Conference Report

May 2021

NORTH SHORE
Micmac District Council

Anqotum
Resource Management

The goal of this project was to plan and organize a conference that would focus on developing a five-year plan to protect and enhance the wild Atlantic salmon population, through eco-system-based management in the Miramichi Watershed. This plan would be developed in collaboration and partnership with the local First Nations, DFO, Province of New Brunswick, Miramichi Salmon Association, Miramichi Watershed Management Committee, Atlantic Salmon Federation, New Brunswick Salmon Council and academia. The conference would also be open to other groups and experts that can assist in identifying solutions to the many issues affecting the wild Atlantic Salmon population on the Miramichi.

The Mi'gmaq of New Brunswick have long been stewards of their traditional territory. The relationship between our people and the land was once indistinguishable. The Atlantic salmon of the Miramichi, in particular, has played a vital role in providing sustenance to the people of Natoaganeg, and Metepenagiag. This strong relationship has survived to present day, but it is one that is under immense pressure. Declining stocks, climate change and questionable management decisions and processes by the Department of Fisheries and Oceans has led to the drastic circumstances we are now faced with. The time for action to invoke measures in aiding this species into recovery is now.

"Plamu First" is a First Nations led concept of working together in collaboration and partnership with all the major players that have an interest in addressing the current crisis the Atlantic Salmon are in. Key areas of focus are: the restoration and protection of habitat, and reduction of predation on Atlantic Salmon, conservation and protection of salmon, and of course more research. A major goal of "Plamu First" is the increased capacity development for First Nations communities in environmental monitoring and watershed management.

A planning committee for the conference was established in the fall of 2020, comprising of staff from NSMDC/Anqotum Resource Management, along with representatives from the Atlantic Salmon Federation, Miramichi Salmon Association, New Brunswick Salmon Council, JD Irving Limited, New Brunswick Wildlife Federation, and the University of New Brunswick. A facilitator was contracted to lead the planning, facilitate the actual conference and produce the five-year plan.

Originally, the conference was scheduled to be held in-person, but owing to restrictions caused by the ongoing pandemic, it was moved to a virtual event. This necessitated the hiring of an IT company to assist with the management of the virtual platform (Remo) for the conference. A Save the Date and Conference Invitation were sent out via email and a website (https://www.plamufirst.ca) was developed to enable participants to register online, access the agenda and materials, and the conference links. Iron House Productions was hired to produce videos of elders and youth (Appendix A).

The planning committee spent a considerable amount of time developing the agenda topics, with the aim of ensuring that all relevant areas of concern would be given sufficient time for discussion (Appendix B). Conference logo and artwork were developed (Appendix B).

The conference took place from March 16th to 18th, 2021, and overall was a great success. There were the inevitable few glitches associated with a virtual conference, but the IT firm that was hired handled everything well. There were presentations on the current state of the salmon, priority threats and strategies, including predation and climate change, as well as First Nations rights. The virtual platform also allowed for the opportunity for breakout group discussions.

In all, there were 48 attendees for the three-day event, with representation from the following organizations:

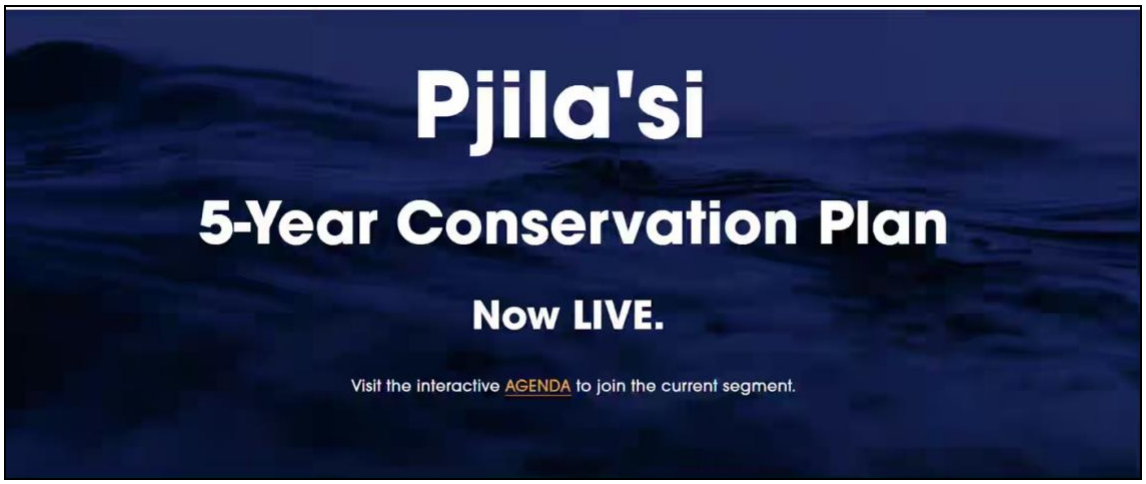
- Atlantic Salmon Federation
- Canadian Rivers Institute
- Fisheries and Oceans Canada
- JD Irving
- Maritime Fishermen's Union
- Metepenagiag Mi'kmaq Nation
- Mi'gmawe'l Tplu'taqnn Incorporated
- Miramichi Salmon Association
- Natoaganeg First Nation
- New Brunswick Salmon Council
- New Brunswick Wildlife Federation
- North Shore Micmac District Council/Anqotum Resource Management
- Province of New Brunswick
- University of New Brunswick
- World Wildlife Fund Canada

North Shore Micmac District Council thanks all attendees for their participation!

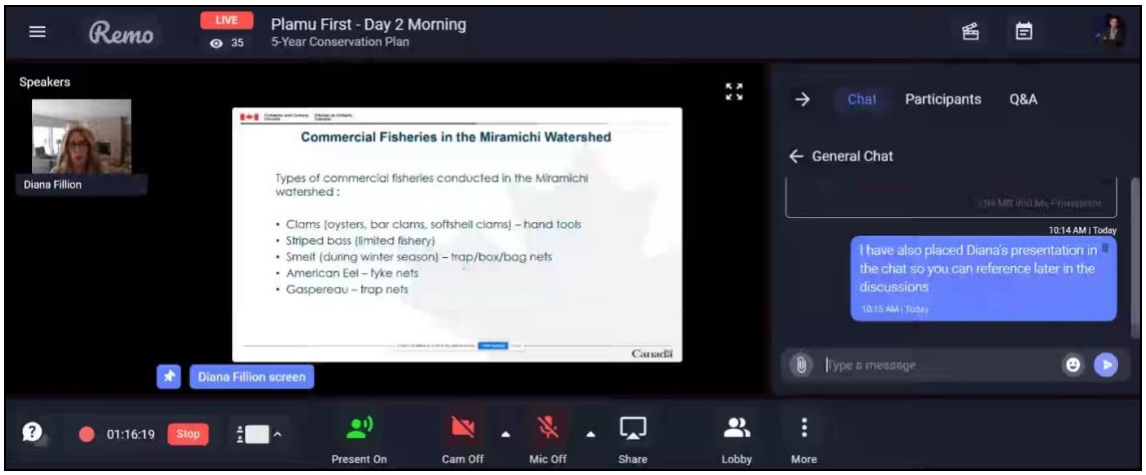
The five-year strategic framework is attached (Appendix C). This document represents an important step towards the recovery of the Miramichi Atlantic salmon population. Going forward, the aim of the Plamu First working group will be to work together with both federal and provincial levels of government, local First Nations, as well as other NGOs, to seek partnerships and funding for initiatives that will advance the action items laid out in the framework.

