Regulatory Guidelines for Managing the Recreational Fishery for Largemouth and Smallmouth Bass in Ontario

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These guidelines describe preferred regulatory options for the management of smallmouth bass (*Micropterus dolomieu*) and largemouth bass (*M. salmoides*) in Ontario. The options are based on current scientific knowledge on the effectiveness of various regulations for managing smallmouth and largemouth bass. They represent a combination of management strategies designed to optimize angling opportunities while protecting bass populations from over-exploitation.

The goal of this approach is to ensure that regulations can be rationalized on a sound biological basis to achieve resource sustainability while, at the same time, streamlining and simplifying Ontario's fishing regulations.

In order to provide consistency to the management of bass in Ontario, the regulatory options contained herein are the recommended options to be used in the development of any new regulations for bass. Where the existing regulations do not conform to the approach outlined in this report, they should be reviewed using the criteria set out in the provincial Approvals in Principle process.

Border waters and/or the Great Lakes that have international or interprovincial agreements in place may be considered exceptions to the bass tool kit if they do not conform to the tool kit recommendation. For those waters where agreements are not currently in place, the harmonization of multi-jurisdictional regulations should be sought and, where possible, be compatible with the bass regulatory tool kit.

Introduction

Largemouth and smallmouth bass are considered to be two of the most popular recreational fish species in Ontario (MNR 2003). Bass are highly sought by many anglers in Ontario and, in recent years, have become the focus of many organized competitive fishing events.

The original distribution of smallmouth bass includes the waters of central North America. In Ontario they were restricted to the Great Lakes-St. Lawrence system (Scott and Crossman 1973). Efforts were undertaken to extend the range of smallmouth bass northward as early as 1901 (Lasenby and Kerr 2000**,** Armstrong and Mackereth 2000). There are presently 2,421 Ontario lakes and numerous streams and rivers known to contain smallmouth bass (MNR 1987, Figure 1). Smallmouth bass spawn in the late spring-early summer. Male fish construct a nest and guard the eggs and swim-up fry after the female fish leaves. Smallmouth bass can live as long as 15 years although a bass from Rainy Lake was aged at 23 years. They grow to weights of over 4 kg (9 lbs.) although most angled bass are less than 1 kg (2 lbs).

Largemouth bass are found in the lower Great Lakes, inland waters of southern Ontario, and some waters in northwestern Ontario. The range of largemouth bass has been

extended similar to that for smallmouth bass, however this species is more restricted to waters of southern Ontario. There are 1,275 known lakes which contain largemouth bass (MNR 1990, Figure 1). Largemouth bass prefer warmer, more nutrient-rich conditions than smallmouth bass. They also spawn during the late spring-early summer in quiet bays with emergent vegetation and submerged woody debris. Where largemouth and smallmouth bass coexist, largemouth bass often spawn slightly earlier than smallmouth bass. In Ontario, largemouth bass have been known to exceed 4.5 kg (10 lbs) in weight but the average catch of most anglers is1 kg (2 lbs) or less. The distribution/range of both bass species is expected to expand northward in the future as a result of global warming and climate change (Meisner et al. 1987, Shuter and Post 1990).

The management objective for bass varies from one part of the province to the next. In most areas of Ontario sustainability of bass populations is not an issue. In southern Ontario, bass are a highly sought species found in most lakes and rivers. Regulatory tools used for smallmouth bass and largemouth bass in the south include season closures during the winter and the spring-early summer nesting periods, catch and possession limits, sanctuaries, and size limit regulations. In northeastern Ontario the range of bass has been extended by both deliberate management action and unauthorized means. The management objective in northeastern Ontario is to aggressively promote angling opportunities by having year-round open seasons with few restrictions other than a catch and possession limit (6 fish for sport fishing licence holders and 2 fish for holders of a conservation fishing licence). In northwestern Ontario, bass were introduced over 100 years ago. Bass are providing increasingly important fisheries particularly in the southern portion of the region. The management approach in the northwest is to protect sexually mature bass during their most vulnerable periods by having a reduced catch limit and a maximum size limit in place between December 1 and June 30 while maximizing angling opportunities by having an all-year open season.

