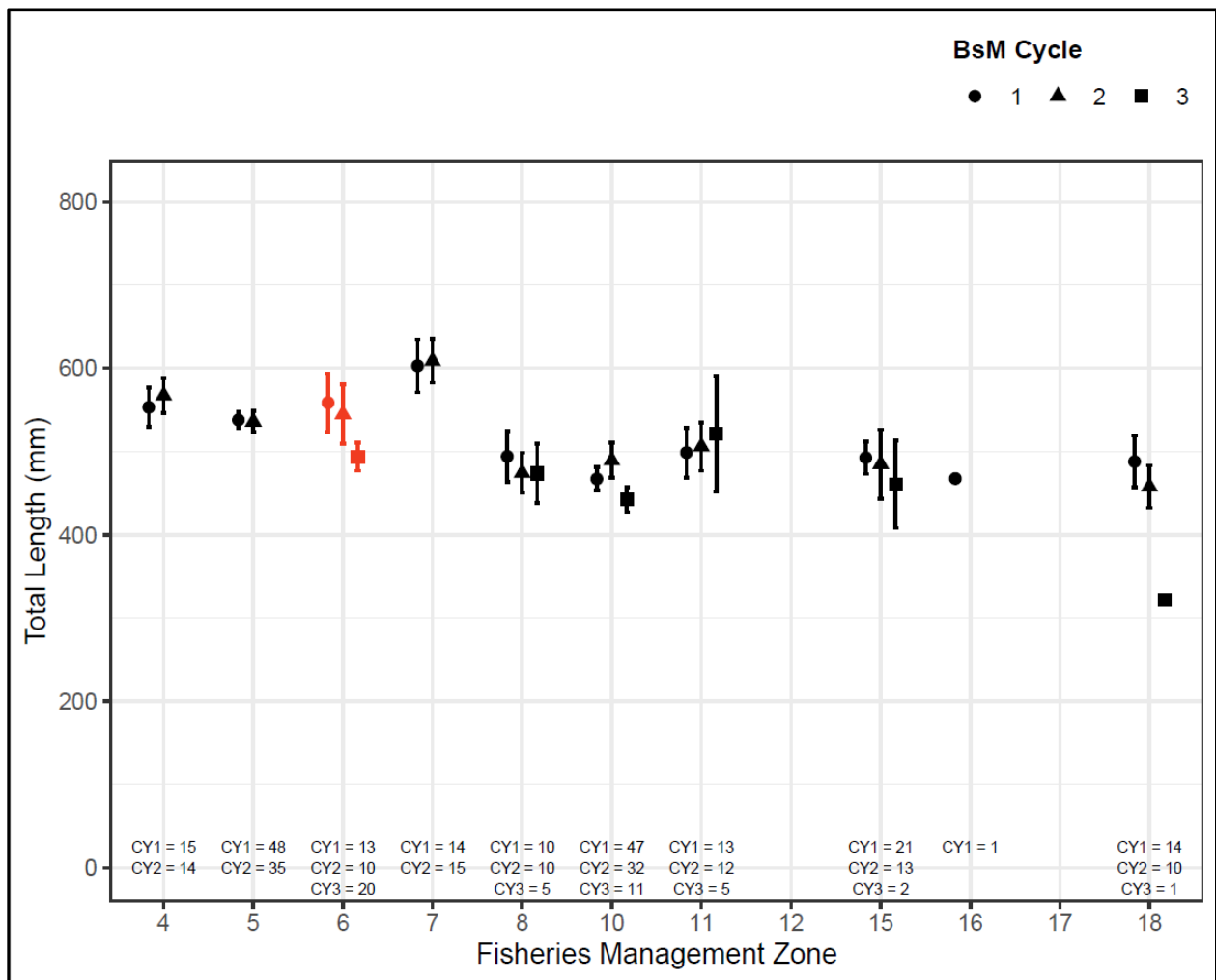
Members of the FMZ 6 Advisory Council discussed the status of the lake trout resource in FMZ 6, both during their review of the Plan Examination Document (April 2019) and during the development of new lake trout objectives as part of the current exercise (October and December 2019). The members generally 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 Options for Consultation**

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.

