

28 Reasons to Support Salmon Management and Conservation

A rebuttal to “28 reasons to oppose the live release of grilse”

Introduction

We, the authors, are a small, independent group of salmon anglers intent on dispelling the recent misinformation that has arisen surrounding DFO’s implementation of catch and release only angling for grilse in Gulf Region. We have no ties to government, conservation groups or animal activism groups. We do; however, firmly believe in the conservation of our native fish stocks through informed policy decisions based on sound management strategies informed by the best scientific advice available.

The following report is a 28 point rebuttal to the web page entitled “28 reasons to oppose the live release of grilse on the Miramichi river system” that can be viewed at the following link <http://www.miramichiriver.com/Concerns/index.php?page=28Reasons.php>. The 28 reasons highlighted in this webpage are presented in bold numbered headings, with our rebuttal points presented below each.

We have made every effort to ensure our views are supported by the most current scientific knowledge of Atlantic salmon ecology. Where data are presented we have made no attempt to omit or selectively show data because they didn’t support our views. Through this article, our hope is to dispel misconceptions and misunderstanding that lie behind the arguments and opinions presented in the “28 reasons” web page. Hopefully this rebuttal will serve to inform anglers and the general public about the issues. We support the effective management of the Atlantic salmon and hope the spread of misinformation will not sway public opinion and the future of this priceless resource.

We do not wish to offend the author/authors of this webpage. We do; however, feel that the content of the webpage has colored the conversation surrounding catch and release angling and has spread misinformation that has been taken by some, including the media and conservation groups, as fact and disseminated it to the general public (i.e. <http://www.cbc.ca/news/canada/new-brunswick/wildlife-federation-salmon-retention-1.3415385>). We know that public opinion can have influence on policy decisions, and feel that the public should be presented with both sides of the story before they can make informed decisions.

Please read the following rebuttal objectively and consider the whole story when forming your opinion on this important issue. We, the salmon anglers, must be a voice for a species which has no voice of its own and represents an important facet of New Brunswick’s cultural heritage.

1) It disregards the fact that the vast majority of Miramichi grilse are male and are of limited value in putting more eggs in the gravel.

The same data used by the author to validate their view on grilse having little benefit, summarized below, paints a much different story when all individuals (i.e. both grilse and salmon) are considered. The data below are the same the author used, from the 2011 counts at the Millerton Index trap net on the Southwest Miramichi River. As the author states, of the 674 grilse that were sexed 91.2% were male, making up 33.4% of the total catch at the trap. Interestingly though, **of the large salmon component captured in the trap net (649 individuals) 86.4% were female, practically the reverse ratio from the grilse returns.**

We extrapolated these numbers to the entire published run estimates for the Southwest Miramichi assuming the same ratios and included the figures in the table below. Of the estimated total run of 27,870 grilse, 25,417 would have been male with only 2,453 females. The 2011 salmon return estimate for large salmon was 31,710, assuming the same sex ratio from the trap net there would have been 27,397 large females and only 4,313 large male salmon. Given the size of the Miramichi watershed and the number of large female salmon, it is highly unlikely that 4,313 large salmon could fertilize the redds of 27,397 large female salmon. **When all of the data are considered the lowly grilse suddenly doesn't seem so unimportant anymore**, in fact, it is likely that male grilse play an incredibly important role in fertilizing the eggs deposited in the gravel by female salmon.

It is likely that the sex ratio and size of the grilse and salmon components to the returns to the Miramichi are a function of the unique conditions and adaptations over thousands of years. Male grilse and salmon are not as limited by size as a determinant of how many gametes (sperm) they can produce as a female salmon is (the number of eggs tracks closely with increasing size in females, but males are not as constrained because sperm are much smaller). From a reproductive output vs. survival standpoint it makes more sense for a female salmon to grow as large as possible to increase the number of eggs (i.e. the increase in reproductive capacity outweighs the risk of mortality at sea, leading to more females choosing to return as large salmon); however, it doesn't make sense for a male salmon to stay at sea for two or more winters to grow larger if it isn't beneficial (i.e. the potential for mortality outweighs the slight gain in reproductive capacity).

Size	Sex	Total	% of Group (Grilse or Salmon)	% of Sexed Portion	% of Total Run	Estimated Total Run	5% CI	95% CI
Grilse	Male	615	51.6	91.2	33.4	25417	15632	53024
Grilse	Female	59	5.0	8.8	3.2	2453	1508	5116
Grilse	Unknown	517	43.4		28.1			
Total Grilse		1191	100.0	100.0	64.7	27870	17140	58140
Salmon	Male	88	13.6	13.6	4.8	4313	3041	6241
Salmon	Female	559	86.1	86.4	30.4	27397	19319	39649
Salmon	Unknown	2	0.3		0.1			
Total Salmon		649	100.0	100.0	35.3	31710	22360	45890
Total (All)		1840	100.0	100.0	100.0	59580	39500	104030

Additionally, Atkinson and Moore (1999) state *“While the majority of grilse are males, some runs have an important female component. These females (which are more than twice as likely to return than males) could significantly improve egg deposition, especially in the Northwest Miramichi. The alternate spawners will individually make an even greater spawning contribution than the maiden 2SW females, which are normally considered the mainstay of the run”*.

