

British Columbia Salmon Restoration and Innovation Fund Annual Results Summary (2020-21) Year 2 Report



BRITISH COLUMBIA | COLOMBIE-BRITANNIQUE

Canada

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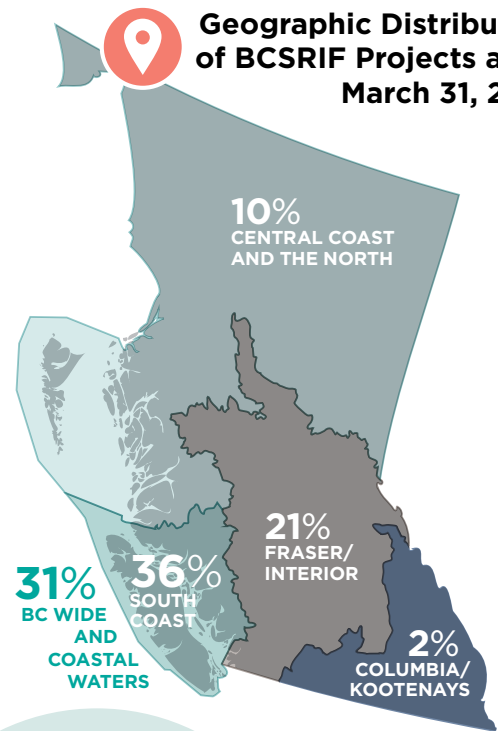
Executive Summary

The [British Columbia Salmon Restoration and Innovation Fund](#) (BCSRIF) is a contribution program funded jointly by the federal and provincial government, with 70% of the funding provided by the Government of Canada and 30% by the Province of British Columbia. Fisheries and Oceans Canada (DFO) is the program secretariat and manages the fund. The fund provides an investment of up to \$142.85 million over 5 years, ending March 31, 2024.

BCSRIF was launched in the spring of 2019, as the British Columbia (BC) component of the Fish and Seafood Sector Program, complementing the Atlantic Fisheries Fund, the Quebec Fisheries Fund and the Canadian Fish and Seafood Opportunities Fund. As a result of the first application opportunity, 42 projects were selected for funding. Funding Agreements were negotiated in batches and were in place for all 42 projects by fall 2020.

In BCSRIF's first year, several project recipients commenced work and reported early on-the-ground results. These early results were reported in the [Annual Results Summary \(2019-2020\) Report - Year 1](#). By the end of the program's second year, all project recipients were able to report project results that will benefit BC's fish and seafood sector and contribute to the sustainability of BC fish stocks, including wild Pacific salmon. This Annual Results Summary (2020-21) – Year 2 Report provides information on recipient project results and outcomes to date, and highlights recent accomplishments reported by BCSRIF recipients.

Geographic Distribution of BCSRIF Projects as of March 31, 2021



Total Fish Habitat Restored

1 3 5 4 4 0 0

Recipients report having restored (or provided access to) over 1,354,400 square meters of fish habitat.

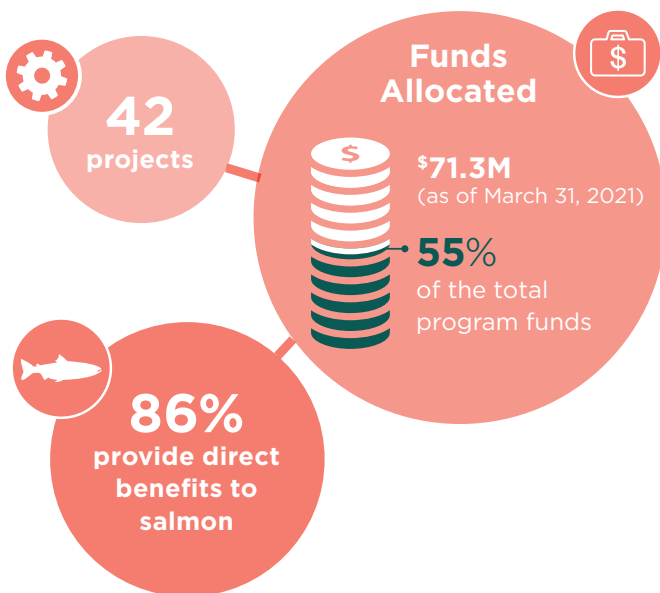
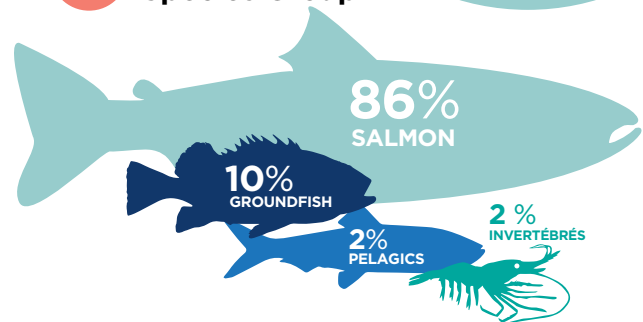


Engagement

Over 175 project proposal discussions and engagement sessions with Indigenous organizations and stakeholders.



Projects by Species Group



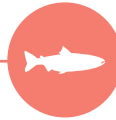
1 Report Purpose

The *British Columbia Salmon Restoration and Innovation Fund: Annual Results Summary (2020-21) – Year 2 Report*, provides an overview of the contribution program, its recipients and projects.

This report focuses on the second year of program operations (April 1, 2020 to March 31, 2021) and progress towards meeting its objectives of improving the sustainability of fisheries and BC's fish and seafood sector and contributing to the restoration of wild Pacific salmon. It provides cumulative results stemming from BCSRIF projects, including measures that reflect key socio-economic and ecological outcomes resulting from program investments.

Information for this report was obtained through BCSRIF's internal analysis of project results and outcomes, supplemented by information obtained through project-based annual recipient reporting on project achievements, and socio-economic and ecological benefits and outcomes, which are collected by the program on an annual basis. The metrics and narratives provided by recipients contribute to performance measurement at a program level, more broadly on the results of the Fish and Seafood Sector Program and provide a more holistic understanding of the Fund's progress in achieving its purpose and how program investments support broader Government of Canada objectives and initiatives.

This information is used, in part, to support government-wide reporting, supplementing Departmental Plans and Departmental Results Reports (DRR) which are tabled in Parliament each fall. Cumulatively, these efforts help to ensure that Parliament and the Canadian public are informed of how public monies are being spent, and of the benefits that programs such as BCSRIF provide.



About BCSRIF

BCSRIF is a funding program that aims to increase the economic and environmental sustainability of BC's fish and seafood sector, and supports the conservation and restoration of Pacific salmon.

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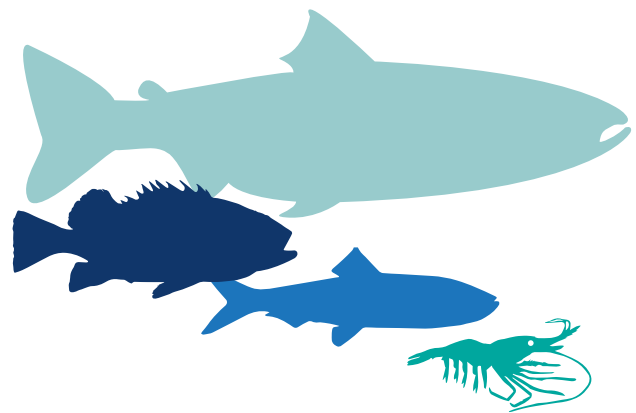
Introduction

Healthy wild fish stocks and a thriving fishing sector are integral to the economic prosperity and social well-being of BC's coastal communities. Wild salmon are culturally important for many First Nations in BC, are a vital part of the province's recreational, sport and commercial fishing industries, and are keystone species in the ecological landscape.

BCSRIF provides opportunities for commercial and recreational fishers, Indigenous organizations and communities, non-governmental organizations, universities and academics and industry associations to participate in activities that will enhance the sustainability of BC's fish and seafood sector by improving the resiliency of Pacific salmon and other wild fish stocks, and to support the modernization and improved sustainability of regional fisheries. Over the life of the program, funding is intended to result in large-scale, long-lasting and far-reaching outcomes that will help ensure that the fish and seafood sector in BC is positioned for long-term success under rapidly evolving environmental and economic conditions.

BCSRIF was instituted with a unique mandate: to make a significant contribution toward improving the status of Pacific salmon. Under the first application intake in spring 2019, 192 applications for program funding were submitted, requesting more than \$327M. After a rigorous review, 42 projects were approved for an initial investment of \$71M, and after adjustments to planned project activities, these projects now represent a total investment value of over \$67M. By the end of March 2021, all 42 projects had funding agreements in place, and were beginning to demonstrate early results.

