

# **Minnesota Trout Unlimited's Position Concerning the Appropriateness of Increasing the Harvest of Wild Steelhead in Minnesota**

**March 25, 2010**

The members of Minnesota Trout Unlimited are angler-conservationists. We do not focus our conservation efforts on specific species, but work toward robust, self-sustaining populations of all trout and salmon. We support science-based management and watershed protection, as these ensure the maximum sustained productivity over the long term. Our members use every ethical angling method based upon their personal preferences. We are boot and boat anglers. Many members choose to harvest and eat surplus fish when and where they believe a given fishery can sustain such harvest without loss of quality. We embrace catch and release angling as an important management tool, especially as both resource threats and human populations continue to grow.

## **Minnesota TU's position concerning regulation changes, generally:**

Minnesota TU supports biologically sound angling and harvest regulations for all species which ensure the long term health and stability of the Lake Superior fishery. MNTU believes that all management, including fishing regulations, should be targeted toward the overall goal of achieving and maintaining a stable, self-sustaining fishery in Lake Superior. We believe in maximizing angling opportunities *to the extent* that the quality, stability and self-sustainability of the resource are not jeopardized. We likewise support providing opportunities to harvest truly "surplus" fish, but *only to the extent* that the quality, stability and self-sustainability of the resource are not jeopardized.

## **Increasing steelhead harvest is not justifiable:**

The data which MNDNR fisheries biologists presented at the public meeting held on March 3, 2010 made clear that wild steelhead stocks have not yet fully recovered. Despite a continuing trend of increased catch rates since the current harvest restriction was adopted, the data clearly demonstrates that harvest cannot be increased in the near term without jeopardizing the continuing recovery of wild steelhead stocks. There is not yet a surplus, and thus an increase in harvest is neither warranted, nor sustainable. Minnesota Trout Unlimited opposes increasing the harvest of wild steelhead for the following reasons:

- wild steelhead populations have not fully recovered and allowing harvest would thwart the goal of achieving robust self-sustainability;
- the catch rate used in the LSMP is arbitrary and does not indicate full recovery, while other, better measures demonstrate that recovery is still progressing;
- even a bag limit of one fish over 28" could quickly undo a decade of improvements in the fishery and could lead to long term genetic changes in the population that would jeopardize future recovery;
- most anglers are happy with the improving catch rates and the current catch and release regulation;

- the threats to coldwater fisheries and watersheds are increasing, necessitating greater caution regarding harvest in order to ensure long term sustainability.

### **Data confirms members' empirical observations that rehabilitation is not complete:**

MNTU appreciates the thorough presentation of new and historical fisheries data which MNDNR personnel gave on March 3<sup>rd</sup>. The presentations, thoughtful question and answer exchanges with the public and ensuing discussions were informative, and should lead to increased support for sound strategies for rehabilitating wild steelhead stocks. MNTU members attended the meeting with open minds and thoughtfully considered both the data and other anglers' views. The information presented confirmed our members' intimate knowledge of the fishery ("waders on the gravel") and past research in Minnesota and on the West Coast. Based upon our own observations and the data presented, Minnesota Trout Unlimited concludes that Minnesota's wild steelhead populations cannot sustain any increased harvest at this time.

### **Considerations and rationale for not increasing steelhead harvest until at least 2015:**

#### **1) Regulations must further the goal of wild steelhead rehabilitation:**

- Actual rehabilitation of wild stocks is a prerequisite to opening up harvest, otherwise harvest only works against the well considered management goals.
- The LSMP, steelhead plan (now RTMP), and inter governmental management plans all call for managing for long term self-sustainability of wild steelhead.
- MNDNR should err on the side of caution, and on the side of the fishery, especially considering the money and effort expended by the agency and several angling and conservation groups to advance rehabilitation.
- The LSMP requires that the long term protection of the resource take precedence over some anglers' desires for unsustainable or premature increases in harvest.