2) It has been introduced at a time when most assessments of juvenile salmon stocks show continued high concentrations of all age classes, even after years when adult returns are reported to be low.

Due to the complex ecology of juvenile Atlantic salmon, **juvenile salmon densities do not necessarily relate to prior adult returns as the author suggests**. Juvenile Atlantic salmon are territorial and defend home areas against other juvenile salmon, using their home areas to procure the resources they need to grow. As the juvenile salmon grow, so too does their resource requirement, and subsequently the amount of space required to secure those resources. This increases the size of the home area they defend. This phenomenon, known as density dependence, limits the number of juvenile salmon that a given habitat can support and causes self-thinning, reducing the number of juveniles to the level that the habitat can sustain. Unlike trees, which also undergo a form of self-thinning as well, juvenile salmon can move to lessen the effects of density on themselves to improve growth and survival. Juveniles will choose the best quality habitat available to them to maximize fitness; however, as spawner abundance increases, the amount of use of more marginal habitats increases as well. Picture a movie theater: the best seats fill up first, with the seats at the front filling up last, and only if there are enough movie-goers to require the use of those seats.

Habitat control on production can cause juvenile numbers to remain seemingly stable: in years with low adult returns, juvenile survival is higher than in years where adult returns are high. This is especially the case if electrofishing sites are located only in optimal habitats for juveniles and do not consider marginal habitats as well (i.e. optimal habitats may retain stable densities while marginal habitats might show decreasing use if the system as a whole was functioning below total carrying capacity). Of course, this is grossly oversimplified, but illustrates the need for a better understanding of juvenile Atlantic salmon ecology in order to relate juvenile densities to prior adult runs.

3) It has been imposed upon people who live here by people who don't. As a result, it changes the mix of fishermen on the Miramichi which has always been part of this river's charm and character. Many visitors have observed that it is not the same without the locals on the river.

The new catch and release regulations have been imposed upon **everyone** by a government department which represents **everyone**. The decision made by the government reflects its interpretation of the will of the majority of the people, the majority of which evidently supported live release of grilse. The mix of fishermen on the river has not changed because of the new regulations, the fishermen that went to the river to find peace and relaxation, to enjoy the thrill of the chase and the song of the reel still remain. It is only those who went to the river solely to kill a fish that have stayed home. Local anglers have an equal opportunity to fish the river under a catch and release regime. If they are not doing so, it is by choice and suggests they are motivated to fish only if they can harvest a fish rather than for the joy and sport of the activity. If they were truly vested in being stewards of the river and maintaining its charm and character, they would still be fishing.

4) It elevates the value of the resource above the residents of the Miramichi. By managing people for the benefit of the salmon instead of the other way around, a vital sense of local stewardship is eroded as people are disengaged from their ownership of the resource.

The management of all watercourses in Canada falls under the purview of some level of government. **The government makes decisions taking into consideration the will of the people and by taking into account current scientific knowledge.** Managing fish is an oxymoron; have you ever asked a salmon to do something and actually had it do it? Wildlife management, by nature, is managing people. By managing the way that humans use the resource, change can be realized in wildlife populations.

5) It has caused most local anglers to simply stop salmon fishing this year. In their absence, a small but lethal number of poachers have seized the opportunity to fish and retain, no longer targeting grilse as in the past but now targeting large multi sea winter female salmon. As a result, more eggs in the gravel were lost to the Miramichi in 2015 than in previous years. The consensus among most biologists is "better to lose 15 grilse than to lose 1 female salmon."

It was common knowledge that, in a catch and release scenario, a loop hole in the system existed that allowed a person to fish on salmon waters (other than crown waters) with only a trout license (just had to say you were fishing trout if asked by an officer). Anyone who spent any amount of time in local fishing shops undoubtedly heard the complaints from locals. Supposedly, many local anglers took advantage of this loop hole and bought only a trout license in protest (see also 6)).

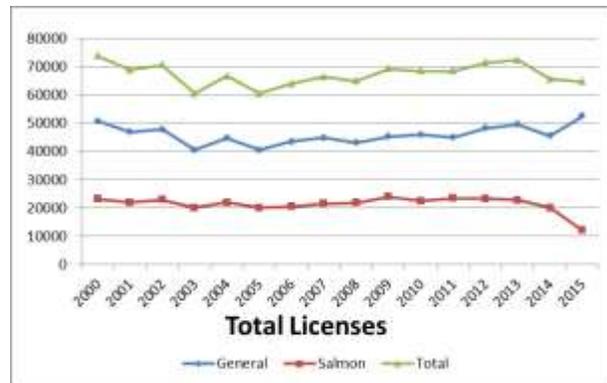
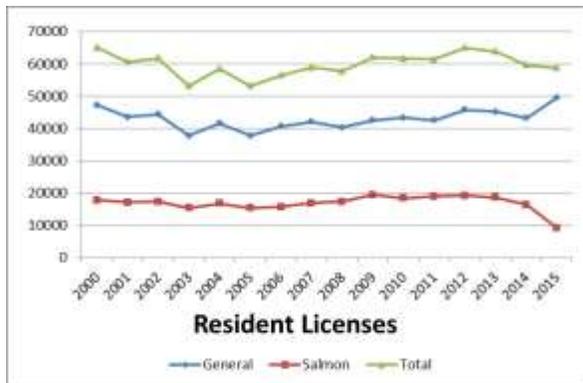
How could anyone know for a fact that poachers were targeting only grilse in the past and are now targeting large salmon? It is more likely that poachers were opportunistic and kept whatever they happened to catch. We would agree that increased angling presence on the rivers may discourage some poachers; however, those that want to poach clearly have no regard for the resource and will find a way to continue to do so, regardless of angler presence or regulations.