As of March 31, 2021, two projects were successfully completed. The National Indigenous Fisheries Institute led a process to identify potential large-scale, multi-Nation initiatives that could be supported by BCSRIF in the future. This project also encouraged increased Indigenous involvement in science partnerships, innovation and infrastructure investments that would improve productivity,

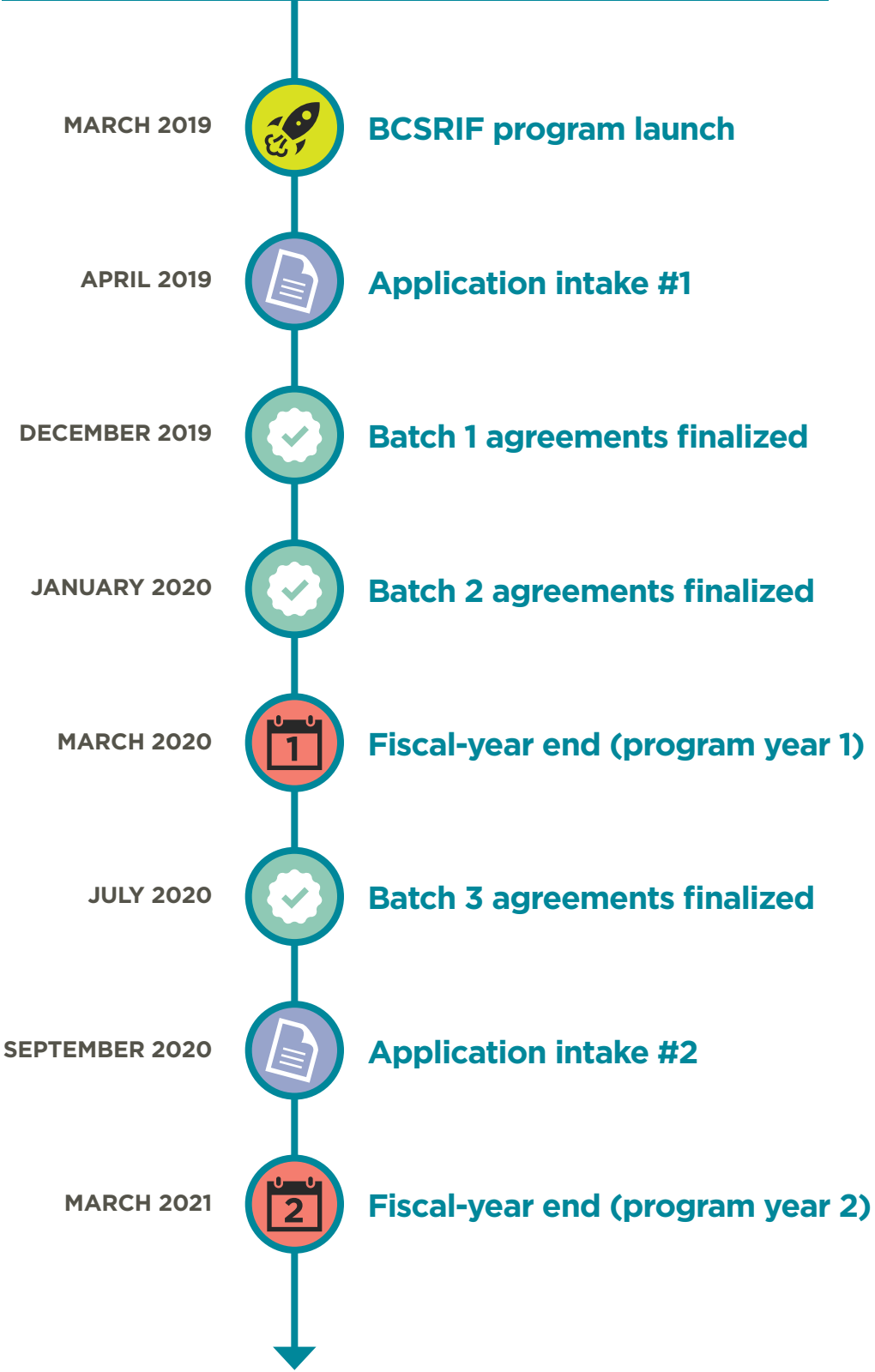


sustainability and safety across the sector. This project was completed in summer of 2020. A second project, the development of a business plan in support of the establishment of a BC First Nations-owned genomics lab, was completed by the 'Namgis First Nation in fall 2019, and enabled Part 2 of the broader project, construction of the lab, to proceed. Due to unforeseen circumstances, one project was cancelled at the recipient's request early in its implementation.

Information on the projects approved to the end of March 31, 2021 is provided in [Appendix 1](#).

In September of 2020, a second call-out for applications resulted in 126 new applications requesting \$197M, representing over 343% of the program's available funds. After review, more than 50 projects were approved for funding. Details of those projects are published on the BCSRIF website as agreement details are finalized, and further information will be included in the Annual Results Summary (2021 to 2022) – Year 3.

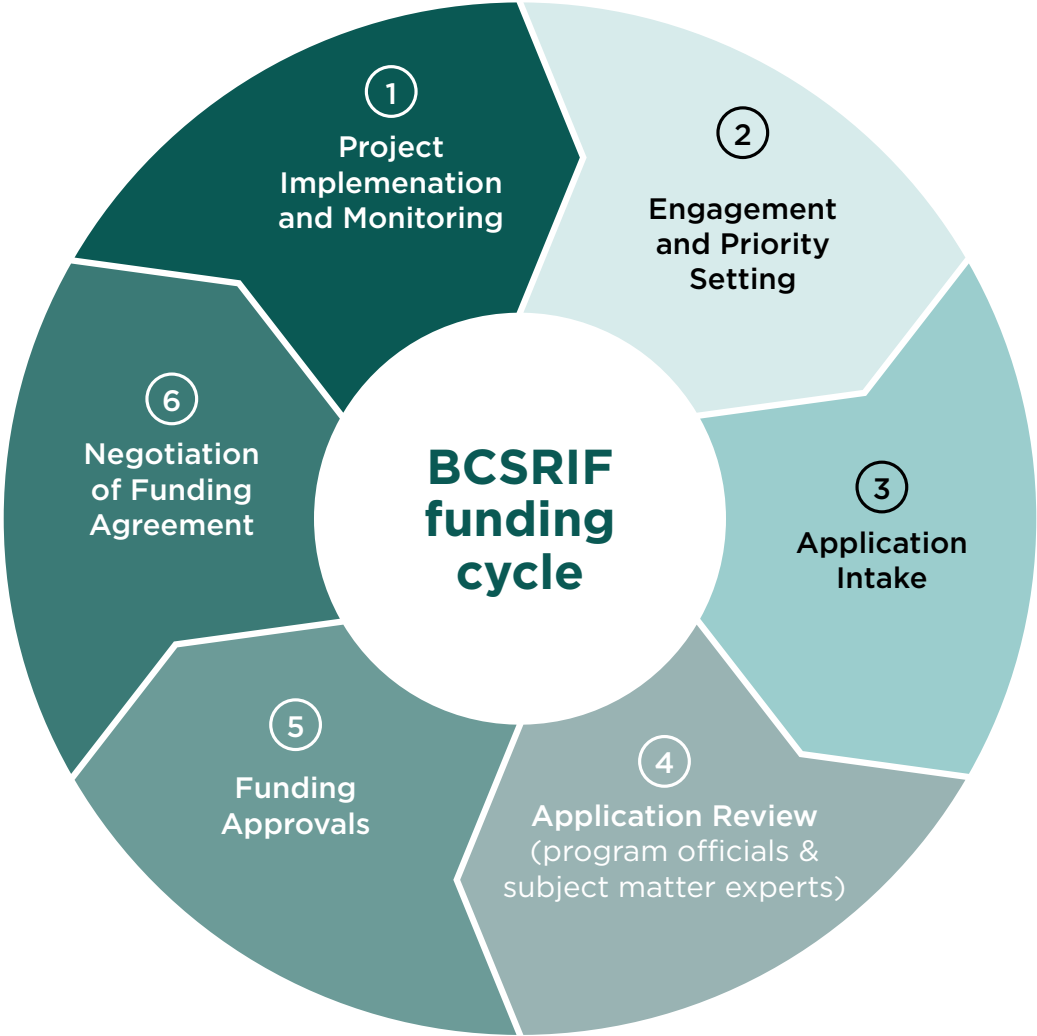
Timeline | Program Snapshot



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BCSRIF Program and Lifecycle

From receipt of the initial application through to project completion, the BCSRIF funding cycle includes key milestones to ensure the program is meeting its objectives, including ongoing engagement and support to applicants/recipients to promote successful participation in the program. As projects roll out, BCSRIF conducts financial and activity monitoring to assess progress, and ensure adherence to program terms and conditions.



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Program Funding Categories

Program Pillars

BCSRIF supports activities under the three investment categories, or program “pillars” of Innovation, Infrastructure and Science Partnerships.



BCSRIF supports **innovation** in the research and development of new products or technologies that increase productivity and advance methodologies or activities to support Canada’s fish and seafood sector markets, meet conservation and sustainability objectives, and create partnerships and networks that support the protection and restoration of wild fish stocks.



Investments in **infrastructure** encourage capital investments in new products, technologies and processes that improve the effectiveness, quality and sustainability of the fish and seafood sector or support the advancement of sustainable fishing practices.



Investing in **science partnerships** supports scientific activities and research in the development of sustainable harvesting, processing and aquaculture technologies, research on the impacts of climate change, the resulting ecosystem shifts in fisheries and impacts to wild stocks, as well as other science activities that protect and restore priority wild fish stocks in BC, with a focus on wild Pacific salmon species.

