



**RESPONSE TO:** DFO Wild Salmon Conservation Strategy  
**SUBMITTED BY:** NB Salmon Council (NBSC)  
**DATE:** October 29, 2022

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The mission of New Brunswick Salmon Council's (NBSC's) is to promote conservation and wise management of the wild Atlantic salmon populations and their environments in New Brunswick.

The following suggestions are provided to DFO for the Wild Salmon Conservation Strategy by identifying specific actions and issues that should be accomplished to improve Atlantic salmon populations in New Brunswick. **Appendix A** includes more detailed explanations of several points raised in the body of this response document.

## **Key Pillar I: Addressing Key Threats**

DFO Objective 1.1: To decrease salmon mortality in our waters and Canadian-origin salmon mortality internationally, while respecting socially and culturally valuable fisheries.

DFO Objective 1.2: To ensure that the quality, quantity, and accessibility of freshwater habitat does not limit the conservation of Atlantic salmon.

DFO Objective 1.3: To understand and mitigate current and future impacts of marine threats on Atlantic salmon stocks.

### **Council Suggestions and Observations on this Pillar**

#### **Short-term (1-5 years)**

Many current causes for mortality of NB salmon are already well known and have been well studied. In some of these cases the Canadian government had made legal (and other) commitments to remediate or mitigate salmon mortality. Unfortunately, some of these commitments remain unfulfilled. Where possible fulfillment of these obligations should commence immediately.

Some short-term suggestions include the following:

- There is a need to avoid and mitigate impacts to salmon habitat from forestry, agriculture, mining, aquaculture, hydrocarbon development and production, and other resource development, land-use, and water-use practices. Improved enforcement of the existing Fisheries Act can assist with this in the short-term.
- Invasive Smallmouth Bass in the Miramichi Watershed needs to be addressed **immediately**. (See **Appendix A-1**).
- Impacts of the Mactaquac Dam and headpond, and indeed of all four dams on the Wolastoq system and of those on the St. Croix need to be addressed. (**Appendix A-2**).
  - Establish a minimum Tobique River flow to maintain minimum wetted area on the main stem Tobique River.
  - Implement a SAS program on the Nashwaak River (with the program growing to include other rivers in the outer Bay of Fundy Designatable Unit) to begin to create the egg production that will be vital to fulfilling the 500,000 2 year old smolt commitment at Mactaquac. This is an **immediate priority** as no plan can work without salmon eggs.



- There is an ongoing and well documented acid-generating waste rock impact to 40 Mile Brook from the Caribou Mine (Nepisiguit drainage) a situation that has been ignored for decades. DFO/ECCC should be regulating this.
- DFO needs to address the negative impacts of Open Net Pen aquaculture on Wild Atlantic salmon. **(Appendix A-3)**.
  - Obtain NASCO approval of plans to control sea louse infestations and escapee occurrences.
  - DFO must assume its responsibility to regulate this industry as forced recently by a BC court ruling.
  - Remove the conflict of interest at DFO between conserving and protecting wild salmon and supporting a privately owned aquaculture industry.
  - Bring consistency to the inexplicable policies towards open pen salmon aquaculture where, on the west coast nets are being from the ocean, while on the east coast DFO is supporting the Open Net Pen industry.
- On the greater Miramichi system, DFO needs to address the overabundance of striped bass, which are detrimental to salmon, brook trout, and forage species. **(Appendix A-4)**.
- To our knowledge, the Federal Government does not have a stocking policy. The NBSC has developed a stocking policy that we think strikes an optimal balance between a no-stocking approach to Atlantic salmon productivity and harmful reliance on hatchery-produced fish. We understand that DFO is aware of this policy document and is in possession of it.
- Implement the proposed smolt-to-adult supplementation (SAS) plan on the Northwest Miramichi system. Restore egg deposition to a respectable level - i.e., > the Precautionary Approach Limit Reference Point of 1.74 eggs per m<sup>2</sup>. The Southesk hatchery is a technologically-modern facility capable of meeting this goal.
- Address the Harmful Alteration, Disruption and Destruction issue. We suspect other potential HADD compensation projects are similarly hamstrung as that described in **Appendix B**. As discussed in this Appendix, we are prepared to help implement our proposed solutions in partnership with DFO and First Nations to assist in inclusion.