Open/Closed Seasons

Bass seasons in the lower Great Lakes and the southern portion of Ontario have traditionally been closed during the late spring-early summer to coincide with the spawning season and also during the winter when bass are congregated in over-wintering areas. These periods have generally been considered as times when large bass (brood stock) are particularly vulnerable to angling (Ridgway and Shuter 1997, Kieffer et al. 1993).

There are currently twelve different seasons for bass in Ontario: eight division-wide open seasons for bass in the province (Table 1) and four exceptions (Table 2).

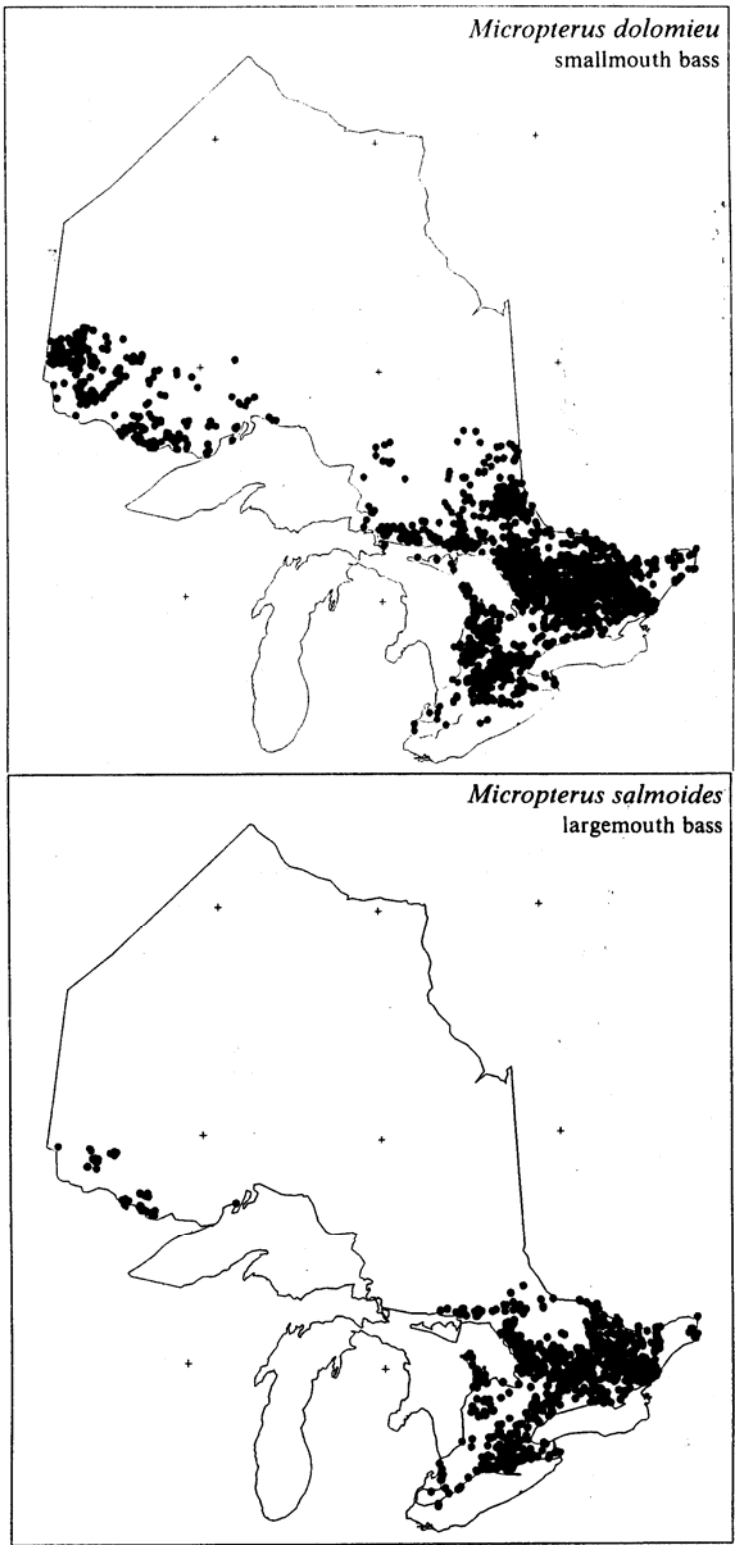

Figure 1. Distribution of largemouth and smallmouth bass in Ontario (reproduced from Mandrak and Crossman (1992) with permission of the Royal Ontario Museum).