Many of the projects selected for funding align with more than one program pillar. The majority of funded projects support innovation in some capacity, either as a direct linkage through, for example, the development of new technology, or more indirectly with novel or innovative process or collaborations to engage partners in the pursuit of common objectives. Examples of projects funded under each program pillar can be found in [Appendix 2](#).

Program Priorities

At the outset of the BCSRIF program in 2019, BC and DFO identified several joint priority investment areas to provide scope to the application process and further refine the basic criteria outlined in the program’s terms and conditions. These priorities were informed by engagement with Indigenous organizations, regional stakeholders, government experts (e.g. fisheries managers) and academia. The joint priority investment areas also reflect key provincial and federal areas of interest, including mandate commitments and current policy initiatives.

BCSRIF updated these priority investment areas for the 2020 intake to include six program priorities, focusing on revised strategic government priorities, including declines in some salmon stocks. Under the three broad themes of Aquaculture, Habitat and Healthy Salmon and Fisheries and Seafood Innovation, applications received in 2020 were assessed for alignment with the following six program priorities:

PRIORITY	THEME	GUIDANCE
1	Aquaculture and the changing environment	New aquaculture technologies and processes to improve environmental performance and increase supply chain transparency (e.g., reduction of chemical usage, alternative marine finfish culture technologies/ infrastructure, improvements to fish health management practices and beach-to-plate traceability of shellfish products).
2	Species of concern rebuilding through scientific research	Research to refine the scientific understanding of target species including Fraser River Steelhead, Chinook and Coho through science collaborations and the incorporation of Indigenous Knowledge.
3	Species of concern rebuilding through selective fishing projects	Projects aimed at minimizing bycatch of species of concern and targeting Fraser Chinook, Steelhead and Coho; however, consideration given to other salmon species and priority stocks of concern.
4	Species of concern rebuilding through habitat restoration	Habitat projects that: <ul style="list-style-type: none"> • are part of a watershed-scale restoration plan or prioritization effort (or propose to develop those tools) • build on successful previous restoration efforts • focus on critical habitat and/ or the rehabilitation of natural ecosystem processes
5	Community hatchery upgrades	Infrastructure upgrades or improvements to existing hatcheries. BCSRIF did not consider applications for new enhancement facilities nor any new or increased production of enhanced salmon at existing facilities. Priority was given to projects incorporating innovative infrastructure or technology and to applications that demonstrated applicability for other facilities.
6	Increasing innovation to support the sustainability and economic stability of BC fisheries	Innovative processes and technologies to increase the quality and value of BC fish and seafood products and optimize fishing operations (e.g., strategies to expand value-added fish processing in BC, improved catch monitoring, and analysis to support precision fishing).

Examples of projects that support these priorities can be found in [Appendix 3](#).

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BCSRIF Projects

Table of Approved Projects (Application Round 1)

	Project Proponent	Project Title	Allocation
Projects approved in summer 2019			
1	Canadian Groundfish Research and Conservation Society	Electronic application for enhanced selective fishing and bycatch avoidance	\$ 600K
2	University of Victoria (School of Environmental Studies)	Enhancing rockfish recovery through citizen science, outreach & field experiments	\$ 759K
3	BC Centre for Aquatic Health Sciences	Build wet lab to investigate wild/farmed interaction & stock restoration - <i>Partial project completion, withdrawn by recipient</i>	\$ 3.6M
4	British Columbia Conservation Foundation	Innovative habitat restoration demonstration	\$ 4.9M
5	National Indigenous Fisheries Institute	National Indigenous Fisheries Institute: engagement - <i>Completed</i>	\$ 355K
6	Scw'exmx Tribal Council	Rehabilitation of critical infrastructure to improve survival of Thompson Steelhead & Chinook	\$ 1.3M
7	The Nature Trust of BC	Enhancing estuary resiliency: An innovative approach to sustaining fish and fish habitat in a changing climate	\$ 8.6M
8	University of British Columbia (Department of Forest and Conservation Sciences)	Enhancing sustainability of capture & release marine recreational Pacific salmon fisheries using new tools/technology	\$ 1.9M
9	Secwepemcul'ecw Restoration and Stewardship Society	Elephant Hill fire riparian restoration project	\$ 2.6M
10	Baker Creek Enhancement Society	Plateau Fire Recovery - Riparian plant collection and planting for restoration of Chinook and coho salmon habitat in the Nazko area	\$ 750K
11	Pacific Climate Impacts Consortium (University of Victoria)	Place-based risk of climate change to sustainability of BC wild and hatchery-origin salmon	\$ 1.03M
12	'Namgis First Nation	Broughton wild salmon restoration project	\$ 4.2M
13	'Namgis First Nation	Independent BC First Nations' Genomic Lab Project - Phase 1 - <i>Completed</i>	\$ 51K
14	'Namgis First Nation	Implementation of the Broughton First Nations Indigenous monitoring and inspection Plan	\$ 7.3M
15	Comox Valley Project Watershed Society	Field application and testing of tools for identifying, mapping and quantifying important forage fish populations and their habitats to support enhanced conservation of Chinook salmon in coastal BC	\$ 321K
16	MakeWay Charitable Society	Resilient Waters: Phase 1	\$ 599K
17	Cowichan Valley Regional District	Cowichan River salmon restoration program - sustainable water supply - Engineering	\$ 3M
18	Pacific Salmon Foundation	Science-based review of hatchery results in the Pacific Region	\$ 1.1M
19	Canadian Wildlife Federation	BC Fish Passage Restoration Initiative	\$ 4M
20	British Columbia Cattlemen's Association	Promotion of habitat restoration and stewardship on agricultural lands in the BC Interior	\$ 550K

	Project Proponent	Project Title	Allocation
21	North Pacific Anadromous Fish Commission	International Pan-Pacific Salmon Expedition	\$ 3M
22	Sport Fishing Institute of BC	BC Fishing App	\$ 911K
23	Sport Fishing Institute of BC	Vision 2021	\$ 701K
Projects approved in winter 2019			
24	Peninsula Streams Society	Millstream Fishway project	\$ 300K
25	Pacific Salmon Foundation	Winter salmon survey in Gulf of Alaska	\$ 650K
26	Squamish River Watershed Society	Elaho River Chinook salmon restoration project	\$ 522K
27	Gitanyow Huwlip Society as Gitanyow Fisheries Authority	Kitwanga River sockeye salmon recovery plan implementation	\$ 867K
Projects approved in spring 2020			
28	University of British Columbia (Department of Zoology)	Optimizing recirculating aquaculture systems for sustainable salmon production	\$ 1.8M
29	University of British Columbia (Department of Earth and Ocean Sciences)	Drivers of inter-annual variability in Zooplankton feeding in the Strait of Georgia: A combined model-observation approach	\$ 165K
30	Pacific Prawn Fishermen's Association	Improving sustainability of British Columbia's commercial spot prawn (<i>Pandalus platyceros</i>) fishery and prawn stocks	\$ 118K
31	Juan de Fuca Salmon Restoration Society	Creation of salmon conservation facility	\$ 920K
32	Seymour Salmonid Society	Seymour Watershed Restoration Project	\$ 619K
33	Spruce City Wildlife Association	Upper Fraser Chinook strategic enhancement project	\$ 240K
34	Adams Lake Indian Band	Upper Adams Salmon Restoration Program	\$ 2.5M
35	Osoyoos Indian Band	Inkaneep Creek Restoration	\$ 360K
36	'Namgis First Nation	Phase 2: Independent First Nations' Genomic Lab Project	\$ 1.9M
37	Pacific Salmon Foundation	Percy Walkus Hatchery upgrade	\$ 337K
38	Pacific Salmon Foundation	Determination of bottlenecks limiting wild and enhanced juvenile salmon and steelhead production in BC using PIT tags and spatially comprehensive arrays	\$ 4.6M
39	Pacific Salmon Foundation	Empowering Indigenous community fisheries with deep learning - computer vision for adaptive management of terminal salmon fisheries	\$ 410K
40	Lower Fraser Fisheries Alliance Society	Chilliwack Coho PIT tag escapement project	\$ 680K
41	Nuu-chah-nulth Tribal Council	Partnership for a novel framework for assessing and managing Pacific Herring fisheries on the West Coast of Vancouver Island	\$ 391K
42	Skeena Fisheries Commission	Bear River Autonomous Salmon Enumeration	\$ 402K
			Total
			\$71.3M

The map on the following page displays approved BCSRIF projects by approximate location. Each project is represented by the associated number from the table.

Additional information on these projects, including project descriptions, can be found on the [BCSRIF website](#).

Geographic Distribution of Approved Projects (Application Round 1)



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Measuring Success

BCSRIF strives to improve productivity and increase sustainability in the fish and seafood sector, with a focus on support for wild Pacific salmon. Investments that advance innovation in the fish and seafood sector, that adopt and/or adapt new technologies and that enhance the sector’s capacity to adapt to and address ecosystem shifts, including those related to climate change, are key outcomes of the fund. Supporting those outcomes, investments are made under the three program pillars of innovation, infrastructure and science partnerships.