The following are regulatory and non-regulatory management options that are being considered to meet the amended lake trout management objectives (Section 2.2). This section will be revised following Indigenous and public consultation on this plan amendment; the final version of the document will include only the actions that have been prescribed for implementation.

#### **3.1 Regulatory Options**

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

##### **3.1.1 Zone Wide Regulatory Options**

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, three zone wide regulatory options have been considered:

### **3.1.1.1 Status Quo**

The 2010 increase in the winter lake trout angling season does not appear to have caused any significant change in the status of lake trout populations across the zone (Section 1.1.1), nor a significant increase in winter angler effort (Section 1.1.2). However, the BsM Cycle 3 data was collected only 8-9 years post-regulation change; given that the age at maturity for female lake trout in northern Ontario ranges from 4 to 13 years (Payne et al. 1990), an 8-9 year sampling interval may be inadequate to fully understand the effects of the 2010 regulation change. Further, the results of the post-change winter angler intensity surveys may have been affected by extraneous variables, such as weather and fuel prices.

Maintaining the status quo regulation does not meet the socio-economic objective for lake trout, but assumes the precautionary principle in light of the shortcomings of the available data.

### **3.1.1.2 Adopt the FMZ 5 Lake Trout Regulation (Preferred Option)**

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.

### **3.1.1.3 Adopt the FMZ 4 Lake Trout Regulation**

The lake trout regulation for FMZ 4 is:

Season: January 1 to September 30

Limits:

Sportfishing license – 2; not more than 1 greater than 56 cm

Conservation license – 1; no size limit

Prior to 2014, the lake trout regulation for FMZ 4 was the same as that for FMZ 5; as part of the FMZ 4 Fisheries Management Plan (MNR 2014) the seasonality of the size limit was removed from the regulation. The rationale for this decision stated:

It was agreed that the existing size restriction of not more than one Lake Trout greater than 56 cm from September 1 to September 30 should be extended throughout the year. The current seasonal size limit protects large mature female Lake Trout only one month prior to the closed spawning period; regardless of when a mature female Lake Trout is harvested, it is still removed from the breeding population. If the objective is to maintain the current Lake Trout population abundance, and protect mature females by limiting harvest, this protection should be afforded for the entire season similar to the size regulation for Walleye. Reducing the harvest of large Lake Trout greater than 56 cm may also allow more Lake Trout to achieve a trophy size and therefore increase the trophy angling opportunities in those lakes capable of producing this category of fish. Again, this is a recommended 'tool kit' regulatory option for size limit restrictions for Lake Trout.

Adopting the FMZ 4 lake trout regulation addresses the socio-economic objective by adding 82-88 days to the annual open season for lake trout, and places FMZ 6 tourist operators on equal footing with those in FMZ 4, while possibly putting them a competitive disadvantage over those in FMZ 5 due to the seasonal size limit in that zone. Anecdotal reports from FMZ 4 tourism operators (V. Thomson, MNRF, pers. comm.) suggests dissatisfaction with the change to a year-round size limit, due to difficulty in catching fish less than 56 cm on some lakes, and concerns expressed by anglers over post-release mortality of oversized fish.

### **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.*

Two options are being considered for these waters:

a) Maintain the exception (status quo).

b) Remove the exception and adopt the zone-wide season for lake trout, including any changes to the zone-wide season that may result from the current plan amendment exercise. Jessie Lake would retain the existing season.

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 preferred option 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).