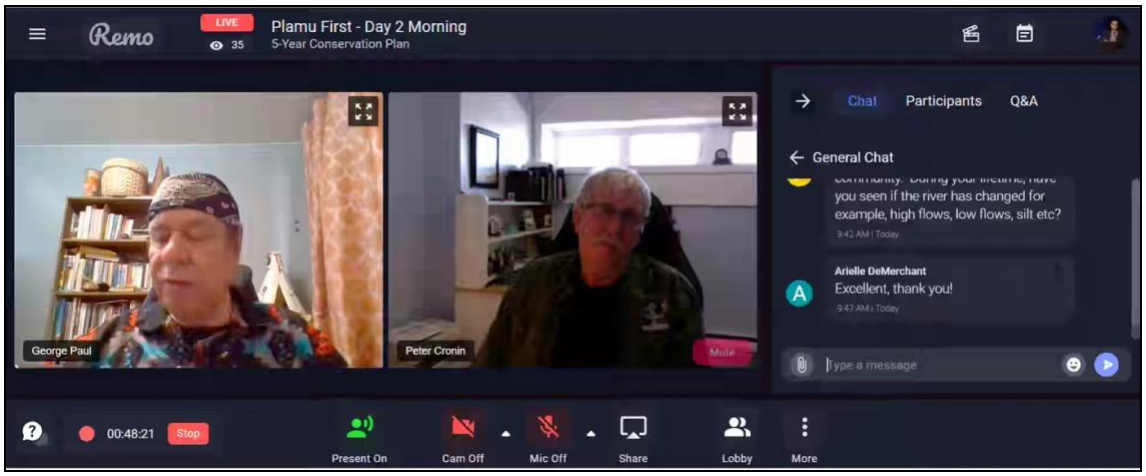
Appendix A

Conference Photos & Videos


Pjila'si
5-Year Conservation Plan
Now LIVE.
Visit the interactive AGENDA to join the current segment.


32
Plamu First - Day 2 Morning
5-Year Conservation Plan
Remo
Floor
Need Help?
PLAMU FIRST.
Present
Cam Off
Mic Off
Chat
Share
Lobby
More


Remo
LIVE
35
Plamu First - Day 2 Morning
5-Year Conservation Plan
Speakers
Diana Fillion
Commercial Fisheries in the Miramichi Watershed
Types of commercial fisheries conducted in the Miramichi watershed :
• Clams (oysters, bar clams, softshell clams) – hand tools
• Striped bass (limited fishery)
• Smelt (during winter season) – trap/box/bag nets
• American Eel – tyke nets
• Gaspereau – trap nets
Diana Fillion screen
Chat
Participants
Q&A
General Chat
10:14 AM | Today
I have also placed Diana's presentation in the chat so you can reference later in the discussions
10:15 AM | Today
Type a message
01:16:19
Stop
Present On
Cam Off
Mic Off
Share
Lobby
More


Remo
LIVE
35
Plamu First - Day 2 Morning
5-Year Conservation Plan
Chat
Participants
Q&A
General Chat
you seen if the river has changed for example, high flows, low flows, silt etc?
9:42 AM | Today
Arielle DeMerchant
Excellent, thank you!
9:47 AM | Today
Type a message
George Paul
Peter Cronin
00:48:21
Stop
Present On
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Mic Off
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Lobby
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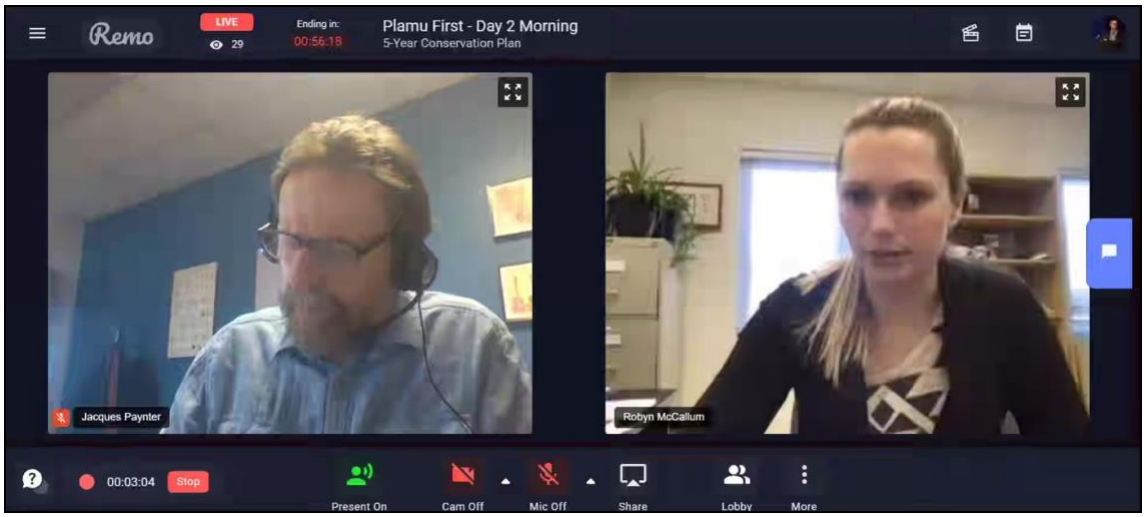
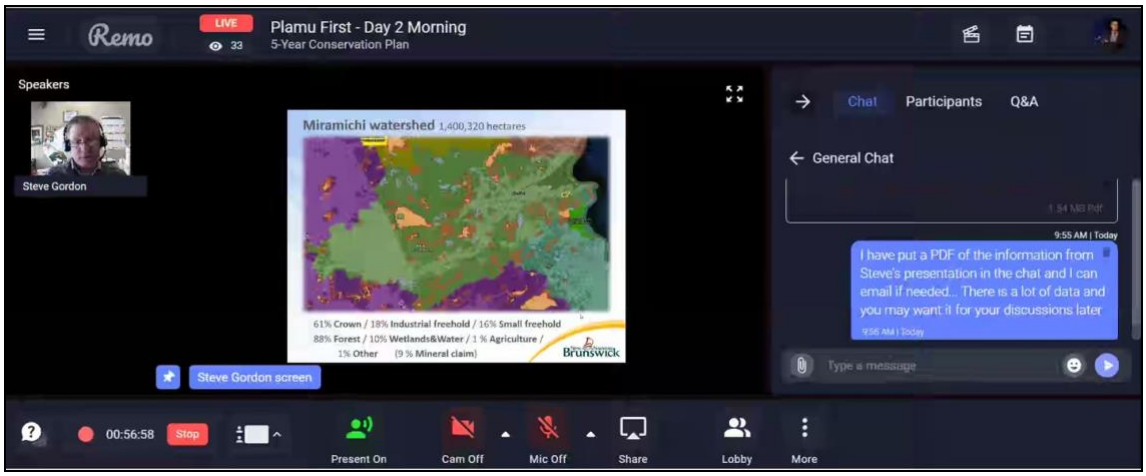
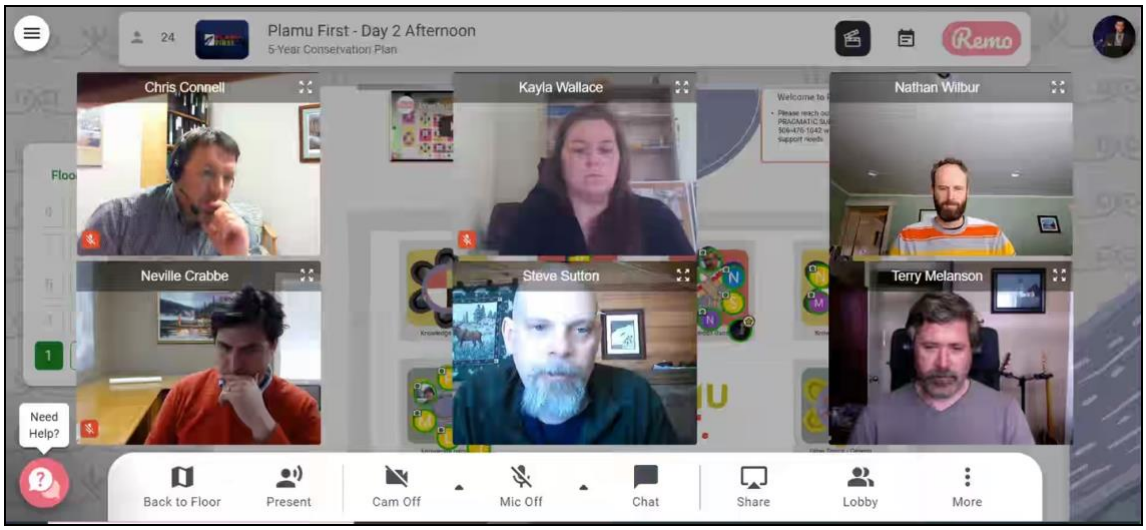