#### **2) Steelhead populations have not recovered yet:**

- The LSMP and the steelhead management plan (which Chapter 9 of the LSMP summarizes) set the successful rehabilitation of Minnesota's wild stocks as a prerequisite to opening up wild steelhead harvest. While many wild steelhead stocks are rebounding, based upon the data presented, numerous studies, and our members' observations, we conclude that steelhead have not yet been fully rehabilitated. The catch and catch rate data show a steady upward trend once the offspring of steelhead protected under restrictive harvest regulations began contributing to spawning runs. However, *noticeably absent* is a "flattening out" of the catch and catch rates which could suggest that the carrying capacity had been reached and a surplus of spawners might be present.
- The catch rate listed in the final version of the LSMP is an arbitrary number which in no way demonstrates that recovery of Minnesota's wild steelhead stocks has in fact occurred, nor does it indicate that populations can sustain increased mortality through harvest. The catch rate of 0.10 fish per angler hour (inexplicitly

reduced from the 0.15 fish per angler hour rate contained in the draft plans upon which the LSAG and public commented) was but an attempt to use a quantifiable measure as one possible indicator of recovery. The comprehensive steelhead management plan (RTMP) which Chapter 9 is intended to summarize, phrases it this way: “If wild steelhead rehabilitation succeeds and a limited harvest appears feasible, the MNDNR will meet with interested citizens . . .” *Rainbow Trout Management Plan for the Minnesota Waters of Lake Superior* (Schreiner 2003), page 5. While the catch rate does indicate that steelhead numbers and angling success have increased in response to various management strategies, this is all it shows. Other, more biologically based measures indicate recovery is not complete. As MNDNR personnel acknowledged, it is now apparent the number chosen for use as a threshold for harvest discussions is far too low.

- The implications of catch rates of established kill and keep fisheries (e.g., 5 fish daily with no minimum size) are not transferable to catch rates of a catch and release fishery where fish are routinely “recycled” (caught and released by multiple anglers during the same spawning run). If undue significance is placed on catch rates the MNDNR risks over estimating population size and prematurely relaxing harvest regulations.
- A better measure of robust, self-sustainability would be evidence that the existing wild steelhead fishery is *consistently* producing significantly more spawners and wild offspring than the habitat is capable of supporting. MNDNR data, including that gathered from the Knife River weir and trap, demonstrates that the carry capacity of Minnesota’s Lake Superior tributaries has not been reached.

### **3) Catch and release angling is working well:**

- The current catch and release regulation is having the intended effect of permitting steelhead rehabilitation to steadily progress. Alternative regulations and closures are not warranted.
- Wild steelhead are providing good and improving angling opportunities which increasing numbers of anglers are enjoying *with no expectation of killing and keeping these fish*. Increasing harvest now, when rehabilitation is not complete, can only diminish angling quality, angler participation, and public support for both steelhead rehabilitation and watershed protection efforts.
- Recreational angling is thriving and anglers are happy to have more success hooking and landing wild steelhead. The associated economic boon to communities up and down the Shore is increasing without, *and likely due to the absence of*, a kill and keep regulation. There is no broad-based clamoring for a change. We question the wisdom of acting too soon, risking full recovery and the current angling and economic boons.

### **4) Even a 28” minimum size limit could reverse progress and prevent recovery:**

- *Large steelhead are critical in “bad” years.* Even a 28” minimum size restriction, the most realistic new harvest regulation, can have a significant

adverse impact on the pace and the long term sustainability of steelhead recovery. The largest wild steelhead are likely the most important ones, ensuring decent numbers of successful spawners during and immediately following successive years with bad stream conditions or poor year classes. Their presence in otherwise poor spawning runs is essential to maintaining and increasing the size of future spawning runs. This is especially important considering that these steelhead produce more gametes and their larger size permits them to excavate larger substrates to ensure their redds are more protected from the flashy conditions in North Shore streams. Minnesota cannot afford to risk losing this important reproductive “buffer” against bad conditions and poor year classes.

