



Executive Secretary's Summary of Decisions 36th Annual Meeting

The Pacific Salmon Commission held its 36th Annual Meeting from February 8-12, 2021 online and discussed a number of topics (see attached agenda).

The Commission AGREED:

1. The minutes from January 2021 are approved.
2. The Executive Secretary will consult the appropriate Commissioners on publishing and presenting the sociocultural report and advise the Commission on plans once they are confirmed.
3. The report of the Chinook Interface Group (CIG) is accepted, noting:
 - a. The Okanagan Chinook Work Group is progressing well on its current work plan;
 - b. The Chinook Technical Committee (CTC) leadership will work with the Secretariat to refine the data sharing protocol for subsequent CIG review in spring 2021;
 - c. Response to the Welch et al. (2020) paper will be left to domestic management entities as appropriate;
 - d. The ad hoc CTC Incidental Mortality (IM) Working Group has completed a literature review of IM rates and is reviewing IM data standards;
 - e. Work on calendar year exploitation rates (CYERs) is ongoing with the CYER Working Group, and the Base Period Documentation is nearly complete;
 - f. Membership in the CWTR/CEII and MSF Fund Committees is accepted as shown;
 - g. The CIG will meet in June to review CTC Work Plan progress, the refined data sharing protocol, and engage with the CYER Working Group on MSF implementation.
4. The MSF Fund Committee will meet as soon as possible to share views on 2021 priorities and potential funding needs. A notional spending limit of \$750,000 USD would guide these conversations, and the Committee will report its preliminary views to the Commission via the Secretariat. The Commission will approve or adjust a spending limit as needed, and an RFP will be completed by May 31. The Commission will review the MSF Fund Committee recommended proposals at the October PSC Meeting.
5. The test fishing policy and financial regulation are accepted as submitted by the Test Fishing Working Group. The group has been disbanded.
6. The Executive Secretary will communicate with the PICES Secretariat to approve the formation of a Joint Study Group to draft an MOU between the organizations. The

Commission will review any subsequent draft at its 37th annual meeting. U.S. and Canadian PICES MOU Work Group members have been identified.

7. The Management Entities Working Group is authorized to explore options for engaging management entities and make recommendations to the Commission in October 2021.
8. The CSC Work Plan is approved, with caveats that a) Yukon analysis will be postponed until confirmation that appropriate communication is given to the Yukon River Panel, and b) the draft Chinook templates will be shared with the CTC to determine the amount of effort required to error-check them. The CSC will report back to the Commission with a plan of action based on CTC input.
9. The Executive Secretary will review Chapter-specific deliverables under the amended Annex IV and report his findings in October 2021.
10. The SFEC progress report is accepted while allowing the committee time to present further information on the mortality calculation question in October 2021.
11. The F&A Committee report is adopted, including the 2021/2022 budget. Test Fishing Revolving Fund balances will be revisited at the Commission's May 2021 meeting.
12. Canada will provide an update on Big Bar Slide work at the Commission's May 2021 meeting.

ATTENDANCE

PACIFIC SALMON COMMISSION
36th ANNUAL MEETING
FEBRUARY 8-12, 2021
Via Webinar

COMMISSIONERS

CANADA

R. Reid (Chair)
R. Jones
J. McCulloch
M. Ned
B. Riddell
A. Thomson

UNITED STATES

D. Vincent-Lang (Vice Chair)
W.R. Allen
P. Anderson
W. Auger
S. MacCorkle
R. Klumph
S. Rumsey



**Draft Agenda
36th Annual Meeting
February 8-12, 2021
Online**

1. Adoption of agenda
2. Approval of minutes: January 2021 Post-Season Meeting
3. Executive Secretary's report
4. Update on sociocultural report on food/social/ceremonial use

Chinook issues

5. CIG report
 - a. Okanagan Chinook Work Group update
 - b. COSEWIC/SARA and ESA listing updates
 - c. Data sharing protocol update
 - d. Engagement on Welch et al. paper
 - e. CTC work plan progress
 - f. CYER Progress Update and calculation of CYER metrics
 - g. CIG Forward Agenda
 - h. Membership of CWT&R and CEII Work Group and MSF Fund Committee

Other action items pending

6. Report from MSF Fund Committee
7. Test Fishing Working Group report
8. PICES MOU: update from the Executive Secretary and National Sections
9. Working Group on management entities: progress report
10. Committee on Scientific Cooperation work plan for 2021
11. Reports from Panels and Committees
 - a. Work plan progress
 - b. F&A Committee
 - c. Restoration and Enhancement Fund Committees
12. Big Bar Slide update
13. May 2021 bilateral meeting
14. Recognition of Staci MacCorkle's PSC service
15. Public comment

Annotated agenda - 36th Annual Meeting

(Executive Secretary's annotations in *italics*)

1. Adoption of Agenda

- *Consistent with PSC bylaws, an agenda shall be adopted by the Commission at the start of each meeting. The Commission shall not ordinarily take a decision on any item that has not been included in the draft agenda for the meeting. Where circumstances warrant, supplementary decision items may be added to the agenda with the concurrence of the Chair and Vice Chair.*

2. Approval of minutes

- *The Parties received draft minutes from the January 2021 Post-Season Meeting for review prior to the present meeting.*

3. Executive Secretary's Report

- *The Executive Secretary will provide a short report on significant events since the last Commission meeting, "housekeeping" items for the current meeting, and other issues needing attention. These will include details of the Larry Rutter Award presentation.*

4. Sociocultural report on food/social/ceremonial use

- *The Tribal and First Nations caucuses have coordinated a multi-year project to document the significance of FSC salmon use in the Treaty area. Commissioners involved will provide an update on timelines and publication plans.*

Chinook issues

5. CIG report

- a) *Okanagan Work Group work plan: The work group is expected to provide updates on its work to advance the conservation of Okanagan Chinook.*
- b) *COSEWIC/SARA/ESA updates: At its January 2021 meeting, the CIG agreed to share updates on listing of Chinook stocks under domestic legislation.*
- c) *Data sharing protocol update: The January 2021 discussion over the Welch et al. paper yielded interest in a PSC data sharing protocol that could cover multiple species/regions under the Treaty. The Secretariat was asked to work on a draft protocol and report back to CIG in February 2021.*
- d) *Engagement on Welch et al. paper: The CIG is due to discuss the appropriate responses, if any, to the recent paper on Chinook status that used CTC-generated data.*
- e) *CTC work plan progress: The CIG will discuss successes and challenges encountered by the CTC in its 2021 work plan.*
- f) *CYER Progress Update: Verbal update on CYER progress on 2021 work plan.*

- g) CIG Forward Agenda: *Including discussion of late spring / summer proposed CIG meetings (dates, locations, and possible action / agenda items).*
- h) Membership of CWT&R and CEII Work Group and MSF Fund Committee: *Final confirmation of U.S. and Canada CWT&R and CEII Work Group and MSF Fund Committee members.*

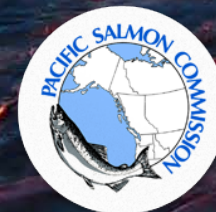
Other action items pending

- 6. Report from the MSF Fund Committee: *Based on its agreed October 2020 Terms of Reference, the newly established MSF Fund Committee is due to report on available 2021 funding and prospects for a June 2021 RFP.*
- 7. Test Fishing Working Group report: *At its January 2021 meeting, the group reached tentative agreement on all remaining issues for a PSC test fishing policy and financial regulation. The group expects to provide draft language for the Commission's consideration and adoption at the present meeting.*
- 8. PICES MOU: *The Executive Secretary was asked in January 2021 to liaise with the PICES Executive Secretary and further elaborate on the costs/benefits of any future MOU with that organization. The National Sections also agreed to reflect on the issue ahead of the annual meeting. The Executive Secretary will report his findings and invite the Commission to consider next steps.*
- 9. Working Group on management entities: *The Executive Secretary was directed to lead a small working group to follow up on the February 2019 management entities meeting. The group is to develop an outline of the issues discussed in February 2019, and submit that outline to the Commission in February 2021 for guidance as needed.*
- 10. Report from work group on the Committee on Scientific Cooperation (CSC): *The CSC has proceeded to develop a 2021 work plan as described via the Steering Committee's verbal report in January. The Commission is invited to review this plan and approve or amend it as necessary.*
- 11. Reports from Panels and Committees: *As per PSC bylaws and past practice, Panel and Committee leadership shall present and discuss written summaries of their work to implement their current work plans.*
- 12. Big Bar slide update: *The Canadian section will provide updates on the work completed at the Big Bar site to date [Note from John: this wasn't asked for in January, but I perceive ongoing interest].*
- 13. May 2021 bilateral meeting: *The Parties agree in principle to reconvene in May to consider potential COVID-19 impacts on field operations and Treaty implementation. The Commission is invited to consider specific timing and other logistics for this event.*
- 14. Recognition of Staci MacCorkle's PSC service: *Ms. MacCorkle will be vacating her Commission seat due to her new assignment in the U.S. government. Commissioners are invited to provide their comments as she is presented with her PSC plaque by the Chair of the U.S. Section.*

15. Public comments as needed: *When appropriate, and with the concurrence of the Vice-Chair, the chair may provide time for public visitors to speak during the meeting.*

The Sociocultural Value of Salmon

PHASE II INSIGHTS • Feb 10, 2021



EARTH
ECONOMICS

The Sociocultural Value of Salmon

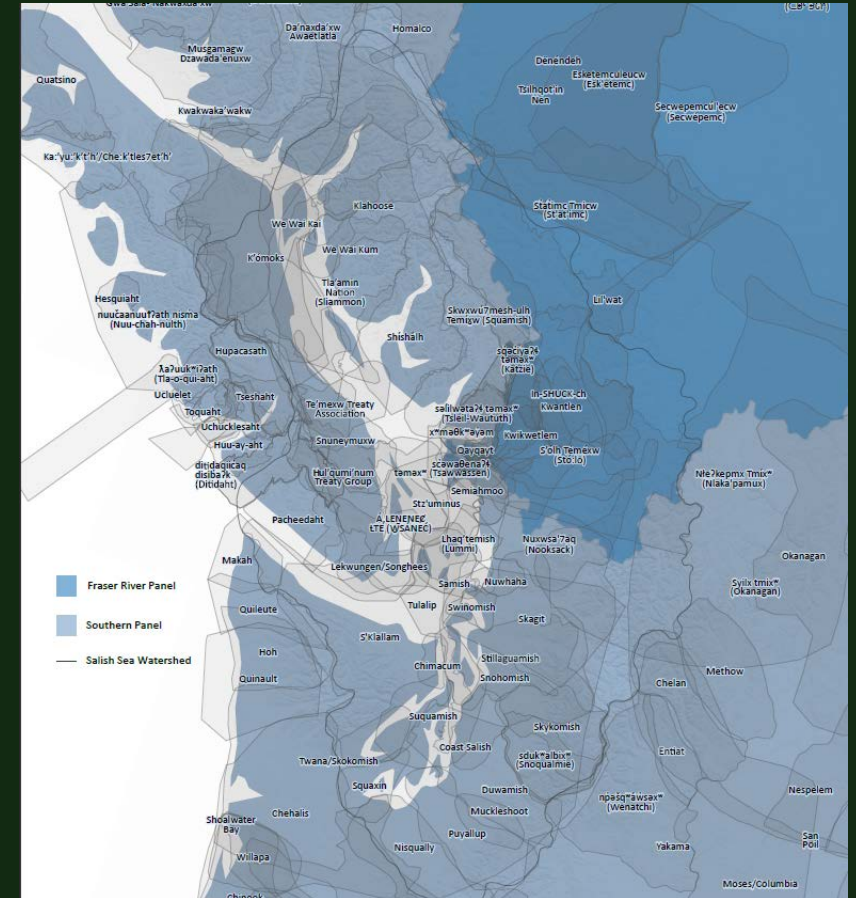
PHASE II INSIGHTS • Feb 10, 2021

- Phase II Updates
- Planning for June 1st Launch
- Q&A (Provide comments in the chat box)



PROJECT UPDATES

- Website updated - <https://www.eartheconomics.org/psc>
- PSC Panels and Indigenous Territory Maps
- Research Assistant and Communications Contractor, [Kauffman & Associates Inc.](#)