The author states: "more eggs in the gravel were lost in 2015..." This is an unprovable statement. Where's the evidence? Do we know exactly what the removals were from the system in 2015 and how they compare to previous years? Any credible biologist and resource manager would condone the loss of any fish, grilse or salmon, at a time when the resource is struggling. The more fish that make it to the spawning grounds, the more likely the population of juveniles will stay at or reach the carrying capacity for the river.

6) It has resulted in a 44% one year decline in N. B. resident license sales, leaving in its wake a major gap in surveillance, observation and deterrence of all forms of watershed misuse by poachers and other environmental offenders.

While the number of resident salmon licenses sold was indeed down, the total number of licenses (salmon and trout) in 2015 was well within the variability between years. Furthermore, it is impossible to determine what percentage of the loss of licensed salmon anglers would have fished the Miramichi for salmon or other salmon rivers in the province. How many of these licensed anglers fished salmon waters using a general license while exploiting the loophole in the law? Again, impossible to determine.

Although there was a sharp decline in number of Resident Salmon licenses sold in 2015 (7246 or 44%), there was also a corresponding increase in general licenses (6265 or 14.5%). This increase in trout licenses was the largest single year increase since in 1980 (15.2%). It should be noted that the licenses were free from 1975 to 1988. Non-resident licenses sales followed a similar trajectory, with salmon licenses dropping by 808 (22.3%) and general licenses increasing by 846 (37.3%). The overall net change in licenses (resident and non-resident) sold for 2015 was only down 943 or 1.4% from 2014. Another factor which may have influenced the number of licenses sold is the introduction of E-Licensing in 2015. Changes to licensing in the past; albeit, for increasing the fees, has had a negative effect on the number sold (i.e., total number of licenses sold dropped in 2005 and 2010 by 9.2 and 1.2 % respectively).



Resident (Left) and Total (Resident and Non-Resident; Right) salmon and general fishing license sales from 2000-2015.

7) It has been part of an unsuccessful effort aimed at setting a good example for the Greenland fishery, despite the fact that grilse don't go to Greenland. Dating only back to the late 1950s, the Greenland fishery is both predatory and opportunistic, lacking a foundation in either historic or aboriginal tradition. While great concern is expressed for the socio-economic impact of a reduction in the Greenland fishery, there is little evidence of consideration for a similar impact on the Miramichi.

In May 2015 the International Council for the Exploration of the Sea (ICES) advised that there was no surplus of multi-sea winter salmon stocks and that no fisheries should be operating on mixed stocks. There are currently 3 countries that are doing so despite scientific advice to the contrary: Greenland, France (St-Pierre et Miquelon) and Canada (Labrador). They also stated that **in-river fisheries should occur only on stocks exceeding conservation limits**. With the exception of 2011, the Miramichi River has **failed to meet conservation limits for the past 5 years** (2015 results have not yet been released). In 2014 the combined grilse and salmon contributions to egg deposition were only 55% of the conservation requirements for the Miramichi (SW 70% and NW 22%). Allowing **any harvest in our waters would be imprudent and against all scientific advice to the contrary**.

Unfortunately, we cannot simply ask another country to stop fishing by saying that we have more right to the fish than they do, it simply doesn't work that way. Greenland may look at us and ask "Why should we do anything more if you aren't willing to either?" **We cannot ask someone else to sacrifice their livelihood if we don't have our house in order**: in 2014 the total **Canadian harvest was 106 tons**; 51 tons in the recreational fishery, 53 tons in the aboriginal fishery and 1.6 tons in the Labrador resident food fishery. We can; however, lobby at sea fisheries to reduce their catches by showing them what we are doing and hope that it might influence them to do something in return. Changing angling

regulations is the easiest way to reduce our harvest, and might be a stepping stone to eliminating harvest in all Canadian waters as a good show for others and a way to increase our juvenile output. Short of sinking fishing trawlers off Greenland with Navy frigates, this is the way global politics work and is the only way forward.

There have in fact been several studies conducted on the economic importance of salmon fishing, most recently a study by Gardner-Pinfold commissioned by the Atlantic Salmon Federation, demonstrating that **anglers in NB spent \$44 million on salmon fishing**. According to Bill Taylor, President of ASF *“One of the conclusions of this report is a relatively simple concept, **the more fish there are; the more anglers travel to eastern Canadian destinations and more spending and jobs are generated in rural economies that are very much in need of such a boost.**”* Evidently, having more fish means more money for everyone that is supported by salmon fishing on the Miramichi. By that logic, catch and release will eventually lead to more fish and more money... why would anyone oppose live release if it meant it could improve their livelihood?

