



# Michigan Trout Unlimited

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May 30, 2012

Michigan Department of Natural Resources

Fisheries Division

c/o: Jim Dexter – MDNR Fisheries Division Chief

Re: Comments on proposal to increase brook trout bag limit in Upper Peninsula

## Introduction

Trout Unlimited is a non-profit organization dedicated to protecting, restoring and preserving coldwater fisheries and their watersheds. The organization started in Michigan, over 50 years ago, as a vehicle to promote progressive fisheries management and originally to urge the MDNR to move away from indiscriminate stocking of put and take trout fisheries and towards management for wild self-sustaining populations of trout by focusing on habitat enhancement and selective harvest. Our philosophy has always been, “take care of the fish and the fishing will take care of itself”. Today, Trout Unlimited is the nation’s largest exclusively fisheries conservation organization, and in Michigan has 7,000 members and 20 local chapters spread throughout the state.

A proposal was recently put forth by the MDNR Fisheries Division, to increase the bag limit of brook trout from 5 to 10 in Types 1-4 waters in the Upper Peninsula. The MDNR has asked the public to provide comment on that proposal, and this letter serves as the public comment on the proposal by Michigan TU, the statewide council of the local chapters in this state. The DNR may also receive comment directly from one or more of our local chapters. The state council board of directors discussed this proposal at a meeting, on a conference call, and as individual chapters. We also forwarded the MDNR press release on this issue to all of our members and encouraged them to voice their individual opinions of this proposal directly to MDNR. This letter will explain the position of Michigan TU on this proposal, but additionally our Upper Peninsula chapters have indicated the following; a) eastern U.P., Two Hearted Chapter opposes the proposal, b) Mid- U.P., Fred Waara Chapter opposes the proposal, and c) Western U.P., Copper Country Chapter, did not take an official position. Michigan TU opposes the proposal forwarded by the MDNR.

## Rationale

Michigan TU opposes the current proposal on the basis that the rationale provided for it is insufficient in biological and social science justifications. We recognize that some level of uncertainty always exists in natural resource management decision-making. However, in this instance, the uncertainties surrounding the proposal are too large and unaddressed to support the action. At a basic level, this proposal would increase mortality of brook trout through higher angler harvest and hooking mortality, so unless this proposed impact is better elucidated, we believe a precautionary approach is prudent, and oppose expanding the bag limit at this time.

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## Biological Uncertainties

- 1) *Lack of evaluation of change from 10 to 5 fish bag limit.* Approximately 12 years ago, the MDNR changed the bag limit of brook trout from 10 to 5. It certainly must have had rationale for that change, but didn't explain how conditions have changed since then to warrant a reversal of its previous actions. Further, in the 12 years proceeding the change, no formal evaluations were conducted to document the impacts of the change on the brook trout populations, or on the success rates of anglers pursuing them. Evaluation is a fundamental and essential step in management of natural resources, without which we blindly proceed without the knowledge of our actions' consequences. The lack of evaluation of the previous change in bag limits makes it impossible to know whether the last change had positive impacts to the resource, and whether the current proposal will reverse those or not.
- 2) *Important Biological Variables were lumped too simplistically.* Our Upper Peninsula brook trout streams vary in density of brook trout, survival rates, and growth rates, leading to fundamental differences in the numbers and size structure of the brook trout present in each. As a result, some streams may be well suited for higher harvest rates while others may not. For example, streams with high densities and low rates of fishing may be well suited, while streams with low densities and high rates of angling may not. The MDNR analysis lumped all streams together in its analysis – while simultaneously relying on additional data from only 4 western U.P. streams. Common among TU discussions of the proposal was explicit recognition of certain specific U.P. streams that seemed suited to handle a higher bag limit, but also many that seem unable to. Again, a precautionary approach was applied, and TU seeks to avoid negative biological impact on some brook trout populations in trade for higher bag limits for anglers on other streams.
- 3) *Status of carrying capacity of streams uncertain.* Each stream differs in its habitat and ability to support brook trout populations. The MDNR proposal did not address the current status of brook trout populations in comparison to carrying capacity. Again, if a stream had a high carrying capacity and was near this limit, it might be well suited to support higher bag limits, while a stream below its carrying capacity might be negatively impacted by higher bag limits. Setting of harvest levels of fish usually relies on information about the shape of a stock-recruit relationship, and information about where on the relationship curve the population is. This information was not addressed in the current proposal
- 4) *Temporal variability not addressed.* Stream trout populations in Michigan are believed to be heavily impacted by random annual differences in environmental conditions (see work of MDNR Zorn and Nuhfer for references). This means that large annual differences in year class strength occur, and often shape the densities of brook trout present in streams. Following good years, a higher density of brook trout might be able to support higher bag limits, while poor years will result in lower densities. Under the later conditions, higher angling mortality might exacerbate the recovery and rebound of brook trout populations, slowing the rate of rebound to higher densities. Explicit consideration of this temporal variation in brook trout populations would help to identify possible impacts of this current proposal.
- 5) *Mortality – compensatory or additive?* It's often cited that because brook trout exhibit relatively high rates of annual mortality inherently, that adding angling mortality will have