Adapted from the PSC website and native-land.ca



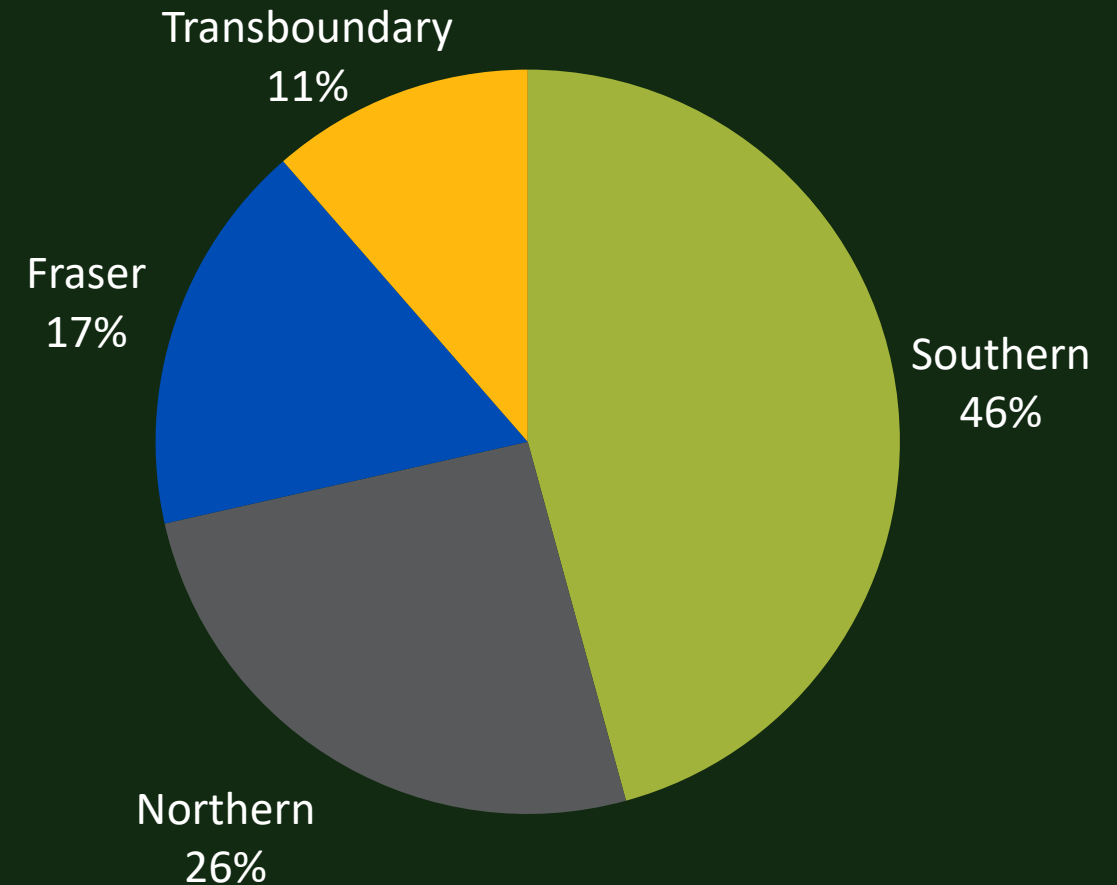
PROJECT ACHIEVEMENTS

- 111 individuals contacted from 54 Tribes and First Nations
- 35 participants interviewed, 66 invited to participate
- 6 meetings with relevant experts
- 78 survey responses and 2 focus groups
- 18 meetings attended: 14 webinars + 4 in person
- 88 papers reviewed (213 identified)



RESPONSES GATHERED

- 34/35 interviews coded
 - 66% male
 - 69% CA First Nation, 9% US Tribe
 - 11% youth/early career
 - Responses from all 4 panels

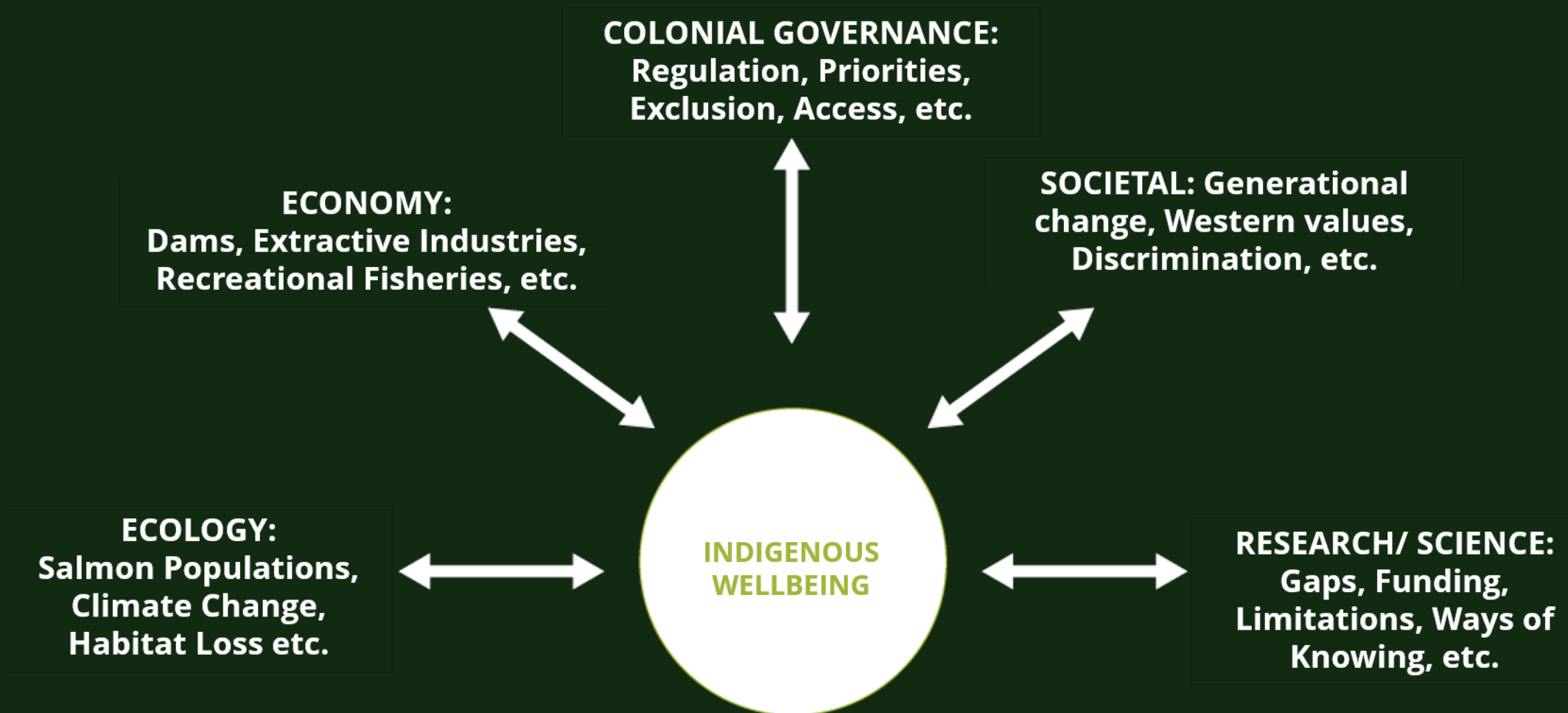


VALUES FRAMEWORK

Adapted from the Swinomish Indian Tribal Community and Quinault Indian Nation (see Biedenweg et al. 2014 and Donatuto et al. 2014)



SOCIOCULTURAL VALUES **IN CONTEXT**



ANALYSIS PROCESS

1. Gather Information

- Transcribe (reviewed) audio/ notes from interviews, group discussions
- Gather additional documents and notes as necessary

2. Framework Analysis

- Code segments as they appear in-text according to the research framework using key words/ phrases

3. Grounded Analysis

- Create new code categories based on what emerges in text. Update the framework (repeat step 2).

4. Conceptual Analysis

- Code segments of text for broader themes and ideas
- Map relationships between codes and by grouping: i.e. PSC Panel



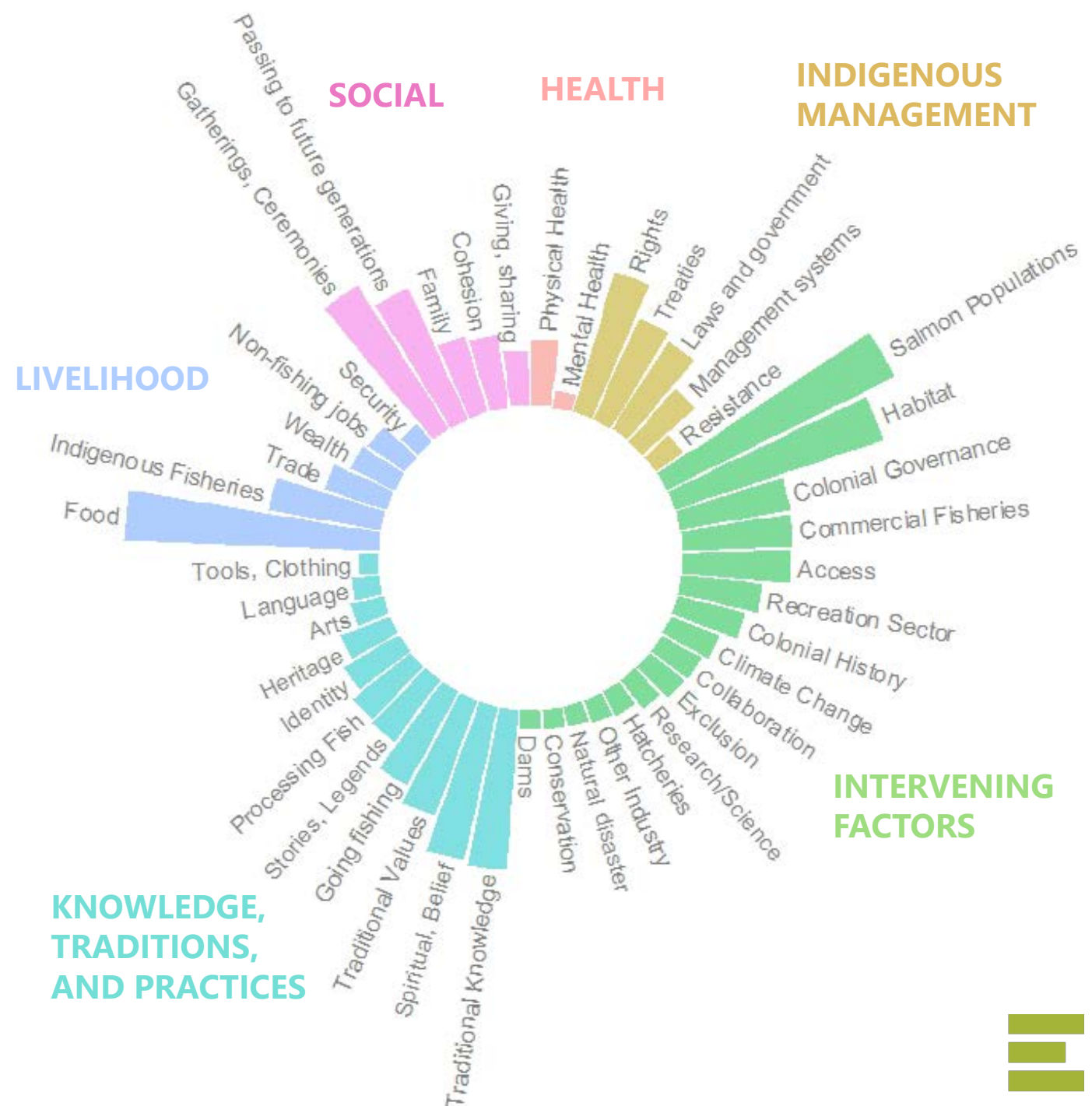
PRELIMINARY TRENDS



PRELIMINARY TRENDS

HISTOGRAM

- Number of times codes occurred during analysis to date (1/4/2021).
- Top Occurrences:
 - Food
 - Salmon populations
 - Salmon habitat
 - Gatherings
 - Traditional Knowledge



PRELIMINARY TRENDS: THEMES

"Everything is connected"

- All coded topics are connected and influence one another.



