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TO: FM Board

FROM: Jon Hansen/Steve AveLallemant

SUBJECT: Rule Change Proposal – Northern Smallmouth Bass Zone

1. **Rule Author:** Jon Hansen/Steve AveLallemant

2. **Affected Waterbodies:** All waters currently residing in the Northern Bass Zone.

3. **Statement of Regulation Proposal:** This proposal removes the catch and release protection for largemouth bass within the Northern Bass Zone (NBZ) currently in effect from the first Saturday in May through the Friday before the third Saturday in June, thus allowing the harvest of largemouth bass statewide beginning the first Saturday in May. Smallmouth bass within the NBZ would retain the protection afforded by the early catch and release season.

4. **Statement of Management Objectives:** Continue to provide a variety of bass fishing opportunities using the smallest set of understandable and effective regulations possible. Allow harvest opportunities for largemouth bass in May and June statewide while maintaining exceptional size structure (CPE18 > 0.7/mile in SE2 and RSD14 between 0.5 and 0.7) on waters with the demonstrated potential to provide a “trophy” angling experience for smallmouth bass.

5. **Description of Fishery Status:** The advantages and disadvantages of the NBZ and the associated early catch and release season (ECSR) has been a topic of substantial discussion over the past 15 – 20 years, starting shortly after the ECSR began in 1992. The discussion has largely been fueled by general satisfaction with the ECSR in the eastern portion of the NBZ and dissatisfaction in the western portion of the NBZ. The first change to the ECSR came in 2000 as a reduction in size of the NBZ, moving the dividing line in Burnett and Washburn counties and a portion of Sawyer County northward.

Since 2000 the impetus for adjustments or removal of the ECSR has accelerated, particularly since 2006 as largemouth bass (LMB) have shown broad increases in abundance and some associated reductions in growth rate. Specific interest has been paid to allowing the opportunity for anglers to harvest bass during the current ECSR when water temperatures are cooler and anglers perceive the fish to be more palatable. However, an appearance of quality smallmouth bass (SMB) fisheries with desirable size structure, particularly in the east portion of the NBZ, has been credited to the ECSR, thus creating divisive east-west opinions on the merits of the NBZ and the ECSR.

Recently, the stakeholders in the Northwest have been effectively voicing their opinion that some action should be taken with regards to removing protection of LMB during the ECSR. After years of discussion, amidst the broad scale changes mentioned above and with additional support from an agency goal of simplifying regulations, the FM Board once again recently charged the Bass Team to “evaluate current season structure including the early ‘catch and release’ season and determine if they are having a significant influence on the fishery with the goal of eliminating ineffective regulations”. Prior to the

charge deadline of July 2013, multiple events occurred that have accelerated interest in taking some action on the NBZ, chiefly a longer rule making process and perception from Northwest stakeholders that immediate action is necessary. Thus, a rule proposal to remove the NBZ was submitted as a placeholder internally for discussion with multiple options considered. A strong internal response to the proposal has come from biologists in the eastern portion of the NBZ, generally holding that the ECRS is responsible for many of their high profile SMB fisheries that have recently been getting considerable attention and accordingly, fear removal of the NBZ would result in a loss of these unique fisheries. Moreover, there is substantial local support from stakeholders for the ECRS.

6. Justification of Selected Regulation:

Previous analyses (described below under “**Previous Action**”) have shown that the ECRS does little to change overall bass harvest but it may serve to protect the upper end of bass size structure because large fish, especially SMB, are most vulnerable during the spawning period. To both respond to the FM Board charge and provide a recommendation on the rule proposal change, the current BT undertook an analysis to determine the extent to which the ECRS has created or protects quality or trophy SMB fisheries. Previous analyses utilized creel data from all lakes which potentially creates two issues with answering the above question; 1) DNR does not have size specific data in the creels for released fish, thus size structure changes of released fish are difficult to track and, 2) using all lakes may have masked the changes in lakes supporting notable SMB fisheries. Thus, the BT approached the analysis attempting to subset the lakes by focusing on lakes known to have memorable or trophy SMB fisheries and evaluating changes using tier 1 monitoring data (spring electrofishing).