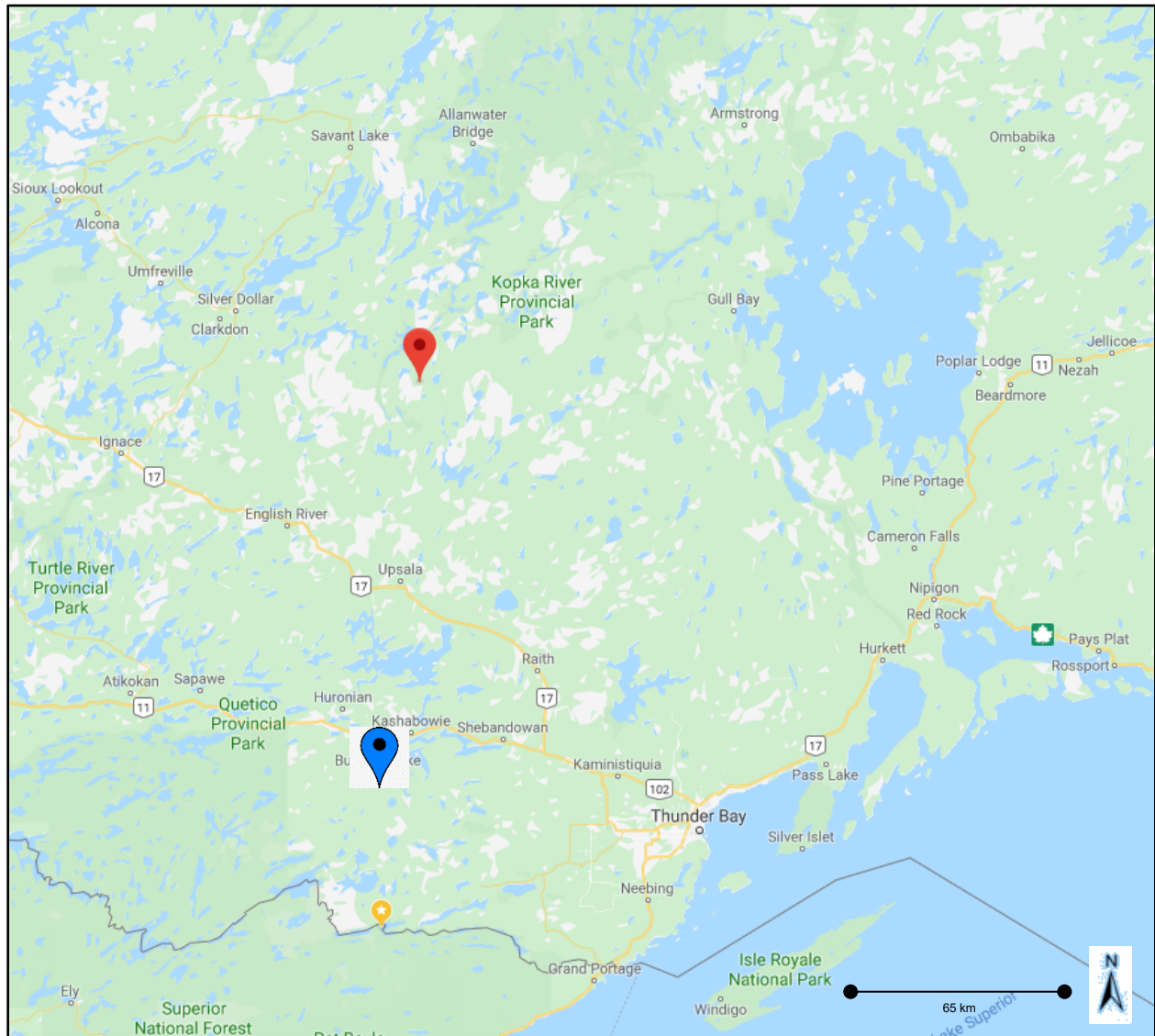
Lake trout from Nipigon Bay (FMZ 9) are known to congregate in the Nipigon River in the spring at two locations downstream of Alexander Dam (the first barrier to migration on the river). These fish are thought to be remnants of the discontinued lake trout stocking program in Lake Superior (K. Rogers, 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.*



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



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 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 3<sup>rd</sup> Saturday in May.**

Two regulatory options are being considered for Grouse, Watershed and North Mawn Lakes:

- a) Maintain the sanctuary exception (status quo).
- b) Remove the exception and adopt the zone-wide season for lake trout, including any changes to the zone-wide season that may result from the current plan amendment exercise.

