

Amended Black Bass Regulation Tool Box 2011

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Background:

Many anglers targeting black bass (especially largemouth) voluntarily practice catch and release (Cook and Younk 1998), but the anglers who do harvest black bass may negatively influence abundance and size structure. Dramatic declines in mean weight and number of trophy-size (≥ 4 lb) largemouth bass entered into an annual fishing contest in northern Minnesota after the late 1970s strongly suggest that angler exploitation reduced the quality of largemouth bass fisheries (Olson and Cunningham 1989). In addition, the median size of largemouth bass harvested by anglers in Minnesota decreased from 1.6 pounds in 1930 – 1960 to 1.1 pounds in 1970 – 1990 (Cook and Younk 1998). Although many quality black bass fisheries still exist in Minnesota, increasing fishing pressure may lead to decreasing quality under current regulations even if the majority of anglers voluntarily practice catch-and-release. The proposed regulations are designed to maintain or improve the quality of black bass fisheries. There are some important differences between largemouth and smallmouth bass fisheries, but for the sake of simplicity both are included under one set of proposed regulations.

Suggested Regulations:

Special or experimental regulations applied to black bass fisheries in Minnesota are commonly justified with objectives to (1) maintain or improve the quality of black bass populations and (2) protect brood stock in vulnerable populations. Bag limits and length limits are the main tools remaining to fisheries managers to achieve these objectives. Bag limits need to be extremely restrictive in order to be effective. Length limits should be as simple as possible to maximize compliance.

1. No Harvest. Should maintain or improve quality of black bass populations and protect brood stock in lakes with:

- Low to moderate population density
- $PSD \geq 40$
- Moderate to fast growth
- Minimal illegal harvest

2. 12 Inch Maximum Length Limit. Should improve quality of black bass populations in lakes with:

- High population density

- PSD < 40
- Slow growth
- Potential for substantial harvest of fish <12 inches¹
- Minimal illegal harvest

3. 14 Inch Maximum Length Limit. Should improve quality of black bass populations in lakes with:

- a. High Population density
- b. PSD < 40
- c. Slow growth
- d. Lakes in which anglers are likely to harvest bass between 12 and 14 inches while are unlikely to harvest bass < 12 inches.

All regulations include the option of allowing harvest of one over 20 inches based primarily on angler request and/or lack of support for the regulation if a trophy fish could not be kept.

Biological Considerations

Population Density

Reliable estimates of population density are necessary in order to choose an appropriate management option. Mark-recapture population estimates are best, but electrofishing CPUE may be sufficient to categorize population densities as low, moderate, or high. Existing statewide estimates need to be compiled and analyzed before populations can be reliably categorized.

PSD

Caution should be used when length based indices are used to describe population size structures because fluctuations in recruitment due to biotic or abiotic factors may cause changes in size structure independent of management actions. However, in the absence of more detailed information, length-based indices may be useful in describing and comparing the quality of bass populations. Ranges of PSD and RSD have been recommended by Gabelhouse (1984) for different management objectives, but it is unknown whether these are applicable to Minnesota populations.

Growth

Growth is influenced by biotic and abiotic factors. Again, existing statewide data need to be compiled and analyzed before specific guidelines can be given as to what constitutes slow or fast growth.

¹ Historically, about 32% of the largemouth and 48% of the smallmouth bass harvested were < 12 inches (Cook and Younk 1998).

Historical Characteristics/Potential

Historical records and anecdotal information about potential sizes of bass will be useful information to consider. Populations with reputations for producing large fish may also have high PSD/RSD's.

Current Fishery

Pertinent information about angling and catch data from special assessments or creel surveys, if available, will be useful for judging the appropriateness of one of the regulations, as well as for future evaluation of the regulation.

Fish Community

Availability of the appropriate sizes and types of forage influence bass growth. For this reason forage availability/size should be evaluated before implementing a regulation.

Lake Characteristics

Several characteristics of a lake's basin can influence recruitment or the potential to grow and support large bass. Low recruitment is often associated with large, deep lakes or rivers that have limited spawning sites. In contrast, large areas of shallow water with macrophytes or gravel/rocky substrate provide good habitat for spawning and nursery areas that may lead to high recruitment of bass. Lake basins that are broadly connected to other basins and open-ended rivers make enforcement and evaluation of regulations more difficult.

Social Considerations

Tournaments

These toolbox regulations will essentially eliminate bass tournaments. For this reason it is important to bring to the table any tournament anglers before a regulation is considered on a specific water body.

Lakeshore Ownership and Development

High rates of development (for example, cabins every 100 feet) make it difficult to collectively communicate with lakeshore property owners. In contrast, it may be easier to get buy-in on water bodies with predominately public ownership.

Resorts

Resort owners have the potential to influence much of the fishing effort and attitudes of people fishing a lake. It is therefore desirable to have their support for special regulations.

Lake Associations

A progressive lake association can be an important asset in promoting a regulation.

Location of the Lake with Regards to Other Regulations

It is appropriate to distribute unique fishing opportunities throughout the state.

Enforcement

Enforcement is a principal concern for the success of special regulations, and enforcement at the local level is key. Conservation officers should be invited and strongly encouraged to provide input during proposals for special regulations. They should also be invited and strongly encouraged to attend public meetings about the regulations. Keep in mind that non-compliance is frequently an important reason that regulations do not work. As imperfect as it might be, applying a smaller number of regulations on a broader basis may result in a greater number of successes – because angler acceptance and recognition will be higher.

Evaluation

It is the intent of this workgroup to provide Areas guidelines to consider when evaluation plans are being formulated. Evaluations should be set up at the Area level and should avoid getting into another large experimental design that is extremely labor intensive and expensive.

Evaluations set up at the Area level may include:

- a) Pre-reg requirements: (information collected by electrofishing, special assessments – angling, SCUBA and creel surveys, shoreline seining).
- b) Time frames: evaluation period of at least 10 years.
- c) Control lakes/streams: recommended and may include similar lake class/stream type.
- d) Number of lakes with each regulation: up to Areas to decide how many and what type of regulation.

Creel surveys will not be mandated, but it is recommended that Areas consider creel surveys as part of the regulation evaluation. These surveys may also provide insights on angler compliance with the regulation.

References

- Cook, M. F., and J. A. Younk. 1998. A historical examination of creel surveys from Minnesota lakes and streams. Minnesota Department of Natural Resources, Division of Fish and Wildlife, Section of Fisheries, Investigational Report 464, St. Paul.
- Gabelhouse, D.W. 1984. A length-categorization system to assess fish stocks. North American Journal of Fisheries Management 4:273-285.
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