Methods of recent analyses

Only waters known to have notable SMB populations were included. Waters were subjectively selected by local biologists throughout the NBZ and in adjacent SBZ counties. Biologists were told to select lakes with popular SMB fisheries known to be relatively low density with high size structure. All data used in this analysis were collected subscribing to WDNR protocol using electrofishing. Metrics used to evaluate changes in size structure and the number of large fish included catch per mile of fish greater than 14 inches (CPE14), catch per mile of fish greater than 18 inches (CPE18), and relative stock density of preferred (14”) size fish (RSD14). ANCOVA was used to determine if the response variable (CPE14, CPE18, or RSD14) changed over time in different manners between zones. Differential responses in metrics between zones would suggest an effect of the ECRS. In an effort to minimize the influence of different harvest regulations, only lakes with the statewide minimum length limit of 14” were included in the comparative ANCOVA analysis.

Some high quality SMB fisheries in the NBZ have high minimum length limits (18”) and some have argued that this would be sufficient protection for large SMB if the ECRS was removed. However, some biologists argue that an 18” MLL without the ECRS is not sufficient to maintain this “trophy” size structure. DNR Staff conducted angling simulations on a lake with an 18” MLL in Vilas County within the NBZ, which has a notable size structure. Their goal was to show the potential for a few anglers to harvest a substantial number of fish greater than 18” in one day. They were able to capture of 26 SMB > 18” in 44 angler hours, which constitutes a large proportion of the population (potential 20% exploitation based on 2009 population estimate) (Gilbert personal communication). To evaluate the potential

population level effects under an 18" MLL and no ECRS, modeling simulations using growth and mortality data from the lake were conducted in FAMS to determine what the long-term impacts of increased exploitation levels of fish >18".

Results of recent analyses

Similar to the findings of Simonson et al. (2001) and BT (2010), SMB CPE14 in both zones increased over time in a similar manner suggesting broad scale increases in bass abundance (p-value=0.002) in the selected SMB waters. For SMB CPE18, the interaction term of zone by time was not significant (p-value=0.13) suggesting there was no significant difference in response over time between the zones. However, further analysis, including model diagnostics and separate regressions for each zone over time, show a positive change in SMB CPE18 in the NBZ and no change in the SBZ (Figure 1; NBZ: $\ln(\text{CPE18}) = -196 + 0.097 \cdot \text{year}$; p-value < 0.001; SBZ: $\ln(\text{CPE18}) = 11 - 0.006 \cdot \text{year}$; p-value = 0.92), suggesting a positive response in CPE18 associated with the ECRS not seen in the SBZ.

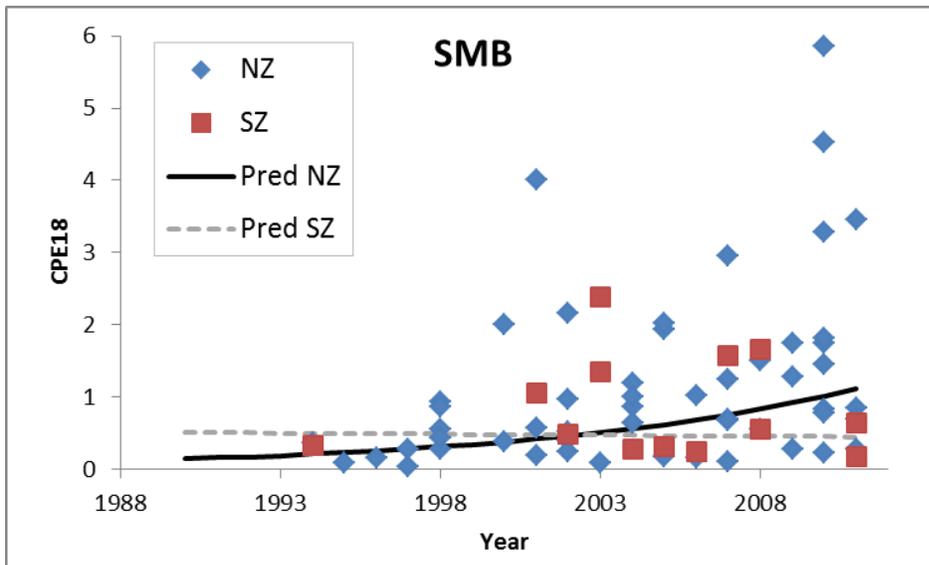


Figure 1. Response of catch per mile of smallmouth bass > 18" over time in the Northern Bass Zone and Southern Bass Zone. Lines depict backtransformed model fit (dashed for SBZ and solid for NBZ).

Angling simulations conducted on the 18" MLL Vilas County lake, showed that SMB during the ECRS are indeed highly vulnerable and minimal effort could quickly result in at least 20% exploitation on fish greater than the 18" MLL if anglers chose to keep legal size fish. The modeling exercise was used to project the impact of such an exploitation rate on the number of large SMB and suggests that over time 20% exploitation can lead to a 52% reduction in fish >18" relative to an unexploited population (Figure 2).