Option B is the preferred option; 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.

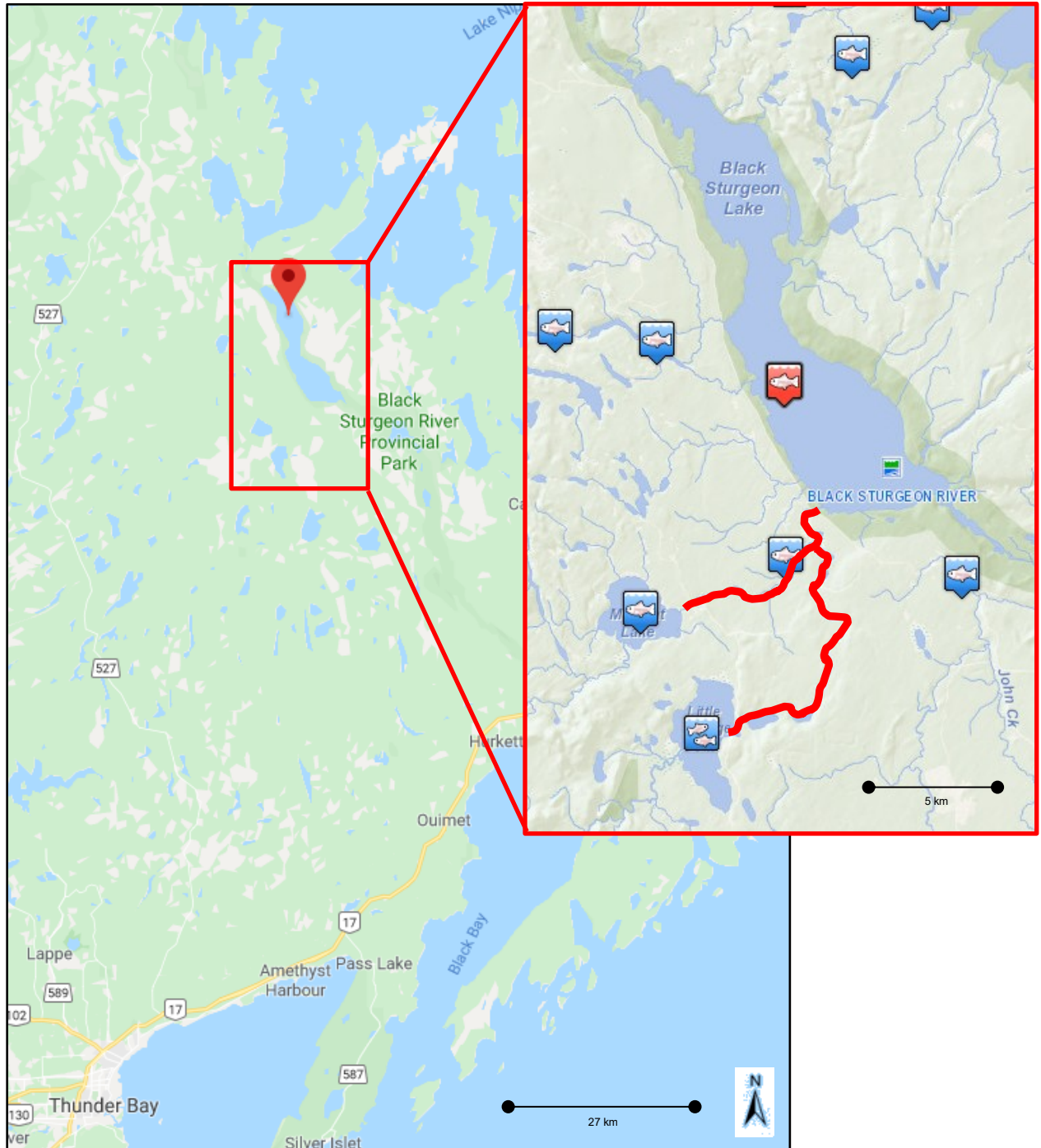
### 3.1.2.3 Black Sturgeon Lake, Muskrat River and Spruce River

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*).
- “**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:



**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.

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

<b>Year</b>	<b># Stocked</b>	<b>Age</b>	<b>Strain</b>
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
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).