- ***Too many spawners could be harvested.*** Size structure data from the spring creels show that nearly 23% of North Shore steelhead are 27” or larger, and two-thirds of these are female steelhead. The MNDNR, using Wisconsin data, convincingly demonstrated how a 28” minimum would effectively mean a 27” harvest minimum in practice. The loss of anywhere near this high percentage of spawners would be disastrous to recovery. As fisheries biologists have noted, even under favorable conditions (which are rare on the North Shore) perhaps 5% of spawners could be lost without a reversal of recent progress. Steelhead populations cannot even hold steady, much less rehabilitation progress, if the harvest regulation is changed to allow harvest of wild steelhead over 28”.
- ***The regulation would artificially select against large steelhead and alter the population size structure.*** A 28” minimum size restriction over time could *artificially* select against the largest steelhead, gradually favoring smaller fish which spawn earlier or more often before they are harvested. This might be acceptable if North Shore streams enjoyed the abundant groundwater, more stable, cooler flows and more abundant small substrates found along Wisconsin’s South Shore, but they do not. Given the conditions of North Shore watersheds, steelhead greater than 28” are likely a very important to the long term resilience of Minnesota’s steelhead fishery. Put another way, artificially concentrating mortality upon the large fish (via a 28” minimum size restriction) *can undo the natural selection processes* along the North Shore which appear to have molded a wild population dependent upon these largest wild steelhead. The strong correlation between Wisconsin’s one fish over 26” limit and the significant drop off in size at 25” suggests a minimum size restriction here would likely have a similar effect of reducing the size structure of North Shore steelhead.
- ***Changes in size structure can become genetically entrenched and reduce long term resilience.*** This artificial selection against large steelhead could have dire genetic consequences. Some anglers suggest that the difference in size structure between North Shore and South Shore (WI) steelhead populations may be due to genetic differences and reflect different strains of steelhead. This may well be the case, but it begs the question “Why is there a genetic difference?” Numerous genetic studies on steelhead and other salmonids show how downward shifts in population size structure experienced under minimum harvest regulations can gradually cause genetic changes in a wild population. If this happens to North Shore stocks the prospects for long term sustainability of Minnesota’s wild

steelhead could be seriously undermined. Because North Shore populations are much smaller than the Wisconsin Brule and lack a harvestable surplus, any harvest of the smaller Minnesota population can have much greater negative impacts, and more quickly. Whether the adaptation which allows Minnesota's largest steelhead to reach their large size is due to later maturity before their first spawning run, longer lifespan, greater reproductive success (for the reasons mentioned in preceding paragraphs), or some other mechanism is not important. What is important is that these largest wild steelhead are likely crucial for long term sustainability, and allowing harvest of fish over 28" may have persistent genetic impacts disproportionate to the number harvested.

- ***Effective population size is likely smaller and disproportionately comprised of larger steelhead.*** It is not known what the *effective population size* of Minnesota's steelhead population is, nor what percentage of that population is comprised of fish over 27" or 28". Based upon other wild populations, and given the extremely harsh and variable conditions on the North Shore, it is probable that these largest steelhead are disproportionately represented in the effective spawning population. If so, their harvest would have a disproportionately higher impact on future population abundance and resilience.
- ***Populations are smaller than catch rates suggest, heightening the danger of over harvest.*** There is a substantial danger of permitting over harvest if catch rates alone are used to (over) estimate the population size. The implications of catch rates of established kill and keep fisheries are not transferable to catch rates of a catch and release fishery where fish are routinely caught and released by multiple anglers during the same spawning run. North Shore steelhead anglers are very effective. The MNDNR estimates that on the lower shore wild steelhead are caught and released three or four times on average during each spawning run! Prematurely allowing harvest of a smaller population than estimated, where every spawner matters, could have far greater impacts than anticipated.
- ***Increasing harvest would increase the danger and impact of hybridization.*** Decreasing the population size by allowing harvest would increase the likelihood of hybridization with kamloops. The significant dangers to steelhead genetics posed by hybridization with these domesticated hatchery fish are well established, and largely described in the LSMP. However, it is helpful to recall them here:
  - kamloops do spawn with steelhead in the wild;
  - whenever kamloops interfere with wild steelhead reproduction in this way, the "best" outcome is that no eggs hatch and the wild steelhead population suffers "merely" the waste/loss of wild steelhead which would otherwise have been produced from these steelhead eggs; this is the least genetically destructive outcome of all kamloop-steelhead crosses;
  - the loss of wild steelhead gametes in this way is biologically equivalent to an angler killing and keeping a female steelhead, since in either case successful reproduction is prevented;
  - the greater danger is that hybrids may survive; while generations of artificial selection in the hatchery have made domesticated kamloops unfit to

successfully reproduce in the wild, hybrids can derive sufficient fitness from the wild steelhead parent to survive for a time in the wild;

- under a worse case scenario some hybrids could survive to adulthood, spawn with pure strain steelhead and create a “genetic bridge” to the wild steelhead population and in turn make the wild population less fit to survive in the long term.
- ***Increased mortality to smaller steelhead.*** Allowing the harvest of wild steelhead over 28” will likely lead to increased rough handling of much smaller fish as anglers attempt to measure them. Many fish which are currently identified at a glance as not harvestable (due to the presence of an unclipped adipose fin), would likely be beached and mishandled by anglers anxious to harvest any “legal” fish. This behavior was often observed in the mid 1990s when a 28” size limit was in place. Despite their eventual return to the water, many wild steelhead under 27” will surely suffer increased mortality because of this handling.

