

Winter
2020

THE MIRAMICHI SALMON ASSOCIATION'S WILD ATLANTIC SALMON RECOVERY PLAN



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INTRODUCTION

The Atlantic salmon is an iconic fish and has played an important role in history of the Miramichi River for indigenous people and the European settlers. Although the huge populations of salmon have disappeared today, the fish still are an important source of food for indigenous communities and generate millions of dollars in the sport fishing industry. There is also a sense of identity, knowing that Atlantic salmon require clean water and are a fragile species, so having salmon in the river is a symbol of the environmental health of our ecosystem.

The Department of Fisheries and Oceans estimate of adult Atlantic salmon returns to the Miramichi Watershed in 2019 was the lowest recorded in history. If this trend continues, the wild Atlantic salmon could become endangered in our lifetime. Although there are issues in the ocean that are contributing to poor returns, many problems exist within our watershed and in our province where we can address the issues. The MSA believes the local decline can be attributed to three main factors: predation, habitat degradation, and stock management issues. In this plan you will find actions that the MSA believes can be taken to recover the Miramichi Watershed's salmon stock, including some measures that are already taking place, but it isn't all inclusive and other ideas are welcomed.

PREDATION

STRIPED BASS

Problem: The striped bass is native to the Miramichi River and the population was in decline until DFO took measures in 2000 to protect the species. Drastic measures were implemented such as closing commercial and recreational fisheries and measures were taken to prevent by-catch of juvenile bass in smelt fishing gear. The species was also listed as "endangered" and the Northwest Miramichi was identified as the only spawning ground for bass in the Gulf of St. Lawrence. The results have been incredible, going from 5 thousand fish in 2000 to 1million fish in 2017. Striped bass are on the spawning grounds in the Miramichi River at the same time that smolts are migrating to the ocean. As the number of striped bass increased, the survival of young salmon smolts on their way to the ocean has fallen from 70% survival to 20% survival compared to the Restigouche River where smolt survival to Chaleur Bay has remained constant at 70%. It is known that striped bass are voracious feeders and will eat any fish that is smaller than them. The MSA and ASF have demonstrated this predation on salmon smolts through a smolt tagging research program.

Solution: The MSA is calling for DFO to make sure that the striped bass population remains healthy by having a 50k minimum spawning requirement on the river. The population of striped bass in 2019 was 315k spawners which is far too many fish in the river when

spawning requirements are only 32k. Allow recreational anglers to keep 3 per day larger than 50cm (with no upper limit) and in the fresh water portion of the river above the head of tide, 3 bass per day with no size restrictions. Eel Ground First Nation has an experimental commercial license to fish for striped bass and the quota is set at 50k fish. The MSA would like to see the First Nations quota increased until the population of bass is decreased to 50k spawning fish. The striped bass are impacting salmon and other species such as sea-run brook trout, smelts and gasperaux and the ecosystem needs to be balanced.

GREY SEALS

Problem: The grey seal population in Canada has exploded in the past few decades and the population is closing in on 500,000 animals. In the Gulf of St Lawrence alone, the population has grown from 5,000 seals in the late 60's to 44,000 today. An adult grey seal can eat approximately 40 pounds of fish per day. The increase in the seal population has resulted in a reduction of many species of fish. In 2012 the Canadian Senate called for a seal cull of 70,000 grey seals and in 2019, DFO declared that codfish are on the brink of extinction in the Gulf of St. Lawrence unless the grey seal population is controlled there.

Solution: The MSA supports a sustainable seal harvest by our local First Nations. Every part of the animal should be utilized and markets exist for the hide and meat. This venture for First Nations will need seed money to provide boats, equipment and processing facilities. The MSA believes the Government of Canada has a responsibility to enable First Nation Communities to do an experimental sustainable grey seal harvest starting in Miramichi Bay. The adult salmon and other fish species like the cod will benefit from controlling the population and the sustainable First Nation Seal Harvest will not be as harshly viewed by our trading partners that try to discourage seal harvesting by imposing tariffs.

OTHER

Problem: There are many other predators of Atlantic salmon in the river environment, including mergansers, cormorants, kingfishers, osprey, eagles, herons, mink and otter, to name a few.

Solution: A balanced ecosystem is a healthy ecosystem and we need to make sure that we have a healthy population of all predator species. If the population of a particular predator increases out of proportion, then it can upset the ecosystem we have become accustomed to. Changes from reduced trapping effort to protection of certain bird species can cause some of these disruptions to the ecosystem and we need to be aware if this situation is happening.