8) It continues a recent pattern of woefully inept collective bargaining whereby the angling fishery is subjected to massive restrictions and reductions with no expectation of anything in return.

The return, to anglers, of a catch and release management plan **is that it allows grilse to spawn, potentially increasing the number of fish in the river** in future years. Additionally, Atkinson and Moore (1999) found that 24% of all repeat spawners made their first spawning run as grilse. Two thirds of the grilse that make it back a second time were alternate spawners. For example, a grilse in the Northwest Miramichi averaging 22 inches and 4.4lb might return as a 32.6 inch fish weighing 14.2 lb., a 48% increase in length and a tripling of weight. A substantial size by any reckoning and what most would consider a trophy fish.

9) It enables DFO to evade their responsibility to properly manage all aspects of the Atlantic salmon fishery, having learned that when this is imposed, it seems to sufficiently appease the conservation industry.

Catch and release has been implemented as part of DFO's Atlantic salmon **management strategy**. They are taking a precautionary approach at a time when there seems to be more questions than answers. Without a doubt, if catch and release was not in place and the salmon returns plummeted, DFO would be blamed for not acting. This is one of those **“dammed if you do, dammed if you don't”** type of situation. That said, we acknowledge the need to further investigate the underlying causes of the decline in Atlantic salmon populations, catch and release is only a first step in reversing the trend.

10) It deflects attention from more serious threats such as high seas interception, the Greenland fishery, Striped Bass in the estuary, first nations gill net harvest of large salmon, Smallmouth Bass in Miramichi lake, predation from seals, mergansers and cormorants, pollution and disease from aquaculture, watershed degradation and habitat destruction.

As alluded to by the author **the threats to wild Atlantic salmon are many (we would include climate change and other human activities in addition to the outlined threats)**. **Catch and release is not designed,** or inherently meant, **to deflect attention from the myriad of other activities affecting Atlantic salmon numbers**. Rather, catch and release is one readily applicable tool that can reduce stresses on an already overstressed species. Catch and release affords anglers the opportunity to chase

this coveted species and increases the possibility that future generations of anglers have these same opportunities. With returns well below conservation targets, the only other real option to stem population decline would be to close the fishery altogether. It would seem shortsighted to selectively harvest grilse when the population is in decline; harvesting grilse prevents them from spawning this year and in all future years, by them and their progeny.

11) It has regularly been portrayed as the least we can do for the salmon, but it appears to be all we can do. Having done the least, our leaders seem content to do little else. Given their abundance of revenue, shouldn't we expect more from our conservation industry than the least we can do.

Saying that closing the retention season for grilse is the “**least we can do**” foremost admits that there is in fact a problem with salmon returns. It is true that closing retentions on a fishery is one of the fastest and simplest conservation methods for fisheries managers to sustain, and often grow a population. This first step, however, provides managers with the time required to design and implement larger scale, long term management strategies, while, at the same time sustaining a large enough population to make those conservation strategies effective.

By arguing for the immediate re-opening of the retention season on grilse, is the author not saying “**we would rather do less than the least we can do**”? This is not an all or nothing situation, and currently the “least we can do” may have a positive impact on our native salmon populations. Catch and release may also buy time for the implementation of effective, long term management strategies considering all parties of interest. Given the complex nature of the issues surrounding the decline in salmon populations and the need for complex solutions, it would seem that the conservation industry is doing more with their “abundance of revenue” than we could ever expect. This may be just the first step in reversing a decades old trend, but every great journey begins with a single step.

12) It unfairly blames and punishes the victim for the mismanagement of our Atlantic salmon resource. Advocates often pay lip service to knowing that the angler is not the problem and yet they offer no other solution than to target the angling fishery.

Unfortunately, **the only true victim of the mismanagement of this resource is the Salmon.** The angler is not the problem when operating within regulated season and limits; however, this does not mean that we cannot **be part of the solution.** Anglers have in no way been prevented from using the Miramichi river, enjoying the outdoors, or continuing to participate in what is one of New Brunswick's greatest pastimes. As stewards of the river, we have simply been asked to practice catch and release in order to sustain and grow this priceless natural resource for the future. The decision to close the retention season for grilse should not be considered a punishment, but rather **an investment that may ultimately reward the angler** with better angling opportunities in the future for years and generations to come.

13) It is a departure from a sophisticated, "river specific" management strategy which for more than 30 years has made the Miramichi the envy of salmon anglers the world over. The safety valve of grilse retention has ensured widespread compliance with the mandatory release of large salmon, long held by venerable anglers and advisers to be the most practical means of ensuring the future of the resource.