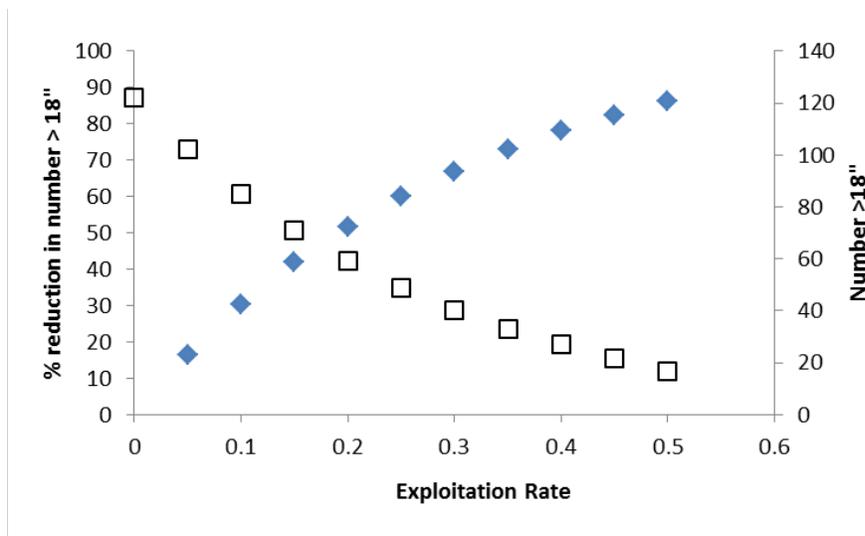


Figure 2. Simulation model results of increasing exploitation on the number of SMB >18" in a Vilas County lake with an 18" MLL, and resultant percent reduction relative to no exploitation.

Summary and Recommendation

This analysis has shown that the ECRS has likely been a factor in either creating or protecting SMB fisheries with high size structure in the NBZ. This is supported by the relatively high vulnerability in the spring based on creel data described in BT (2010). Moreover, there is substantial local support of the ECRS from the stakeholders in the eastern portion of the NBZ.

We recommend changing the NBZ by applying the associated ECRS to smallmouth bass only and allowing the harvest of largemouth bass statewide starting the first Saturday in May. In addition to a major change to a spatially broad regulation in effect for 20 years, this action would be the department's most substantive example of managing smallmouth and largemouth bass separately.

7. Public Comment: This proposal is the result of considerable public and professional debate that has occurred over the last 20 years. A substantial amount of stakeholder interactions as well as input from local DNR fisheries staff in the northwest part of the state has documented the widespread desire to be able to harvest bass, particularly largemouth bass, during May and June when they are currently protected from harvest by the ECRS. The Conservation Congress has forwarded multiple questions in the past related to the ECRS and advocating for managing black bass species separately. Most recently an advisory question in 2012 asked whether the ECRS should be removed for largemouth bass in northwest Wisconsin which was supported with 2329 Yes votes and 654 No votes and only two counties rejecting the proposal (Crawford and Vilas).

Stakeholder input from the northeast part of the state has reflected a strong preference to retain the ECRS associated with the NBZ with the primary purpose of protecting high quality smallmouth bass size structure. While the department is suggesting a modification to the ECRS, the popular aspects of the regulation will be retained.

8. Previous Actions: Simonson et al. (2001) lays out much of the background for the development, implementation, and modifications to the NBZ, including analyses to evaluate the effectiveness of the ECRS. Black bass abundances increased starting in 1989 in both zones with and without the ECRS which was largely attributed to a new statewide Minimum Length Limit (MLL), 14" in the SBZ and 12" in the NBZ (subsequently changed to 14" statewide due to similar growth patterns between the zones). Using creel data comparisons between NBZ and SBZ before and after the ECRS, Simonson et al. (2001) concluded that annual harvest was not reduced with the ECRS and that fish protected during the ECRS were simply harvested later in the summer. They argued that a 14" MLL protected 80% of the adults and that generally, MLLs were more effective than season closures. Ultimately, they recommended eliminating the NBZ and the ECRS.

Despite no influence on overall harvest, many managers still suggested that the ECRS provided protection to highly vulnerable, large SMB and credited the ECRS with creating emerging high profile fisheries. The discussion continued until 2010 when the Bass Team (BT) was asked to re-evaluate the NBZ, specifically determine if new data corroborated Simonson et al. (2001) and if there were any improvements in size structure attributable to the ECRS.