PRELIMINARY TRENDS

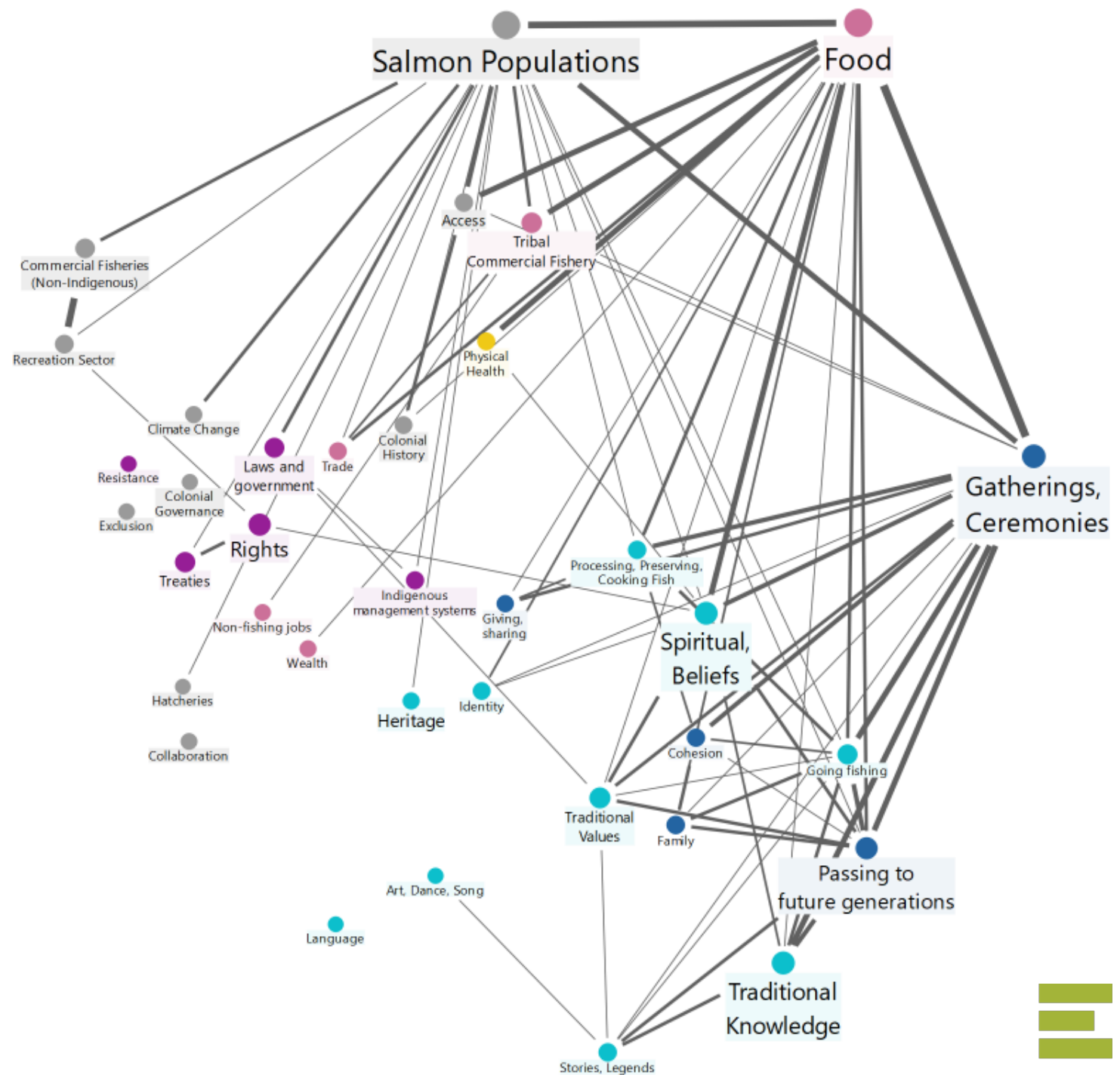
CONCEPT

RELATIONSHIPS

- Shows codes that tended to occur together
- Size indicates the occurrence
- Lines indicate codes that were mentioned together at least 20 times.

COLOR KEY:

- INDIGENOUS MANAGEMENT
- INTERVENING FACTORS
- LIVELIHOODS
- TRADITIONS
- SOCIAL
- HEALTH



PRELIMINARY TRENDS: THEMES

Loss of salmon fundamentally changes ways of life. **Underlying factors include:**

- **changing habitat** from climate change, industry, development and natural disasters.
- history of systematic **discrimination and exploitation.**
- jeopardizes **passing on to future generations** traditions and even existence of salmon.



PRELIMINARY TRENDS

SENTIMENT

ANALYSIS

- Identifying and categorizing attitudes towards specific topics.

Positive

Traditional fishing practices

Social aspects (gatherings,
family, community
cohesion)

Indigenous management

Traditional Knowledge
(including stories and
teaching)

Negative

Declining salmon populations

Loss of access to salmon

Fisheries priority

Effects of colonialism

Loss of cultural identity

PROPOSED REPORT RESULTS REPORTING

- Details, quotes (with permission) for each code and domain
- Deep dive into results for each domain
- Comparison between Panel responses



PROPOSED REPORT OUTLINE

- Acknowledgements
 - Executive Summary
 - Introduction (+Study Summary)
 - Background (+Pacific Salmon Region Context)
 - Project Approach (+Methods)
 - Findings (trends overall, by framework and groupings)
 - Discussion and Limitations
 - Conclusions and Recommendations
 - References
 - Appendices
- Key elements: Narrative with quotes, Maps, Infographics, Summary charts



NEXT STEPS FOR 2021 Jan 14 – June 01

- **January**, Final interviews. Welcome RA and Contractor.
- **February**, Complete analysis.
- **April**, Send draft deliverables for expert review from Tribes and First Nations.
- **May**, Send final deliverables for copy-edit.
- **June 1st**, Launch project deliverables.
 - Report for PSC
 - Public facing material





THANK YOU

Questions or comments?

salmonstudy@eartheconomics.org

eartheconomics.org/psc



DRAFT
Pacific Salmon Commission Test Fishing Policy
February 8, 2021

Prepared by the Test Fishing Working Group

Purpose:

The purpose of test fishing is to gather the necessary information for in-season management decisions (run size, timing, diversion rate, and other relevant biological information) of the Fraser River Panel (FRP or Panel) for each of the Fraser River sockeye management units and Fraser River pink salmon.

Operations:

Test fishing plans are developed pre-season by the Panel, with the objective of obtaining data required to inform decisions of the Panel while minimizing any implications for conservation and for other fisheries (i.e. minimizing the number of fish retained). Test fishing may occur within Panel Area Waters (administered by the Pacific Salmon Commission) and outside of Panel Area Waters in Canada (administered by Canada). The information collected through these test fishing operations is critically important to FRP decision making. With input from the PSC Secretariat, the FRP makes decisions about start and end dates for all Panel-related test fisheries, within or outside of Panel Waters.

Fish retained for data collection purposes and those incidentally killed during test fishing activities are known as “test fish” and are accounted for in advance of allocating any Total Allowable Catch (TAC) for international sharing. Test fish are not limited to Fraser sockeye and pink salmon and the interception of other fish species and non-Fraser salmon stocks during test fishing operations is unavoidable. Once samples are collected along with other relevant biological data, test fish are sold to help cover the costs of the Panel approved test fishing program. When sockeye and/or pink salmon abundance permits (see guidelines 3 and 4), additional sockeye and/or pink salmon may be retained in Panel approved test fisheries to help cover the cost of the program – these fish are referred to as “pay fish” and decrease the commercial TAC available for the Parties for harvest. Financial accounting and the allocation of deficits and surpluses resulting from the retention and sale of fish will be governed within the PSC Bylaws¹ [TE1].

In 2017, the Parties and Commission staff, with support from the Southern Endowment Fund, completed a series of workshops to review Fraser test fishing programs and investigate ways to improve in-season assessment. This resulted in a [final report](#)² outlining criteria that can be used to help inform Panel decisions about annual test fishing plans. The report also contained test fishing planning criteria and a series of abundance and species scenarios for the Panel to consider as it works through the annual pre-season planning process.

¹ Rule 25: Test Fishing Revolving Fund. 2021. Pacific Salmon Commission. PSC Bylaws: Chapter IX. Pages XX-XX

² Nelitz, M., A. Hall, C. Michielsens, B. Connors, M. Lapointe, K. Forrest, and E. Jenkins. 2018. Summary of a Review of Fraser River Test Fisheries. Pacific Salmon Comm. Tech. Rep. No. 40: 155 p.

Contracts pertaining to test fishing within each country's waters will be administered consistent with other PSC Bylaws.

Contracts for test fishers operating in either country shall provide for written consent to pursue other fishing opportunities or non-fishing interests while waiting for a period as agreed to by the Parties (relative to the scheduled start date of a particular fishery in a given year) to start test fishing. Such consent shall only be granted by the Fraser River Panel through the Secretariat. Such release would not guarantee availability of the fisher at the Panel's request on future dates.

Guidelines for retention of test fish and pay fish:

The extent to which fish sales are to be used to cover part or all of the test fisheries shall be governed by the considerations set out below.

1) Test Fishing Planning and Implementation:

As provided for in Chapter 4, paragraph 5 of the Pacific Salmon Treaty, test fisheries will be planned to provide data that supports fishery management decisions of the Fraser River Panel. In developing pre-season test fishing plans and implementing test fisheries, the Panel will consider the following:

- a) conservation issues; i.e. test fishing will be planned to minimize impacts on weak stocks, as feasible (e.g. delay start to protect Early Stuart sockeye);
- b) signals from other test fisheries that may inform start dates;
- c) results of test fisheries, which will inform end dates; and
- d) other relevant considerations (e.g. attainment of TAC).

2) Retention of Test Fish

All fish caught in test fisheries that are required for sampling purposes and those fish incidentally killed in gillnet test fisheries will be sold to help offset costs of test fishing. Test fish will be retained in accordance with Panel decisions, which are informed by:

- a) conservation issues (i.e., test fishing will be planned to minimize impacts on weak stocks, as feasible);
- b) pre-season test fishing plans; and
- c) in-season information about run size.

3) Retention of Pay Fish:

Pay fish will be retained, up to the level which is required to cover costs of test fishery in the current year, in accordance with Panel decisions that are informed by:

- a) discussions with the Finance and Administration Committee, as necessary;
- b) pre-season test fishing plans; and
- c) in-season information about run size, which could include:
 - i) conservation issues and concerns;
 - ii) harvestable surplus to allow retention of pay fish; and/or
 - iii) in Canada, the amount of Fraser sockeye and pink salmon TAC necessary to fully address First Nations food, social and ceremonial fisheries and First Nations Treaty domestic allocations will be identified annually by Canada during, or prior to, the final pre-season meeting in June. In recent years, this has been approximately 1.1 million sockeye salmon, which is inclusive of the Aboriginal Fisheries Exemption of 400 thousand, and approximately 175 thousand pink salmon (odd years).

4) Retention of Extra Pay Fish

Conditions under which the Panel may consider the harvest of “extra pay fish” (i.e. more than that which is required to cover the costs of the test fishery in the current year) include:

- a) an extremely high abundance of Fraser River sockeye or pink salmon; and/or
- b) the ability of either country to harvest their full TAC.

With approval of the Panel, some of this uncaught TAC may be taken as additional “pay fish.”



**DRAFT Financial Regulation
to address the Test Fishing Revolving Fund**

**Prepared by the Test Fishing Working Group
February 8, 2021**

Background

While the Commission has utilized a test fishing revolving fund (TFRF) in different ways for many years, there is no financial regulation in the PSC bylaws that codifies how it will be funded or used. At its December 2019 meeting, the F&A Committee directed the Secretariat to draft such a rule and submit it for consideration. This document responds to that request. Any amendment of the PSC bylaws, including this draft rule, requires Commission approval.

Draft rule (for potential insertion after existing Financial Rule 25, Chapter IX of the PSC bylaws)

Rule 25 (bis) Test Fishing Revolving Fund

In accordance with Chapter IX, Section E, Rule 18, the Commission has established a Test Fishing Revolving Fund (TFRF). The following shall govern use of the TFRF to support assessment of Fraser River sockeye and pink salmon:

- a) The following definitions are consistent with the Test Fishing Policy¹_[TE1] and are included for clarity:

Test fish = all fish caught (and sold) in test fisheries that are required for sampling purposes and those fish incidentally killed in gillnet test fisheries, not limited to Fraser River sockeye and pink salmon

Pay fish = all sockeye and/or pink salmon retained in test fisheries, in excess of test fish, up to the level which is required to cover test fishing program costs in the current year

Extra pay fish = all sockeye and/or pink salmon retained in test fisheries exceeding that which is required to cover the test fishing program costs in the current year

Surplus = any revenues from the sale of retained fish in excess of test fishing program costs

¹Pacific Salmon Commission Test Fishing Policy. 2021. Pacific Salmon Commission.