Imposing live release of grilse on the Miramichi has not changed any other facet of any supposed “river specific” management strategy. Furthermore, this management is hardly “river specific” as harvest is in no way partitioned among the branches and tributaries except through live release (e.g. North Pole Stream). Adult assessment data is not collected at any scale small enough to allow for a river specific management strategy on the Miramichi, that undertaking would require massive resources that DFO simply does not have.

Regulations have evolved with the times; prior to 1984 anglers could harvest large salmon and readily did so; however, with runs in decline it was seen that things had to change, and live release of large salmon was imposed. The author is quoted elsewhere as saying the following:

“No legal angler has killed a salmon on the Miramichi in 31 years and nobody wants to. Miramichi anglers have readily embraced, defended and complied with the requirement to release all Multi Sea Winter salmon since 1984. The exemplary initiative for this measure actually came from a grass roots movement of Miramichi residents and not from any of the present players in the conservation industry who so vigorously seek to overextend its original intent.”

(<http://www.miramichiriver.com/Concerns/index.php?page=killing.html>)

While this change in regulation did in fact come about from many concerned citizens, it appears that not everyone was happy about it. Fred Wheaton (interestingly, of Moncton NB), who later went on to be awarded the Lieutenant Governor’s Award for Wild Atlantic Salmon Conservation in 2012 for his part in ending large salmon retention, was quoted in the Times and Transcript in May 2013 as saying “*It was unheard of in those days*” ... “*There was all kinds of opposition to it.*” (<http://asf.ca/moncton-salmon-advocate-honoured.html>); however, nobody doubts its importance in maintaining the salmon runs in the Miramichi now, even the author. Fred Wheaton was said to be ahead of his time in the 1980s, but today live release of MSW salmon is readily accepted.

The concept of a “grilse safety valve” is absurd; why should anglers need to be satiated with keeping a grilse to comply with a law? We cannot allow the fear of poaching to influence any decision regarding the management of the resource. If poaching becomes an issue, the appropriate response would be to increase education and enforcement, not to make it legal for them to keep fish again. **Over time anglers have accepted live release of MSW salmon as being important for Atlantic salmon conservation, and with time they will recognize the important ecological role that grilse play in the Miramichi River as well.** Someday our children will look back at harvesting grilse in a time where salmon runs were on the decline as a foolish and short sighted vestige of the past, just as we do with harvesting MSW salmon today.

14) It serves as a smokescreen to divert attention from the massive failures of the conservation industry over the past two decades. In the leadership vacuum which has plagued the salmon world since the mid 1990's, our organizations have been hopelessly ineffectual at doing anything to address the many real threats to the Atlantic salmon. By their own rhetoric, they essentially admit to presiding over 20 years of declining stocks, having done little more than to discover new ways to monetize failure.

The author highlights in point 10 the various threats that afflict Atlantic salmon. Surely, it must then be evident that **the blame for declining stocks rests on the multiple stressors outlined in point 10 and not the “conservation industry”**. In light of this, **national and global efforts must be made in order to**

revive this beloved species. By and large, the bulk of the work currently underway to improve Atlantic salmon stocks is being made by conservation organizations, lobbying the government for change (i.e. live release), conducting important scientific research to investigate threats to Atlantic salmon (i.e. low at-sea survival), and educating the public about these issues.

15) It is usually a stepping stone to a total closure of the fishery. It subjects traditional angling practices including catch and release, to a level of public suspicion and scrutiny which often results in loss of privilege. The permanent closure of the entire Saint John river system in the mid 1990s is a perfect case in point, where DFO used anglers as a scapegoat, blaming incidental hook and release mortality. Interestingly, none of our conservation groups spoke in the angler's defense.

There is a need now to forget the offenses of the past, they are just that, in the past. It is clear now that DFO is not blaming the anglers for the downturn of salmon runs in the Miramichi, but is exercising one of its only immediate options to stem the decline. DFO should be commended for having the guts to do something at the risk of offending someone in a world where stepping on someone's toes even when it means doing the right thing is seemingly unspeakable. Rather than be divisive and contrary, **now is the time to band together to save a resource we share and cherish, regardless of creed.** The Saint John River is the perfect example of a river that might have been saved if something had been done before it was too late. It's hard to manage a salmon population without any salmon. If now isn't the time to reduce our harvest by practicing live release, then when? **We are at a turning point, and it is up to us to write the next chapter of this story.**

Unfortunately, catch and release is generally the last step before a total closure, it has nothing to do with the failure of catch and release to preserve stocks. Total closure is the next step after regulations and hard work have failed to provide a positive outcome. In most situations, **anglers are not the problem; the problem is large, complex, multifaceted and lacking the necessary research to properly understand and address the issue.** Often, these issues are so complex that it takes years of study to even begin to understand the issues before one ever comes to an actionable solution. In the meantime, there needs to be a way to buy time to discover these solutions, to preserve populations despite outside influences beyond our control. **We as individual anglers can do little to affect change, but we as a community can make a big change if we are to change ideals.** As the author has said elsewhere, the angling community on the Miramichi thinks nothing of releasing a large salmon, we wouldn't dream of keeping one in today's angling culture. Someday the paradigm will shift for grilse as well.