### **Long-term (5-20 years)**

Some Long-term suggestions include the following:

- Impacts of the Mactaquac Dam and headpond, and indeed of all four dams on the Wolastoq system and of those on the St. Croix need to be addressed. **(Appendix A-2)**. Suggestions include:
  - Install downstream passage facilities for pre-smolts, smolts and kelts at all hydropower dams.
  - Provide the 500,000 smolts or their equivalent as required under the original Mactaquac Dam construction agreement. **(Appendix A-5)**.
  - Address staffing and operational funding for the Mactaquac Biodiversity Facility. A major upgrade or replacement of the facility is necessary.
- The Federal Government's number of salmon population monitoring locations and Index Rivers to clarify the status of both adult and juvenile populations are inadequate to support effective



conservation and management and to establish reliable salmon stock assessments and the implementation of the Precautionary Approach.

- With regards to the impacts of Climate Change, we suggest focusing on the protection of cold water refuge and improvements to standards for forestry practices (e.g., Improved buffer zone requirements, the decommissioning of unused forest roads including ditches that short-circuit groundwater and expose it to warming).
- Move all open net pen finfish aquaculture facilities onto land to mitigate the disease, genetic outbreeding, and predator attraction and predator population enhancement effects of this industry on wild Atlantic salmon.
- Wild salmon harvest numbers for all fisheries should be established based on the Precautionary Approach (PA). (**Appendix A-6**).
- There should be special scheduling of effort based on unique river stocks (e.g., protect the iconic 3 sea-winter maiden Restigouche River salmon).

## **Key Pillar II: Prioritizing and adopting collaborative management approaches**

DFO Objective 2.1: To prioritize conservation efforts and investments toward those that support achievable ecological, social, cultural and/or economic benefits.

DFO Objective 2.2: To actively pilot place-based collaborative management approaches.

DFO Objective 2.3: To effectively manage all reared Atlantic salmon for conservation purposes

### **Council Suggestions and Observations on this Pillar**

- DFO has introduced recreational fisheries management regulations that often do not involve common sense thinking and do not contribute to salmon conservation goals, (e.g., a two fish per day C&R limit).
- Harvest-by-abundance principles and peer reviewed science are not broadly applied to control and mitigate the effects of predation on salmon stocks.
- There is limited application of cost of activity, probability of success, or availability of human and financial resources being applied to government programs.
- The minor influence of live release (catch-and-release, C&R) angling is not being properly applied to the recreational fishery regulations. (**Appendix A-7**)
- Opportunities should be explored on how to engage conservationists in deterring poaching.
- There is a lack of valid consideration of user's input in the management of the resource.
- Create restrictions on boating activities on the Restigouche and Upsalquitch rivers during periods of stress when fishing restrictions are applied during the implementation of the warm water protocol
- Interprovincial and federal regulations should be harmonized.



- Address the difference in DFO priorities and funding for Pacific salmon versus Atlantic salmon as demonstrated by the number of DFO Fish Culture facilities for Pacific Salmon on the west coast versus the number in the Maritimes and NL.
- Establish a working relationship between DFO and US management agencies to bring salmon back to the Aroostook and other trans-boundary drainages. (See the Aroostook situation, **Appendix A-8**).

### **Key Pillar III: Strong leadership, coordination, and accountability**

DFO Objective 3.1: This objective to be established through ongoing engagement with Indigenous peoples, to recognize the rights, relationship, and values of Indigenous peoples.

DFO Objective 3.2: To strengthen Canada's approach domestically and internationally, including at the North Atlantic Salmon Conservation Organization (NASCO), as a leader in Atlantic salmon conservation.