Table 1. 2004 division-wide open seasons for largemouth and smallmouth bass in Ontario (from 2004 Recreational Fishing Regulations Summary).

Season	Division (s)
Open all year	14
Open all year except December 24	19, 25, 20, 21, 22/22A, 23, 24, 30, 31, 32, 33, 34
January 1- March 31 & June 26 (last Saturday)- December 31	12A
January 1- March 31 & June 25 (last Friday)- December 31	12
June 26 (last Saturday)- December 31	1
June 26 (last Saturday)- November 30	2, 3, 4, 5, 7, 8, 9, 11, 29, 13, 15, 16, 17, 28, 18, 26
June 26 (last Saturday)- November 15	6
June 26 (last Saturday)- October 15	10, 27

Table 2. 2004 open season exceptions for bass in Ontario (from 2004 Recreational Fishing Regulations Summary).

Season	Waterbody (Division)
June 26 (last Saturday)- September 30	Grey and Bruce Counties (4)
January 1- March 31 & June 18 (Friday after Thursday closest to June 18)- December 31	Labyrinth Lake (19)
Closed all year (smallmouth bass only)	Emerald Lake, Lake #12-F-06 and Lake # 12-F-12 (19)
Closed all year 2004 (smallmouth bass only)	Pallet Lake, Sommerville Lake, Star Lake, Newberry Lake(19)

The need for closed seasons for bass has been a controversial topic. Fixed season dates cannot respond to variation in spring warming rates and associated bass spawning activities (Kubacki et al. 2002). Although there is little evidence to indicate that closed seasons limit harvest in any significant manner (Quinn 1993), there are other factors which need to be considered. At more northern climes, such as in Ontario, the growth and maturity of bass is delayed compared to stocks in the more southern portion of their range. Large bass are particularly vulnerable during the spawning and nesting period. There are also concerns that catch-and-release fishing of nesting bass can impair reproductive success and subsequent recruitment (Kieffer et al. 1995, Philipp et al. 1997, Cooke et al. 2000). This situation may be more acute in southern Ontario where waters generally have more complex fish communities and, therefore, greater predation. After modeling the effects of angling for nesting male smallmouth bass on production of age-0 fish, Ridgway and Shuter (1997) concluded that closed fishing seasons during the parental care period was a viable management option.

Consideration should be given to expand bass seasons where possible. The need for winter and spring closures should be re-evaluated. Modifying the season opener from the last Saturday in June to the fourth Saturday in June will provide additional angling opportunities in some years and enhance benefits to the tourism industry.

Recommended Bass Seasons

- **Bass seasons should be the same across a Fisheries Management Zone (Fisheries Management Zones (FMZs) will replace fishing divisions in 2007) basis and conform to one of the following standards:**
  - **(i) Open all year.**
  - **(ii) Fourth Saturday in June to November 30 (southern Ontario)**
  - **(iii) July 1 to November 30 (northern Ontario)**

- **In order to harmonize bass seasons with the Province of Quebec (e.g., FMZ 12), seasons should remain at January 1 – March 31 and the last Friday in June to December 31.**

- **There should be a provincial review of bass seasons to evaluate whether season closures are necessary during the winter and spring (pre-spawn) periods.**

Catch and Possession Limits

Catch limit is defined as the number of fish an angler is allowed to catch and keep in one day. Fish that are caught and eaten that day as a shore lunch are counted as part of the daily catch limit. The possession limit is the number of fish an angler is allowed to legally possess at any time whether on-hand, in cold storage, or in transit. The concept behind catch and possession limits is to limit the harvest, to equitably distribute the resource among users, to place a value on the resource, and to convey a realistic expectation regarding capacity of the fishery resource.

There are currently four division-wide catch and possession schedules for smallmouth and largemouth bass in Ontario (Table 3) and five exceptions by waterbody (Table 4). There is a temporal change in bag limits and size limits in several northwestern Ontario waters. Currently, largemouth and smallmouth bass are considered as an aggregate in terms of daily catch and possession limit.

The angling pressure directed at these two species, particularly in southern Ontario, is often intense. There may be the need for reduced catch limits in areas subject to heavy fishing pressure where resource sustainability may be threatened.