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little effect on their populations. This argument is short-sighted, because we do not know to what extent natural and fishing mortalities are compensatory versus additive. If we knew that they were 100% compensatory, then higher bag limits might be more acceptable – as natural mortality would be reduced by increased angling mortality. But this is not known. If mortalities were 100% additive, then the populations could not withstand significant added fishing mortality without detriment. In all likelihood, the mechanisms of natural and fishing mortality factors are highly probabilistic from individual to individual, and will be very tough to document. It perhaps then is safest to assume fishing mortality is partially compensatory and partially additive for most streams. Varying rates of this could be modeled to better understand the range of impacts possible from expansion of fishing mortality through increased bag limits.

- 6) *Fecundity Contributions.* As brook trout increase in length and age, they produce increasingly more eggs, and have been documented to also have a higher rate of success with age and spawning experience. For example; 6" brook trout produce 189 eggs, 8" 358 eggs, 10" 586 eggs, 12" 876 eggs, and 14" 1231 eggs (Halfyard, MacMillan and Madden 2008). Given the average size structure of brook trout populations from MDNR Status and Trends data, this would mean that while 4" -6" brook trout are typically 75% of the fish present, (>7" is ~25%); 4"-6" brook trout contribute only about 45% percent of the eggs produced, compared with 55% for 7"-14" fish. Without factoring in any expected increase in spawning success by older age classes of spawners, this simple illustration can show that >7" brook trout are incredibly important in their spawning contributions and effect on brook trout populations and densities. This type of fecundity information was not included in the MDNR analysis of the potential impact from doubling the bag limit of brook trout in the U.P. MDNR modeling efforts on this were presented to have held recruitment constant, and did not evaluate fecundity at age differences. This is critically important in understanding the impact of this proposal on brook trout populations to be effected.
- 7) *Impacts to Coaster Brook Trout not addressed.* TU is aware that the MDNR has produced a report on Coaster brook trout in response to their petition for listing under that Endangered Species Act. TU is aware that the MDNR has stated they do not formally recognize coaster brook trout, and refer to them as "adfluvial brook trout". TU understands that genetic tools in use today have not documented a genetic difference between adfluvial brook trout and stream resident brook trout. However, TU also asserts that until complete genome mapping of brook trout occurs, we can not state that there is not genetic difference between them. Despite uncertainty on the genetic basis for brook trout that leave tributary streams and use Great Lakes waters, returning as adults to spawn at lengths exceeding those attained by stream resident brook trout – they do occur. They occur, and despite the reason why, they are magnificent fish that TU believes deserves focused effort at increasing their abundance and distribution. We desire to see these fish return in numbers that would allow anglers to fish for them, and attract angling tourism for them to the Upper Peninsula.
  - a. MDNR participated in the development of the Great Lakes Fish Commission report on rehabilitation of Lake Superior brook trout, which highlighted that in order to increase the abundance of this fish, they ought to be allowed to spawn multiple times, and have a 20" minimum size limit to ensure it. This has been enacted for waters of the Great Lakes, but this protection has not been afforded these fish while

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in tributary streams. These fish use the tributaries for spawning, and have been found to visit tributaries more frequently than just for spawning. Minnesota has recently enacted 20" minimum size lengths and reduced bag limits on their tributaries to Lake Superior and have been documenting significant positive responses from their coaster brook trout populations. This current proposal to double the bag limit of brook trout in the U.P. is a dramatic step backwards for Coaster populations, which already need greater protection while in tributaries.