Three regulatory options are being considered for Black Sturgeon Lake and the associated portions of the Muskrat and Spruce Rivers:

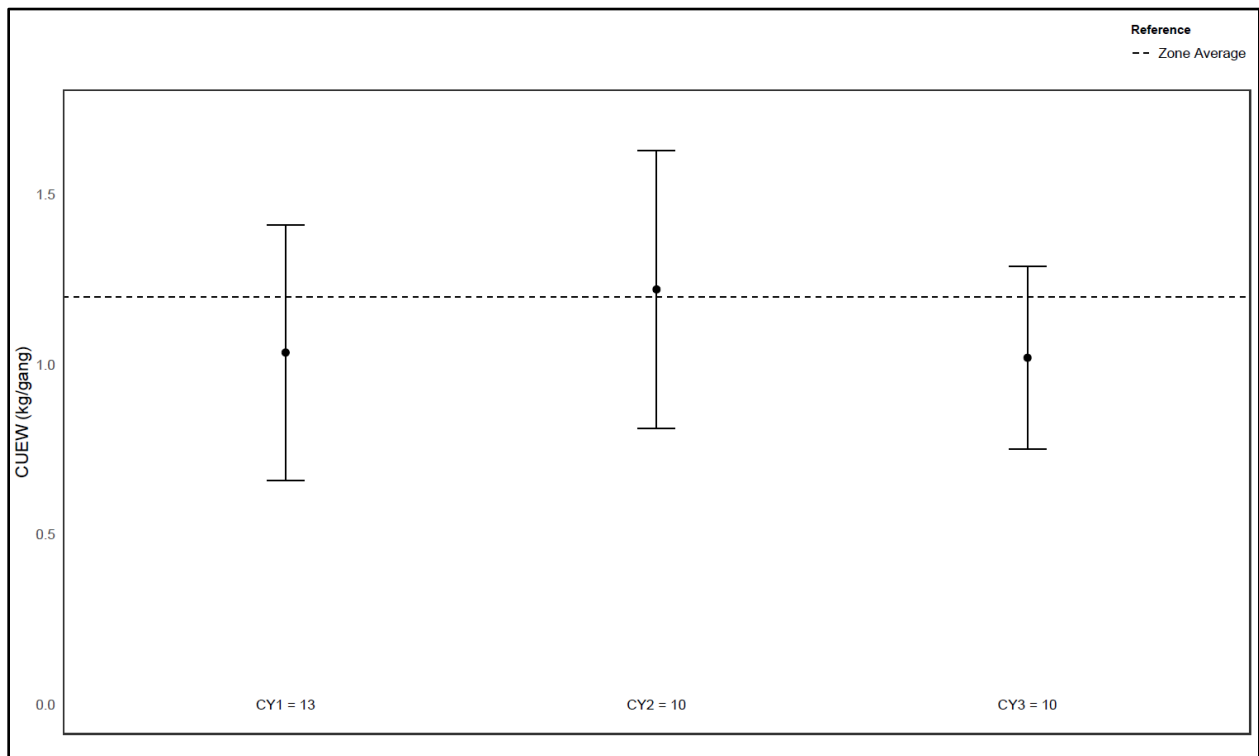
- a) Maintain the year-round closure exception (status quo).
- b) Discontinue stocking, remove the exception and adopt the zone-wide season for lake trout, including any changes to the zone-wide season that may result from the current plan amendment exercise.
- c) Change the stocking objective from rehabilitative to Put-Grow-Take (PGT); add Black Sturgeon Lake to the list of Additional Fishing Opportunities (open all year). Remove the exceptions and adopt the zone-wide season for lake trout for the Muskrat and Spruce Rivers.