Deficit = any shortfall in revenues from the sale of retained fish below test fishing program costs

Conservation issues or concerns = conservation constraints on management groups as agreed by the Fraser River Panel in a given year

- b) Additional incomes generated through the incidental catch and sale of non-target species and stocks as well as decisions made regarding the retention of pink salmon pay fish will not influence the regulation of surplus/deficit sharing among the Parties.
- c) Monies held in the revolving fund shall be a) used to pay for test fishing deficits when insufficient fish are available for retention and sale; b) supplemented by test fishing program surpluses; and c) supplemented by the Parties if they so agree.
- d) The Executive Secretary shall provide a full annual accounting of TFRF activity to the Standing Committee on Finance and Administration (F&A Committee) including categories of revenues and expenses affecting the fund, and the proportion of the fund balance allocated to each Party. The Commission shall address, as appropriate, any positive or negative TFRF balances it deems excessive upon advice from the F&A Committee.
- e) The PSC Test Fishing Policy shall prescribe the fish available for retention and sale in any given year. That policy is separate and distinct from the PSC bylaws, and is subject to amendment separately from these bylaws.
- f) Test fishing program costs (contractual or administrative) shall not be borne from the PSC's ordinary budget or sources other than fish sales or the TFRF, unless otherwise agreed by the Commission. Changes to the types of test fishing costs recoverable from fish sales or the TFRF shall be approved by the Commission on advice from the F&A Committee.

TFRF Accounting

The following TFRF accounting guidelines are subject to the availability of funds from each Party.

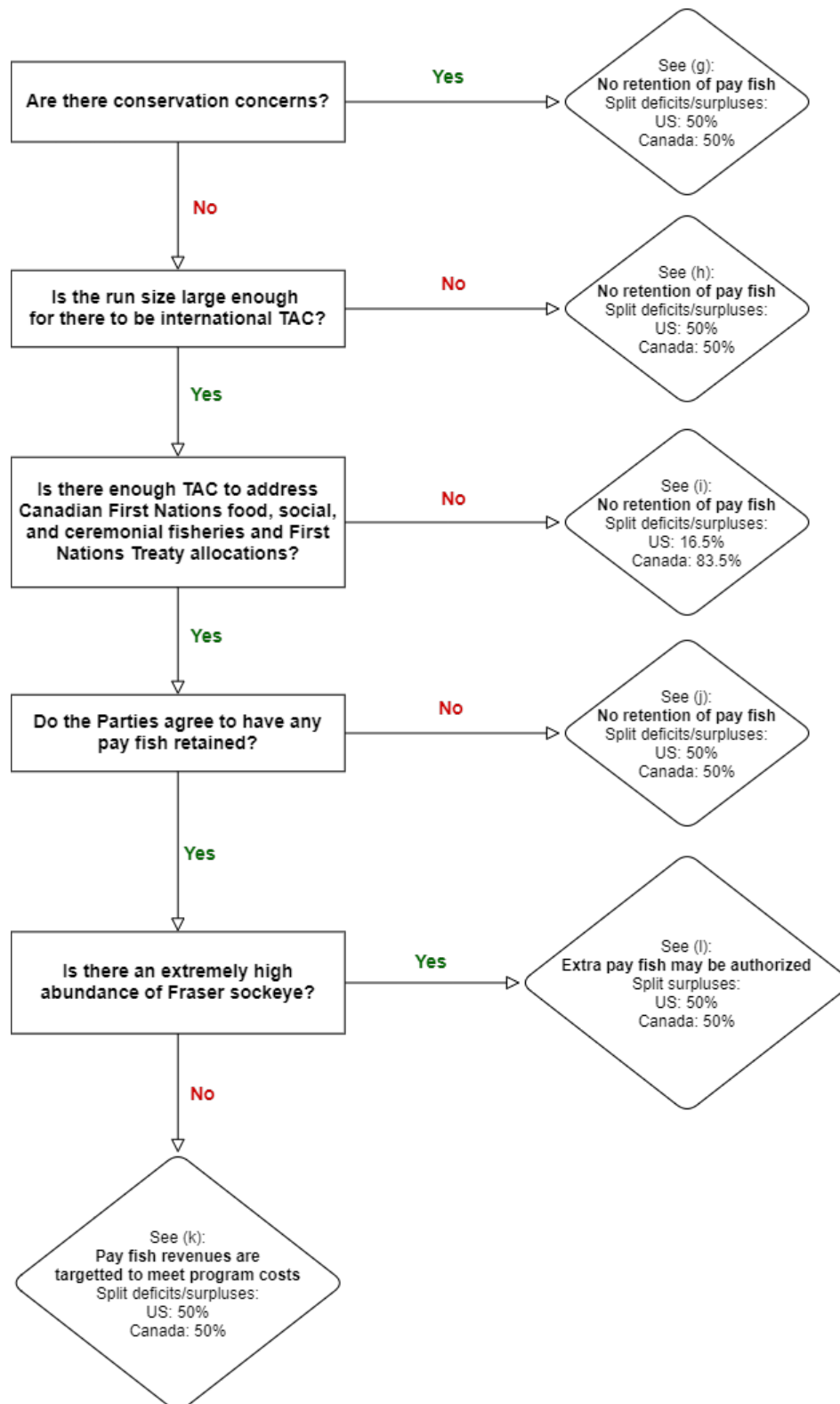
The Secretariat will maintain timely records of the deficits (or surpluses) incurred and apportion those 50% / 50%, as stated in the TFRF Decision Tree (Appendix A), between the Parties after the conclusion of the sampling season (unless otherwise noted below):

- g) Where in-season the Fraser River Panel determines that conservation issues will result in no directed harvest of Fraser River sockeye, no sockeye pay fish will be retained.
- h) Where in-season the Fraser River Panel determines that the sockeye run sizes are such that there is no international TAC, no sockeye pay fish will be retained.
- i) Where in-season the Fraser River Panel determines that the sockeye run sizes are large enough to generate international TAC but not large enough such that there is in Canada, within and outside Panel area waters, inadequate TAC to address First Nation food, social, and ceremonial fisheries and First Nations Treaty allocations, no sockeye pay fish will be retained. When these conditions are true on the date of the scheduling of the last

Fraser River Panel-approved U.S. sockeye fishery of the season, Canada agrees to cover 83.5% of the resulting deficit.

- j) Where in-season the Fraser River Panel determines that the sockeye run sizes are such that the international TAC is insufficiently large, no sockeye pay fish will be retained.
- k) Where in-season the Fraser River Panel determines that the sockeye run sizes are such that there are:
 - 1. in Canada, within and outside Panel area waters, adequate TAC to address First Nation food, social, and ceremonial fisheries and First Nations Treaty allocations; and
 - 2. sufficient international TAC to allow the retention of pay fish up to the levels needed to meet program costs in accordance with the PSC Test Fishing Policy; then sockeye pay fish will be authorized.
- l) Where conditions allow for the harvest of “extra pay fish” due to an extremely high abundance of Fraser River sockeye or pink salmon, such harvest may be authorized by the Fraser River Panel.
- m) In the event that either country depletes its available resources in the revolving fund, the country would need to make a timely contribution to the revolving fund to cover outstanding costs per paragraph c.
- n) The Secretariat shall regularly calculate forecast cash flows pre-season and in-season, including deficit implications of Panel decisions. If the forecast deficit is greater than 75% of the revolving fund balance, the Fraser River Panel shall apprise the F&A Committee. Otherwise, the F&A Committee shall not be engaged in Panel decisions on test fishing schedules.
- o) As appropriate under paragraph (n), the F&A Committee shall collaborate with the Panel and the Secretariat to revise the test fishing schedule to minimize deficits, enable conservation, and ensure adequate assessments of Fraser sockeye and pink salmon.

Appendix A





DRAFT OUTLINE
FOLLOW UP TO FEBRUARY 2019 MANAGEMENT ENTITIES MEETING
Prepared by the Management Entities Working Group

February 9, 2021

Background

In late 2018, the PSC invited domestic management entities to discuss an enhanced and cooperative approach to treaty implementation with Commissioners. Those discussions, held February 12, 2019 in the margins of the 34th Annual Meeting, launched a new effort to improve dialog between the PSC and the domestic agencies charged with providing personnel, data, and funding critical to the treaty's success.

At the January 2021 Post-Season meeting, the Commission noted the importance of continued engagement with domestic management entities. Specifically, the Commission agreed:

1. The Executive Secretary will lead a small working group to initiate work. Parties will confirm membership upon correspondence from the Executive Secretary.
2. The working group will develop an outline of the issues discussed in February 2019 and any requiring follow up.
3. The Commission will consider the outline in February 2021 and provide guidance as needed.
4. The working group will engage with management entities after February and report to the Commission in October 2021, with a view to assessing progress made with the entities since 2019.
5. The Commission will circulate a subsequent letter to the entities on progress and remaining challenges.

This document responds to the second task, and Commissioners are invited to discuss its merits for moving forward.

Objectives

The 2019 management entities meeting was an excellent start to enhance communication and coordination with domestic agencies. However, the Working Group sees an imperative to keep

that effort's momentum going through consistent and clear engagement from the PSC in the coming years. It is likely not sufficient to send only one more letter to the entities in 2021 and expect continued momentum.

The Working Group has no precise recommendations yet on how to achieve the best results over the long-term. However, early discussions suggested the following options:

- Working Group liaising with Panels and Technical Committees to identify ongoing challenges/successes in data transmission and communication (summer 2021);
- Initiate a regular series of updates/correspondence with management entities to reinforce annually the PSC/agency relationship in fall 2021 and beyond;
- Host one or more virtual/in-person meetings with relevant agency personnel to build channels of communication and brainstorm solutions to shared problems after 2021.

Next steps

The Working Group seeks Commission approval to draft an initial letter to management entities, which would be submitted for Commission review in October 2021. That letter would reference the issues outlined below (from the initial entities' meeting in February 2019) and reflect PSC Panel and Technical Committee input gathered in summer 2021. It would also thank management entities for their past efforts in support of the Treaty and stress the importance of continuing such work.

The Working Group would be poised in October 2021 to recommend specific options for continued engagement with the management entities.

Outline of issues raised in 2019

- 1) Timely management data: forecasts and catch accounting
- 2) Funding and shared priorities
 - a) Canadian
 - b) U.S.
- 3) Calendar Year Exploitation Rate (CYER) Implementation
- 4) The Challenge of Retaining Talent and Succession Planning



**Annual Report of the
Southern Boundary Restoration and Enhancement Fund and the
Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund
for the year 2020.**

Introduction

In June of 1999, the United States and Canada reached a comprehensive new agreement (the “1999 Agreement”) under the 1985 Pacific Salmon Treaty. Among other provisions, the 1999 Agreement established two bilateral funds: the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund (Northern Fund); and the Southern Boundary Restoration and Enhancement Fund (Southern Fund). The purpose of the two funds is to support activities in both countries that develop improved information for fishery resource management, rehabilitate and restore marine and freshwater habitat, and enhance wild stock production through low technology techniques. The United States agreed to capitalize the Northern and Southern Funds in the amounts of \$75 million U.S. and U.S. \$65 million respectively. Canada also contributed CAD \$500,000. The 1999 Agreement also established a Northern Fund Committee and a Southern Fund Committee, each comprised of three nationals from each country, to oversee investment of the Funds’ assets and make decisions about expenditures on projects. Only the earnings from investments can be spent on projects.

Committee Members

Northern Fund Committee

Canada:

Mr. Steve Gotch
Dr. Carmel Lowe
Mr. John McCulloch

United States:

Mr. Doug Mecum
Mr. Bill Auger
Mr. Doug Vincent-Lang

Southern Fund Committee

Canada:

Dr. Laura Brown
Dr. Don Hall
Mr. Mike Griswold

United States:

Mr. Larry Peck
Dr. Peter Dygert
Mr. Joe Oatman

Executive Summary

- Total contributed capital (nominal) was U.S. \$140,065,000 (the equivalent of CAD \$209,796,000 using the exchange rate at the time the last installment was made). Actual fund market value at December 31st, 2020 was U.S. \$249,480,000 or CAD \$317,837,000.
- Several strong forces impacted investment markets in 2020. COVID-19 and its sudden halt to global economic activity, dispute over the world's oil market, and political uncertainty were common themes that caused significant market volatility at times, especially during the first quarter. However, 2020 ended with positive returns across most asset classes over the full year. Equity markets were particularly strong as the sharp downturn that occurred in the first quarter of 2020 was reversed throughout the remaining three quarters in most regions, helped by extensive fiscal stimulus, ultra-low interest rates and optimism towards economic recovery.
- In 2020 the Southern Fund Committee approved grants for 37 projects worth U.S. \$2.68 million. The Northern Fund Committee approved grants for 59 projects worth U.S. \$4.87 million. On account of COVID-19 restrictions and impacts, two of the projects that the Southern Fund Committee selected were deferred to 2021, four were cancelled and the proponents advised to re-apply for funding in 2021, two were reduced in scope and one was significantly delayed. 11 of the projects that the Northern Fund Committee selected were also significantly affected by COVID-19: eight were deferred to 2021, one was cancelled and will be re-considered for funding in 2021, one was reduced in scope and one was granted an extension to allow some components to be deferred if necessary.
- Since 2004, the Northern and Southern Fund Committees have approved grants of U.S. \$100.98 million to a total of 1,387 projects. In addition to the U.S. \$100.98 million, the Funds contributed U.S. \$10 million to the *Sentinel Stocks Program*.
- In 2020 the Northern and Southern Fund Committee members met together jointly on five occasions: in February, twice in May, once in September and once in November. In addition, the Northern and Southern Fund Committees each met separately on four occasions. Meetings held between April and December 2020 occurred virtually due to COVID-19 public health and travel restrictions.
- An asset mix review was completed to determine whether the Funds' risk-return profile could be improved. The Funds' new asset mix and investment policies were approved in November 2020, resulting in decisions to (i) terminate LSV's non-North American equity mandate and assign a new global equity mandate in its place; and (ii) increase allocations to mortgages and infrastructure while decreasing public market equity and bond exposure moving forward. Following the asset mix study, PH&N Institutional was selected for the new global equity mandate, Axium Infrastructure was selected for the new infrastructure mandate and the current mortgage manager, ACM, was retained with a larger allocation. Implementation of the changes began in November. All mandates have been transitioned, other than the new infrastructure mandate, which is expected to happen within the next 12-24 months as Axium makes investments.
- Mr. Tom Alpe was appointed to the position of Endowment Fund Manager at the Pacific Salmon Commission and started on March 23, 2020.