The extent to which projects generate tangible and sustainable environmental and economic benefits to the fish and seafood sector can, in part, be measured by several key performance indicators. The following sections provide a cumulative “snapshot” of BCSRIF’s program performance as of March 31, 2021.

Several key metrics highlight BCSRIF’s contribution towards diversity and inclusion, economic and socio-economic prosperity, partnership engagement and collaboration, and ecological benefits of the projects. These metrics demonstrate the wide range of benefits generated through BCSRIF investments across various sectors. [Appendix 4](#) highlights examples of several tangible outcomes and benefits that BCSRIF projects are providing for BC’s fish stocks and those who participate in the fisheries and seafood sector.



BCSRIF Funding by Program Pillar



INFRASTRUCTURE

\$26.5M

37%

\$25.2M

35%



SCIENCE PARTNERSHIPS

\$19.6M

28%



INNOVATION

Measuring Success: Diversity and Inclusion

In fiscal year 2020-21, BCSRIF began collecting new demographic information that highlights the Government of Canada’s efforts and commitment to provide opportunity and promote diversity and inclusivity. Program recipients were offered the opportunity to provide details on the demographic make-up of their project teams and other details on their organizations efforts towards ensuring a diverse and inclusive work environment.

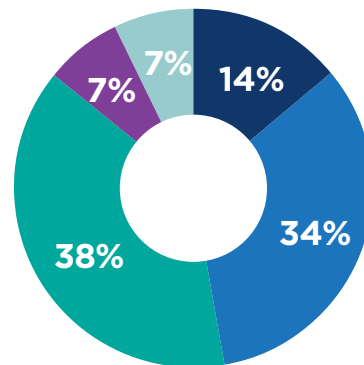
Demographically, BCSRIF supports Canadians who participate in the fish and seafood, fish management and environmental sectors, including women, Indigenous Peoples, members of the LGBTQ2+ community, people of ethnic, linguistic, cultural or religious (ELCR) minority, seniors, veterans, students or youth, people with disabilities and new Canadians.

HIGHLIGHTS

- Almost all BCSRIF projects employ **women** on their project team
- 13, or 31%, of BCSRIF projects are led by **Indigenous organizations** and 70% of BCSRIF projects have Indigenous people on their central project team
- Approximately 50% of BCSRIF’s projects offer employment for **students or youth**
- Over 28% of BCSRIF’s projects have hired **seniors or veterans**
- 14 project teams employ people of ELCR minority, 7 project teams include new Canadians, 2 project teams include people with disabilities.

Measuring Success: Geographic Scope and Scale

The scope and scale of a project’s influence is also an indicator of the program’s broad support toward improved productivity and sustainability of regional fisheries, increased knowledge shared amongst national and international researchers and the substantive efforts being made to restore fish stocks and habitat. Many BCSRIF funded projects have far-reaching influence and 52% of BCSRIF’s recipients report having a scale of influence at the provincial, national or international levels.



- **COMMUNITY (local area streams)**
- **REGIONAL (Major stream systems/multi-watershed)**
- **PROVINCIAL (BC-wide applicability)**
- **NATIONAL (Canada-wide applicability)**
- **INTERNATIONAL**

Measuring Success: Engagement

The BCSRIF program engagement strategy was developed to share information, promote awareness of program objectives, criteria and opportunities to apply for funding and to encourage participation in the new initiative. Both internal (federal and provincial Subject Matter Experts) and external engagement efforts were critical in informing early program design decisions and helping to scope initial investment priorities for the Fund. BCSRIF engaged with Indigenous organizations, fishing organizations (commercial and sport), environmental non-government organizations (ENGOS), community-based stewardship groups and other stakeholders to promote this innovative program.

Information sessions were organized, and presentations were given using existing forums while stand-alone meetings were organized with all interested organizations to discuss potential project proposals, the BCSRIF process and opportunities to participate in funded activities. The COVID-19 pandemic created new challenges for in-person engagement and has led to the emergence of new types of engagement platforms, such as Microsoft Teams and Zoom. The BCSRIF team was able to adapt to virtual engagement and continued to provide a high level service to prospective applicants and funding recipients.



BCSRIF maintains an open dialogue with all applicants, recipients and interested parties with the goal of answering questions to share information and work with recipients that allows all projects to meet their goals and objectives. The BCSRIF team designed a system for planning and tracking engagement in 2019. BCSRIF is also exploring the use of a comprehensive cloud-based platform that tracks consultation and engagement which will allow for enhanced analysis of engagement moving forward and will improve communication with recipients.

HIGHLIGHTS

- Since fall of 2019 BCSRIF has held over 175 project proposal engagement and discussion sessions with Indigenous organizations and stakeholders.
- BCSRIF engagement peaks during application intake periods and when funding decisions are communicated.
- Increased engagement was an important factor in applicant success rate, which rose from 22% to 47% between application intakes.

Partnerships and Public Participation

One indicator of BCSRIF’s success is the economic benefit to individuals and communities provided by employment and training opportunities tied to funded projects. Data captured in the second year was expanded to include information on full-time versus part-time and long-term versus short-term employment, and whether employment opportunities were available in rural or remote locations within recipient organizations.

In addition to direct employment and training opportunities, BCSRIF funding also contributes to many indirect economic benefits to related sectors, including materials and equipment manufacturers. Training opportunities also represent a significant contribution to the economy; combining the benefits of education with attaining employable skills is an investment in human capital that can add to future labour markets. This can be particularly important to Indigenous communities seeking to build internal capacity, as well as to people living in BC’s rural areas where resource-related employment, particularly in the fisheries sector, requires specific training.

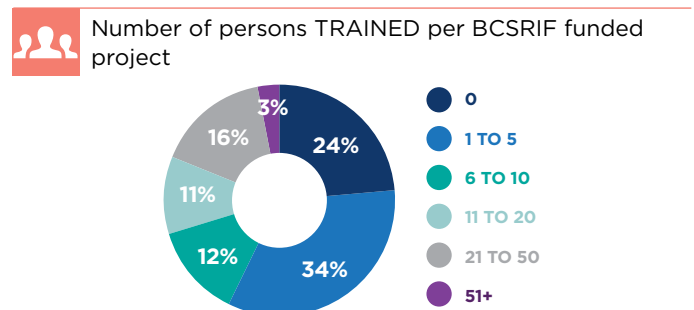
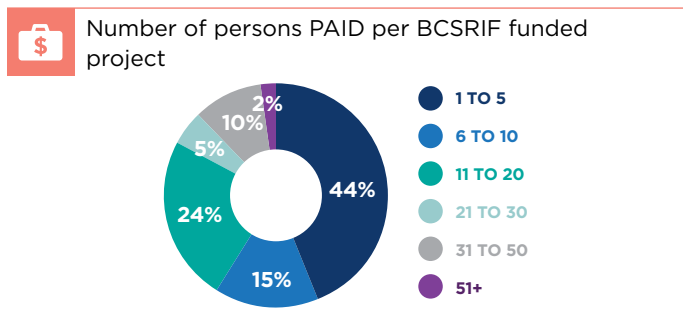
As of March 2021, BCSRIF recipients reported having **directly employed** over 550 persons across the 42 funded projects. Almost 25% of these jobs are reported to be full-time and are anticipated to be long-term employment with an average annual salary range between \$65,000 and \$70,000. Further, just over 20% of the employment opportunities provide employment in rural or remote areas.

Training and skills development is a strong priority for BCSRIF’s strategic outcomes. Over 75% of the project recipients report having implemented a training component as part of the work plan. As a cumulative total, over 400 people have received some level of **training and skills development**, either in specific fisheries-related areas such as fisheries assessment, fish habitat restoration and/

or monitoring, or in other associated areas such as first aid or other operational licensing. Seven organizations have delivered training to large numbers of individuals (over 21 individuals) and at least 50% of BCSRIF’s recipient organizations have delivered training that led to increased capacity within Indigenous communities. To date, BCSRIF recipients have reported having delivered over 195 specific training events which resulted from project implementation.

HIGHLIGHTS

Examples of training and skills delivery reported by recipient organizations include:



Measuring Success: Partnerships And Public Participation

Collectively, three metrics were assessed as success indicators regarding the level of collaboration stemming from funded projects: the total number of partner organizations, the total number of Indigenous partner organizations and the total number of volunteers involved in projects. These indicators provide a measurable outcome that shows BCSRIF projects have a high level of partnership and volunteer participation, highlighting the far-reaching influence that BCSRIF funding has in providing benefits to multiple communities and stakeholders.

95% of BCSRIF’s project recipients report they have established partnerships with other organizations in providing either financial or in-kind support for their project. In addition, over half of BCSRIF projects are supported by significant community volunteerism. Partnerships and public participation are critical – they aid in the pooling and sharing of resources, increase shared knowledge and provide opportunities for education and development of expertise. Greater partnerships and public involvement result in stronger communication and public awareness of the fisheries-related challenges that BCSRIF aims to address. Having strong partnerships in place can significantly reduce the risk of project failure.

Cumulatively, BCSRIF’s recipient organizations reported having established over 380 formal partnerships with others. Indigenous organizations account for over 36% of these partnerships; many of which are related to fish habitat restoration projects.