Remo
LIVE
29
Ending in:
00:56:18
Plamu First - Day 2 Morning
5-Year Conservation Plan
Jacques Paynter
Robyn McCallum
00:03:04
Stop
Present On
Cam Off
Mic Off
Share
Lobby
More

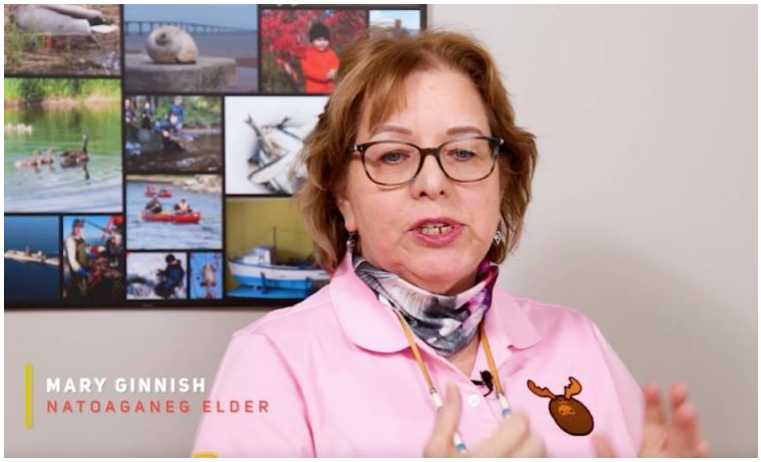

Remo
LIVE
26
Plamu First - Day 2 Afternoon
5-Year Conservation Plan
Chat
Participants
Q&A
General Chat
Taylor Ward
Sounds great. Thanks, Levi
1:03 PM | Today
Nelson Cloud
Great video, Steve and Iron House.
2:04 PM | Today
Neville Crabbe
Cool, good stuff
2:04 PM | Today
Type a message
Kevin G Davidson
00:06:25
Stop
Present On
Cam Off
Mic Off
Share
Lobby
More


Remo
LIVE
33
Plamu First - Day 2 Morning
5-Year Conservation Plan
Speakers
Steve Gordon
Miramichi watershed 1,400,320 hectares
61% Crown / 18% Industrial freehold / 16% Small freehold
88% Forest / 10% Wetlands&Water / 1 % Agriculture /
1% Other (9 % Mineral claim)
Brunswick
Steve Gordon screen
Chat
Participants
Q&A
General Chat
9:55 AM | Today
I have put a PDF of the information from Steve's presentation in the chat and I can email if needed... There is a lot of data and you may want it for your discussions later
Type a message
00:56:58
Stop
Present On
Cam Off
Mic Off
Share
Lobby
More

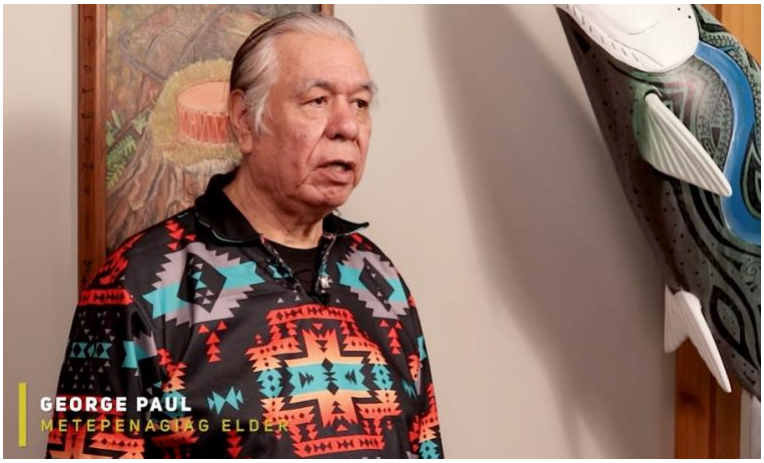

Remo
LIVE
35
Plamu First - Day 2 Morning
5-Year Conservation Plan
Victor B. Gionet
Chat
Participants
Q&A
Search people...
Victor B. Gionet
Attendees (29)
Nathan
Allen Curry
01:28:09
Stop
Present On
Cam Off
Mic Off
Share
Lobby
More


24
Plamu First - Day 2 Afternoon
5-Year Conservation Plan
Remo
Chris Connell
Kayla Wallace
Nathan Wilbur
Neville Crabbe
Steve Sutton
Terry Melanson
Need Help?
Back to Floor
Present
Cam Off
Mic Off
Chat
Share
Lobby
More

Elder Prayer – Betty Jane Ward
Video can be viewed at https://youtu.be/mXE4RKHRRwQ



Elder Prayer – Mary Ginnish
Video can be viewed at https://www.youtube.com/watch?v=FjfnwSfNUeY



Elder Prayer – George Paul
Video can be viewed at https://youtu.be/EjvH770plhk

Elder Interlude – Nelson – A Story About Salmon
Video can be viewed at https://youtu.be/g9YfviFUjdI

Elder Interlude – Steve – Children of the River
Video can be viewed at https://youtu.be/KPJNAEoRcFw

Elder Interlude – George – The Eagle & The Crow
Video can be viewed at https://youtu.be/C_0SzhhcruA

Plamu – Children Video #1

Video can be viewed at https://youtu.be/zZ0q5c5T0JU

Plamu – Children Video #2

Video can be viewed at https://youtu.be/gCqrdC9qc3U

Appendix B

Conference Materials

PLAMU FIRST.