The author is correct, **angling and harvesting fish for the supper table is a privilege, one that we owe to future generations.** Until we can find a way to address issues affecting juvenile production, smolt production, predation, at sea survival, interceptory fisheries (just a few of a multitude of issues) we need to do something **NOW** to buy us time to find the solutions. We cannot just sit and complain while offering little in the way of a tangible solution. If seeing future generations have the opportunity to fish for salmon on the Miramichi means we cannot take a grilse home for supper, it seems a **small price to pay.**

16) It ignores the fact that angling is an inherently inefficient means of harvest in which the low chance of successful interception is part of its appeal. There clearly is no comparison between the casting of a tiny fly into a big river, seeking a voluntary response from a non feeding, transient fish and the use of mono-filament gill nets which are both lethal and indiscriminate.

No, there most certainly is no comparison between fly fishing and gill netting. If we read between the lines, we might assume that the author is implying that an open angling harvest is inefficient and; therefore, has little effect on spawning escapement in a given year. DFO data for the Miramichi from 1984 to 1994 indicate that an average of approximately 30,000 salmon were angled (all fish that were released and retained) per year, 20,000 of which were grilse. From this data, DFO has determined that approximately 30% of the annual return of salmon and grilse are angled in the recreational fishery on the Miramichi. **Dr. Fred Whoriskey, in the Atlantic Salmon Journal in 1998, is quoted as saying “If, hypothetically, each angler killed one grilse each rod day, we would kill every grilse in the river long before the end of the season.”** A recent study by Lennox et al (2015) showed 21% of fish tagged in the estuary were later recaptured by anglers on the Gaula River in Norway. ICES reported that nearly 60,000 salmon were angled in Canada in 2013. **Angling may be an inefficient means of harvest, but the significant effort (i.e. the number of people fishing and the number of rod hours) evidently more than makes up for it.**

17) It violates an overarching principal of selective harvest which should be the cornerstone of all resource management, including our woodlands.

Selective harvesting is an important concept in resource management, but for it to work, you must have a robust, multigenerational stock to begin with. Only once a large, stable, and self-sustaining population has been established can selective harvest be made effective. As was stated by John Shepherd **“Managing fish is like managing trees, except they move and you can’t see them”**. As such, it quickly becomes evident how very difficult it can be to determine the true impacts of harvest, especially when our initial stock is sitting so precariously low. It also becomes very easy to overharvest if we cannot determine the direct impact of our actions until years down the road.

Further to this, when trees are harvested in a woodland, foresters select trees or stands based specific management objectives. Forest managers take the time to consider the ramifications of their management choices for future forests. By retaining grilse prior to spawning from an already struggling population **we would essentially be undermining any chance for the population to be sustained for the future.** The concept of selective harvest becomes irrelevant if nothing remains to be harvested, and catch and release regulation merely acknowledges that when conservation thresholds are not being met, harvest should be suspended.

SUSTAINABILITY is the cornerstone of natural resource management

18) It risks putting too many grilse on the spawning beds. Harvesting some grilse would make it less challenging for large male salmon to mate with large females. As Dr. Fred Whoriskey said in 1998 in the *Atlantic Salmon Journal*, "the progeny of a grilse salmon mating are predominantly grilse." In his landmark book *The Atlantic Salmon*, Lee Wulff observes "Grilse rarely 'grow up' to be very large salmon....There is every reason to believe that if a grilse spawns, his progeny will inherit his tendency to return to the river as a small fish." (p. 208) He also contends that "discerning anglers will keep grilse for food but return the large salmon to the river in order to let these big fish spawn." (p. 11)

There is no conceivable risk in putting too many salmon on the spawning beds, particularly in a time when runs are on the decline. As evidenced in point 1, grilse may play a very important role in fertilizing the eggs of both grilse and salmon. Furthermore, competition on the spawning beds may lead to increased genetic variability and a more robust population. If it were true that the progeny of a grilse and a salmon mating were predominately grilse, (which is what Dr. Whoriskey meant when he wrote "grilse-salmon") over time and through multiple generations the returns would eventually consist of nothing but grilse. Based on the figures below, the numbers of large salmon returning to the Miramichi River have remained consistent over time.

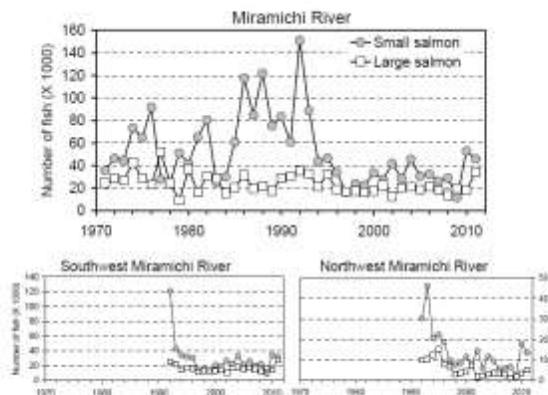


Figure 5. Estimates (median) of large salmon and small salmon returns for the Miramichi River for 1970-2011 (upper panel), the Southwest Miramichi River 1992-2011 (lower left panel), and the Northwest Miramichi River 1992-2011 (lower right panel).