#### **5) Uncertainty and growing threats dictate great caution regarding harvest:**

- Because environmental conditions along the North Shore are harsh and extremely variable from year to year, it is difficult to accurately predict whether a rebound will continue.
- Anadromous salmonid populations along the North Shore and Nemadji basin (South Shore) face increasing threats to their “robustness” and long term sustainability. Consequently, great caution must be used when considering increasing harvest. These threats include:
  - increasing development pressure in the basin (with numerous land use changes which negatively impact watershed and coldwater fisheries health);
  - likely impacts from climate changes;
  - increasing angling pressure as the human population grows;
  - unknown commitment to effective sea lamprey control measures;
  - impacts of the recently discovered VHS virus, and other invasive species;
  - impacts of unusually high beaver populations which exist due to shifts in historical forest composition caused by human activities;
  - continuing danger that citizens will lose the game of “roulette” being played with wild steelhead populations via continued stocking of domesticated hatchery strain rainbows (kamloops) among wild steelhead.

#### **6) Granting special treatment for charter boat customers is not justifiable:**

- Harvest regulations must be applied uniformly in all Minnesota waters of the Lake Superior basin, whether steelhead are encountered in the Lake Superior or tributary streams. The impact upon the population is the same in either case.
- The steelhead fishery provides high quality angling opportunities for all anglers to enjoy. Allowing a special minority of anglers to kill wild steelhead will unfairly reduce the angling opportunities of ***all*** anglers.

- Knowledgeable trollers can largely avoid steelhead when fishing for harvestable lake trout and salmon. However, if trollers know that they can legally harvest wild steelhead in Minnesota waters some may begin to specifically target this population. Again, knowledgeable trollers can effectively target schools of steelhead. While they can potentially keep more than 20% of adult steelhead, there will surely be significant hooking mortality to the other 70 - 80% of the population they may land and throw back before customers boat a “keeper”.
- In 2008 shore anglers kept 46 percent of the legally harvestable (“clipped”) rainbows which they caught. However, in 2008 all boat anglers kept 92.7 percent of salmonids caught, while charter boat customers kept 93.4 percent. It is likely, that 93 percent of the adult steelhead caught which are greater than 27” or 28” will be kept by boat anglers. The steelhead fishery cannot sustain such harvest.
- There is no sound justification for allowing anglers guided by boat to kill and keep wild steelhead while anglers guided by boot cannot.
- There is no sound justification for allowing guided customers to kill and keep wild steelhead while the majority of anglers (boat and boot) who do not use guides cannot.

### **Conclusion:**

Based upon the research and data presented by the MNDNR, sound understanding of wild steelhead biology, and our extensive knowledge of the fishery (“waders on the gravel”) and watersheds, Minnesota Trout Unlimited has concluded that Minnesota’s wild steelhead populations cannot sustain any increased harvest at this time. The only appropriate harvest regulation for wild steelhead is the current catch and release regulation. Consequently, we urge the MNDNR to keep the current wild steelhead harvest regulation unchanged at least until the LSMP is revisited in 2015.

While steelhead are not native to Lake Superior, after more than twenty generations of very successful reproduction in the wild they have demonstrated that they are now well adapted to the very harsh and highly variable conditions found along the North Shore. As the conditions of Minnesota’s watersheds have worsened over the last century, creating ever more challenging conditions for native brook trout, naturalized steelhead have provided an important recreational opportunity which has tangibly connected citizens to the plight of North Shore watersheds. The wild steelhead fishery continues to create strong public interest in watershed protection and restoration efforts which benefit the entire coldwater ecosystem, including Minnesota’s native brook trout, lake trout and herring. If wild steelhead rehabilitation and angling participation is undermined by opening harvest now, we risk losing a critical, passionate “constituency” for protecting and restoring Lake Superior watersheds for all wild salmonids.