Five-Year Action Plan for the Atlantic Salmon in the Miramichi Watershed

Agenda
Virtual Conference
March 16 – 18, 2021

NOTE: The selected platform for our discussions, REMO, was selected because it is very simple, very visual and very interactive. One limitation is that each event can only last 5 hours so there will be a change of "link" each day over lunch.

REMO links will be available at plamu.ca, will be sent via email and will be referenced in the event.

Morning Sessions (Red) will take place in the first REMO link

Afternoon Sessions (Gold) will switch to the second REMO link

Day One: March 16, 2021

9:00 – 9:30	Welcome Prayer & Opening Ceremony Introductions
9:30 – 10:00	Vision & Key Components of Action Plan
10:30 – 11:00	Current State of Miramichi Salmon
11:00 – 12:00	Key Issues: Protection and Enhancement of Wild Atlantic Salmon in the Miramichi Watershed
12:00 – 13:00	***Networking Lunch***
13:00 – 14:30	Key Issues: Protection and Enhancement of Wild Atlantic Salmon *(cont.)*
14:30 – 14:45	***Break***
14:45 – 15:45	Priority Threats & Strategies
15:45 – 16:00	Summary Wrap Up

Conference Agenda

Day Two: March 17, 2021

9:00 – 9:30	Welcome Prayer Introductions Day One Recap
9:30 – 10:00	Significance of Salmon to First Nations / Rights Holders
10:00 – 12:00	Priority Threats & Strategies (cont.)
12:00 – 13:00	***Networking Lunch***
13:00 – 14:30	What are the most effective ways to address threats?
14:30 – 14:45	***Break***
14:45 – 15:45	State of Current Knowledge
15:45 – 16:00	Summary Wrap Up

Day Three: March 18, 2021

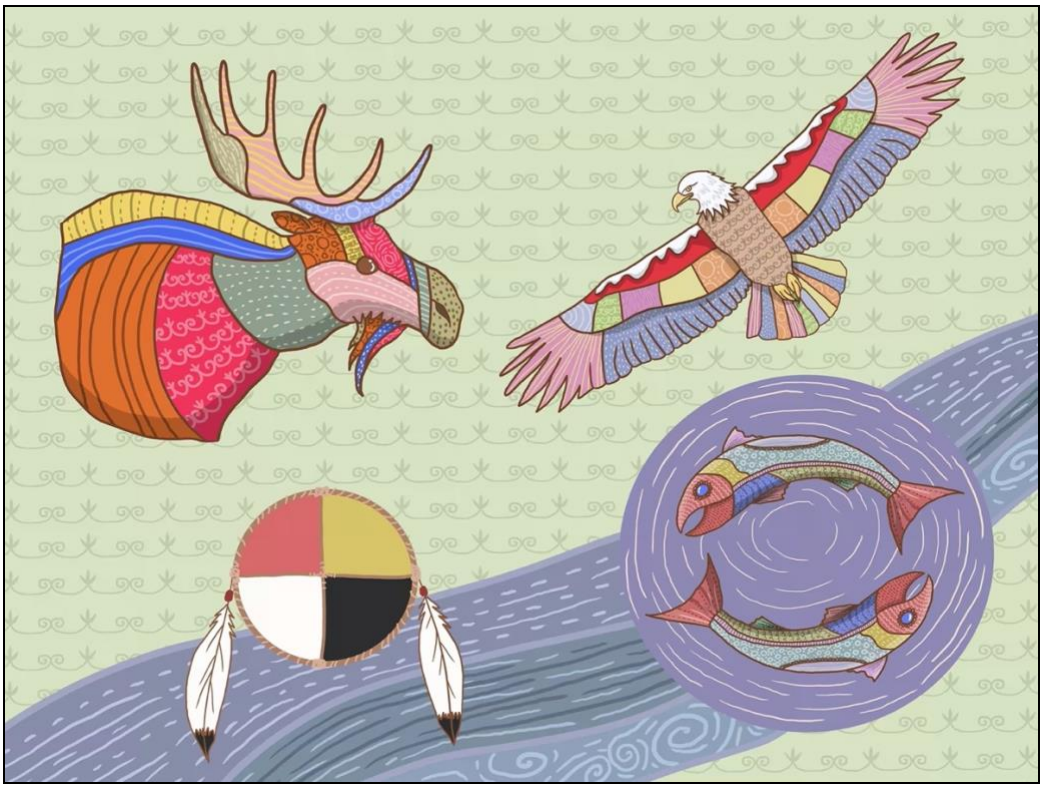
9:00 – 9:30	Welcome Prayer Introductions Day Two Recap
9:30 – 10:00	Priority Threat Management
10:00 – 12:00	Co-Management & Shared Stewardship of the Miramichi Watershed
12:00 – 13:00	***Networking Lunch***
13:00 – 15:00	Implementation Planning
15:00 – 15:15	Conference Wrap Up
15:15	Closing Remarks Adjournment

Hosted By:

