

Category: Innovation (for individuals and teams)

This category recognizes individuals and/or groups who have focus and drive and who demonstrate commitment and dedication to the public service across Canada, with an emphasis to develop and implement significant ideas and transferable innovations that use new or improved approaches to result in better outcomes for citizens. These innovations embody the guiding principles of Blueprint 2020 and advance government-wide priorities, including finding more efficient and effective ways of delivering core business responsibilities and providing better service to Canadians. Innovations may also streamline business processes, leverage technology, establish new partnerships, or pursue creative solutions to fulfill organizational mandates.

The successful candidate(s) must meet one or more of the following criteria:

- **Create an original idea or uniquely adapt an existing program, process or concept, which result in a long-term benefit to the Department or the Public Service;**
- Develop trend-setting initiatives or transformations that improve efficiency in operations or services or results in savings/benefits (internal or external) in areas such as, but not limited to, science, technology, health, the environment, resources management, finances, learning, program design, delivery and policy;
- Advance the Blueprint 2020 vision by contributing to a revitalized and world-class public service that is equipped to serve Canada and Canadians by: engaging citizens and partners for the public good in an open and networked environment; approaching issues with a whole-of-government approach that enhances service delivery and value for money; making smart use of new technologies to improve networking, access to data and customer service; and for embracing new ways of working and mobilizing the diversity of talent to serve the country's evolving needs.
- Implement a significant organizational change or management practice that increases productivity and has the potential to be replicated or adapted in other organizations; and,
- Create the necessary environment for innovation by effectively addressing a departmental issues of high importance to the organization, while managing risks, removing barriers to efficiency and innovation, and/or reducing administrative/reporting burdens or delays.

200 word Summary:

BC salmon have been declining for three decades, and are in dire need for enhanced health monitoring tools to resolve and track factors under human control that can increase survivorship. Since 2013, the DFO Strategic Salmon Health Initiative Technical team have delivered unprecedented innovative technologies to understand and track the health of wild salmon, providing lasting insight into climate and anthropogenic stressors our salmon face. Their focus and drive, commitment and dedication to public service is exemplified by their agility as a team to leverage technology that equips DFO with the scope and depth of scientific information needed to inform regulation and management of fisheries. From leading a CSAS defense of their scientific innovations, production of data supporting >60 peer reviewed publications, inclusive training of over 50 undergraduate and graduate students, reconciliation-focussed technology transfer supporting the first indigenous-run genomics lab in Canada, and establishment of new partnerships with uptake of their creative solutions in government and academic labs across Canada and internationally (Norway, US), these Public Service employees exemplify the principles of Beyond 2020 and deserve to be awarded the RDG Distinction Award in 2022. These transferable innovations will lead to better outcomes for salmon, and for Citizens of Canada.

1000 word Detailed Description

Statement: Since 2013, the DFO SSHI technical team -- comprised of Karia Kaukinen, Shaorong Li, Tobi Ming, Angela Schulze, and Amy Tabata – have worked as a cohesive, inclusive, highly skilled team to develop creative solutions and innovative technologies to assessing health in our wild salmon which are now being applied worldwide, and I am putting them forward for an RDG Distinction award for this incredible body of work that has kept DFO at the forefront of genomics innovations and provided long-term benefits to the department.

In 2013, the technical team developed the high throughput infectious agent monitoring tool that has been applied on over 33,000 salmon to date. Importantly, this team spearheaded extensive validation of the technological innovation, co-wrote a CSAS report and defended their work in a National CSAS process that was reviewed by an international group of scientists. Their exemplary performance demonstrated a strong depth of knowledge and ultimately received a consensus approval for research application by the diagnosticians, which was a requirement of moving forward on the Strategic Salmon Health Initiative (in 2015).

We have spearheaded new partnerships based on the demands for this powerful technology, with diagnostic and research labs within DFO, academia, and in Norway trying to set up this same system, with training provided by the SSHI technical team. This not only broadens the impact across DFO, but demonstrates the value of the creative solution developed by the SSHI technical team. Moreover, First Nations communities have also sought access to the technology through the reconciliation framework, and through a collaborative agreement with the BATI Nations, with linkages to the Okanagan Nations Alliance (ONA), the technical team (with Karia Kaukinen as lead) is training two visiting scientists from the ONA to transfer the IP to develop the first Indigenous-operated genomics lab in Canada. The enhanced uptake of this technology is providing long-term benefit to the Department and recognition of the department as a leader in innovation, and is benefiting the research community worldwide. The First Nations transfer of IP is a strong example of the types of reconciliation actions that empower self governance, expand economic opportunities, and provide equal access to technologies to support the co-management of fisheries, which should be promoted into the future. Moreover, the IP transfer goes a long way to enhance a relationship of trust with Nations that may have been wary of DFO in the past.

The SSHI was primarily focussed on assessing the role of pathogens as contributors to variations in salmon survival in nature, and as a potential factor contributing to salmon declines. However, there was also some focus on transmission risks imposed by culture-wild interactions. It is this latter work became the subject of much press and debate, especially pertaining to risks posed by salmon aquaculture, and these same dedicated technical staff have had to endure the politicization of the science, character assassinations imposed on members of the team, and ostracization from many in the department, all for simply doing their jobs, and an excellent job at that. The fact that the SSHI technical team persevered through these stressful times, and continued to promote an inclusive environment and produce high value innovations, also warrants recognition.

The SSHI went on to be one of the most productive programs in DFO, largely as the result of the SSHI technical team, publishing some 60 papers in a span of 8 years, all with data produced by 5 technical staff in the program, and utilized for dissertations and primary publications by dozens of students and postdocs, many of whom were trained to perform molecular analyses by the SSHI technical staff. Karia Kaukinen, a (BI-02) biologist in the program, [REDACTED] on the training side, and during the course of the SSHI, led the hiring, training, and supervision of over 45 co-op students.

While carrying out the SSHI research, these same staff were also working on the development of the next technology, Salmon Fit-Chips. This is an even more revolutionary technology as it can be applied to assess cumulative factors impacting salmon, particularly under a climate change scenario. This research and monitoring tool has been formally validated via multi-stressor laboratory challenge studies, which the technical staff also participated in, and is now being applied in eastern and western Canada, Alaska, and Norway. Again, the demand for the innovations the SSHI technical team have developed continues to grow worldwide, which will provide a lasting impact not only within DFO, but internationally. First Nations are already planning to adopt this newest of technologies on the East and West Coast of Vancouver Island.

The hard work and innovation by the SSHI technical team has clearly transformed the breadth and depth of molecular-based health monitoring available to the department and worldwide, which have resulted in improved efficiencies and critical knowledge for stocks experiencing severe decline. They have tackled issues of high departmental importance, which at times have put them in uncomfortable political and social situations, and despite this, they have maintained a high degree of professionalism and dedication to science within DFO. The Beyond2020 qualities of agility, inclusivity, and being well equipped are all demonstrated by this team. As such, I respectfully ask that you consider this the SSHI technical team for an RDG Distinction award.

Kristi Miller-Saunders

Research Scientist, Molecular Genetics