- b. This proposal to increase the bag limit of brook trout in the U.P. did not address impacts to coaster brook trout populations in Michigan tributaries. Reports of their presence far exceed just the Salmon-Trout River. This proposal would increase the fishing mortality on these fish in tributaries by expanding harvest and accrued hooking mortality on both juvenile coasters and adults returning to tributaries.

### Social Science Uncertainties

- 1) *Lack of recent creel or angler surveys.* Surveys of anglers fishing for brook trout in the U.P. were not presented from recent times. It is critical to understand how many people are fishing for brook trout in these streams, how often they fish (angler effort), what they fish with (hooking mortality), how successful they are (angler efficiency), and what their preferences are for their experience (how they rank attributes of their experience such as successfully catching a fish, catching lots of fish, catching big fish, catching and keeping fish, etc.). These are critically important in understanding what impact a fishing regulation change will have on fish populations and the users of them. None of this information is available or was supplied with the analysis of this proposal. Without it, TU can not confidently evaluate the impact of the proposed change.
- 2) *Findings from the report that was used.* MDNR relied upon the use of a study conducted from 1988-1992 on 4 western U.P. trout streams (Wagner and Hansen 1994). This study is now 20 years old and while it's uncertain how angling has changed – most people report that angling pressure and behavior has indeed changed. The limitations of this study, both in age and limited geographic scope are of some concern. Despite this, the study did document that of all anglers surveyed in the study (which was done during the 10 fish bag limit), about 75% were unsuccessful in catching any brook trout, while only 2.5% caught more than the 5 fish bag limit. This would initially appear to support the increase in bag limit, as few people attain over 5 fish anyways, however, the 2.5% of the anglers harvested 30% of the brook trout harvested over 7". This can then mean it's possible that the higher bag limit could exacerbate localized depletion >7" brook trout from commonly fished areas – decreasing the success rate of a majority of anglers hoping to at least successfully catch some fish. If "successfully catching a fish" were to rank higher in importance to a majority of anglers, expanding the bag limit would be counter-productive. It would have been desirable to have evaluated how success rates by anglers changed with the lowering of the bag limit. The 1994 study also showed that the majority of fishing pressure was exerted from the opener to the end of May. Together, this indicates the possibility of increased bag limits leading to quicker depletion of available 7" brook trout in localized areas of easy access – potentially negatively impacting success and satisfaction levels of other anglers. This stands to be explored more fully in light of angler preferences for their fishing experiences.

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- 3) *Angler impact is practical.* Anecdotal observations often report that few people fish for brook trout anymore, and hence the bag limit change would not affect brook trout populations. Unfortunately, we lack the data on this to understand if that is true and to what extent (see comment #1). However, MDNR studies evaluating the impact of Type 2 regulations (with a 10" minimum size for brook trout) showed that for some U.P. streams (e.g., Iron River) the decreased harvest of 7" – 10" brook trout resulted in an increase in brook trout abundance. This situation may not be likely for all U.P. streams, but does illustrate how the increase in fishing mortality currently proposed could negatively impact some U.P. brook trout populations that receive heavier fishing pressure.
- 4) *Increased accrued hooking mortality.* As bag limits are increased, anglers will fish longer periods of time after attaining 5 fish bag limits. As <7" brook trout outnumber >7" 3:1 in the average Michigan stream, these sublegal fish will be caught more often, and will be exposed to the increased rates of hooking mortality. For example, use of natural bait is often cited as having ~25% hooking mortality. Therefore, the impact of this doubling of bag limit does not extend only to harvest mortality increasing, but also to increases in hooking mortality on all size classes. It does not appear this was included in the MDNR analysis and modeling.

### Summary

For all the reasons elaborated on previously together, Michigan TU opposes the current proposal as presented by the MDNR. The uncertainty surrounding the impact of this proposal warrants a precautionary approach to risk management in putting concerns for the brook trout populations first. We are sensitive however, to the fact that information we are expecting here now was also likely lacking 12 years ago when the bag limits were reduced. We are not against allowing anglers to harvest additional fish where it will not lead to any detrimental effects. We are willing to help continue exploring other alternatives to accommodate angler preferences and attaining the scientific information needed to ensure its done without impact to our fisheries. We will remain engaged on this issue and help productively shape it in the future as needed or desired. However, at this time TU opposes the MDNR proposal to increase the bag limit of brook trout in the U.P., on Type 1-4 waters from 5 to 10 fish. Thank you for the chance to comment and share our concerns with you. Please do not hesitate to contact us if you have any follow-up questions or concerns.

Thank you,

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