Community volunteers are also providing significant support to BCSRIF projects. Cumulatively, and with the wide range of projects being delivered, a total of over 1,350 community volunteers have helped to contribute to the success of BCSRIF projects to date. Several project recipients, including the Seymour Salmonid Society, North Pacific Anadromous Fish Commission, Comox Valley Project Watershed Society, MakeWay Canada and Juan de Fuca Salmon Restoration

Society, each report the participation of over 50 volunteers in their projects’ activities to date, with additional support anticipated in future years. The main volunteer activities reported by recipients include citizen science, monitoring, habitat restoration and communications.

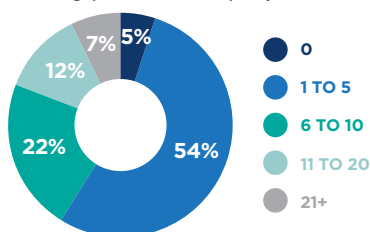
Many people are interested and passionate about the natural environment and influence decision making in their community. Citizen science projects provide a valuable interface between the community and academia. BCSRIF has funded several projects with strong citizen science components including Comox Valley Project Watershed Society’s project on forage fish, the University of Victoria (UVic)’s project to enhance Rockfish recovery through citizen science, outreach and field experiments, as well as the University of British Columbia (UBC)’s citizen-science data collection platform related to their study on the sustainability of capture and release on marine recreational Pacific salmonids.



95% of recipients report having established partnerships with other organizations

Over 1,350 community volunteers have helped contribute to successful BCSRIF projects

 Number of TOTAL PARTNER organizations collaborating per BCSRIF project



In addition, the development of a publicly available [Fishing BC App](#) by the Sport Fishing Institute of BC has over 35,000 volunteer users that collect catch data, which not only increases awareness and communication within the tidal water angling community but also assists fisheries management by reporting on the species harvested under their tidal licenses.



Over 500 communications products, such as reports, newsletters, web postings and social media posts, have been released by recipient organizations to inform their broader membership of project activities.

It should also be recognized that recipient organizations are often provided significant guidance and expertise from subject matter experts, governments, Indigenous organizations, other ENGOs and key public stakeholders through formalized project management committees, partner and stakeholder workshops as well as through other outreach events and surveys. To date, over 80% of recipient organizations have established project management committees (MCs) that play a key role in project development, management and implementation. Across all recipients, a total of 205 MC meetings have been held.

Public and stakeholder engagement, outreach and education are core components of many BCSRIF projects. By the end of March 31, 2021, recipients reported facilitating over 253 outreach events by way of scientific conference presentations, workshops, seminars and other public presentations, educational sessions or stakeholder forums, reaching over 4,850 participants. Most BCSRIF recipients have developed project-specific websites as their main mechanism for information dissemination and exchange.

Measuring Success: Indigenous Participation

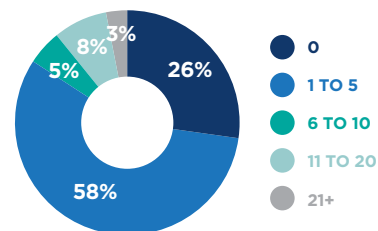
Supporting Indigenous participation in BCSRIF continues to be a priority for the program. Building on early lessons learned, BCSRIF has strived to ensure that program policies and processes are designed to be inclusive, to enable opportunities for Indigenous organizations and to build capacity and increase cooperation towards reaching shared goals related to protecting and restoring wild Pacific salmon and improving the sustainability of the fishing sector.

Indigenous involvement in projects funded in the initial years of the BCSRIF program is strong. Of the 42 funded projects, 13 (31%) are led by Indigenous organizations and over 29 (70%) of the projects provided direct employment within the recipient organization to Indigenous peoples. To date, leveraged support for project delivery has included over 138 Indigenous partner organizations. Further, BCSRIF projects have employed over 148 Indigenous persons, which cumulatively makes up 29% of the total persons reported as having received direct income through the fund.

BCSRIF projects provide significant Indigenous capacity building opportunities. 153 Indigenous persons have received training in aspects of the project undertakings, representing almost 40% of the total training opportunities delivered through BCSRIF, which is distributed over 30 projects that report training as an element of the project outcomes.

Over 50% of the recipients also reported having high levels of collaboration with Indigenous organizations and highlighted improved project outcomes resulting from the incorporation of Indigenous Knowledge in the planning and implementation of their projects. Building on early program experience and feedback, BCSRIF has further refined its process for documenting how Indigenous Knowledge is being obtained and used in project implementation, which ensures that appropriate consent is obtained from knowledge providers.

 Number of INDIGENOUS PARTNER organizations collaborating per BCSRIF project



National Indigenous Fisheries Institute (NIFI)

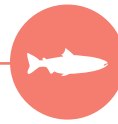
During 2019-20, BCSRIF provided support to the National Indigenous Fisheries Institute (NIFI) in partnership with the First Nations Fisheries Council (FNFC) to engage with other BC Indigenous organizations to identify potential large-scale, multi-nation initiatives that could be considered for potential future funding by BCSRIF or other programs. Following a series of collaborative workshops, a total of eight themes and potential projects were described in NIFI's final report to BCSRIF.

Gitanyow Huwlip Society (Gitanyow Fisheries Authority)

The Gitanyow Fisheries Authority has undertaken small scale enhancement and habitat restoration projects to maximize spawner success over the next five years and to identify the limiting factors to Kitwanga sockeye production. The goal of the project is to identify and develop solutions to ultimately stop and reverse the decline of Kitwanga sockeye and help rebuild the stock.

Measuring Success: Ecological Outcomes

A critical piece when measuring the BCSRIF program and projects' performance is the consideration of benefits to aquatic species, and more specifically, on their efforts to restore BC's wild salmon stocks. Of the BCSRIF projects selected, 36 projects (86%), directly support the protection and conservation of wild Pacific salmon. Metrics used to assess BCSRIF's ecological outcomes include the identification of direct benefits provided to targeted species at risk, the identification of outcomes supporting fish and fish habitat, including the species benefited, the limiting factors being addressed by habitat restoration projects and the amount of habitat restored. At the end of the program's second year, recipients reported that a cumulative total of **1,354,400 square meters** of fish habitat had been restored through BCSRIF funding. Of this, 865,500 square meters restored aquatic habitat and 488,900 square meters of riparian habitat.



36/42

**BCSRIF funded projects
directly support the
protection and conservation
of wild Pacific salmon.**

Based on recipient-reported data, just over 60% of the projects target direct benefits for at least one COSEWIC-assessed Species at Risk (SAR) population. Of those projects, 19 provide targeted benefits to Southern BC Chinook, 11 to Interior-Fraser Coho, 9 to Fraser Sockeye, 5 to Thompson-Chilcotin Steelhead and 6 other species at risk populations. Notably some of the projects target more than one salmon population at risk. Benefits to SAR are mainly being provided through fish habitat restoration and enhancement efforts.

BCSRIF has provided funding to 13 recipient organizations that are predominantly undertaking fish habitat restoration and enhancement work as the primary outcome of their project. To date, over 195 fish habitat restoration sub-projects have been undertaken at 55 degraded locations. Further, BCSRIF has provided funds for engineered designs at 14 project sites and for 21 watershed and recovery planning processes within BC.

To support the sustainability of wild Pacific salmon and other priority BC fish stocks, BCSRIF funds projects related to stock enhancement and enumeration, through new innovations in fish-counting, modelling and data collection. These projects help to inform new fisheries management approaches, systems or frameworks for assessment and management of fisheries resources. BCSRIF has also provided funding to support hatchery improvements.

For restoration efforts to be effective, it is critical to understand what types of activities are needed to address the limiting factors for fish and improve fish habitat productivity. Of the dominant limiting factors being addressed, over 75% of the fish habitat restoration projects are related to adverse hydrological changes and other low water flow issues, 50% aim to restore fish passage in areas affected by anthropogenic (human-caused) impacts, such as culverts associated with transportation-related water-crossing structures, 50% aim to restore riparian areas, 50% restore floodplain connection, 40% address stream substrate erosion or sedimentation and just over 20% of the projects are evaluating impacts on fish related to predation, competition, disease and/or invasive species.

HIGHLIGHTS

- 18 projects **enumerate salmon stocks**
- 23 projects provide **innovative fish stock modelling**
- 9 projects contribute to the **improved sustainability** of fishing practices
- 8 projects support **hatchery infrastructure improvements**
- 14 projects address **fish genetics, virology, and pathogens**
- 23 projects address **ecosystem shifts and climate change**



Just over 60% of BCSRIF projects target direct benefits for at least one COSEWIC-assessed Species at Risk (SAR) population.

Measuring Success: Science, Research and Innovation

Science and research are strong components of many of the projects that BCSRIF supports. Over 20% of the funded projects are oriented toward academic study and research. In only the second year of the program, BCSRIF recipients already report having released 10 reviewed scientific publications through peer-reviewed papers, presentations at scientific conferences or reports posted on their websites.