Table 3. 2004 division-wide catch and possession limits for largemouth and smallmouth bass in Ontario (from 2004 Recreational Fishing Regulations Summary).

Division(s)	Catch Limit by License Type		Possession Limit by LicenseType	
	Sport	Conservation	Sport	Conservation
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 12A, 13, 14, 15, 18, 19, 23, 25, 26, 27, 28, 29, 35	6	2	6	2
16, 17	3	1	3	1
20, 21, 22/22A, 24, 30, 31, 32, 33, 34 (December 1-June 30)	2	1	2	1
20, 21, 22/22A, 24, 30, 31, 32, 33, 34 (July 1-November 30)	4	2	4	2

Table 4. 2004 catch and possession limit exceptions by waterbody for smallmouth and largemouth bass in Ontario (from 2004 Recreational Fishing Regulations Summary).

Waterbody (Division)	Catch Limit by Licence Type		Possession Limit by Licence Type	
	Sport	Conservation	Sport	Conservation
St. Marys River (17)	6	2	6	2
Grand R. (Paris to Brantford) (4), Maskinonge (22), Opapimiskan (all species), Cloudlet Lake (22), Hooch Lake (22), Lake of the Woods (22), Shoal Lake (22), Shoal Lake - above Ash Rapids (24), Kakagi Lake (22), Obabikon Lake (22), (June 1-June 30)	0	0	0	0
French River (15/16) Pickerel River (15)	4	4	4	4
Obabika Lake (18)	2	1	2	1
Sydney Lake area (22/31)	2	2	2	2

Catch and Possession Limit Recommendations:

- **Catch and possession limits should be the same across the FMZ and conform to one of the following:**
    - **(i) 6 fish for holders of a sport fishing licence and 2 fish for holders of a conservation fishing licence (provincial standard).**
    - **(i) 4 fish for holders of a sport fishing licence and 2 fish for holders of a conservation fishing licence.**
    - **(ii) 2 fish for holders of a sport fishing licence and 1 fish for holders of a conservation fishing licence.**

- **Temporal creel limits are used to help address fisheries management objectives in northwestern Ontario and were developed in cooperation with stakeholders. The temporal creel limit, in association with the maximum size limit, is intended to optimize angling opportunities while protecting sexually mature bass during their most vulnerable periods (i.e., winter aggregation and nesting). These limits should be reviewed for effectiveness in meeting management objectives and potential application elsewhere in the province.**

- **The current bass catch and possession limit (3 fish for holders of a Sport fishing licence and 1 fish for holders of a conservation fishing licence) in Georgian Bay and the North Channel of Lake Huron should be reviewed to determine if it can be altered to conform with one of the new catch limit standards.**

- **Daily catch and possession limits should be the same for both species (largemouth and smallmouth bass).**

- **An aggregate catch and possession limit for largemouth and smallmouth bass should be maintained.**

Size Limits

Size limit regulations are usually intended to increase the size of fish caught, maximize yield, or protect brood stock while maintaining angling quality at often increased levels of effort. There are three basic types of size limits: (1) minimum size limit whereby all fish below a certain size must be released; (2) slot size limit under which all fish within a designated range must either be released (protected slot) or retained (harvested slot); and (3) maximum size limit where all fish above a designated size must be released. Size-based regulations require a through knowledge of growth rates, maturation schedules and recruitment for fish populations in specific regions of the province.

Considerable research has been done on the effectiveness of various size limit regulations (see Wilde 1997, Kerr and Conroy 2002). Several studies have shown that

minimum size limits tend to result in high densities of small bass under the size limit (Johnson and Anderson 1974, Keith 1978, Green 1993). This can have consequences including reduced growth and increased natural mortality (Ridgway et al. 2002). Rather than protect large numbers of small, sub-adult bass (generally less than 30 – 33 cm (12-13 inches) in length), it would be more advantageous to harvest these abundant life stages to improve growth rates. Protected slot limits have generally been found to restructure bass populations (e.g., increased numbers of larger fish) but have not been shown to increase angler catch rates or harvest (Wilde 1997). Research has indicated the importance of large male and female bass as brood stock (Ridgway et al. 1991, Ridgway and Friesen 1992). Where necessary, maximum size limits should be used to protect key brood stock fish (e.g., fish ≥ 7 years of age). For smallmouth bass this would equate to a 35 cm (14 inch) fish and for largemouth bass this would approximate a 38 cm (15 inch) fish.