Investment Review

Over the course of 2020 capital markets performed well overall. The Canadian dollar strengthened versus the U.S. dollar with an increase of approximately 2% over the year. Positive performance in the Endowment Funds' portfolio was primarily due to public equity and fixed income investments where returns from most of the fund managers ranged between 10-20%. Smaller positive results were seen within the portfolio's mortgage and infrastructure investments, while real estate investments struggled. Overall, the total portfolio had positive performance over the year in both CAD and USD.

With respect to equity investments, the portfolio's passive U.S. equity manager, BlackRock, achieved its objective of replicating the performance of its benchmark in the strongest performing market for the second year in a row. Morgan Stanley's global equity mandate also came in with double-digit positive returns for the year, despite missing its benchmark. LSV's Non-North American equity mandate was terminated in November, with most of the assets being transferred to a new PH&N global equity mandate. While LSV's performance was positive in the last three quarters of the year, it was insufficient to erase the negative performance during the first quarter.

With respect to fixed income investments, it is notable that the Bank of Canada decreased interest rates significantly in 2020 in response to the COVID-19 economic problems, with lower rates all across the yield curve. The PH&N Core Plus Bond Fund delivered a strong positive absolute return over the year, well above its benchmark, while ACM's mortgage mandate had a modest positive return over the year and fell slightly behind its benchmark.

Lastly, the portfolio's alternative investments provided mixed results. The U.S. Real Estate manager, Invesco, had negative returns for the year as write downs mid-year followed revaluations that were mostly COVID-related. IFM's infrastructure mandate brought positive returns, representing a rebound from its negative performance in the first quarter; however, it underperformed its benchmark. Infrastructure investments tend to provide more stable returns than public market equities and this was evident during 2020.

Total contributed capital (nominal) was U.S. \$140,065,000 (the equivalent of CAD \$209,796,000 using the exchange rate at the time the last installment was made). Actual fund market value at December 31st, 2020 was U.S. \$249,480,000 or CAD \$317,837,000.

Contributed capital and asset value of the individual funds as of December 31st, 2020 stood as follows:

Contributed Capital		Asset Value	
Northern:	U.S. \$75,000,000 CAD \$112,388,000	U.S. \$134,288,000	CAD \$171,083,000
Southern:	U.S. \$65,000,000 CAD \$97,408,000	U.S. \$115,192,000	CAD \$146,754,000

2020 Project Funding

In 2020 the Southern Fund Committee supported a total of 37 projects for U.S. \$2.68 million. The list included projects addressing specific priorities identified by the Pacific Salmon Commission's Fraser River and Southern Panels for U.S. \$2.23 million or 83% of their overall spending.

In 2020 the Northern Fund Committee supported a total of 59 projects for U.S. \$4.87 million. Of these, four projects with a total value of U.S. \$410,869 were in the Enhancement envelope (8%); U.S. \$213,585 (4%) was invested in four Habitat access improvement projects; and U.S. \$4.24 million (87%) was directed to 51 Improved Information-type projects.

Between 2004 and 2020 the Northern Fund has awarded grants worth U.S. \$56.6 million to 782 projects. Over this same period the Southern Fund has granted U.S. \$44.4 million to 605 projects. Total Fund project expenditures to date are U.S. \$100.98 million in support of 1,387 projects. Included in this total is a sum of U.S. \$5 million from the Southern Fund to the Salish Sea Marine Survival Program. In addition to these amounts, the Chinook Sentinel Stocks Program was funded jointly by the Northern and Southern Funds between 2009 and 2014 for U.S. \$10 million.

Asset Mix Review and Investment Manager Search

Asset mix review and development of a long list of managers to interview.

At the November 2019 Joint Fund Committee meeting a decision was made to proceed with an asset mix review to determine whether the Endowment Funds' ('the Funds') risk-return profile could be improved. The Fund Committee's Investment Advisor (George & Bell Consulting – led by Mr. Brendan George and supporting staff) were tasked with conducting this review. An Investment Subcommittee was struck to provide direction to the review and to present recommendations about the asset mix to the full Northern and Southern Fund Committees. Mr. Steve Gotch, Mr. Doug Mecum, Mr. Larry Peck and Mr. Don Hall volunteered for the Subcommittee.

The Subcommittee held its first meeting with George & Bell Consulting on January 24, 2020 to develop the scope and terms of the review. It was agreed that the objective should be to determine if the expected return could be increased and volatility and market downside risk decreased, and that a current priority is to maintain a stable cash flow from the portfolio to support projects rather than to seek a high level of portfolio growth, which had been an initial priority of the Funds. The Subcommittee approved the scope and terms of the review and requested that George & Bell Consulting proceed to complete it.

The Subcommittee met to receive the results of the review on February 14. The Subcommittee were initially supportive of two alternate portfolios, both of which were projected to reduce variation and improve downside protection whilst maintaining or improving the current level of expected returns. To implement either portfolio, Mr. Brendan George recommended an additional diversification strategy of seeking two new managers to complement existing managers in the same asset class:

- Hire a new global equities manager to complement Morgan Stanley,
- Hire a new direct infrastructure manager to complement IFM.

Based on the information presented by George & Bell Consulting, the Subcommittee requested the initiation of manager searches, with the goal of having a shortlist to present at the annual spring Joint Fund Committee meeting in May 2020.

The Subcommittee met on March 6 to review the proposed list of managers identified by George & Bell Consulting. Ten global equity and four infrastructure managers to whom a Request for Proposals for fund management services should be distributed were identified. Mr. Brendan George proposed the criteria which would be used to evaluate responses. The Subcommittee identified that it would be important to identify managers who complement the Funds' existing managers and who could accommodate the Funds' beneficial tax status in the US and Canada efficiently. On May 13 the Subcommittee reconvened to review the long list of potential managers. George & Bell Consulting recommended interviewing two infrastructure and three global equity managers, which the Subcommittee endorsed for presentation to the Joint Fund Committee and decision. The Subcommittee also requested George & Bell to conduct an analysis of the performance and risk profile of two of the Fund's existing equity managers, LSV and Blackrock to better inform a decision about where to withdraw assets to capitalize the new global equity mandate under consideration.

Joint Fund Committee meeting, May 26, 2020 (virtual meeting).

On May 26, the Joint Fund Committee received, reviewed and endorsed the Subcommittee's recommendations to move towards a new long-term asset mix and to select a new infrastructure and a new global equity mandate manager as part of the transition. George & Bell Consulting (represented by Ms. Richardson) presented an analysis of the combined performance of LSV and Blackrock relative to the performance of the new managers under consideration and confirmed that the current combination of managers had performed more poorly, with most of the poor performance attributable to LSV. The Joint Fund Committee agreed to make a final decision about the exact long-term asset mix at the same time as making decisions about hiring new fund managers and agreed that an additional meeting should be scheduled for late summer 2020 to accommodate this. The Joint Fund Committee also asked the Investment Subcommittee to interview the shortlisted fund managers on their behalf and to present their recommendations to them at this time.

Investment Manager interviews

Interviews for the new global equity mandate took place on July 27 and were conducted virtually. The Investment Subcommittee was provided with a preliminary analysis of the three firms under consideration prior to interviews, which assigned relatively similar scores to the firms indicating generally equivalent past performance and firm characteristics. During interview all three firms provided effective presentations and demonstrated strong competencies. Although each demonstrated some differences in investment strategies and firm characteristics, the three firms confirmed a strong performance track record and forward-looking investment philosophies which generally aligned with the Funds' interests.

The Subcommittee chose to recommend PH&N Institutional as their preferred candidate, identifying that their relative advantages included lower fixed service fees; a proven track record of excellent returns; relatively low historical return correlation with the Funds' existing global equity manager; and their clear explanation of their investment approach and philosophy.

Interviews for the new infrastructure mandate took place on July 29 and were conducted virtually. The Subcommittee was again provided with an analysis of the two firms under consideration in advance, which revealed some similarities and some distinctions between the firms whilst confirming that both had strong historical performance track records and forward-looking investment philosophies that generally aligned with the Funds' interests.

The Subcommittee chose to recommend Axiom Infrastructure as their preferred candidate, identifying a number of relative advantages including that: they are a more established and larger firm than the other candidate, with a stable ownership structure and an experienced team that incorporates strong technical expertise in the assets which the firm owns and operates; their investment strategy was more clearly articulated with a low overall exposure to GDP sensitive assets; they have a clear focus on Environmental Social and Governance attributes in their portfolio; and they have consistently met their performance targets with low correlation with wider market trends. The other candidate firm also had relative advantages, specifically lower fixed fees particularly during the first five years of the investment period and a shorter investment queue of 6-9, as opposed to 12-24 months. The Subcommittee considered that on balance the long-term advantages of Axiom's offer outweighed these considerations and that Axiom was a better fit considering the overall objectives of improving diversification and reducing the risk profile of the Funds.

Joint Fund Committee meetings, September 25 and November 23-24, 2020. (virtual meetings)

The Joint Fund Committee met on September 25 to consider and make final decisions about the asset mix composition and selection of new managers. They agreed with the Subcommittee's recommendations to select Axiom Infrastructure and PH&N Institutional as the managers of their new infrastructure and global equity mandates respectively and passed motions confirming these decisions. Further decisions were made about how to structure the investment with PH&N. The Committee also passed motions to:

1. Terminate LSV as a manager as a necessary part of this transition to new managers, noting that their performance has been consistently poorer than expected.
2. Select a new long-term asset mix for the funds, confirming the precise asset allocations for existing and new managers. The Committee selected the Asset Mix which was recommended by George & Bell Consulting (*figure 1*).
3. Accept George & Bell Consulting's recommended approach for implementing a transition from the current to the new asset mix, the most important step to note being the placement of assets liquidated from LSV into the commercial mortgages mandate managed by ACM until they are called by Axiom (*figure 1*).

A final decision regarding how to structure the infrastructure investment with Axiom was made on November 23, 2020 at the Joint Fund Committee fall meeting, following the successful completion of due diligence on Axiom's proposed Limited Partnership Agreements. Trades to implement the transitionary asset mix were executed on November 30.

	Pre-Review	Transition	Long-Term
Fixed Income			
PH&N Core Plus Bonds	20%	20%	10%
ACM Mortgages	10%	20%	20%
Total Fixed Income	30%	40%	30%
Equities			
Blackrock U.S. Equities	15%	10%	10%
LSV International Equities	20%	0%	0%
Morgan Stanley Global Equities	15%	15%	15%
PH&N Institutional	0%	15%	15%
Total Equities	50%	40%	40%
Alternatives			
Invesco U.S. Real Estate	10%	10%	10%
IFM Infrastructure	10%	10%	10%
Axiom Infrastructure	0%	0%	10%
Total Alternatives	20%	20%	30%

Figure 1: The Funds' pre-review, transitional and new ('Long-Term') allocations to different asset classes.

Joint Fund Committee Meetings

The following information provides a summary of remaining Joint Fund Committee activities undertaken in 2020.

May 5, 2020 (virtual meeting).