When Lee Wulff, one of the forefathers of catch and release, spoke those words in 1983 he did not intend for his words to be used to advocate for the harvest of grilse from a river with a declining population, but rather **was advocating against the harvest of large salmon**. Lee Wulff was ahead of his time, but times have changed since those words were written. As times change, so must our management practices. An increasing body of evidence suggests that rather than being genetically determined, age at maturation (i.e. precocious parr (male only), grilse or salmon) is determined by environmental factors as individual salmon make the tradeoff between growth, reproductive output and survival post-spawning. As the mechanism appears to be adaptive, rather than inherited, the true risk to the population lies not in putting too many grilse on the spawning beds, but rather **the risk lies in not putting enough salmon (grilse or MSW) on the spawning beds to sustain future generations.**

19) It is a miserly management strategy which defrauds local Miramichi anglers of their birthright. The significance of grilse to the Miramichi's overall spawning effort is like "pennies to a millionaire", yet some persist in being penny wise and pound foolish.

The birthright of local Miramichi anglers is the ability to enjoy the river they were fortunate enough to grow up on – not to harvest salmon despite conservation concerns. We contend that this is the birthright of all residents of New Brunswick, not just locals. The river and the opportunity to fish it is still there. The strength of applying a catch and release management strategy is that while allowing the salmon population to rebound, it affords all anglers the chance of catching one of these highly sought after species. If anyone were to be robbed of their birthright it would be future generations that can only read stories of the glory of the Miramichi and never get to experience it for themselves. As highlighted in rebuttal point 1, grilse likely have great significance to the overall spawning effort in the Miramichi by balancing the sex ratio of the whole population. **If grilse were unimportant in the grand scheme of things** on the Miramichi, they would not be found in such high abundance in proportion to MSW salmon (see point 18) as **selection would have acted against them.**

20) It is a disgrace to a comparatively healthy ecosystem such as the Miramichi that its reputation has been so tainted by those whose irresponsible rhetoric resorts to whatever means necessary to get this measure adopted. In a 1998 press release, the ASF even quoted Art Lee's description of the Miramichi as a "dying river". In stark contrast, DFO science publications regularly refer to the Miramichi system as the largest producer of Atlantic salmon in North America.

The Miramichi is a comparatively healthy ecosystem, there isn't any argument there. The Miramichi has thankfully not undergone the insults of damming and hydropower development and continues to run free. Of course, it is easy to say that the **Miramichi is a comparatively healthy Atlantic salmon river when you compare it to others in Atlantic Canada** (i.e. the St. Croix, Magaguadavic, Saint John, Big Salmon, Point Wolfe, Petitcodiac, Nova Scotia Southern Upland Rivers, etc.) and the eastern United States (i.e. Merrimack, Penobscot, Kennebec, etc.). **It's easy to stay the best and be the "largest producer in North America" when many of the other rivers no longer have a salmon run to speak of.** The Saint John River used to be one of the best salmon rivers in the world, but nobody denies its reputation has changed. Rather than an irresponsible rhetoric, the rally towards catch and release for grilse comes from concerned citizens, much like those who rallied for live release regulations for MSW salmon and the closure of the commercial fishery for salmon on the Miramichi. There were naysayers then too, but history has proven that salmon runs can rebound when they are given a chance. The best and worst thing about reputations is that they can and do change, the reputation of the Miramichi can only be improved by doing what we can to increase Atlantic salmon returns.

21) Its justification is based upon a manipulation of limited adult assessment data which is both inconsistent and insufficient. This often results in inaccurate counts and knowledge gaps which DFO stock status reports readily admit.

Of course, DFO readily admits there are limitations to the data they collect; however, what is ever perfect in real life? What DFO does have is a consistently collected and scientifically defensible monitoring program that is the culmination of **one of the biggest and longest Atlantic salmon monitoring programs in the world.** The monitoring program in the Miramichi is the envy of others conducted elsewhere and represents **over 40 years of data** on returns and juvenile recruitment. Gaps

may exist in these data; however, the results are **scientifically defensible, comparable over time** and are **better than anything else we have**. As we have no other data, we must use this information when making management decisions. Furthermore; if the data are questionable, that is only **a justification to be more cautious, not less**. Despite misgivings with the data, we cannot proceed with a harvest and say everything is A-OK when all available evidence points to the contrary.

22) It drives non-residents away from the river by painting a gloomy outlook for the salmon resource. While most visitors have little interest in keeping grilse, they intuitively understand that any river which cannot feed its family cannot entertain its guests.

If visiting anglers are driven away from the river by a gloomy outlook it isn't because the river has become catch and release, **it is because the salmon returns are dwindling**. As the author attests, most visitors have **little interest in keeping a grilse**; however, they have a **strong interest in catching a fish**. With returns declining on the Miramichi, anglers may choose to travel to other rivers where their chances of success are greater because the salmon returns are better. One of the ways we can improve Atlantic salmon returns is by implementing catch and release, with greater returns drawing more anglers from away, injecting money into local economies.

23) It devalues the fishery and the associated angling infrastructure which over the years has been the primary vehicle through which the river has been protected and preserved.