DFO Objective 3.3: To enhance transparency, accountability, and coordination to support better relationships and conservation outcomes

### **Council Suggestions and Observations on this Pillar**

- Council sees a need for better, effective resource management, stronger leadership, constructive communication including collaboration among all stakeholders to bring about positive change and action.
- There is a need for better cooperation and collaboration between Federal and Provincial Governments.
- Increase transparency in DFO decision making and announcements of regulation change. Users of the resource are often surprised by DFO decisions.
- There is a need to establish well-defined mechanisms for public and community involvement
- There is an incomplete understanding of First Nations' fishing rights and responsibilities.
- There is a lack of enforcement by governments.
- Meaningful input on the development and implementation of the Precautionary Approach. (How we see the PA's application to the recreational salmon fishery is included in **Appendix A-6**).
- Effective methods to reduce mortalities of wild Atlantic salmon stocks from various fishing activities.
- There is a need to recognize the value of the "Guardian" program like the NL model.
- There is a lack of clarity of the roles and responsibilities of governments and NGOs. The Constitution determines government's "**responsibilities**". The "**roles**" of NGOs including the NBSC, and the Atlantic Salmon Federation need to be identified and accepted by the players.
- There is a lack of recognition that Watershed Management groups are far more effective in providing habitat improvement, pollution, and knowledge as to what should be done on the rivers than government.
- Some form of small watershed based fish enhancement programs are required to activate community participation.
- DFO staff need to develop effective methods on how to work with volunteers.



- The Recovery Potential Assessment documents for the Inner and Outer Bay Designatable Units identify the Open-net-pen aquaculture industry as being a major threat to recovery. Nothing has happened to curtail the industry since the publication of these documents.
- There is a long standing issue in the Upper Saint John Region where DFO Gulf Region has protection responsibilities while Maritimes Region has Science, Habitat and Management. This seems to be and often is unworkable.
- There is a need for an annual Report Card with respect to performance of NB and Federal Governments with respect to salmon management.
- First Nations must be brought into the overall management and salmon activity milieu. Issues like presence of uninvited First Nations anglers on Crown Reserves, poaching by First Nations people, and the reduction in egg deposition caused by the overharvesting of large, mostly female salmon in FSC programs will be solved only after the First Nations have bought into management and fish habitat related activities. They have to feel that they have an accepted stake and influence in the process.
- There is a lack of community education programs which emphasize the economic, social and conservation importance of the wild salmon resource to this province.

## **CLOSURE**

In closing, let us say at that we are tired of high-level motherhood choices such as those suggested in the “Let’s Talk Atlantic Salmon” online engagement questionnaire. We are sure that it is not the original intent, but it has been our experience that these stratosphere-high level exercises, such as the Transformational Process, almost always cause paralysis by analysis, or paralysis by consultation, or paralysis by planning or paralysis by vision development.

As implied at the outset, we are somewhat suspicious of a process that seeks to develop a management regime without a direct and meaningful dialogue with organizations such as ours and our affiliates who directly engage in current Atlantic salmon conservation and management. We could be the vehicles for the delivery of the output from this process. We expect better than an online opinion poll.

The Atlantic Salmon Conservation Foundation / NBSC Symposium in Fredericton (Oct. 26, 2022) might be a good first step for starting multi-party cooperation and rapid conservation and enhancement action. Keep this type of dialogue going but try to discourage weary, grandiose proclamations that makes participants’ eyes glaze over. Rapidly get a system established and get on with project implementation. As an aside, we hope the vast majority of our recommendations proposed in this document will be implemented, not just ignored after cursory consideration. With the current state of NB salmon populations, why not give them a try?

On another positive note, we are encouraged to have direct access to DFO’s fisheries management system through coordinators Sarah Tuziak and Luc Theriault. We look forward to working with them. We note that Canada once had a Recreational Fisheries Director. When he, (Les Dominy) retired, he was never replaced. It would be helpful to have direct contact to Ottawa through the re-establishment of a position such as this.