The Joint Fund Committee (in this section, 'the Committee') met for one hour to discuss the potential recovery of US withholding tax associated with the Funds' return on investments generated through the Morgan Stanley portfolio between 2016 and 2019. George & Bell Consulting had identified an opportunity to utilize the Funds' exemption from direct taxation in the US and Canada to attempt to recover up to US \$355,476 paid by Morgan Stanley over this period. The Committee discussed whether to engage Polaris Tax Counsel to attempt to recover taxes on a contingency or flat fee for services basis. Contingency fees were quoted at a higher rate than a flat fee, however the ability of Polaris to recover this tax was uncertain and a contingency agreement would ensure that if Polaris are unsuccessful, there would be no cost. The Committee requested that Ms. Manisali (Pacific Salmon Commission Secretariat – Director of Finance) gather further information to inform the Committee's further consideration and decision. Following subsequent correspondence, the Committee agreed to engage Polaris Tax Counsel to attempt to recover tax paid between 2016 and 2018 on a 20% contingency basis and to defer a decision about the recovery of tax paid in 2019 until the outcome of the initial attempt is known. The amount of tax paid in 2019 was greater than in previous years as investment performance had been stronger, so this approach was selected to minimize the fees associated with recovery.

May 26, 2020 (virtual meeting).

The Committee received the Q1 Investment Performance Report from George & Bell Consulting (Mr. Brendan George and Ms. Michelle Richardson). On account of the COVID-19 pandemic 2020 Q1 performance had been below expectations at the portfolio level, however, was only slightly below the 4-year performance target. The US dollar had strengthened in comparison to the Canadian dollar, and since a high proportion of the Funds' assets are invested outside the US the market value of the fund was down 6% in Canadian dollars and 14% in US dollars. Preliminary information identified that Q2 performance had been positive and had offset poor Q1 performance by approximately 5%. The performance of the LSV investment portfolio continued to be poor (near the bottom of their comparative investment peer group) whereas Morgan Stanley's performance had been particularly strong.

The Committee received an update from George & Bell Consulting and the Pacific Salmon Commission Secretariat's Director of Finance, Ms. Ilinca Manisali, on considerations pertaining to attempted recovery of U.S. withholding tax associated with the Funds' investment earnings generated through the Morgan Stanley portfolio and potential engagement of Polaris Tax Counsel. The Committee was informed by Ms. Manisali that the amount of tax paid on the Morgan Stanley returns on investments were lower than previously reported and amounted to US \$109,338. In light of this new information, the Committee identified that the difference between a flat-fee and contingency fee structure for the 2019 tax year was significantly reduced and decided to amend their previous decision to treat 2016-18 and 2019 separately. The Committee instructed Ms. Manisali to engage Polaris Tax Counsel to attempt to recover all U.S. withholding tax paid to date. The Committee also received an update on the status of U.S. withholding taxes associated with their other investments and received confirmation that, due to the nature of the investment holdings, the Morgan Stanley portfolio was the only one of the Committee's investments where taxes of this type were paid and where the potential for recovery exists.

The Committee reviewed FY 19/20 fund administration expenses and approved the administration budget for FY 20/21. In addition, the PSC Executive Secretary, Mr. John Field, advised the Committee that it was necessary to formally document their procedures for proposal submission, review and approval (individually for each of the Southern and Northern Funds). Mr. Alpe presented an initial outline for the procedures document and the Committee directed Mr. Alpe to develop a full draft for review and discussion at the Committee's annual fall meeting in November.

The Committee discussed the likely impact of COVID-19 on projects selected by the Southern and Northern Funds for 2020. There was agreement that project proponents should be advised to proceed with projects only if they are able to comply with all relevant public health requirements. The Committee tasked the Fund Manager to develop correspondence to be issued to project proponents advising them of this requirement. This was sent in June.

November 23 and 24, 2020 (virtual meeting)

At the fall meeting of the Joint Fund Committee, the Committee received an update on investment portfolio performance and received presentations from two of the Funds' existing investment managers as well as an introductory presentation from Axium Infrastructure.

On November 23 the Committee received the Q3 Investment Performance Report from George and Bell Consulting (Mr. George and Ms. Richardson). The Funds' investments did not achieve the primary objective of earning a return (net of fees) that exceeds the rate of return of the benchmark by 0.6%, however the long-term objective of exceeding the Canadian and US Consumer Price Indexes +3.5% net of fees was met. Mr. George explained that continued underperformance by LSV was the principle contributing factor leading to underperformance. The Committee also noted underperformance by the Funds' real estate manager, Invesco, which was directly influenced by a number of property assessments that identified reduced valuations for specific assets within the portfolio.

The Committee received presentations from Invesco (Ms. Cinnamon Russell and Mr. Michael Peck), IFM (Mr. Dan Kim and Ms. Campbell Holman) and Axiom (Mr. Pierre Anctil, Ms. Gabrielle Dutil and Ms. Anne-Sophie Roy). The Committee did not identify any concerns with manager performance and were satisfied with the presentations provided.

Ms. Richardson presented a list of recommended updates to the Committee's Statement of Investment Policies and Procedures. The recommended updates focused on accounting for the Funds' new asset mix; increasing the evaluation timeline from a rolling four-year to five-year period; the removal of value-added targets and the addition of a requirement for contracts with new investment managers to be legally reviewed prior to execution. On consideration the Committee agreed to adopt the amendments for incorporation in the Committee's Statement of Investment Policies and Procedures.

Mr. Alpe (Pacific Salmon Commission Secretariat, Fund Manager) provided a presentation on the tax benefits that the Funds receive in the US and Canada and updated the Committee on efforts to ensure that current investments are structured in a way that is tax efficient. This included the engagement of a firm (WTax) to identify and pursue opportunities to recover non-US withholding taxes within the LSV portfolio; due diligence to ensure that the Committee's new investments with Axiom Infrastructure and PH&N are structured in a way that accounts for the Funds' beneficial tax status, and recommendations about how to ensure all future investments are also structured efficiently. The Committee agreed to adopt the recommendations, recognizing that tax considerations should be identified up-front through legal review of investment management agreements prior to execution, as reflected in the revised Statement of Investment Policies and Procedures.

On November 24, the Committee discussed their procedures for considering third party requests to attend Committee meetings and provide presentations / information. Members noted the need to treat all such requests consistently and that a distinction can be made between requests to speak about projects seeking financial support from the Endowment Funds and other types of discussions. The Committee agreed that it would generally not be appropriate to permit proponents to address them about their proposed projects at Committee meetings in situations where the proponents have approached the Committee to request to do so and while the proponents project funding submission is actively being considered by the Committee. It will not be practical as it would be necessary to grant everyone this opportunity if one proponent were allowed to present their case. Generally, the Northern and Southern Fund Committees can obtain the information which they require to make funding decisions through their established processes.

The Committee discussed other possible types of presentations and conversations with external parties such as those designed to inform them about emerging trends / scientific developments and ‘big picture’ issues. It was noted that the Committee may choose to actively solicit such presentations and that in addition to each Committee’s usual channels the PSC’s Standing Committee on Scientific Cooperation may be a useful group to draw upon. It was agreed that requests of this type to each Committee should be considered by the relevant Co-Chairs on a case by case basis.

On review of the draft document, the Committee asked Mr. Alpe to update their draft formal Procedures for Proposal Submission, Review, Evaluation and Approval to reflect considerations pertaining to project proponent presentations. It was noted that the Northern and Southern Fund Committees may develop separate procedures for considering such requests should they consider it appropriate to do so.

Mr. Alpe reviewed the policy for honorarium payments to eligible Fund Committee members. The Committee requested that Mr. Alpe and Mr. Field prepare a draft guidance document regarding honorarium payments for review at the Committee’s spring 2021 meeting.

The Committee also received an update on fund administration expenses to-date from Ms. Manisali and reviewed a draft of a new Committee onboarding pack prepared by Mr. Alpe, providing guidance on specific areas and requesting that this also be brought back at their spring 2021 meeting.

Northern Fund Committee Meetings

The Northern Fund Committee met in separate session on four occasions during 2020.

1. February 24-25 (in-person): The Committee met to make final decisions about the projects to select for funding in 2020.
2. May 27 (virtual): The Committee met to receive an update on the financial status of the Northern Fund and to agree the scope, priorities and timetable for the next Call for Proposals. The Committee also discussed the implications of COVID-19 for 2020 projects; their procedures for administering requests to adjust projects post-Committee approval of the detailed proposal; and their procedures for monitoring the compliance of projects seeking multi-year funding with their contractual reporting requirements.
3. September 30-October 1 (virtual): The Committee met to make decisions about the project concepts to advance to the detailed proposal stage. The Committee also agreed to formalize their procedures for adopting meeting minutes; reviewed a draft of their formal procedures for project review and selection; received an update on the financial status of the Northern Fund; reviewed and approved the Audited Financial Statements for the 2019-20 financial year; and discussed their approach for communicating the achievements of the Northern Fund.
4. November 24 (virtual): The Committee met briefly following conclusion of the Joint Fund Committee meeting held that day in order to discuss their protocols for communications between the Committee and project proponents.

Southern Fund Committee Meetings

The Southern Fund Committee met in separate session four times during 2020. All meetings were held by videoconference:

1. February 25: The Committee met to make final decisions about the projects to select for funding in 2020.
2. April 20: The Committee met to receive an update on the financial status of the Southern Fund and to agree the scope, priorities and timetable for the next Call for Proposals. The Committee also discussed the status of their Strategic Plan.
3. September 28-29: The Committee met to make decisions about the project concepts to advance to the detailed proposal stage. The Committee also reviewed and approved the Audited Financial Statements for the year 2019-20 financial year; reviewed a draft of their formal procedures for project review and selection; reviewed draft guidance regarding the handling of project change requests; received an update on the financial status of the Southern Fund; and agreed to formalize their procedure for reviewing and adopting minutes of their meetings.
4. November 23: The Committee met briefly following conclusion of the Joint Fund Committee meeting in order to discuss the status of outcome reporting from the Salish Sea Marine Survival Program and to discuss their procedures for reviewing and selecting habitat-focused project proposals, which they agreed to revisit at their spring 2021 meeting.

Committee Appointments

There were no changes to the membership of the Northern or Southern Fund Committees in 2020.

2020 Call for Proposals for projects in 2021/22

Both Fund Committees issued a Call for Proposals in mid-2020 for projects starting in 2021.

The Southern Fund Committee focused its 2021 Call for Proposals on habitat restoration projects and specific priorities identified by the Pacific Salmon Commission's Fraser River and Southern Panels. The Fund Committee received 49 proposals requesting U.S. \$3.81 million. During the first-round review meeting the Southern Fund Committee approved 47 proposals in total requesting U.S. \$3.47 million to move to the second stage. The final decisions on 2021 funding will be made at a meeting of the Southern Fund Committee in February 2021.

The Northern Fund Committee focused its 2021 Call for Proposals on projects seeking to develop improved information for resource management; the rehabilitation and restoration of marine and freshwater fish habitat; the enhancement of wild-stock production through low technology techniques and proposals responsive to the recommendations and objectives set out within the PSC's Transboundary Panel Strategic Salmon Plan. The Committee received a total of 81 proposals requesting U.S. \$8.68 million. At the first-round review meeting 59 of the proposals were selected to move to the second-round detailed proposal stage, having a total value of U.S. \$6.1 million. Bilateral technical reviews of the detailed proposals took place in January 2021 and a final decision on 2020 funding will be made at a meeting of the Northern Fund Committee in February 2021.

Staffing Changes

- Mr. Tom Alpe was appointed to the position of Endowment Fund Manager at the Pacific Salmon Commission and started on March 23, 2020.

Chinook Interface Group Report to the Pacific Salmon Commission

2021 PSC Annual Meeting

The CIG met twice during the week with a focus on agenda items from our last report to the Commission in January 2021. The following reports our work and recommendations for the Commission's consideration.

1. Adoption of Agenda

Commissioner Vincent-Lang requested a discussion on the Committee on Scientific Cooperation (CSC) templates, specifically relating to Yukon River Chinook and work load for the Chinook Technical Committee (CTC). The item was added as agenda item 11, with CIG forward agenda item pushed as item 12. The agenda was adopted with the addition.

