Responding to the Impacts of Changing Climates on Salmonids and Habitat

"Fisheries have been identified as one of the major climate change risks to Canada which could contribute to 'significant losses, damages or disruptions over the next 20 years'."[1]

Proposed Concept

Indigenous involvement in the Pacific Salmon-Ecosystem Climate Consortium

Description

At DFO's first State of the Salmon meeting in 2018,[2] scientists concluded that Canadian Pacific salmon and their ecosystems are already responding to climate changes in marine and freshwater ecosystems at every stage of their lifecycle, but that the view of salmon vulnerability to climate change is incomplete. They also concluded that improving information on salmon vulnerability to changing climate and habitat would help ensure that fisheries management, salmon recovery, and habitat restoration actions are aligned to future salmon production and biodiversity.

To meet these information needs, DFO scientists are working to integrate and develop new research across disciplines and organizations, including through the formation of a Pacific Salmon-Ecosystem Climate Consortium, with external experts.

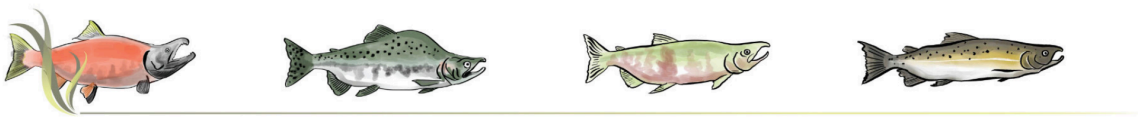
BCSRIF is presently funding the University of Victoria's Pacific Climate Impacts Consortium to conduct research to improve understanding of potential threats to Pacific salmonids and their habitats posed by climate change and to develop risk assessment tools to support adaptive regional management approaches.

This concept envisions that BCSRIF would fund BC Aboriginal Aquatic Resources and Oceans Management groups (AAROMs) to become partners in the Pacific-Salmon Climate Impacts Consortium and broader scientific work undertaken by DFO and its academic partners. This would not be the creation of a new group; but rather, would support for AAROMs (and, potentially, other groups formed by BC First Nations) to participate in the climate change science collaborations being formed between governments and academia.

---

[1] *Canada's top climate change risks.* The Expert Panel on Climate Change Risks and Adaptation Potential, Council of Canadian Academies, Ottawa, 2019. https://ccareports.ca/reports/prioritizing-climate-change-risks/

[2] The meeting resulted in the Canadian Technical Report of Fisheries and Aquatic Sciences 3332 report (2019).



It is also envisioned that this project would have a capacity-building component; ideally, with the Pacific Climate Impacts Consortium's User Engagement and Training Specialist, who is working to support professionals and decision-makers as they incorporate the findings of climate science into their work through the development of training materials. There may also be opportunities to align work and/or projects to the *International Year of Salmon Initiative*, such as having an Indigenous science/oceanographic climate change internship.

Workshop

Following a discussion about the proposed concept and any required changes or input from AAROMs and First Nations that do not belong to an AAROM, the workshop will focus on identifying the parameters and estimated cost of the project over two to four years.

For example, this project could include the following elements:

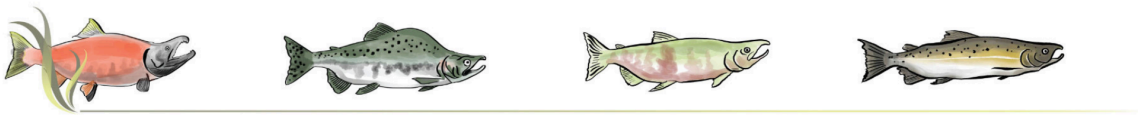
- Funding to AAROMs and other groups to collect information on the climate impacts on salmon and habitat by reviewing past studies, technical activities, and research partnerships
- Collating all collected information into summary format to inform a one- or two-day scientific/technical session with AAROMs, other First Nations groups, DFO Ecosystems Science and Oceans Sciences officials, and academic scientists (e.g., University of Victoria)
- The results of collected information and the collaborative session would become a formal science-based report to be publicly shared and incorporated into the broader Pacific-Salmon Climate Impacts Consortium activity
- The report would also outline a work plan for AAROM and First Nation community monitors and data collectors[3] and information collected would be used by all partners to inform broader salmon rebuilding and habitat restoration initiatives
- Years two through four would support the implementation of the work plan and other short-term partnership watershed research to improve the collective understanding of the potential threats of climate change to salmon and their habitats

Why is this Concept Being Considered?

A national network of AAROMs has been formed as a result of Indigenous Program Review (IPR), which is regularly meeting to advance their workplans, expertise (capacity building and retention) and Indigenous-set priorities. The Department has also committed to act on the recommendations put forth during IPR, which include shifting to a shared capacity model and using the science and research undertaken by Indigenous organizations.

Climate change issues are only going to gain in importance and will likely form a great part of the AAROM and First Nation research in the future. This project would position AAROMs and other First Nations aggregates to be partners in the scientific research, information collection, analysis, and decision-making conducted by DFO, the Province of BC, and academia It would also build the

[3] Refer to *Concept #1: Standardizing Monitoring and Data Collection Tools and Training*



capacity of Indigenous environmental, ecological and resource monitors to incorporate climate impacts issues into their work and to broaden the skill set and career progression opportunities made available to BC First Nations.

Indigenous communities participating in the Marine Plan Partnership for the North Pacific Coast are already tracking climate change in their marine plans as an indicator of sustainable marine management for economic development and stewardship of BC's coastal marine environment. This includes marine uses, activities and protection. Other First Nations communities and groups may also be tracking the impacts of climate change on salmonids and other fish species and habitat of import to communities.

Alignment with BCSRIF Priorities

This project would invest in existing organizations that are already set up to build and expand the technical and scientific capacity of First Nations in BC. It may also invest in new First Nations aggregates or collaborations established to address the impacts of climatic change on salmonids and habitat. Overall, this project is focussed on science partnerships to support collaborations with DFO scientists, academia and research institutions to improve Canada's collective knowledge and understanding of the impacts of climate change on salmonids.

Potential Partners

- University of Victoria's **Pacific Climate Impacts Consortium** www.pacificclimate.org

  BCSRIF is presently supporting UVic's Pacific Climate Impacts Consortium Project. It is intended to provide the detailed data, results, and tools required to enable the development and implementation of watershed and population-specific science-based policies and decisions in support of wild salmon conservation and protection. The proposed product is a risk and vulnerability assessment of salmon populations throughout the Pacific Region, which is to be delivered to a broad range of users via reports, maps and associated online tools. It is anticipated that the products resulting from the project will enhance the effectiveness of fisheries management decision-making processes in the context of a changing climate.

  The project has three components: hydrologic modelling, risk/vulnerability assessment, and the development of software tools (e.g. salmon vulnerability maps, salmon life history and climate applications). The software tools will be used to deliver results from the hydrologic modelling and risk/vulnerability assessment to watershed and fisheries managers throughout the region.

- **International Year of the Salmon Initiative** www.yearofthesalmon.org

  The International Year of the Salmon is an initiative to inform and stimulate outreach and research that will establish the conditions necessary to ensure the resilience of salmon. The Initiative strives to bring people together, to share and develop knowledge, to raise awareness and to take action to ensure salmon and their habitats are conserved and restored. 2019 is the focal year, with research and outreach continuing through 2022.