## **Appendix A – Details on Bulleted Points**

1. **Miramichi River smallmouth bass:** There should be zero tolerance for introduced smallmouth bass and other invasive species that affect wild Atlantic salmon. Implement a plan to eradicate smallmouth bass from Miramichi Lake. The plan does not have to use chemicals, but it must have a 100% chance of successful eradication of the species from the Miramichi watershed, or at least the lake. (Fishing derbies will not work. Cheap barrier fences have been shown to not work.) A permanent engineering-designed barrier incorporating stop logs or another method to draw the lake down to expose bass nests in the spring will work eventually.
2. **Effects of hydropower on the Wolastoq River:** Install downstream passage facilities for pre-smolts, smolts and kelts at all hydropower dams. (Note: Because of the huge springtime flows and debris loads, this will be very difficult at the Mactaquac Generating Station and Dam, but optional designs should be examined. If such a structure is deemed to be infeasible, early spill via a fish-passage friendly spillway may be required to flush kelts and early smolts. Later, because of the large Kaplan turbines with associated large turbine gaps that minimize blade strike, and tailrace back-pressure that limits cavitation at this generating station, the passing of smolt-sized fish through the units may be acceptable. The associated mortality of 10% or less, a value extrapolated from similarly sized facilities, could be compensated in some manner.)

Priority should be given to downstream passage at Tinker Dam on the Aroostook River. Studies in the past have revealed very large smolt mortality rates at this facility. (The NBSC can share the calculation of these rates.) Via carrots and/or (large) sticks the owner of the Tinker Dam should be brought on board to construct a downstream by-pass sluice at the dam. Beechwood should be priority #2 for downstream passage facilities, and the existing Tobique Narrows by-pass and collection facility should be retrofitted to work effectively.

Use generation and spill that produces a rapid (within one day if possible) 5' drawdown to flush salmon smolts from the Mactaquac headpond in the spring prior to June 1. This should enable post-smolts to get to the high seas before they are confined by warm water to the Bay of Fundy or to the headpond by low current velocities. This action addresses concerns in Marshall (2014).

Reference: Marshall, T.L. 2014. Inner Bay of Fundy (iBoF) Atlantic Salmon (*Salmo salar*) Marine Habitat: Proposal for Important Habitat. DFO Can. Sci. Advis. Sec. Res. Doc. 2013/071. vi + 69 p.

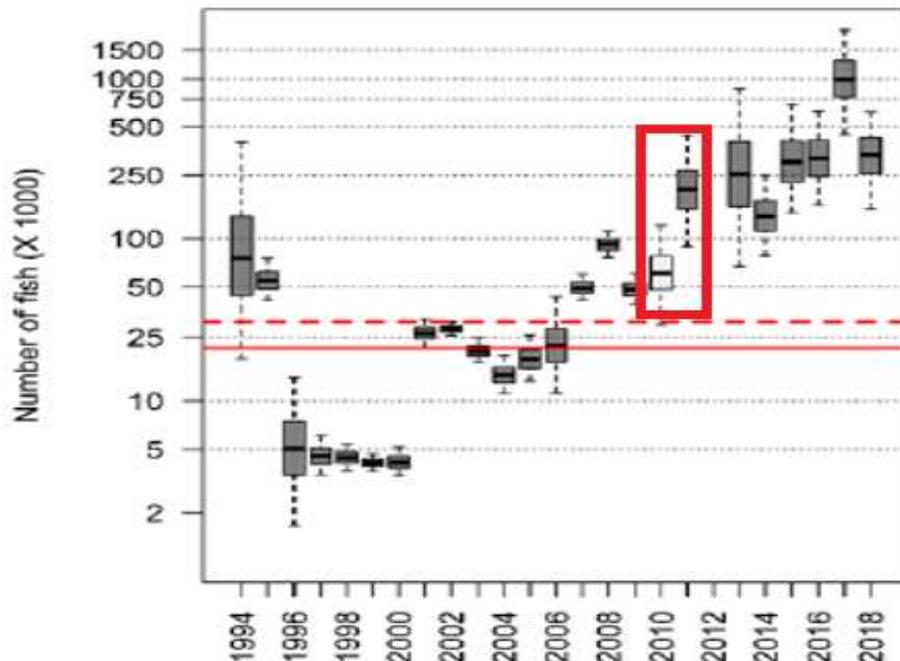
3. **Effects on Open Net Pen finfish aquaculture:** Remove the conflict of interest that is well known and condemned in various reports; that conflict being between DFO's requirement to conserve wild salmon and DFO's mandate to support and expand the aquaculture industry in Canada. Replace the science positions currently directed at promoting aquaculture to positions that are focused on conserving and augmenting wild Atlantic salmon, which was DFO's original mandate.