2. Okanagan Chinook Work Plan Update

Chuck Parken (DFO) gave an update on the Okanagan Chinook Work Group (OWG) progress. The OWG is making good progress on their work plan tasks and will hold a series of workshops later in the spring to address work plan items. These workshops will be on Northern Pike (late March/April), juvenile and adult survival bottlenecks in the Okanagan and Columbia Rivers, and a bilateral supplementation program. The OWG requested that the appropriate management entities identify regulatory requirements that must be met for the movement of fish or fish eggs across the international border, as Chinook brood stock may be collected from the Chief Joseph Dam or from the lower Similkameen River. The OWG held a workshop on escapement methods used by each country. Mr. Parken gave an update of the escapement methods workshop, noting that the programs in each country do not currently meet CTC data standards for escapement indicator stocks, and there are many opportunities to collaborate across the border. Commissioner Thomson acknowledge the work done by the OWG. Commissioner Jones asked if the Okanagan Nation Alliance (ONA) has plans for fisheries. Mr. Parken replied that the hope of the ONA is to fish when stock is abundant. Commissioner Vincent-Lang asked about considerations for the CIG and Mr. Parken replied that transgenetic mark recapture (tGMR) techniques could be implemented at a reasonable cost because two field components (adult and smolt sampling) are conducted annually, but don't include the cost of the genetic data collection and analysis. Additional considerations could be increasing number of techs to boost the escapement monitoring programs, and increasing PIT tagged fish might be less expensive than expected.

3. Species at Risk Act (SARA) and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Update

Cory Lagasse (DFO) gave a presentation on the Species at Risk Act (SARA) in Canada and an overview of the process for listing a species through the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) process. Mr. Lagasse highlighted status reviews for B.C. Chinook: 12 designatable units (DU) are endangered, 7 are threatened, 2 are of special concern, 2 are not at risk, and 5 were labeled as data deficient. Listings trigger

a recovery potential assessment, which has been finished for Okanagan Chinook, and are in process for the remaining stocks. Threats for all endangered stocks include fishing and climate change, with habitat modifications and geological events (e.g. landslides) heavily impacting other stocks. Overall, threats to the 12 endangered DU's of Southern BC Chinook were evaluated to be extreme-high to extreme. Commissioner Vincent-Lang asked for clarification on how the overall threat calculator works. Mr. Lagasse replied that the threats calculator is cumulative for all threats, and he noted that he would share the methodology for the calculation. John Field asked about different habitat protections under SARA listing. Mr. Lagasse replied that designating critical habitat is a secondary process after a species is listed where critical habitats need to be identified, but residence protection (e.g. redds) happens immediately after a stock is listed as endangered.

Action Items for agenda item 3

☐ Mr. Lagasse will make available and follow up on the methods used for threat assessments.

4. Endangered Species Act (ESA) Update

Scott Rumsey (NOAA) provided an update on Chinook and steelhead endangered species petitions under the U.S. Endangered Species Act (ESA). The four petitions sought to split distinct population segments into smaller sub-units, mainly based on run-timing. The ESA process found that the steelhead petition was not warranted, and the Chinook petitions are under review. The publishing of the responses has been delayed slightly due to presidential administration transitions.

5. Data Sharing Protocol

Jessica Gill (PSC) updated the CIG on a draft data sharing protocol intended for implementation at the CTC to track data requests. The protocol was intended to identify data that could be shared and to track the requested data and its use. There are outstanding questions about who needs to fill out the request form, the nature of the data the CTC has, who vets the requests within the CTC, what roles of the domestic agencies play in fulfilling requests, and if there are sensitive or proprietary data. Ms. Gill recommended to utilize the interim approach to answer the outstanding questions and evaluate the approach at the January 2022 meeting. Mr. Field noted that it is a healthy sign that the public is asking for data and this could extend beyond the CTC. He noted that the outstanding questions should not stop forward progress. Commissioner Vincent-Lang noted that much of the data at the PSC is provided by management entities and questioned how they should be involved in sending data out and releasing data. John Carlile noted that the CTC will be producing workbooks with data from outputs available online and the finest scale data the CTC has is coded wire tag data which is publicly available on the Regional Mark Information System (RMIS) and Jon Carey added the CTC does roll up many fisheries. Commissioner Riddell noted the uncertainty around proprietary data and if needed, requestors can be sent back to primary data holder especially when requesting raw data. Antonio Velez-Espino noted the data request form can be changed to narrow the focus on two types of data: 1) data associated with tables, figures, and appendices, and 2) outputs of exploitation rate analyses and model outputs. Commissioner Riddell noted that the CTC should not be doing extra work to address these requests, and the CTC suggested to add a note on the data request form about timeliness of fulfilling data requests, especially in busy times. Jim Scott

highlighted concerns when litigants might request data and that legal staff could review the protocol when finalized. Commissioner Anderson noted that addressing these issues will be important but is comfortable moving forward with the process as long as problematic requests or requests for sensitive information be brought to the CIG's attention. Mr. Field suggested CTC leadership and CTC Coordinator clean up the draft and distribute to the CIG prior to the next CIG meeting.

Action Items for agenda item 5

- ☐ CTC and Secretariat clean up protocol based on the discussion and have ready for review prior to the next CIG meeting

6. Discussion of Welch et al. 2020 Paper

Commissioner Thomson noted that the consensus within the Canadian section was that agencies can respond to the journal if needed. Commissioner Vincent-Lang felt that the CTC has enough work without needing to respond to the Welch et al. (2020) paper. Response to the paper is left to management entities.

7. CTC Work Plan Progress

Jon Carey, Dr. Velez-Espino, and Mr. Carlile updated the CIG on the CTC Work Plan progress. Restructuring of annual reports, automation of figures is ongoing, and the CTC will be gradually increasing automation to provide efficiencies. The ad-hoc Incidental Mortality (IM) Working Group has completed a literature review of Chinook IM rates and is undertaking the task of reviewing data standards. Work on calendar year exploitation rates (CYERs) is ongoing in conjunction with the CYER Working Group. The Base Period Documentation task is nearing completion.

8. CYER Work Group Progress Update

Mr. Scott highlighted the progress the PSC is making, recognizing Randy Peterson (ADFG), Tommy Garrison (CRITFC), and Nick Komick (DFO) for their contributions to the CYER Working Group. The CYER Working Group has two reports due to the Commission, one on indirect methods which is expected by mid-March, and one on development of mark-selective fisheries estimation methods. The second report will require work with the CIG to implement, likely beginning in June. Commissioner Vincent-Lang asked about the calculation of the CYER metric. Mr. Scott noted that the CYER metric can be calculated, but also highlighted that the assessment of CYER may change for past years, including the estimated CYERs in the 2009-2015 base period.

9. CWTR/CEII and MSF Fund Committee

Commissioner Anderson noted the U.S. membership for the Coded Wire Tag and Recovery and Catch and Escapement Indicator Improvement Working Group: Christine Mallette, Tommy Garrison, Randy Peterson, Jon Carey. Commissioner Anderson noted Mark Selective Fisheries Fund Committee members: Dani Evenson, Kris Ryding, Marianne McClure, Craig Bowhay. Two alternates were added for the CWT&R/CEII Working Group: Anne Reynolds-Manney will act as alternate for Randy Peterson, and Charlie Waters will act as alternate for Jon Carey.

Commissioner Thomson noted Canadian members for the CWT&R/CEII Working Group: Brian Riddell, Nicole Frederickson, Aaron Foos, Antonio Velez-Espino. Proposed alternates are Karen Burnett and Maxime Veilleux. Proposed Canadian membership for the MSF Fund Committee: Rob Houtman, Janvier Doire, Laurie Milligan, and Brian Riddell. Proposed alternates are Wilf Luedke and Catarina Wor. See Attachment 1.

10. CSC Discussion

Commissioner Vincent-Lang voiced concerns about including Yukon River Chinook into the Committee on Scientific Cooperation process of documenting environmental variables into the management framework used for Chinook salmon in the Treaty area. He wanted an opportunity to consult with the Yukon Panel and member Native organizations before bringing the documentation forward. Commissioner Jones noted that environmental variables are a priority for the CTC and are helpful moving forward. He asked if the CTC Coordinator could aid to lessen the workload for CTC members. Mr. Field noted that the CSC is intending to pre-populate the templates then distribute to the CTC for review and error checks. Commissioner Vincent-Lang asked if members of the Yukon Panel were aware of the effort and cautioned about getting ahead of them due to their meeting cycle. Mr. Field noted that Steve Gotch has been notified and is supportive of CSC efforts, but is unaware of discussions at the Yukon Panel level. There was concern about the impact of the documentation on CTC Work Plan tasks, and both national sections agreed that the task should be given lowest priority within the CTC Work Plan and the CTC can help if it will not take away from other tasks. It was suggested that the CSC work to get the coho documentation done first. Commissioner Jones noted that since the CSC task will take two years, spreading the Chinook portion of the task across the two years might be a good way forward.

Action Items for agenda item 10

- ☐ Yukon inclusion into the CSC's documentation postponed until 2022
- ☐ CTC work on the template or consideration of environmental variables will receive low priority while their current work plan is addressed

11. CIG Forward Agenda

The CIG agreed to not meet in May when the PSC is scheduling to hold an additional meeting but will meet in June to review CTC Work Plan progress and engage with the CYER Working Group on MSF implementation.

Action Items for agenda item 11

- ☐ Jessica will send out a Doodle poll for date of June meeting

Attachment 1: CEII and CWT&R Working Group and MSF Fund Committee Membership

Canadian Working Group Members	
CWT&R CEII Fund Working Group	Mark Selective Fisheries (MSF) Fund Committee
Brian Riddell – CDN Commissioner	Rob Houtman – DFO SAS and SFEC
Nicole Frederickson – CDN FN caucus,	Janvier Doire – CDN FN caucus
Aaron Foos – DFO YTRB Panel	Laurie Milligan – CDN Southern panel
Antonio Velez-Espino – DFO SAS and CTC	Brian Riddell – CDN Commissioner
Alternates	
Karen Burnett – DFO - Fraser Resource Management	Wilf Luedke – DFO - South Coast
Maxime Veilleux – DFO SAS and CTC	Catarina Wor – SAS and CTC

United States Working Group Members	
CWT&R CEII Fund Working Group	Mark Selective Fisheries (MSF) Fund Committee
Christine Mallette – ODFW	Dani Evenson – ADFG
Tommy Garrison – CRITFC	Kris Ryding – WDFW
Randy Peterson – ADFG	Marianne McClure – CRITFC
Jon Carey – NOAA	Craig Bowhay – NWIFC
Alternates	
Anne Reynolds-Manney – ADFG (for Randy Peterson)	
Charlie Waters – NOAA (for Jon Carey)	

PACIFIC SALMON COMMISSION WORK PLAN
2021-2022

Panel / Committee:

Standing Committee on Scientific Cooperation (CSC)

Date: January 28, 2021

Update on CSC Work Plan For This Cycle:

Background

In February 2020, the Commission approved a revision in the way the CSC develops its annual workplan, i.e., drafting the work plan in consultation with a bilateral Steering Committee consisting of four commissioners (two from each of the parties and assisted by the Executive Secretary). The work plan is to be completed each year by the close of the Pacific Salmon Commission (PSC) February annual meeting. This revised process as agreed on 20 February 2020 is:

- 1:** During development of annual work plans, Panels and Committees should identify significant scientific or technical needs or propose investigations for potential assignment to the CSC. Also, the Commission may periodically accept proposals for investigations, solicited or otherwise, from other sources. These submissions will be collated by the PSC and submitted to the bilateral Steering Committee and CSC for consideration before the end of October.
- 2:** The Steering Committee and CSC will meet by teleconference prior to the post-season PSC meeting to discuss and consider which of these requests could best support PST objectives. The representatives of the Steering Committee, in consultation with CSC, may seek additional input from their national sections to inform the discussion. Among other things, the Steering Committee, in consultation with the CSC, will consider the merit and feasibility of, resources needed for, improvements or modifications to, or any other attributes of each proposal in formulating a recommendation on the disposition of that proposal.
- 3:** At the Post Season meeting, Steering Committee members will, if appropriate and in consultation with members of the CSC, seek additional input about the proposed projects from their respective national sections. The Steering Committee will then meet bilaterally to develop final recommendations for submission to and consideration by the Commission at the February Annual Meeting.
- 4:** The Commission is expected to determine whether to adopt, modify and adopt, or not adopt recommendations of the Steering Committee and subsequently direct the CSC to develop a corresponding Work Plan.
- 5:** The CSC is expected to implement the Work Plan, periodically report to the Commission on the status of implementation, and submit final reports with recommended action items as appropriate.
- 6:** The Commission is expected to receive final reports and determine appropriate action(s).

Current Assignment

The Commission authorized a "test flight" of the above process via entries in the Oct. 2019 CTC and Southern Panel's Work Plan that included actions for consideration by the CSC.