For more information, please refer to:

- The University of Victoria’s (UVic) project “Enhancing rockfish recovery through citizen science, outreach & field experiments” [[Rockfish Revival by Angler’s Atlas](#)]
- The Pacific Salmon Foundation’s project on “Empowering Indigenous community fisheries with deep learning – computer vision for adaptive management of terminal salmon fisheries” has produced a peer-reviewed publication entitled, “Indigenous systems of management for culturally and ecologically resilient Pacific Salmon Fisheries”, dated Feb dated Feb 2021. [[Indigenous Systems of Management for Culturally and Ecologically Resilient Pacific Salmon \(Oncorhynchus spp.\) Fisheries | BioScience | Oxford Academic \(oup.com\)](#)]
- The University of British Columbia (UBC), through the Department of Forest and Conservation Sciences, has made presentations at several scientific conferences on their project “Enhancing Sustainability of capture & release marine recreational Pacific salmon fisheries using new tools/technology”.
- The Pacific Climate Impacts Consortium’s “Place-based Risk of Climate Change to Sustainability of BC Wild and Hatchery-origin Salmon” website reports on their ongoing research regarding risks posed on BC salmon habitat due to climate change. [[Meeting the Need for Practical Climate Change Information](#)]
- MakeWay Canada’s project “Resilient Waters: Phase 1” has provided insight toward the prioritization of flood control infrastructure on the Fraser River” [[Resilient Waters - MakeWay](#)]
- The Pacific Salmon Foundation’s “Winter Salmon

Survey in the Gulf of Alaska”, coordinated by the North Pacific Anadromous Fish Commission (NPAFC), 2020 expedition report is available by Open Access via Canada’s participation in the Global Ocean Observation System through cooperation with the Tula Foundation and NPAFC [<https://npafc.org/wp-content/uploads/Public-Documents/2021/1930Second-GoA-Expedition-Summary.pdf>]

The BCSRIF innovation pillar encourages the development of new technologies to increase productivity and help meet conservation and sustainability objectives. Just over 50% of recipients report having produced or acquired new innovative products, processes, technologies or equipment in the past year. Innovation can be broadly interpreted and includes, for example, new hatchery methodologies and/or production equipment, innovative research methods, the use of information technology to gather data and communicate results across partners or the public, new mechanisms to support fish production, fish escapement monitoring and fish management, and new or improved methodologies for habitat restoration and enhancement (such as stream sediment control through forest fire recovery efforts).



Over 50%
of recipients report having produced or acquired new innovative products, processes, technologies or equipment in the past year

7 Impacts to Projects

The 2020–21 fiscal year was not without its challenges. While BCSRIF recipients aimed to maximize time in the field implementing their projects, they faced ongoing delays and disruptions due to COVID–19, as well as record-hot summer temperatures that resulted in extreme drought and forest fires.

The COVID–19 pandemic has been extremely challenging. Impacts to BCSRIF-funded projects and recipient communities were far-reaching and sometimes devastating. Many projects were impacted by travel restrictions, increased project expenses and/or delays due to supply chain issues and other weather-related project delays.

In offering support, BCSRIF has worked with project recipients to consider and implement potential response measures, including the reallocation of project resources, extensions to timelines and connecting recipients to needed resources or expertise in order to minimize impacts and ensure continued project success.

Despite the limitations posed by public health restrictions, many recipients were able to overcome these challenges, which in some cases, resulted in unanticipated positive benefits. For example, restrictions on entering certain communities to conduct project-related activities resulted in local community-members being provided with the tools and training to undertake the activities directly, providing a valuable source of employment during the COVID health crisis. As well, since 2020, some seasonal field activities have been adjusted or rescheduled and most recipients have adapted to virtual meetings and workshops. In some cases, local staff have been hired to conduct activities where access to some BC communities has been restricted.

8 Looking forward

In its second fiscal year (2020-21), BCSRIF continued to implement key program activities to support approved projects now underway while working to identify additional projects for funding. Projects that were approved in 2019 and 2020 are currently in various stages of implementation, having a range of project completion dates up to the end of the BCSRIF program on March 31, 2024.

The level of interest in BCSRIF continues to be high – the second application opportunity in summer 2020 resulted in more than 50 projects receiving funding approval in spring 2021. Further information on those projects will be published on the [BCSRIF website](#) as funding details are confirmed and the results of these projects will be included in future Annual Results Summary Reports.

BCSRIF will continue to work with clients to find new and innovative ways to adapt to emerging challenges facing the sector, including impacts to projects as a result of COVID-19 and climate change-related events, such as drought, forest fires and flooding.

Future reports on the BCSRIF program and its project results will be informed by ongoing project monitoring and evaluation activities, the findings of in-field assessments, as well as additional year-end result reports submitted by recipients. In future annual reporting, BCSRIF will report on the final results of individual projects and provide summary information on the cumulative outcomes and impacts of program investments to wild stocks and the regional fish and seafood sector.

Based on the high level of interest in BCSRIF, and success of initially funded projects in realizing significant achievements, both the federal and provincial governments have announced their intention to extend and expand the funding program.

Appendix 1: Program Overview

As part of the provincial and federal governments' effort to support BC's fish and seafood sector, projects funded under BCSRIF aim to address recent declines in salmon and other wild fish stocks, and support the sustainability of Canada's marine resources for future generations through habitat restoration, research and science activities, improvements to community hatcheries and innovation in the aquaculture and fishing sectors.




These investments support a response to advice and recommendations made by the [Minister of Agriculture's Advisory Council on Finfish Aquaculture](#) (MAACFA) and [Wild Salmon Advisory Council](#) (WSAC). They also complement DFO's commitment under [Canada's Policy for Conservation of Wild Pacific Salmon](#) (WSP) and address recommendations made by the Standing Committee on Fisheries and Oceans, as well as federal and provincial mandate commitments.

BCSRIF is one of four transfer payment programs delivered through the [Fish and Seafood Sector Program](#), which was established to advance a national approach for improved market access and branding, to provide opportunities to maximize the value of Canada's fish and seafood sector and, in BC, to help to rebuild salmon stocks.

BCSRIF is administered under a bi-lateral framework agreement that outlines the responsibilities of federal and provincial partners in delivering the program.

BCSRIF funding is open to BC-based applicants that are active in, or support, BC's fish and seafood sector. BCSRIF funding is awarded through a competitive application process. Additional information on the program and opportunities to apply for funding is available at www.bcsrif.ca

Appendix 2: Examples of Projects Funded Under Each Program Pillar

 INNOVATION	 INFRASTRUCTURE	 SCIENCE PARTNERSHIPS
<p>Located near Port Alberni, BC, the Nuu-chah-nulth Tribal Council will expand the existing operating models developed under Herring Renewal to include representation of ecosystem impacts on West Coast Vancouver Island (WCVI) Herring. They will also undertake an evaluation of spatial and in-season management options for associated food, social and ceremonial (FSC) and commercial Herring fisheries to ensure the sustainability of Herring fisheries. This project will consider impacts of the shifting ecosystem (e.g. changes in predation), quantify spatial and seasonal patterns in WCVI Herring spawning, and develop a framework to evaluate new and innovative management options.</p>	<p>Funding has been provided to support the 'Namgis First Nation in undertaking Phase 2 of a project to establish an independent BC First Nations genomics laboratory in partnership with the Okanagan Nation Alliance. These project partners have upgraded an existing laboratory and are providing new analysis equipment, including Fluidigm BioMark™ technology, to analyze samples collected through the Indigenous Monitoring and Inspection Plan (IMIP). This will provide First Nations' with advanced capacity to conduct independent fish tissue health sampling, to detect and monitor pathogens that can affect wild salmon and ecosystems and to identify if escaped salmon are present in the watershed. The new lab will provide services to other First Nations in British Columbia with an interest in high-capacity genomic analysis and studies.</p>	<p>The University of British Columbia (UBC) is conducting research to improve understanding of the changing ecosystem faced by out-migrating juvenile salmon in the Strait of Georgia. Activities include quantifying key drivers of Zooplankton (small animals that feed on ocean plants) feeding, and to explore how Zooplankton abundance and distribution are affected by environmental conditions. Although commencement of the project was delayed due to COVID-19, UBC researchers were able to determine the effectiveness of a model used to estimate Phytoplankton (plant biomass) and Zooplankton in the Salish Sea comparing the modeling data with observational data. Being able to quantify processes that predict Zooplankton feeding, the model is expected to provide an understanding of salmon survival; model evaluation will continue in 2021-22.</p>

Appendix 3: Examples of Projects that Support BCSRIF Themes of Aquaculture, Fisheries and Seafood Innovation, Habitat and Healthy Salmon

AQUACULTURE AND THE CHANGING ENVIRONMENT

A study being undertaken by the University of British Columbia (UBC)'s Department of Zoology, aims to provide a BC-based solution for growing larger, more physiologically robust Atlantic salmon smolts in freshwater recirculating aquaculture systems (RAS) through photoperiod and temperature manipulation and considering impacts of elevated CO₂ levels in freshwater RAS. This project will help to improve both the sustainability and productivity of BC's aquaculture industry by maximizing the amount of time farmed salmon are reared in land-based RAS and reducing the amount of time farmed Atlantic salmon spend in marine net-pens. In the first year, the recipient upgraded the UBC InSEAAS aquatics research facility, recruited 5 research staff and 2 Masters of Science students, and commenced first manipulations in what will be a 14-month long experiment before initial outcomes can be derived.