HABITAT DEGRADATION

WARMING WATER

Problem: Faced with global warming, cold water sanctuaries are becoming very important for Atlantic salmon survival. Generally water is cooler in the headwaters of a watershed and warms as it travels downstream due to the general warming by the sun. It is the cold water inputs in the lower half of the river that provides sanctuaries for fish to move into when the river heats up. These pools are important for fish to rest in, but are often shallow and need to be made safer from predation. The easiest way to make improvements is to dig out the pools and strategically place boulders to keep the water deep over time providing greater protection. There are ongoing issues with this program that include identifying pools, getting equipment on site and the engineering plan required for ideal boulder placement. This requires time for pre and post assessment and a large financial commitment.

Solution: The MSA has been conducting cold water habitat enhancement projects since 2014 (two per year) and will continue to do so in collaboration with the North Shore Micmac District Council under a new funding source where \$1m will be spent to identify, assess and enhance pools over the next four years.

LAND AND WATER MANAGEMENT

Problem: The climate is changing and there is no doubt we now have severe rains, droughts and ice out events and what happens on the land effects the water. Forests are extremely important to our watershed as they provide shade and a root system that allows water to stay in the ground longer which is why we need a well-managed forest where harvesting timber and protecting our water goes hand in hand.

Solution: To accomplish a well-managed forest we need the provincial government to examine forestry practices with a goal to reduce impacts to the waterways i.e. reduce the size of clear cuts and increase buffer zones along our waterways. The government has announced an increase to 10% (from 4%) of crown land to be designated Protected Natural Areas and the MSA is preparing a submission that will identify sensitive cold water areas along the Miramichi Watershed and suggest increasing buffer zones to protect cold water and reduce sedimentation.

STOCK MANAGEMENT

TRANSFORMATION PROGRAM

Problem: The Department of Fisheries and Oceans is the primary decision maker for fisheries activities in the Miramichi River and elsewhere. The Government of New Brunswick, First Nations and local stakeholders, including the MSA, are looking for greater input into fisheries management decisions.

Solution: DFO is in the process of establishing a new committee that will be made up of representatives from Federal, Provincial and First Nation governments and identified stakeholders to make management decisions concerning all the fisheries of the Miramichi. The MSA has been informed that the new committee will address issues such as invasive species, pollution, habitat degradation, stock declines, and will formulate plans and policies to restore the salmon population in the Miramichi Watershed.

INCIDENTAL CATCH

Problem: Box Trap Nets have been a fixture of the Miramichi River for over 200 years for commercial salmon fishing and today for the gasperaux commercial fishing industry. The dilemma is that fish of all sizes (including large salmon and striped bass) get into the trap nets and when harvesting, the fishermen lift the net and crowd all the fish into one corner and dip them into the boat with mechanical dip nets. In the past the salmon were easily lifted out with a small amount of scale loss. In recent years, with the exponential growth of the striped bass population, the large mass of fish in the traps have accounted for increased scale loss for salmon causing increased mortality and in some years can account for up to 500 salmon perishing.

Potential Solution: An innovation that should be tried is to place small bars at the 8 inch opening of the beard with gaps of 2 ½ -3 inches between bars. This would allow for the gasperaux to easily enter the trap but deter the larger fish, such as the salmon and striped bass, from entering the box trap. This would decrease the amount of labour for the gasperaux fisherman (they do not have to sort through the other species to return them to

How does a box trap net work?

The whole apparatus is suspended on poles driven into the bottom and tied together by horizontal poles at the top. A net (leader) that goes perpendicular to the shore starting in shallow water until reaching a depth of approximately 20ft. The box trap net is placed horizontal to the shore at the end of the leader and is approx. 60ft long and 12ft wide and has netting on the bottom and sides. The fish are lead into the box trap and if they turn into the current, they will swim into a funnel (beard). The beard is 2 side panels of net that starts 12 feet wide from top to bottom and narrows down to an 8 inch opening to funnel the fish in to the large holding area. Once inside the large area, it is difficult for the fish to find the way out. The fish can also decide not to go through the beard, if it is too small, and can turn around and go back out the way they came in.

the water). There are adjustments and trials required before this would be accepted by the fishermen such as: How long should the bars be? How will they fold as the netting is being lifted to allow for emptying the fish in the trap? The MSA believes there needs to be a trial for this type of innovation supported by the Department of Fisheries and Oceans and it could potentially save 500 salmon per year.

ILLEGAL REMOVALS

Problem: When fish congregate in cold water pools during warm water events and the pools are closed to anglers, poachers are targeting some of these areas. They can easily net the fish because they are crowded into a small area.