There are currently only two broad-based (e.g., Division-wide) size limit regulations in Ontario. These are a minimum size limit of 30 cm (12 inches) in Division 10 and a maximum size limit of 35 cm (14 inches) applied between December 1 and June 30 in Divisions 20, 21, 22, 24, 30, 31, 32, 33, and 34 (Table 5). The temporal size limits in northwestern Ontario are used to help address fisheries management objectives and were developed in cooperation with stakeholders. The temporal size limit in association with the temporal creel limit is intended to maximize angling opportunities while protecting sexually mature bass during their most vulnerable periods (i.e., winter aggregation and nesting).

By exception, there is also a protected slot limit (33-43 cm (13 to 17 inches) with one fish over 43 cm (17 inches)) in the French River area and a maximum size limit (35 cm (14 inches)) in the Sydney Lake area (Table 6).

Table 5. 2004 division-wide size limit regulations for largemouth and smallmouth bass in Ontario (from 2004 Recreational Fishing Regulations Summary).

Size limit	Division (s)
Minimum 30 cm (12 inches)	10
Maximum 35 cm (14 inches) (December 1- June 30, limit 2 sport,1 conservation)	20, 21, 22/22A, 24, 30, 31, 32, 33, 34

Table 6. Current (2004) size limit regulation exceptions for largemouth and smallmouth bass in Ontario (from 2004 Recreational Fishing Regulations Summary).

Size limit	Division (s)
32-43 cm (13-17 inches) protected slot, one over 43 cm	(15/16) French River
Max 35 cm (14 inches) (December 1- June 30) (limit 2)	(22/31) Sydney Lake Area

It is important to protect large, mature bass in heavily exploited populations. Size limits should be used to protect repeat spawners (e.g., ≥ 7 years of age). The potential benefits of any size limit regulation should be evaluated carefully and assessed after implementation to ascertain if objectives are being achieved.

Size Limit Recommendations:

- **Division-wide use of existing minimum size limit regulations should be discontinued.**

- **Where required (e.g., exceptions only where sustainability is a concern or where a quality fishery is desired), maximum size limits are the most biologically appropriate option. Maximum size limits should be based on restricting harvest of large (e.g., >35 cm (14 inches) for smallmouth bass; > 38 cm (15 inches) for largemouth bass), sexually mature (e.g., ≥ age-7) fish. Size limits should be the same for the entire FMZ.**

- **The protective slot size limit on the French River should be thoroughly evaluated with the goal to retain only a maximum size limit.**

- **The temporal size limits in northwestern Ontario should be reviewed to determine effectiveness in meeting management objectives.**

Fish Sanctuaries

Fish sanctuaries are designated areas where all fishing is prohibited. Sanctuaries can be seasonal in duration or extend for the entire year. They are usually established at times when fish are especially vulnerable to angling (e.g., nesting period). Sztramko (1985) concluded that an established bass sanctuary on Long Point Bay, Lake Erie, prevented anglers from interfering with nesting bass and improved angler success during the legal season.

It is difficult to determine the number of bass sanctuaries currently designated in Ontario since they are not listed according to species. There are at least ten year-round bass sanctuaries on the Rideau Canal, Leeds County, of southeastern Ontario but their effectiveness is questionable (Cholmondeley 1994).

Area-specific sanctuaries should only be used where there is sound biological rationale, otherwise closed seasons should be used to protect bass.

Recommendations for Fish Sanctuaries:

- **Standardized sanctuary date of May 15 - June 30 where a sanctuary is required.**

- **Year-round sanctuaries for bass are overly restrictive and should be reviewed to ensure they are still required.**

Special Regulations

Special regulations predominantly include restrictions on bait and gear. There are currently few, if any, gear restrictions for bass anglers in Ontario.

Recommendations on Gear Restrictions:

- **Generally, the use of special regulations is not required to ensure sustainability of bass populations Special regulations may be considered, however, for some fisheries where they are implemented on an experimental basis with plans for a thorough assessment of their relative effectiveness and a reasonable expectation for ensuring compliance so that the integrity of the experimental project is maintained.**

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