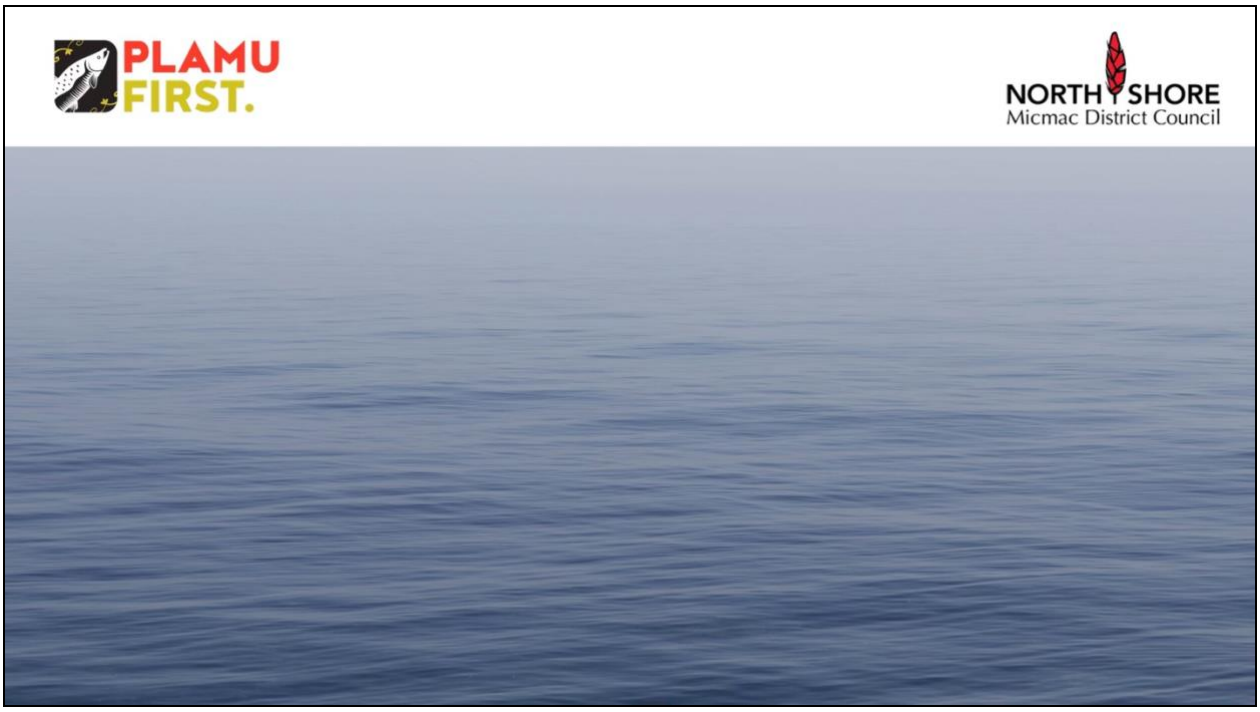
NORTH SHORE
Micmac District Council

Conference Agenda

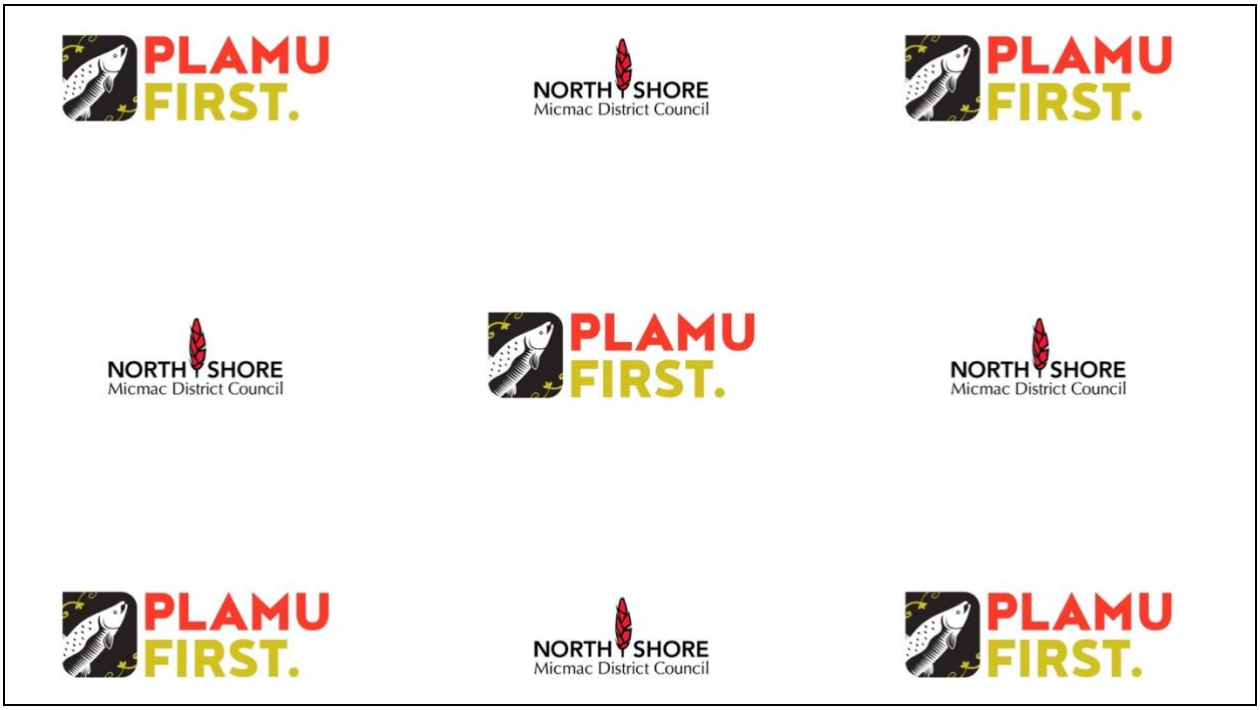
Save the Date Announcement with Conference Logo



Conference Artwork



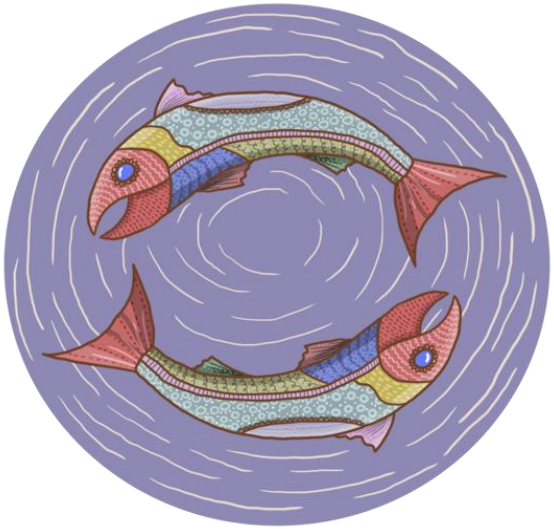
Plamu First Virtual Background



Plamu First Virtual Background

Appendix C

“Plamu First”
Strategic Framework 2021 – 2026



"PLAMU FIRST"
STRATEGIC FRAMEWORK
2021 - 2026

Prepared for:

North Shore Micmac District Council

Prepared by:

Wood Environment & Infrastructure Solutions

March 2021

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1.0 INTRODUCTION

1.1 Purpose

This document presents the outcomes of the three-day Plamu First Conference ("Plamu First") convened virtually (due to COVID restrictions) during March 16-18, 2021. "Plamu First" was sponsored, planned and organized by the North Shore Micmac District Council (NSMDC). "Plamu First" was developed in collaboration and partnership with the local First Nations, Fisheries and Oceans Canada (DFO), Province of New Brunswick, Miramichi Salmon Association, Miramichi Watershed Management Committee, Atlantic Salmon Federation, New Brunswick Salmon Council and academia.

"Plamu First" was open to other groups and experts with knowledge regarding solutions to the many issues affecting the wild Atlantic salmon population on the Miramichi Watershed. The project was led by Anqotum Resource Management - the environmental services program of NSMDC. Technical support was provided by Pragmatic Solutions. Video production and visual graphic support was provided by Iron Horse Productions. Over the course of the three days approximately 50 persons participated in "Plamu First". The list of participants is available at: https://3.basecamp.com/4235622/buckets/20518140/vaults/3606467573

The purpose of the conference was to:

- Discuss and understand the current context regarding wild Atlantic salmon in the Miramichi Watershed.
- Share knowledge about the current threats to Atlantic salmon.
- Discuss and agree on potential strategies to address protection and enhancement issues through ecosystem-based management.
- Develop a cooperative conservation strategy for addressing the major issues in the Miramichi Watershed.

The agenda is provided in Appendix A.

Jim Ward (MSMDC) welcomed all participants and emphasized that local First Nations are strongly committed to salmon population restoration through collaboration with all partners including the federal and provincial governments, various salmon associations, academia and non-government organizations. Salmon is very important to First Nations' / Rights Holders' culture, source of food and social ceremony. NSMDC is committed to the development of a five-year plan to address the decline of Atlantic salmon. A major goal of "Plamu First" is to build capacity for First Nations communities in environmental monitoring and watershed management.