Proposed Solutions:

1. The MSA would like to see a dedicated task of enforcement officers that will ensure poachers are caught. They need to have the proper monitoring tools in place, such as cameras and citizen informants, conduct patrols and the ability to rapidly respond to any reports.
2. The MSA would like to be permitted to place obstructions such as floating trees that would be anchored to the bottom of the river to deter poachers and provide cover for the fish in the cold water pools. Once the warm water protocols have been lifted, the trees would be removed.

INVASIVE SPECIES

Problem: Invasive species are a worldwide concern and the Miramichi Watershed now has an invasive species: smallmouth bass. The smallmouth bass were discovered in Miramichi Lake in 2008 and for the past 12 years the MSA and other organizations have lobbied for its eradication. This past year smallmouth bass have been confirmed in the Southwest Miramichi River. The smallmouth bass are voracious predators with the potential to alter the food webs of freshwater ecosystems (example: the Saint John River) and need to be eradicated immediately from both the river and Miramichi Lake.

What is Rotenone?

Rotenone is a naturally derived organic compound found in the roots of bean plants in South America and the Pacific Rim countries. Traditionally used by Indigenous communities to catch fish for consumption, rotenone has been officially registered for fishery uses in the United States since 1947. Today it is the most common method used for controlling invasive fish species worldwide. Health Canada's *Pest Management Regulatory Agency* has reviewed and approved products containing rotenone for use in waterways in Canada.

Proposed Solution: The MSA along with other conservation partners, led by the Northshore Micmac District Council, have applied for permits to use rotenone to eliminate the species from the lake and a portion of the river. It is imperative that the smallmouth bass be eradicated from the river; however, there is still some opposition to the plan. This is the only course of action to protect the Miramichi Watershed ecosystem with a short term inconvenience for a long term benefit.

BEST ANGLING PRACTICES

Problem: As the number of adult salmon returning to the Miramichi River declines, the first target of the government has usually been to reduce angling effort. This has resulted in a catch and release only for anglers and we have to be careful that further restrictions do not occur.

Solution: During this critical time, anglers have to be diligent to ensure “best practises” are utilized. Some of these include using pinched barb hooks, restricting playing a fish to 10 minutes when the temperature is over 20C and policing other anglers and reporting any infractions. The other option is a total closure to angling.

STOCK SUPPLEMENTATION

Problem: With adult salmon returns now falling below the new DFO Limit Reference Point (LRP) there is serious potential harm occurring to our salmon population. This arises from not enough individual salmon to maintain the populations genetic diversity, so more juveniles are required in the river. The ultimate solution is getting more adult salmon to return and deposit eggs in the river, however, until we determine the cause of marine mortality of salmon, stocking is another way to ensure high juvenile densities in the river. Stocking strategies have to be carefully weighed to ensure the river will benefit from the activity and not hurt its genetic integrity. We have visited all the scenarios and concluded that traditional hatchery practices of going out and collecting adult salmon that are returning to the river is impractical when the numbers become extremely low. They should be allowed to spawn in the river to reduce the risk of accidental mortality due to transportation or holding. The best strategy for stocking is to put either eggs in the gravel or the very earliest life stages of the salmon’s life as fry; however, in order to get eggs or fry you first have to have adults with eggs.

Interim Solution: The program the MSA believes is the best current solution is a smolt to adult supplementation program. We have chosen to collect wild smolts on their way out to the ocean prior to predation by striped bass and unknown sea loss. We know that their survival is very low, only about 2% or less are returning as adults. We can collect these smolts and bring them to our hatchery facilities and grow them to be adults which will produce eggs, at which time we have 2 options. We can put the adults in the river to return

to their spawning grounds and deposit their eggs naturally or we can spawn them at the hatchery and stock the resulting fry. The best way is to let the fish spawn naturally and we have 3,400 adult salmon ready for release in the NW Miramichi this year. Either way we have to have adult fish to get eggs and the only viable way to get those adults is to capture young smolts and grow them to the adult stage. This can provide a short term reprieve while long term solutions are implemented as discussed in this document.

CONCLUSION

The above actions should improve the number of adult salmon returning to the Miramichi, but these are not actions that the MSA can undertake on our own. Many items require a partnership with our local First Nation communities and other conservation groups, but all activities are conducted under permits by the federal and/or provincial governments and if they are not partners in the process, then success will not be achievable.

We are at a critical time in salmon conservation. Stocks are still high enough to be turned around, but if no action is taken, they are on an extinction vortex and some experts predict that the population will be near extinction in 17 years. We need action now.