Using creel data in both the NBZ and the SBZ before (1990-1991) and after (2000-2008) the implementation of the ECRS offered the opportunity to evaluate changes in catch rates of black bass as an index of abundance as well as overall harvest. Differences between zones and time periods and their interaction were tested for using Linear Mixed Models. Catch rates for both species of black bass in both zones increased over time, suggesting broad scale increases in bass across the northern portion of the state, with LMB being generally higher abundance in the SBZ compared to the NBZ (Figure 1). For SMB, harvest did not change significantly over time and was not different between zones. For LMB, harvest did not change significantly over time however harvest in the SBZ was higher than the NBZ in both time periods (Figure 2). Overall, harvest appeared to be deferred from the ECRS to later in the summer.

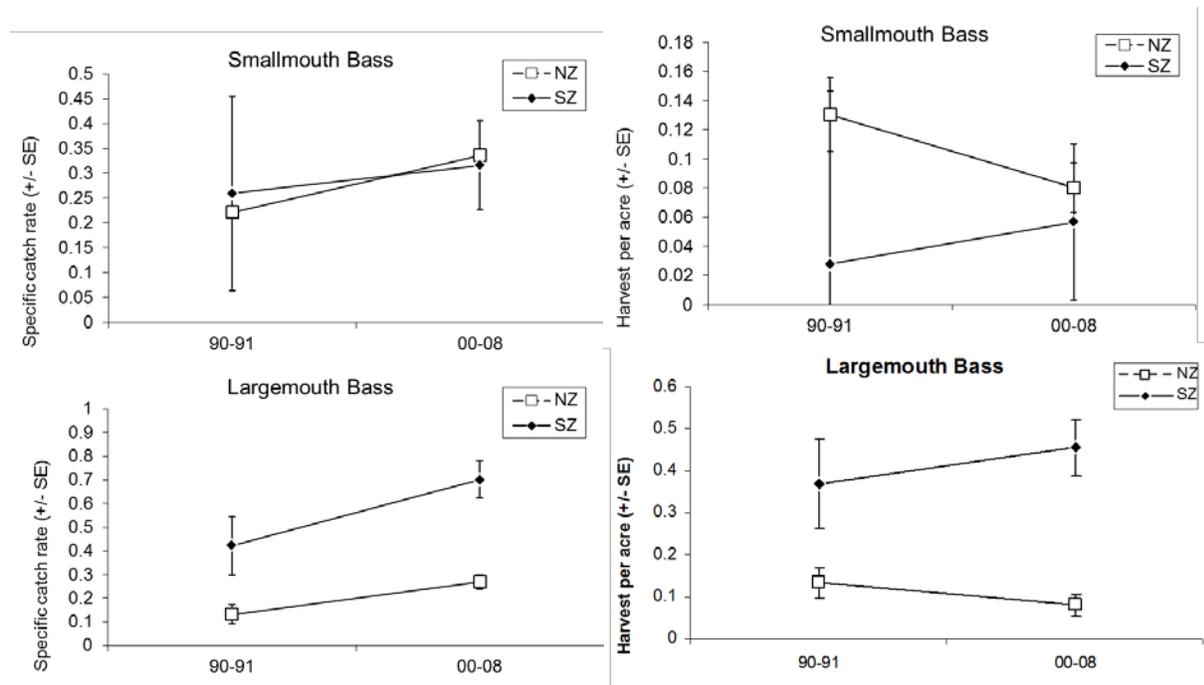


Figure 2. Catch rates (left panels) and harvest (right panels) for smallmouth and largemouth bass before (1990-1991) and after (2000-2008) the implementation of the ECRS in the Northern Zone (NZ) compared with the Southern Zone (SZ). Modified from BT (2010).

To evaluate the potential for “big bass” to be harvested during the early season, BT (2010) summarized patterns in harvest of bass >18” in the SBZ. The number of “big bass” harvested in SBZ lakes in the equivalent time period as the ECRS in the NBZ suggested that 33% of LMB and 40% of SMB >18” are protected during the ECRS (Table 1). To answer whether these large fish were simply deferred to harvest in the summer, BT (2010) quantified temporal changes in vulnerability of bass >18” over the summer. Both species are highly vulnerable during May and June with SMB being approximately 30% more susceptible than LMB (Figure 3). Vulnerability of LMB decreases linearly over the summer however SMB vulnerability drops in July and returns to spring levels again in September.

Table 1. Number of fish >18” observed as harvested in creels from 1990-2008 in SBZ lakes.