Option C is the preferred option; efforts to establish a self-sustaining lake trout population in Black Sturgeon Lake appear to have failed. This option 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 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.



**Figure 12:** Mean area-weighted ( $\pm$  standard error) catch per unit effort in weight (ACUEW; kg/gang) of all recruit- or harvestable-sized ( $\geq 350$  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”.*

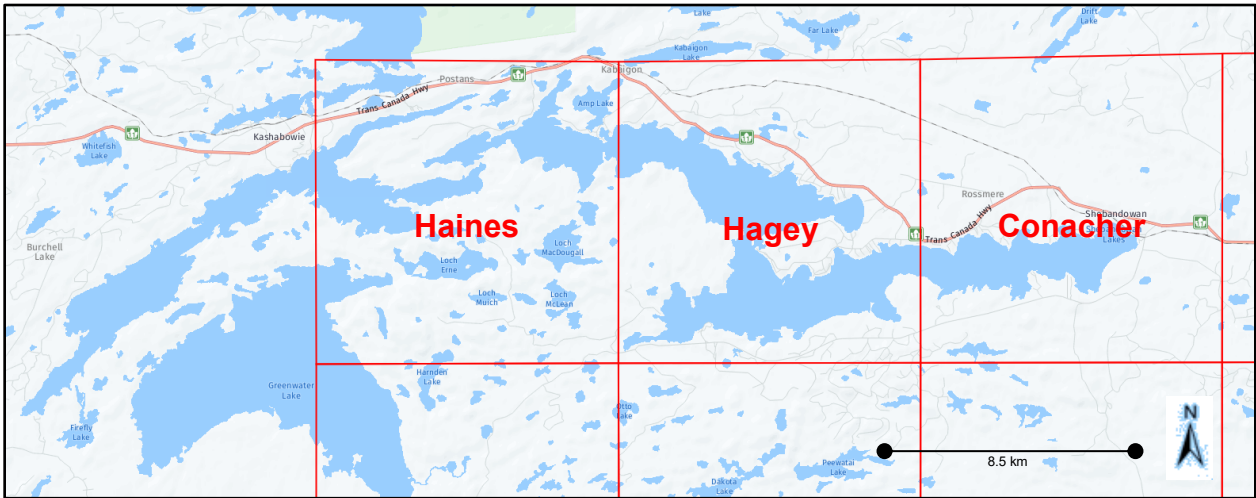


Figure 13: Shebandowan Lakes showing geographic townships.

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 14). The reference to Haines Township should be removed from the exception.



### 3.1.3 Summary of regulatory options under consideration

**Table 3: Summary of regulatory options under consideration**  
**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	

## 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 2020.

## **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 (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.

## FMZ 6 Lake Trout Amendment – Draft for Consultation

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
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 will include:

1) Copies of the document and an invitation to provide feedback were sent to 18 Indigenous communities and organizations concurrent to its posting on the Ontario Environmental Registry, along with an opportunity for meeting with MNRF staff to further discuss the Plan Amendment. Given the Covid Emergency, MNRF will provide another opportunity to consult at a later date if communities are not able to provide input at this time.

The communities and organizations contacted are listed below:

**First Nations located within FMZ 6**

1. Red Rock Indian Band
2. Animiigoo 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

2) The document was placed on the Ontario Environmental Registry for public review on with a 30 day comment period.

A summary of the feedback received from Indigenous Consultation and comments received through the Environmental Registry posting will be included in the final Plan Amendment document. The final Plan Amendment document and its accompanying decision note will be placed on the Environmental Registry on its completion.



## 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

<b>Waterbody</b>	<b>BsM Cycle</b>	<b>Surface Area (ha)</b>
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 <sub>inf</sub> (mm)	W <sub>inf</sub> (g)	B <sub>msy</sub> (kg/ha)	M	Z <sub>MSY</sub>	MSY (kg/ha/yr)	E <sub>MSY</sub> (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**

<b>Lake Name</b>	<b>Outfitter Name</b>
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

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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)