1.2 Presentations and Speakers

Each day of "Plamu First" was opened by a First Nations Elder with a morning prayer and anecdotal stories about life on the Miramichi River. Several presentations were delivered throughout the conference. Refreshment breaks were animated by interlude videos of First Nations story tellers and school children recounting the importance of Atlantic salmon to the next generation. A list of speakers and presenters is provided at Table 1 and, where available, the presentation slides are posted on Base Camp:

.

Table 1: Speakers and Presenters

Topic	Presenter	Organization
Day One		
Welcome	Jim Ward	North Shore Micmac District Council
Opening Prayer	Elder Betty Jane Ward	Metepenagiag
Current State of Atlantic salmon in the Miramichi Watershed	Marie-Andrée Giroux	Fisheries and Oceans Canada
Overview of Habitat Restoration Projects	Devin Ward	Anqotum Resource Management
Population and Environmental Monitoring Overview	Robyn McCallum	Miramichi Salmon Association
Stocking Overview	Mark Hambrook	Miramichi Salmon Association
Priority Threats and Pathways Predation - Seals	Victor Gionet,	Anqotum Resource Management
Priority Threats and Pathways Predation - Bass	Jason Daniels	
Priority Threats and Pathways Aquatic Invasive Species	Nathan Wilbur	Atlantic Salmon Federation
Priority Threats and Pathways Climate Change	Antoine Michael Sullivan	University of New Brunswick
Day Two		
Significance of Salmon to First Nations / Rights Holders	Elder George Paul	Metepenagiag
Priority Threats and Pathways Habitat Protection and Land Use	Steve Gordon	New Brunswick Natural Resources and Energy Development
Priority Threats and Pathways Commercial Fisheries in the Miramichi Estuary and Bay	Diana Fillion	Fisheries and Oceans Canada
Priority Threats and Pathways Pilot Projects in the Gaspereau Fishery to Reduce Bycatch of Salmon and Striped Bass	Victor Gionet	Anqotum Resource Management

Day Three		
Priority Threat Management	Simon Mitchell	World Wildlife Fund

2.0 STRATEGIC FRAMEWORK

2.1 Vision Statement

Local leadership restores the Atlantic salmon population to healthy sustainable levels and protects the Miramichi River system with an adaptive conservation plan that optimizes ecosystem value for social, cultural and economic benefits.

2.2 Mission Statement

Exhaust all possible measures to increase the salmon population in the Miramichi watershed.

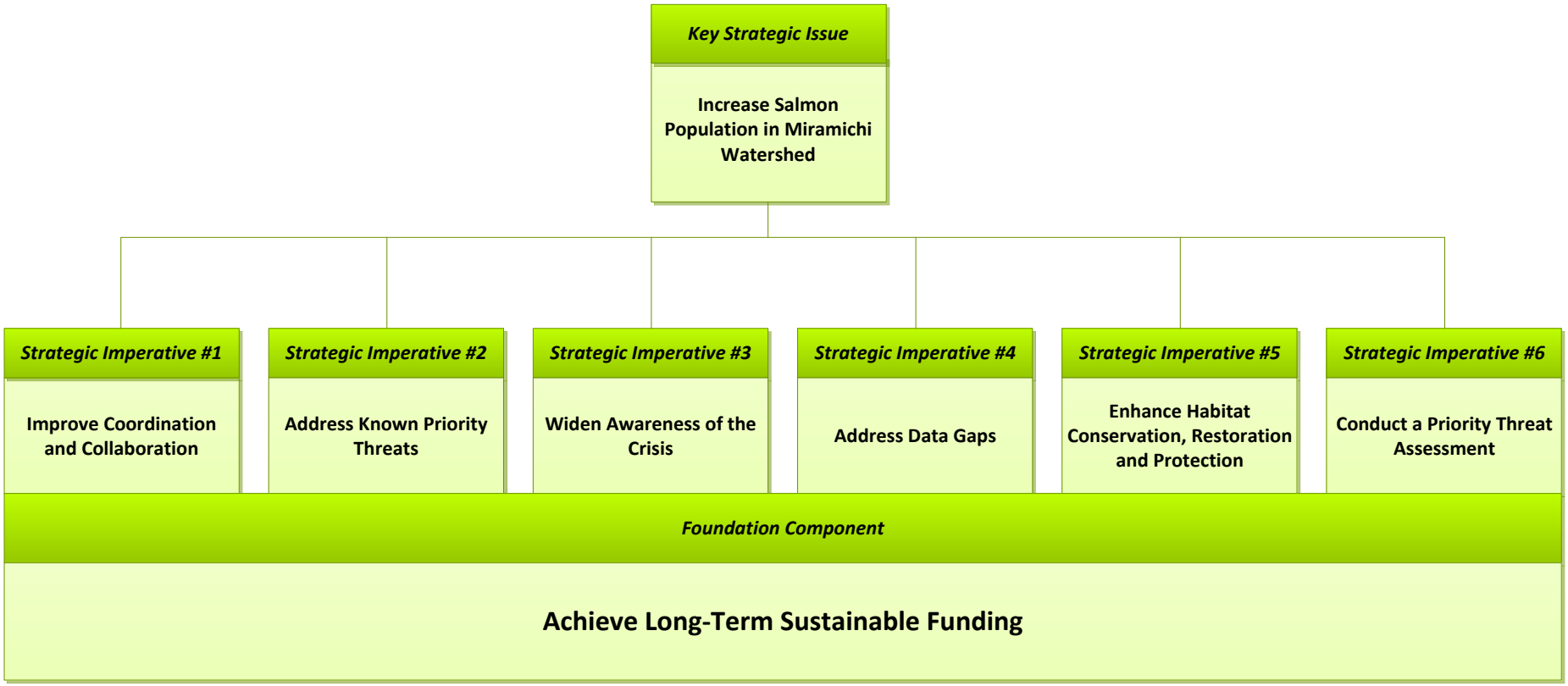
2.3 Strategic Goal

Meaningful Co-Management of Plamu by 2023

2.4 Strategic Action Elements

This section presents the courses of action that will lead to the achievement of the strategic framework vision, mission and goal. The strategic actions establish a pathway to the future by providing focus on the major items critical to increasing the salmon population in the Miramichi Watershed. The strategic action elements comprise a foundation component, key strategic issue and six strategic imperatives, as illustrated at Figure 1.

Figure 1: Strategic Action Elements



3.0 FOUNDATION COMPONENT

3.1 Achieve Long-Term Sustainable Funding

3.1.1 Objective

Ensure all parties active in the Miramichi watershed have the human and financial resources to conduct their ongoing and future programs, increase research capacity and effectively engage all stakeholders.

3.1.2 Actions

Actions
• Conduct a comprehensive evaluation of all costs and identify financial assistance sources. • Develop a tangible action plan. • Apply significant political pressure to secure funding over a ten to fifteen-year period. • Consider a direct ask to the Treasury Board.

3.1.3 Key Strategic Issue – Increase the Atlantic Salmon Population in the Miramichi Watershed

Actions
• Design and implement a viable governance model for the Miramichi Watershed. • Conduct the smallmouth bass eradication project. • Act immediately on key depressors that are degrading the salmon population. • Send a joint communique (Anqotum, MSA, ASF, NBSC, UNB) to DFO requesting changes to striped bass management in 2021. • Collectively ensure that various bycatch reduction proposals are implemented and assured of success. • Finalize a proposal for enhanced population monitoring using proxy rivers. • Conduct a priority threat assessment to select the best strategy going forward.