DFO should assume its responsibility to manage/regulate this industry. Non-government Organizations (NGOs) had to bring legal action to force DFO to assume these responsibilities on the west coast. This should apply to all Canadian jurisdictions, not just on the west coast, and not only when forced to by legal action. Assume one approach to aquaculture management on all Canadian coasts. Why is DFO removing open net pens on the west coast while supporting this type of rearing system on the east coast?

Eventually move all open net pen finfish aquaculture facilities onto land to mitigate the disease, genetic outbreeding, and predator attraction and predator enhancement effects this industry has on wild Atlantic salmon. Requirement to have all fish farming conducted in land-based facilities should be legislated, not incentivized. Any incentive funding should flow to wild salmon conservation initiatives.

4. **Striped Bass on the Miramichi:** To support the tenets of its own Sustainable Fisheries Framework which emphasizes an ecosystem approach, DFO needs to institute a management regime for the Miramichi's striped bass population that will protect and promote the integrity of the Miramichi ecosystem and all the fishes and fisheries which it supports. It is our contention that striped bass numbers should be controlled to bring spawning stock numbers to between the 66,000 spawners that occurred in 2010 and the ~230,000 value that was calculated in 2011. After 2011, adult salmon returns started to decline as striped bass numbers remained above 150,000 (Note; No estimate in 2012) and have exceeded 300,000 since 2015 (See the Figure 1 below.) The red box indicates the point of increase in bass numbers to unacceptable levels.



**Figure 1** Log-Scale Striped Bass Spawner Numbers in the Miramichi Estuary since 1994 (DFO, 2021)



5. **The Mactaquac Biodiversity Facility:** The original compensation agreement for construction of the Mactaquac Dam and Generating Station required the production of 500,000 smolts annually in perpetuity from 1968. These fish or their equivalents should be produced starting immediately. The smolts not produced over the years should be provided as well, and in addition a top-up interest rate for these deficiencies in terms of additional smolts should be applied. Expand the program to include SAS initiatives on rivers downstream of Mactaquac with the Nashwaak River's being a priority. Other Outer Bay of Fundy rivers should be considered as well.
  
6. **Following the Precautionary Approach:** Harvest numbers, based on the Precautionary Approach (PA), should include, and consider the effect of all fisheries. (We acknowledge this will require agreements with First Nations.) With respect to the recreational salmon fishery, C&R should be applied as follows:
  - C&R should be mandatory within the Critical Zone. It has little-to-no negative effect on egg deposition. (See the subsequent detail bullet in **Appendix A-7.**),
  - Within the Cautious Zone there should be increasing harvest as spawning stock abundance increases (a harvest of probably one, to a maximum of four grilse per year per full-season recreational salmon licence holder), and
  - Within the Healthy Zone the maximum annual harvest level within the Cautious Zone should be continued (probably four grilse per year).

**NOTE:** At low levels of population abundance, all salmon harvests should concentrate on grilse, which are largely male, with female grilse having lower rates of fecundity and lower survival rates for their progeny within the egg to smolt window than for the progeny of multi-sea-winter female spawners.

7. **Catch and release:** DFO should stop imposing ineffective regulations on anglers and the angling industry about catch-and-release (C&R) of salmon and follow science on such matters. C&R fishing has no associated allocation. Pinched-barb hooks are a good initiative to limit incidental mortality of released salmon, but a two fish daily limit, proposals to close pools at low egg deposition levels etc. do nothing for conservation, and in fact are counterproductive. C&R is a conservation strategy to keep people interested in the salmon resource (promotes stewardship); and provides eyes and ears on the water to aid in enforcement. It has virtually zero effect on egg deposition. Follow this link: for details:

[https://www.nbsalmoncouncil.com/images/public%20docs/2022/Catch\\_Release\\_Effects\\_MS\\_W\\_Importance\\_Compilation\\_Dec2020.pdf](https://www.nbsalmoncouncil.com/images/public%20docs/2022/Catch_Release_Effects_MS_W_Importance_Compilation_Dec2020.pdf)

Anglers and the recreational salmon angling industry play a huge role in the planning and delivery of Atlantic salmon conservation in New Brunswick. Unexplained, inconsistent, and biologically unfounded regulatory measures such as the maximum two grilse release per day limitation imposed on some New Brunswick rivers, alienate the angling community. These



ineffective and irritating measures are strong disincentives for the continued, and essential role of that community as we move forward on the restoration and conservation of New Brunswick's Atlantic salmon. They provide only an illusion of effective management action.