The value of the fishery is a product of the number of fish in the river and the draw it exerts on anglers that travel to the Miramichi. Having more fish in the river will lead to more visitors traveling to the Miramichi to fish, increasing the economic value of the fishery to the local economy. Not harvesting fish and taking a precautionary approach to salmon management now gives better potential to preserve the economic value of the fishery for future generations.

24) It fosters a spirit of negativity in a sport which relies heavily upon anticipation and optimism. In this environment, a bad day's fishing is often viewed as a biological crisis and even a good day's fishing can be considered unsatisfactory, with some of our best salmon pools producing some of our loudest complaints.

Optimism is at the core of the sport of Atlantic salmon fishing, but any seasoned salmon angler understands that salmon fishing is not a sport where one catches fish on every outing. Unfortunately, **if salmon returns are poor, optimism begins to fade**. It's hard to be optimistic about your chances of catching a salmon when it is unlikely that there is one in the pool. Catch and release of grilse has the potential of adding fish to the river while harvest serves only to remove fish from the river. **The fish you release might be caught again later in the season or in another year, and left to spawn will contribute to future adult returns**. There is no conceivable way that harvesting a fish could improve the situation or add to the anticipation or optimism of anglers hoping to hook a fish.

25) It fails to apply a credible risk/benefit analysis to the management of the fishery and offers no proof of its efficacy. It clings to an idealistic agenda which is being advanced despite all pragmatic arguments and evidence to the contrary.

Catch and release must be viewed as pragmatic. The author suggests we continue to harvest grilse from a population in decline and expect things to improve. This is a **dogmatic approach!** All current evidence points to a population that is in decline, and it **seems ill advised to act against all scientific advice** to the contrary.

26) It has its origins in a motion adopted by the US directors of the Atlantic Salmon Federation in New York in November 1997, and by the Miramichi Salmon Association in Boston in Feb 1998. Since then, it has essentially been a solution looking for a problem. Rather than being a means to an end, it appears to have become an end unto itself.

In point 14 the author states that there has been “*20 years of declining stocks*”, which suggests there is a problem. Due to their anadromous behavior we cannot ensure Atlantic salmon safely return to New Brunswick Rivers every year (see point 10 – stressors on population). However, what we can ensure is the species safety once it arrives in New Brunswick waters. Surely then it seems logical that we do *all we can* to protect and revive salmon numbers. **As stewards of the river, anglers must see that we clearly cannot continue to remove potential spawners from the Miramichi in a time of population decline.** Therefore, regardless of where or when the catch and release motion was tabled and adopted, it is one of the strongest tools in our current arsenal to grow salmon numbers.

27) It is a bullying tactic resorting to the use of peer pressure and "grilse shaming" to marginalize a people and sacrifice a way of life that spans several centuries. It disengages the local fishery by robbing us of an essential element of our cultural and visceral connection to the Miramichi river.

Catch and release for grilse was never intended to marginalize or shame anyone, rather to **preserve a way of life** that spans several centuries. The true disengagement of the fishery from the river would occur if the salmon were gone and anglers were no longer able to ply the waters of the Miramichi for salmon. Having no recreational salmon fishery on the Miramichi River would rob **everyone** of an essential cultural and visceral connection to the Miramichi River.

28) It continues to be a divisive and controversial measure, squandering good will and fracturing a conservation consensus which until the mid 1990's had enabled anglers of all stripes to speak with a single, unified voice to address the many real threats to the Atlantic salmon

Can catch and release truly be viewed as a controversial measure? It facilitates population growth (Atkinson and Moore, 1999) while concurrently ensuring anglers can continue to target salmon. Evidence exists (i.e. Lennox et al, 2015) that released salmon survive to be perhaps caught again, but more importantly, go on to spawn. While some salmon fish for the sport, and others salmon fish for a fish to take home for the dinner table, the overall requirement for both of these to continue is a healthy and sustainable salmon population. With returns far below conservation thresholds, for salmon fishing to continue catch and release is the only regulatory option short of a total closure of the fishery. The goal of all anglers should; therefore, be to ensure that the fishery continues into the future. Catch in

release may be one of the ways of achieving that goal. With our own harvest no longer a threat to Atlantic salmon, we can now turn our attention to other, more difficult to address, issues.

Conclusion

With a unified voice as opposed to a splintered one, and a deliberate plan of action, the many real threats to the Atlantic salmon may be met and overcome. We are not locals and non-locals, we aren't meat hungry grilse bonkers and elitist snobs, we're anglers that share a love for the Miramichi and its salmon. Anglers, more than anyone else, share a common goal to see more fish in the river, regardless of if they hope to take them home or release them. Atlantic salmon anglers need to stand together to protect a tradition and privilege so that it can be passed on to future generations.

In closing, it is worth taking time to remember that catching fish is just one of the draws to fishing. The comradery, friendships, time in nature and life experiences that fishing fosters should not be overlooked. By preserving the strong tradition of salmon fishing – through catch and release efforts - we are not only preserving culture, but also preserving a way to connect with nature.

Tight lines.