4.0 STRATEGIC IMPERATIVES

4.1 Strategic Imperative #1: Improve Collaboration and Coordination

4.1.1 Objectives

Enhance coordination and communications to more effectively harness existing skills and knowledge.

4.1.2 Actions

Actions	Comments
Begin to identify / clarify the structure, charter, and responsibilities of an umbrella organization - "Miramichi River Collaborative or Advisory Committee" - that would present a common voice for the organizations that are working to enhance salmon recovery in the watershed. Hire a full-time coordinator. Convene annual "Plamu First" conference. Share conservation reports. Clarify responsibilities and accountabilities regarding monitoring, data collection, and publication. Leverage strength in diversity, different skill sets, backgrounds to access more research funding. Identify which groups wish to participate and inventory each groups' activities, resources, equipment, and funding sources. Undertake meta-analysis to summarize inputs to "Plamu First" planning process. Document the information that is in "people's heads". Establish single Atlantic salmon portal / entry point with common database. Harmonize information and processes that are common across partners. Engage appropriate authorities to review, clarify and streamline work processes.	There is a very strong will to work together for a common cause. The issue is not to push DFO to do more. The challenge is to incorporate the efforts of all high calibre organizations to ensure meaningful data collection and management. DFO should recognize organizations capabilities but understand resource limitations. Encourage DFO to use these data collected from different groups instead of just focusing on their own data collections efforts. Certain resource groups are sometimes ignored or feel ignored.

Actions	Comments
Provide "single voice" for financial assistance applications. Develop and share relevant training and orientation programs. Continually refine activities to enhance efficiency. Implement a transparent data platform that incorporates historical data and real time field data collection.	DFO has a clear focus on commercial fisheries but there may be a gap in leadership or management for other resources (e.g., salmon, striped bass).

4.2 Strategic Imperative #2: Address Known Priority Threats

4.2.1 Objective

Mitigate and alleviate the threats that are currently known to negatively affect the salmon population in the Miramichi Watershed, by 2024.

4.2.2 Actions

Actions	Comments
<u>Approach</u> Identify a method and strategy to enhance data-based understanding of threats. Conduct benefit-cost assessment of threats and rank effectiveness of threat mitigation. Address the "low hanging fruit" even if the threats are not ranked - concentrate on what we already know. Develop a strategy for the appropriate organization to bring the concerns to the appropriate level of government.	
<u>Aquatic Invasive Species (AIS)</u> Time is of the essence; rapid response is essential. Indigenous and the NGO Working Group to pursue eradication of smallmouth bass in 2021. DFO to clarify their AIS process; ensure regulations are administered consistently across Canada. Enhance public engagement and re-establish momentum – the public may have become more comfortable with the notion that an invasive species is present. DFO to take responsibility for the national core program and lead projects; most important	Only eradication project is where a group of NGOs have led a project, Eradications needs to be authorized and carried out in a timely manner to alleviate and eliminate future AIS threats.

Actions	Comments
component of the four pillars is eradication. DFO to provide enhanced funding for actual programs and activity; most of the initial AIS budget was allocated to administration. Establish a "Maritime AIS Response Team": mix of government, Indigenous and NGO technicians that would share equipment, install barrier nets, conduct electrofishing, take water samples, be knowledgeable regarding protocols and be available for immediate / rapid response. Province of NB should sign on to AIS Regulations to have authority to issue AIS permits which would result in more rapid eradication action. Province of NB and DFO should coordinate on creating legislation in the Maritime Provinces Fishery Regulations (MPFR) to prohibit the possession of live fish.	Eliminating AIS is a conservation measure and net gain for the environment. Eradication should not be regulated the same as industrial activities like mining.
<u>Predation (Seals)</u> Recognize that there is no short-term fix. Improve market development and market acceptance of seal as a product. Conduct extensive outreach to inform the general public on the conservation status of seals and that the species represents an under-underutilized resource. Increase government support and intervention. Develop regulatory frameworks that promote public acceptance, market development and species population monitoring. DFO to permit, promote and facilitate a sustainable seal harvest (e.g., expand on Anqotum/Perrenia pilots). Government of Canada to work internationally to open markets for seal products. Join forces with the Canadian Seal Council and other relevant groups.	Not currently a conservation concern. The species is doing extremely well - population growing exponentially. Remains a public cultural concern.
<u>Predation (Striped Bass)</u> Develop marketing assistance strategy. Lengthen the season and increase the recreational catch. DFO to work with Natoaganeg to help achieve the 50,000 striped bass quotas in the commercial fishery. DFO to establish population reference points, develop the precautionary approach framework and a management target aimed at achieving balance in the ecosystem. DFO to remove the upper size slot limit and allow the retention of any sized striped bass in inland waters to reduce impacts to salmon without posing risk to the broader bass population.	

Actions	Comments
<u>Climate Change</u> Continue the progress on cold water pool enhancement (Indigenous/NGO partnerships, funded by DFO Nature Fund). Province of NB to implement an equivalent cut model to help protect thermal flow regimes. Province of NB to continue working with UNB to model ways to protect thermal regimes (could replace equivalent cut approach if more effective). Alleviation of warm temperatures: • Groundwater pumping of cold water into large holding pools for salmon during critically warm periods. • Use giant wind/solar systems to power heat exchanger in river. • Ice harvesting in winter to deploy in rivers during critically warm periods. • The forest and soils are refrigerators for our rivers, need more forest protection to provide the ecological service of cooling and regulating flow regime.	
<u>Bycatch of Salmon</u> Support Anqotum's pilot project to develop a screening device that prevents salmon and striped bass from entering gaspereau traps. Evaluate the reintroduction of logbooks - other industries provide good examples of what is possible. Develop understanding of historical / baseline populations in America; several species, not just salmon. Develop understanding of habitat carrying capacity - what the watersheds can support and ecosystem balance. Develop understanding of species interaction and fisheries interaction. Establish a management target that improves ecosystem balance. Reduce the salmon bycatch in the gaspereau fishery by 90% by 2025. Reduce smelt licenses from about 1200 (currently available) to 12 (only about a dozen are currently being used).	Bycatch in gaspereau fisheries is potentially a significant issues and low hanging fruit to solve. Reduces issues for commercial fishermen and reduces impacts to salmon
<u>Enforcement</u> Poaching is major issue; increased enforcement staff and use of new technologies would alleviate impacts. Engage anglers and Indigenous fishers to deter poaching and serve as "eyes and ears" on the water. Develop "Guardian" program (like the NL model) to bolster enforcement, deter and report	First Nation Guardian program that builds capacity in the communities, provides critical protection throughout the Miramichi Watershed and assistance to DFO/NB enforcement staff.

Actions	Comments
on poaching, habitat issues, and invasive species observations.	

4.3 Strategic Imperative #3: Widen Awareness of the Crisis

4.3.1 Objective

Ensure greater awareness of the cultural, social and economic value of Atlantic salmon and the escalating threats to the survival of the species.