SPECIES OF CONCERN REBUILDING (FRASER RIVER STEELHEAD, CHINOOK, COHO)

The Pacific Salmon Foundation's project aims to determine the bottlenecks limiting wild and enhanced juvenile salmon and steelhead production in BC. Using PIT tags and spatially comprehensive tracking arrays, this project extends a network of existing PIT tags and in-stream arrays established during the Salish Sea Marine Survival Project to monitor priority Chinook, coho and steelhead populations in environments of the Strait of Georgia, Fraser River and West Coast of Vancouver Island. This information is expected to lead to greater understanding of the freshwater and marine survival of these species, provide information on 'hot spots' of salmon mortality, and consider variation of enhanced versus wild salmon mortality. To date, PSF in partnership with First Nations, governments, academia, and community groups has tagged over 60,000 fish and established PIT antenna arrays across a range of sites and has completed the first season of a detailed examination into the habitat use, diet, and health of over-wintering juvenile Chinook salmon.

SPECIES OF CONCERN REBUILDING (SELECTIVE FISHING)

The Lower Fraser Fisheries Alliance Society was awarded funding to contribute to an improved understanding of stock status and trends through the development and demonstration of PIT tag mark-recapture techniques for hatchery coho salmon in the Chilliwack River. The LFFA has installed PIT arrays to enumerate annual hatchery fish returns and has applied 30,000 PIT tags in coho smolts over 2 brood years. The project is a foundational part of the Lower Fraser Coho Escapement Estimation Project Program that produces annual estimates for resource management considerations. Piloting of these PIT tag mark-recapture methods for this large river watershed is expected to inform future work on stock-level PIT tagging enumeration studies for other populations of Fraser salmon.

**SPECIES OF
CONCERN
REBUILDING
(HABITAT
REBUILDING)**

This multi-year, watershed-wide initiative combines rockslide mitigation work to enable upstream fish passage, with physical habitat enhancement and restoration works to improve the habitat quality and functionality within the watershed. The Seymour Salmonid Society will also conduct monitoring to confirm the success of the project in establishing fish passage and in providing restored and enhanced habitat for wild Pacific salmonid stocks for future generations. Rock blasting and breaking activities commenced in the summer of 2020 and the most significant blockage points were addressed; salmon tagging and monitoring showed fish passage was effectively gained. Other project activities have included translocation of adult fish to the upper Seymour watershed in consideration of further efforts to re-establish anadromous fish stocks, as well as habitat restoration work to repair previous enhancements and resolve beaver dam concerns.

**COMMUNITY
HATCHERY
UPGRADES**

The Pacific Salmon Foundation, in partnership with the Wuikinuxv First Nation, has upgraded the Percy Walkus Hatchery infrastructure and made power modifications to secure a sustainable 3-phase power source. Improvements for the hatchery and its operations have included the purchase of a mobile back up water supply system and new net pens and floats, the addition of two onsite wells and installation of pumps and plumbing to the aeration tower, as well as new pumps with 3-phase motors and electrical work. The works will improve the site efficiency, reduce the carbon footprint of facility operations, and provide for electrical failure back up and site fire protection. The project was substantially completed in fall of 2020 and is operating effectively.

**INCREASING
INNOVATION TO
SUPPORT BC
FISHERIES**

In partnership with the Haida and Heiltsuk Nations, academia, governments and others, the Pacific Salmon Foundation is aims to integrate traditional and modern technologies through the development of new computer vision deep-learning programs that automate salmon counting and species identification from video and sonar data. Connecting these tools with community-run escapement monitoring programs around the North and Central Coast will support the transition towards real-time data integration and in-season monitoring to inform adaptive management of salmon fisheries. To date, major infrastructure improvements have been made on the Koeve River weir to power future in-stream escapement monitoring. Nine partnerships have been leveraged to build foundational training datasets for computer vision models that will automate salmon identification, measurement, and counting for video and sonar escapement monitoring projects. In addition, this project is employing 11 individuals on the project team.

Appendix 4: Examples of BCSRIF Projects Showing Benefits and Outcomes

University of British Columbia (Department of Forest and Conservation Sciences) “Enhancing sustainability of capture & release marine recreational Pacific salmon fisheries using new tools/technology”

The University of British Columbia’s (UBC) Department of Forest and Conservation Sciences completed a pilot study to evaluate different catch and release techniques that aim to improve the survival of released fish and demonstrate that non-retention fisheries can sustainably be undertaken with minimal impacts to fish in areas where fisheries might otherwise be closed. Through state-of-the-art telemetry and new approaches in genetic studies to assess fish health and condition, the study is obtaining accurate post-release mortality estimates which can be immediately used by fisheries managers. In 2020–21, the study started to generate some of the first ever direct and accurate short to medium term measures of post-release mortality associated with recreational angling fisheries in marine areas for Chinook and coho salmon. Through refurbishing an existing network of arrays, results in 2020–21 included improvements and life extensions of telemetry infrastructure in the Discovery Island region. Activities to date have involved numerous science partnerships including collaborations with the Sport Fishing Institute, Pacific Salmon Foundation, Canada’s Ocean Tracking Network, Carlton University and Kintama Research Services. The creation of a Best Practice Guidebook is expected in 2024.

North Pacific Anadromous Fish Commission “International Pan-Pacific Salmon Expedition”

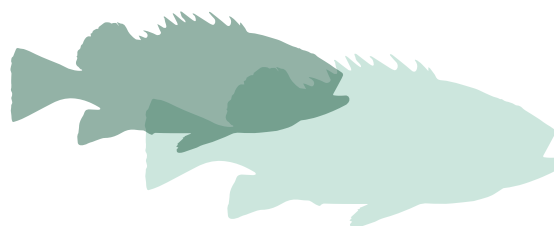
The North Pacific Anadromous Fish Commission (NPAFC) project funding is being used to establish international science partnerships between government, academic, and NGO researchers from five Pacific rim countries, to improve the understanding of the impacts of climate change on mechanisms that determine the distribution and productivity of wild Pacific salmon stocks. The group is working to support international efforts toward a common standard for sharing data across databases globally, including the data collected by the IYS high seas research expeditions in the North Pacific. The goal is to have data centrally accessible in an International Year of the Salmon Ocean Observation System, a node of the Global Ocean Observing System, created by the UN.

Adams Lake Indian Band “Upper Adams Salmon Restoration Program”

Based on the need to enhance and restore the Upper Adams River Sockeye salmon populations, the Adams Lake Indian Band (ALIB) has partnered with Secwepemc Fisheries Commission and the Okanagan Nation Alliance to undertake studies in Adams Lake. Key components include a rigorous limnological (physical, biological and chemical) study of the lake, a population study of existing sockeye/kokanee and an examination of the impacts of invasive species with the aim to identify core issues, develop enhancement techniques and ensure healthy sockeye populations for the future. The results of these studies will support nutrient enrichment to increase the abundance of pelagic phytoplankton, which in turn is expected to increase the abundance of zooplankton, an essential food source for sockeye fry.

University of Victoria (School of Environmental Studies) “Enhancing rockfish recovery through citizen science, outreach & field experiments”

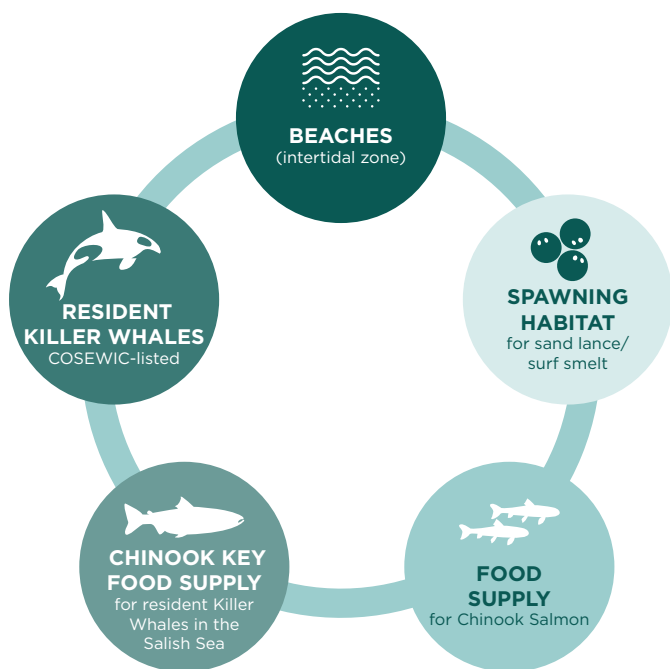
The University of Victoria (UVIC), School of Environmental Studies, is working to enhance rockfish recovery through citizen science, outreach and field experiments. UVIC has expanded the free “MyCatch App” that provides information on Rockfish Conservation Areas (RCA) along the coast. The App enables anglers to quickly identify spatial boundaries for RCA’s and Marine Protected Area’s (MPA), improving compliance and conservation efforts by alerting anglers as they move into a RCA when they are using the MyCatch App. The App also provides rockfish identification information and real time updates to fisheries regulations. Monitoring programs have been developed to assess data on compliance rates and the effectiveness of return of rockfish using “descending devices”, which will provide information essential to producing accurate stock assessments to inform commercial and recreational fisheries. The new App has had excellent in-person response.