8. **The Aroostook River Example:** Through lobbying American regulators, the Canadian government and First Nations should strongly support completion and operation of the Atlantic Salmon for Northern Maine's (ASNM's) Caribou smolt-to-adult supplementation site. The Aroostook River in Maine is the largest Wolastoq River tributary that is accessible to Atlantic salmon, one-half again as big as the Tobique on a drainage area basis. ASNM is a well-run, and well-established organization that has invested large amounts of time and hundreds of thousands of dollars to re-establish Atlantic salmon on the Aroostook. They have constructed a small hatchery that is in immaculate condition where eyed eggs from Mactaquac are incubated, and juvenile salmon are produced. They are currently developing an adult SAS facility in Caribou, ME. They also constructed an adult salmon transport facility for moving adult returns from the fish lift at the Tinker Dam to the flowing Aroostook River upstream. This group deserves much more support than they currently receive from both the US and Canadian governments. DFO officials have an open invitation to have a guided tour of the Aroostook drainage and the ASNM facilities.



## **APPENDIX B – THE Harmful Alteration, Disruption and/or Destruction (HADD) of salmon habitat**

### **An Example:**

The proponent of a potentially acid-generating open pit mine at Sisson Brook in the Nashwaak River headwaters has proposed to compensate for the mine and tailing pond's destruction of aquatic habitat by removing two water control structures that historically were used to generate water discharge to assist in driving logs down the Nashwaak River. An associated initiative would involve the introduction of anadromous alewives into upper Nashwaak Lake. The assumption is that these structures are complete (Upper Lake) and partial (Lower Lake) barriers to fish passage, and their removal would provide adequate compensation for an open pit mine with a very large tailings dam and pond.

Requests for data to support the supposition that these structures are in fact barriers to fish passage have gone unanswered. DFO will not or cannot provide any data to support the opinion that these structures represent barriers to fish passage and so, we question the logic used to come to such an important decision on a critical Bay of Fundy salmon river. The DFO opinion (upon which the important decision is based) changed under questioning by NGOs only to revert to the opinion that they are in fact barriers. Furthermore, it appears that hydraulic conditions (extremely turbulent flow) within the natural channel below the structure at Upper Lake may present a natural barrier to alewife passage, thus rendering removal of the upstream structure moot.

- 1) Our first suggestion is to follow science in your decision making and be transparent with the public on the calculations associated with the decision by which the projects are judged to provide adequate compensation. In the case of the example projects, we question whether they offer sufficient fish habitat benefit to compensate for a potentially acid-generating open pit mine of the size of that proposed for Sisson Brook.
- 2) Our second suggestion is to ensure any proposed HADD compensation plan is scientifically evaluated on its ability to compensate for the proposed project. The science should be presented to the public for scrutiny.
- 3) Both dam structures are currently owned by the Province of New Brunswick. It is our understanding DFO has the authority to order the PNB to correct these barriers to fish passage immediately. If they really do represent barriers to fish passage, why hasn't DFO ordered their removal at some point during the past few decades that the barriers have existed? So, our third suggestion: Enforce the Fisheries Act.
- 4) Recently a member of the public offered to complete these projects on behalf of a group of conservation NGOs. The NGOs would receive the HADD credits that would later be sold to proponents of projects that require HADD compensation. The funds generated would be used for future HADD projects in a self-perpetuating manner, and for funding the activities of the NGOs. The individual who proposed this scenario was told that this was not possible.



A representative of a different entity (the company) reported that he had approached DFO to conduct these projects in exchange for HADD credits to compensate for habitat destruction associated with his company's future projects. The company's representative was advised that these projects were tied to the mine project, and the representative's offer was rejected (paraphrasing). So, our fourth suggestion is to create a HADD credit trading system that allows immediate remediation to existing projects, like the Ducks Unlimited wetland compensation process in NB. We have additional ideas for progressing towards this goal.