4.3.2 Actions

Actions	Comments
Identify a responsible agency and hire a coordinator. Develop "Plamu First" brand and image by building on known desirable societal, cultural and environmental attributes. Share partnerships, habitat restoration success stories, research projects and engagement strategies. Maximize information transfer through a "Plamu First" portal (clearing house) with linkages to other fisheries related websites. Encourage the public to "get back to the river", build excitement about NB and be our own champions for the river. Enhance the use of social media as a promotional tool. Share heartfelt messaging broadly (beyond "Plamu First" groups). Provide clear, timely and focused information about "Plamu First". Promote "Plamu First" to students (and their parents) attending New Brunswick K-12 system. Capitalize on the power of word-of-mouth by leveraging the networks of all partners.	There is a notion that the public is tired of hearing about salmon declines and constant negative stories. Salmon conservation is a human activity - about human values and humans working together for the good of salmon. People hold differing values for salmon – but all values are important and valid. If the public have been properly educated regarding the threats and the potential damage caused by invasive species and if there had been stronger monitoring and enforcement many current problems would have been avoided,

4.4 Strategic Imperative #4: Address Data Gaps

4.4.1 Objectives

Identify and close the key data gaps mitigating the development of effective and efficient solutions to enhance watershed management and salmon recovery.

4.4.2 Actions

Actions	Comments
<u>Status of Forage Species</u> Address overall ecological integrity of the watershed. Improve data on key forage species energy transfer up the watershed - which is integral to the maintenance of the upstream and headwater systems in terms of energy. Develop and coordinate a cost-effective monitoring and assessment strategy for smelt and gaspereau.	
<u>Striped Bass</u> Modify and adapt the Monitoring Assessment Program – articulate goals and parameters that are key to the establishment of a cautionary approach. Achieve better synchrony with the other species in the watershed. Use data to prioritize habitat restoration and monitoring activities - hydrology, retention modelling - translate that into maximizing potential salmon rearing capacity,	Monitoring program is currently deficient in many aspects. There appears to be enough data available, but it's not clear if it's being effectively integrated. Watershed data, geological data, forestry data, LiDAR, etc.
<u>Role of Stocking</u> Develop cost-effective practices that will maximize the potential benefits of stocking - habitat availability, habitat capacity, etc. Establish population targets and time targets.	Stocking is a valuable tool to help kickstart salmon productivity in the watershed.

Actions	Comments
Smelt Maximize the benefits of monitoring. Identify the partners and establish an efficient methodology. Establish resource requirements and sources.	
Smolt Enhance monitoring to close key data gaps in methodology and coverage.	

4.5 Strategic Imperative #5: Enhance Habitat Conservation, Restoration and Protection.

4.5.1 Objectives

Ensure the Miramichi Watershed maintains a healthy and sustainable ecosystem with enough carrying capacity for all terrestrial and aquatic species.

4.5.2 Actions

Actions	Comments
Administration Establish a "Habitat Restoration Oversight Committee" to provide unified direction, examine the diversity and complexity of issues in the watershed. The committee would improve effectiveness regarding general application and leveraging of existing knowledge and expertise.	Atlantic Salmon Conservation Foundation, Scientific Advisory Committee awards research grants each year. One of the requests for proposals in 2020 was for the development of a decision tree to guide stream restoration interventions.
Forestry Practices Identify areas of the watershed where timber harvesting is likely to have a greater effect on warming waters. Modernize the CCIE (20-year old concept). Scale is everything. And we need to understand the rules regarding harvesting. Determine how climate change affects peak flows, water temperature and cycles over time.	Understand what moderate livelihood means from a species and a catch perspective. Crown land within the Miramichi watershed is about 164,000 hectares, representing 19% of the watershed – a significant amount of land devoted towards conservation. Buffer zones represent

Actions	Comments
Manage people - a significant driver in the entire conservation process. Enhance cold pools and understanding in terms of role and significance. Identify sensitive or resilient areas of the watershed. Identify opportunities for the application of sophisticated tools. Increase understanding of the effect of pool enhancement (scale) on population levels. Collaborate with the forestry industry on research needs to make informed decisions, communicate on forest management plans. Strike a landscape / habitat protection advisory committee for the Miramichi catchment area: • Make the 10-year plans available from all licensees • Includes relevant stakeholders and Rights Holders so that different perspectives can be heard (not only regarding salmon but also other environmental aspects). • Identify areas where local communities may have concerns (whether justified or unjustified) to protect aquatic resources. • Develop a science-based plan to foster understanding of the processes that govern flows and water temperatures. • Identify non-compliances by land-users - and their potential effects.	about 10% of those areas - forest habitats, forest communities are protected areas. About 9% of the watershed is tied up in mineral claims potentially affecting the ability to protect and conserve those areas.
<u>Index River</u> Identify candidate index rivers and secure funding.	Increasing the number of assessment sites is one of the 18 action items in the wild Atlantic salmon conservation policy implementation plan to be completed by 2021.
<u>Habitat</u> Characterize how the habitat is used. Identify and map cold water refugia Ensure enough cold water refugia in appropriate spacing along that river to avoid extremely long stretches between areas for these fish to rest and recover.	
<u>Water Levels / Flows</u> Develop understanding of the processes that govern the water flows and	Groundwater is important - especially old groundwater and the different depths.

Actions	Comments
temperatures as it relates to the landscape activities.	Surface water and shallow groundwater are most sensitive to warming. This is a complex system, which makes planning difficult. Salmon are resilient to warming temperatures, but warming temperatures may add quantitative stress to the species.
<u>Commercial Fisheries</u> Implement a new reporting tool (electronic logbook) that would facilitate better monitoring of the fishery and provide additional data. Encourage DFO to increase funding for research and management of the commercial fisheries. Address bycatch issue by supporting current studies and experiments to reduce capture. Re-evaluate management by seasons and improve understanding of the total biomass of the fishery – apply an ecosystem approach within a precautionary framework.	

4.6 Strategic Imperative #6: Conduct a Priority Threat Assessment

4.6.1 Objective

Ensure greater awareness of the cultural, social and economic value of Atlantic salmon and the escalating threats to the survival of the species.

4.6.2 Actions

Actions	Comments
Identify all threats currently negatively affecting the Miramichi Watershed salmon population. Consider a multi-species approach. Incorporate indigenous and local knowledge into the planning.	A Priority Threat Management was conducted for Pacific salmon which identified the most cost-effective conservation strategy was prevention.

Actions	Comments
Prioritize threats in the context of feasibility / cost of activity, probability of success and availability of human and financial resources. Record and share the information with all relevant partners. Adopt a tiered approach to implementation and adjust as necessary.	

5.0 CONCLUSION

The "Plamu First" conference used a collaborative approach to identify the issues and address the opportunities and challenges regarding an enhanced salmon population in the Miramichi Watershed.

The overarching goal of the conference was to develop a strategic framework that would address the declining salmon population in the Miramichi Watershed.

Success in achieving the strategy will require:

- Working together and supporting leadership;
- Securing realistic long-term funding commitments; and
- Enhanced engagement from all partners.

The strategic framework should be a living document, revisited and updated frequently as the underlying assumptions and conditions change. The strategic framework lays the groundwork for continued dialogue over the next five years. The immediate next step is to work closely together to undertake the proposed actions to address key problems. It is imperative that all parties take an active interest in maintaining the dialogue as well as to encourage even small changes as quickly as possible.