Comox Valley Project Watershed Society “Field application and testing of tools for identifying, mapping and quantifying important forage fish populations and their habitats to support enhanced conservation of Chinook salmon in coastal BC”

The Comox Valley Project Watershed Society’s project to address knowledge gaps on the status of forage fish in the northern Salish Sea has applied a citizen scientist program to monitor intertidal forage fish species and their habitats. This project is of high ecological importance because forage fish populations support Chinook salmon, a key prey species of the Northwest’s at-risk Killer Whales. In its second year, the project garnered added project support from new collaborators, including Haikai Institute, Islands Trust, UBC, and the K’ómoks First Nation Guardian Watchman, as well as over 60 volunteers who provided over 800 hours of labour for the project by collecting intertidal environmental DNA (eDNA) samples for sampling to determine the presence of surf smelt and Pacific sand lance that burrow in the intertidal and subtidal zones (beach areas). A total of 232 intertidal and subtidal eDNA samples from Campbell River, Comox Valley, and Cortes, Hornby and Quadra Islands were sent to the University of Victoria for analysis. The results of this work have also helped to refine the intertidal and subtidal forage fish models that have been developed through this project. Final project results are expected in March 2022.

Did you know that sandy beach habitats are connected to Killer Whales in the Salish Sea??



Secwepemcul’ecw Restoration and Stewardship Society “Elephant Hill fire riparian restoration project”

The Secwepemcul’ecw Restoration and Stewardship Society (SRSS) project aims to address the impacts to fish habitat caused by the Elephant Hill fire in the interior of BC, by stabilizing eroding hillslopes through riparian restoration. A strength of the project is the high-level of collaboration across a wide range of project partners, including eight First Nations and local private landowners. By the second year, 240 sites were surveyed for potential restoration, and over 150 prescriptions for riparian remediation were developed across 7 of BC’s biogeoclimatic (similar ecosystem) zones. As well, a direct seeding trial showed proof of concept for future riparian restoration efforts in years 3 and 4.

Nature Trust of British Columbia “Enhancing estuary resiliency: An innovative approach to sustaining fish and fish habitat in a changing climate”

The Nature Trust of British Columbia (NTBC) has partnered with the Hakai Institute, 11 First Nations, environmental non-government organizations, and other academic institutions, to study estuarine resiliency on BC’s Coast. Climate change impacts are expected to significantly impact estuary ecosystems through rising sea-levels, ocean acidification, temperature and salinity changes, and changes to freshwater and sediment inputs. This project is focused on assessing estuary resilience through collaborative planning, field work, data collection and analysis of 15 key estuaries to garner baseline research on coastal areas that may be impacted by climate change. The goal is to implement restoration projects that restore core natural estuarine processes, ensuring they remain resilient in the face of climate change. To date, updated habitat maps have been produced, baseline resilience metrics stations have been put into place and baseline in-field data has been collected. To mitigate impacts from Covid-19, NTBC developed an App-based training platform that facilitated the implementation of site monitoring, and enabled updates to the sea-level rise projections, as well as the evaluation of priority estuarine restoration opportunities that will be implemented in years 3 and 4.

Pacific Climate Impacts Consortium (University of Victoria) “Place-based risk of climate change to sustainability of BC wild and hatchery-origin salmon”

The Pacific Climate Impacts Consortium (University of Victoria) is conducting research in collaboration with experts from the Pacific Biological Station to consider place-based risk of climate change to the sustainability of Pacific salmonids and their habitats using models based on the exposure, sensitivity and adaptive capacity of salmon conservation units in the Fraser River basin. The project has completed a model calibration on a 81,200 km² region of the BC Coast and developed a prototype data portal which presents extreme streamflow data for the upper Fraser, with capacity to expand the data. The research will be complete by March 2024.

Canadian Wildlife Federation’s “BC Fish Passage Joint Venture”

Canadian Wildlife Federation (CWF) has collaborated with First Nations, governments, ENGO’s and other stakeholders, to implement priority fish passage projects for a selection of known barriers in immediate need of restoration. As well they are in the final stages of developing a framework that will aid in the processes for prioritizing fish passage projects throughout BC. Through input received from workshops and their project partners, CWF has selected 3 priority watersheds for targeted restoration: the Bulkley River, Horsefly River and Lower Nicola River watersheds. The prioritization tool considers fish connectivity concerns which, when coupled with site-specific on-the-ground habitat assessment work, can be used to prioritize and implement future fish passage and fish habitat remediation projects. To date, CWF has reconnected fish habitat at 8 barrier locations in BC, and this work has opened up over **621,271** square meters of fish habitat.

Pacific Prawn Fishermen’s Association “Improving sustainability of British Columbia’s commercial spot prawn (*Pandalus platyceros*) fishery and prawn stocks”

Through new management procedures, the Pacific Prawn Fishermen’s Association and partners are improving the sustainability of BC’s Spot Prawn fishery and ensuring that conservation objectives are realized. The group is aiming to achieve eco-certification for sustainable fisheries through assessment of biological reference points in consideration of how climate change may affect Spot Prawn stock productivity and potential future commercial catch. In 2020-21, stakeholders and First Nations participated in workshops to start developing quantitative conservation and harvest objectives for both the prawn stock and commercial fishery. Once fully developed, various management actions can be tested to ensure conservation objectives are met and to ensure long term sustainability of the fishery and prawn stocks. Final project results are expected in March 2022.

Makeway Charitable Society “Resilient Waters (Phase 1)”

Makeway Charitable Society has made considerable inroads on their Resilient Waters (Phase 1) project. This project built connections with over 200 organizations in government, First Nations, academia, NGO’s and the private sector. Through collaborative effort, a methodology to prioritize project site selection was developed, which will guide fish passage and habitat improvements for flood control infrastructure on the lower Fraser River. Fish studies, water research and engineering feasibility studies on the highest priority sites will inform site restoration opportunities for Phase 2 of the project.

Peninsula Streams Society “Millstream Fishway project”

The Peninsula Stream Society (PSS), in collaboration with its partners, constructed a fishway in Millstream Creek 2020 to provide resident trout and coho salmon access to over 8 kilometers of fish habitat, increasing the streams useable fish habitat by 400%. The next steps are to ensure that this type of restoration continues through active stewardship and education for both Millstream Creek and watercourses in neighboring communities.

British Columbia Conservation Foundation “Innovative Habitat Restoration Demonstration Project”

Led by the British Columbia Conservation Foundation, the ‘Innovative Habitat Restoration Demonstration’ is a multi-year, watershed-scale demonstration project to showcase innovative habitat restoration methods that accommodate the effects of recent ecosystem shifts with benefits to Chinook, coho, sockeye and steelhead. Innovative design principles were used to increase the durability of the restored site under increasingly volatile stream conditions associated with climate change. During the first two years of the project, 8 of the 18 demonstration restoration sites planned for the five-year project have been completed, providing a total of 1,366 linear m of restored complex habitat edge and approximately 12,952 m² of restored habitat area. The project designs incorporate innovative restoration features to mitigate impacts of climate change-related ecosystem dynamics, showcasing improved flood design, sediment storage potential and fish accessibility to off channel, low flow, or upstream habitats.

Baker Creek Enhancement Society with Nazko First Nation “Plateau Fire Recovery – Riparian plant collection and planting for restoration of Chinook and coho salmon habitat in the Nazko area”

The Baker Creek Enhancement Society (BCES) and Nazko First Nation have undertaken riparian habitat restoration to address the impacts of the Nazko Plateau Fire on Chinook and coho salmon habitat in the interior region of BC. The objective of the work is to reduce the long-term impacts from wild fires, including erosion (sheeting off of fire debris, ash and duff) and subsequent watercourse sedimentation which impacts habitat quality, infills pool habitats, and reduces food availability. Through 2 years of project implementation, approximately 2.5 linear kilometers along a 30-meter wide riparian area has been restored on the Bazaeko River in the Nazko Watershed. This year, BCES completed over 75,000 square meters of riparian planting, resulting in a cumulative total of 180,000 for the project so far.

British Columbia Cattlemen’s Association “Promotion of Habitat Restoration and Stewardship on Agricultural Lands in the BC Interior”

BCSRIF has provided support to the Farmland-Riparian Interface Stewardship Program delivered by the BC Cattlemen’s Association (BCCA). Through consultation, education and in partnership with over 95 organizations to date, this project promotes and restores fish habitat on agricultural lands. In addition to the three projects completed in the first fiscal year, the BCCA has now successfully implemented habitat restoration on multiple project sites in 9 locations in the BC Interior Region. Several of the restoration projects target species-at-risk populations, including southern BC Chinook, Interior-Fraser Coho, Fraser Sockeye, and Thompson-Chilcotin Steelhead. BCCA estimates a cumulative total of over **500,000** square meters of fish habitat has been restored so far, and additional restoration projects are in the works for years 3 and 4.