Month	Largemouth Bass	Smallmouth Bass
January	14	3
February	18	1
March	1	1
May	30	14
June-1	24	11
June-2	12	4
July	20	3
August	18	10
September	8	9
October	7	4
November	2	0
December	8	1

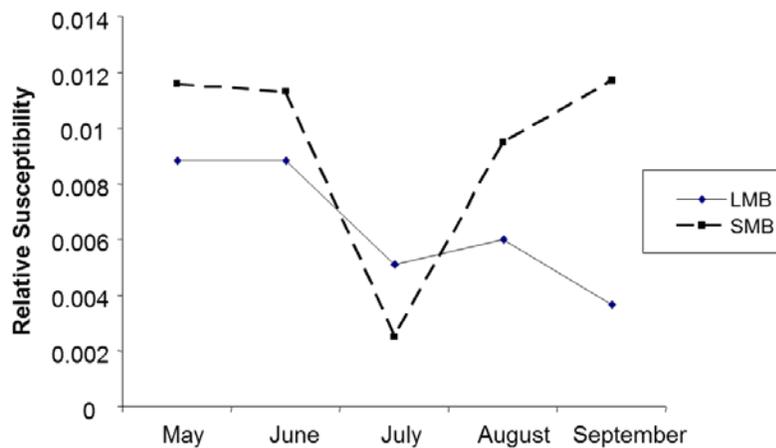


Figure 3. Vulnerability of bass >18” in the SBZ. Relative susceptibility defined as the # fish harvested per interview from 1990-2008.

In summary, BT (2010) generally corroborated Simonson et al. (2001) that overall harvest of either bass species does not necessarily change as a result of the ECRS. However, they concluded that there is

sufficient evidence to suggest that the ECRS does disproportionately protect large bass. Thus, they recommended that the ECRS be maintained, however adjustments to the boundaries should be considered.

References

Simonson, T. 2001. Wisconsin's Black Bass Management Plan. Administrative Report No. 54, Bureau of Fisheries Management and Habitat Protection, Wisconsin Department of Natural Resources, Madison, WI

Wisconsin DNR Bass Standing Team (BT). 2010. Wisconsin's Black Bass Management Plan: 2010 Addendum.

9. Draft Question: This proposal would remove the Northern Bass Management Zone early catch and release season for largemouth bass and allow harvest under existing size and bag limits. Currently both largemouth and smallmouth bass must be released if caught in the Northern Bass Zone from the first Saturday in May to the Friday preceding the third Saturday in June. This change would mean that smallmouth bass must be immediately released during the early catch and release season but largemouth bass may be harvested beginning the first Saturday in May so long as the length and bag limits are followed. This proposal affects all waters that currently have an early catch and release season for bass in the Zone, including Lake Superior and its connected sloughs and the Kakagon River, tributaries to Lake Michigan north of STH 29 in Door and Kewaunee counties, and Wisconsin-Michigan boundary waters.

The Northern Bass Zone includes waters north of State Trunk Highway (STH) 77 from its bridge over the St. Croix River east to STH 27, south on STH 27 to STH 64, east on STH 64 to where it ends in the City of Marinette and continuing due east to the shore of Green Bay and all waters north of STH 29 from its bridge over the Fox River east to where it ends in the City of Kewaunee.



In 2010 and 2011, attendees of the Conservation Congress Fish and Wildlife Spring Hearings supported questions related to separately managing largemouth and smallmouth bass with different regulations as needed. In 2012, hearing attendees voted in favor of a Conservation Congress advisory question to eliminate the early catch and release bass season in northwest Wisconsin for largemouth bass. Analyses of available data conducted in 2001, 2010, and 2012 indicate that elimination of the Northern Bass Zone, and with it the current early catch and release season, would not alter overall season harvest of largemouth and smallmouth bass. The studies revealed that bass that are saved during the early season are

generally just caught later in the summer. As such, harvest of bass during this May and June period would likely not have a negative impact on the vast majority of bass populations. However, the studies also indicate that smallmouth bass populations in the early catch and release zone have shown greater improvements in size structures compared to populations in lakes with similar regulations that do not have the early catch and release season. The same effect has not been seen for largemouth bass. The Department proposes removing the Northern Bass Zone early catch and release season for largemouth bass to provide additional harvest opportunities in May and June. The Department proposes to retain the Northern Bass Zone early catch and release season for smallmouth bass to avoid having negative impacts on smallmouth bass size structure.

Do you favor applying the Northern Bass Management Zone early catch and release season from the first Saturday in May to the Friday preceding the third Saturday in June to smallmouth bass only, and allowing largemouth bass to be caught and kept during that time?