Those two bodies had identified the same issues in 2020 for the consideration of the CSC as follows:

The PSC should consider establishing a coastwide, multi-species forum under the oversight of the Committee on Scientific Cooperation to share developments and advice regarding adaptation of Pacific salmon management approaches to environmental change. There is strong evidence that environmental change is occurring and accelerating to a degree such that past experience cannot be expected to serve as a reliable basis to forecast the future. Increases in uncertainty, variability and directional change are expected to alter hydrologic, precipitation, temperature and growth patterns which, in turn, are likely to affect the survival, productivity, abundance, distribution, and migration patterns of Pacific salmon. The forum should provide reporting of significant developments in the knowledge base as well as vetting of recommendations for monitoring and reporting systems, and potential adaptation strategies.

Progress to Date

Note that two new CSC members were appointed by fall 2020, filling the four seats on the committee itself. The Executive Secretary provides significant support to the CSC in an ex-officio capacity and it also benefits from information and contributions provided by scientific and technical experts in the Commission.

The CSC met in September 2020 to formulate a plan to begin addressing the topic above. The CSC recommends that the first step in this process is to inventory, from a high-level view, what stock assessment and management frameworks are in place for each chapter of the PST, and how they consider environmental variability and changing survival and the extent to which they meet treaty and management objectives. Over several CSC meetings, including two with the Steering Committee, the CSC developed a template/questionnaire for this inventory and completed two draft examples, one for Fraser River sockeye salmon (14 pages) and one for the Transboundary Taku River stocks of Chinook, sockeye and coho (10 pages). The CSC also met with the leadership of the CTC, Southern Panel, CoTC and ChumTC in December to present this approach, respond to questions, exchange information and to request feedback. The major topics for each questionnaire are:

1. PST Chapter
2. Salmon species and stocks
3. Fisheries
4. Management
5. Assessments
6. Incorporating environmental data
7. Accounting for changes in productivity
8. Accounting for and conveying uncertainty
9. Ability to reach management objectives

The anticipated templates to cover the PST chapters are:

Chapter 1 (Transboundary):

Alsek River Chinook, Sockeye and Coho
Stikine River Chinook, Sockeye and Coho
Taku River Chinook, Sockeye and Coho

Sent to:

TBR TC & Panel
TBR TC & Panel
TBR TC & Panel

Chapter 2 (Northern Boundary Area)

Skeena and Nass River Sockeye
Skeena River Pink ?

NBTC & N Panel
NBTC & N Panel

Chapter 3 (Chinook):

AABM (3 fisheries aggregated)
ISBM – Canada
ISBM – Southern U.S.

CTC & CIG
CTC & CIG
CTC & CIG

Chapter 4 (Fraser sockeye and pink):

Fraser sockeye (all MUs aggregated)
Fraser pink

Fraser TC & S Panel
Fraser TC & S Panel

Chapter 5 (Southern Coho):

Southern U.S. (all management units combined)
Canada (all management units combined)

CoTC & S Panel
CoTC & S Panel

Chapter 6 (Southern Chum):

All management units combined

ChumTC & S Panel

Chapter 8 (Yukon River):

Canadian-origin Chinook (Mainstem)

Canadian-origin Chum (Mainstem and Porcupine / Fishing Branch) “

Yukon TC & Panel

Those in bold represent those expected to be addressed first. It is recognized by the CSC and Steering Committee that not every topic or question is appropriate for each chapter/species, but can simply be addressed as appropriate. Also, some breakdown by stock or management group will be needed. The CSC will work with the appropriate tech committee, panel or managers to facilitate completion of each template.

Proposed 2021/22 activities:

It should be noted that the longest serving member of the CSC, Dr Carmel Lowe, will retire in 2021. All other current CSC members have served on the committee for one year or less. There may be some delay and disruption due to the integration of a new member of the CSC.

During calendar year 2021, the CSC plans on completing questionnaires for those highlighted in bold on the Chapter list above. The CSC plans to pre-populate each template, to the extent we can, then distributing them to the appropriate PSC Technical Committee and Panel for review, completion and return.

It is difficult to generate an exact work plan for 2021 as there are major uncertainties with regard to the timing of questionnaire responses from panels and technical committees, the completeness of questionnaire responses and the number of iterations needed between the CSC and panels and tech committees to finalize inventory templates. Then, it's difficult to judge what the responses will reveal, what sort of analysis will be appropriate to generate a summary and then what subsequent analyses will be needed to identify broad, common or unique themes which are impeding completion of PST objectives (gaps and impediments). It may be beyond the scope of this initial phase to identify where objectives are being met and how/why (best practices).

2021 might be envisioned as a scoping exercise to determine if and how we can develop an understanding of how current management frameworks deal with environmental variability. The scoping exercise will consist of nine questionnaires focused on over one-half of PST management units, including all species except pink salmon. Instead of delineating clear work products for 2021, we will delineate a clear schedule of interactions with the Steering Committee and highlight clear questions for discussion and decision with the Steering Committee on a path forward.

Proposed timeline:

A. Identify CSC members to pre-populate questionnaires. Distribute all nine draft questionnaires pre-populated to TC's and Panels by **March 31, 2021**, or sooner.

B. Late spring or mid-summer meeting with Steering Committee

Review progress to date, develop focus for delivery of product in January 2022. Important guidepost will be number of completed surveys in hand and those not.

C. September Steering Committee meeting.

Simple summary of results of surveys received completed to date, and answers to key questions regarding environmental incorporation, productivity, obstacles.

Initial impressions from survey results.

Develop framework for analysis of completed surveys for 2021 report.

This meeting will provide the steering committee progress to date for discussion with full Commission in October.

D. Presentations to national sections, panels and technical committees, (and Commission), either at January 2022 meeting or separately.

Describe questionnaires completed, initial analysis, next steps.

E. Deliver annual CSC report to Commission at Annual Meeting in February, 2022.

Proposed activities beyond this cycle:

The CSC emphasizes that the charge given this cycle will be a multi-year endeavor. The CSC is a small 5-person committee whose members have commitments beyond the current assignment. This charge to investigate environmental variability/change and appropriate salmon management is complex and far-reaching .

Development of 2022 work plan – this will be initiated at the September Steering Committee meeting, there will be a number of important questions to address in forming a work plan for 2022:

- a. Continue development and completion of surveys or are results obtained in 2021 sufficient?

- b. develop framework for analysis of surveys - determine who/how will complete analysis
 - i. expert panel?
 - ii. PSC panel?
 - iii. consultants?
 - iv. facilitated workshop?
 - v. CSC?
- c. begin discussing strategy for generating management recommendations
 - i. expert panel?
 - ii. PSC panel?
 - iii. consultants?
 - iv. facilitated workshop?
 - v. CSC?

Overall, it should be clear that the CSC will not generate and provide a blueprint for dealing with climate variability; instead, the goal of the CSC is to facilitate a process that will present a palette of options to the Commissioners and the broader PSC.

Additionally, the CSC believes that the completed questionnaires will have significant informational value that should be made available to the PSC family and other interested parties, as a PSC publication or tool for orienting new Panel/Technical Committee members to the variety of management approaches under the Treaty.

The CSC also notes that the role of environmental change is nothing new to salmon management as summarized so adroitly in an abstract 33 years ago by Carl Walters and Jeremy Collie (1988).

Walters, C. I., and J. Collie. 1988. Is research on environmental factors useful to fisheries management? Can. j. Fish. Aquat. Sci. 45: 1848-1 854.

“The study of environmental effects on fish distributions and recruitment rates has become a major research focus with substantial funding. This research is justified by rather vague claims about understanding the causes of variability and making more accurate predictions based on this understanding, claims which often do not bear close inspection. Improved prediction is often impossible in principle because environmental factors are not predictable even if fish responses are. In some fisheries, prediction could be achieved more cheaply and reliably by direct monitoring programs such as pre-recruitment surveys of year-class strengths. In others, prediction is unnecessary because of existing feedback tactics for regulation, or would be primarily valuable to particular industrial interest groups and hence should not necessarily be subsidized by public research investment. Better understanding is needed for situations in which the effects of environmental factors are confounded with the effects of stock size and fishing. In these cases the key uncertainties will not be resolved by continued correlative and biological process studies and will instead require bold management experiments in which environmental studies are coupled with deliberate manipulation of stock sizes through changes in harvest policies.”

Obstacles to Completing above Bi-lateral Tasks:

This is a multi-year and multi-decade issue. Solutions are challenging, for a host of reasons, and will likely be different across species and geographic regions. That said, precautionary and wise planning is

advised before any expenditure of monies and efforts to accomplish any needed improvements in assessment and management frameworks.

Outline of Other Panel / Committee Tasks or Emerging Issues: N/A

Potential Issues for Commissioners:

This is a multi-year assignment. It also requires some additional work and cooperation by PSC panels and technical committees. The CSC will need additional experts, and expenditures, to provide the recommendations to the PSC, either through facilitated workshops, or expert panels (like that done for the Coded-wire Tag group), etc. Once the requirements are defined, the CSC will inform the Commission and propose options for resourcing them.

Potential Issues for Committee on Scientific Cooperation:

The CSC is aware that the southern Coho Technical Committee is planning a video conference in approximately May 2021 regarding the environment and salmon management. The CSC will remain in contact with the CoTC leadership to determine how the CSC can be involved and play a role in this effort.

Proposed Meeting Dates and Draft Agendas:

The CSC plans to teleconference monthly over the next few months to get the draft questionnaires populated and distributed and to develop an initial approach to analyze the input. The coordination with the CoTC will occur during March to May. The CSC will meet with the Steering Committee via teleconference this spring, September, November and Dec/Jan, to actively consult them at each stage.

Status of Technical or Annual Reports:

The CSC has regularly provided annual reports on schedule through 2019, and will next provide an annual report to the Commission at the 2022 Annual Meeting.

Comments: N/A

Pacific Salmon Commission-Northern Panel and Northern Boundary Technical Committee

Report to Bilateral Commissioners

2021 Annual Meeting, February 8 to 12, 2021

Annual Work Plan

The Northern Panel met domestically and bilaterally at the postseason meeting during the week of January 11–15, 2021. The Panel did not participate in this week's annual meeting.

Outcomes from the January session included:

Northern Panel: Reviewed and accepted the

1. Northern Boundary Technical Committee's 2019 Final Boundary Area sockeye salmon run reconstruction;
2. The final 2020 pink salmon run reconstructions;
3. The preliminary 2020 Boundary Area sockeye salmon run reconstruction;
4. The cumulative Annual Allowable Harvest sharing agreements.

Received updates and status on

- Post season fishery reports from both parties for 2020.
- NBTC Coho assignment from 2017 on stock status, management actions, and recommendations. The Panel received a presentation from ADF&G summarizing major findings in their report. Canada provided an update on their progress and estimated time for completing the task. The U.S. and Canadian reports will be provided to the Northern Panel for final review prior to publication. Further discussion on the Coho Trigger defined in Chapter 7 was stayed until the Panel members have a chance to review the draft presentation information and will be included on the agenda for the January 2022 meeting. Additional discussion regarding Coho will be scheduled as required.

Chapter 2 Renewal Work Plan

Several assignments that resulted from the re-negotiation of Chapter 2 are in progress and are expected to be completed by 2022 for review and discussion prior to the 2023 mid-point of Chapter Implementation.

District 104 Pink Salmon Fishery Review: Under the revised provisions within Chapter 2, the U.S. agrees to complete a harvest pattern analysis of the pink salmon fishery in District 104 salmon that shall be peer-reviewed by an independent contractor and then submitted to the Committee and the Northern Panel for further review. The assignment is currently ahead of the timelines established at the 2019 Post Season Meetings. An initial draft of the assignment has been reviewed by the Northern Panel and both independent reviewers and comments and suggested edits have been provided. An updated draft of the

report was provided to the bilateral Panel in January 2021 for a final review before it will be finalized as an ADF&G Special Publications Report) in the Spring of 2021.

Escapement Goal Analysis for Populations (Conservation Units) of Skeena and Nass Sockeye Salmon:

Under the renewed Chapter 2 provisions, Canada agrees to complete a comprehensive escapement goal analysis (prior to the 2023 fishing season) for Nass and Skeena river sockeye salmon that shall be peer-reviewed by an independent contractor and then submitted to the Committee and Northern Panel for further review. This project is currently on track for completion prior to 2023 as noted, but there have been some amendments to the process that require the more detailed project work plan to be updated. This project work plan is currently under review and an updated document will be provided to the US Northern Panel once completed.

Northern Boundary Sockeye Run Reconstruction Model Review: Under the renewed Chapter 2 provisions, the Northern Boundary Technical Committee was tasked with reviewing the sockeye run reconstruction model to provide recommendations to the Northern Panel, at or before the January 2022 Commission post-season meeting, regarding the creation of a simpler run reconstruction model using genetic data and to provide recommendations on any improvements to the program, if needed. The final report on this assignment was made at the January 2021 Post Season Meeting with the recommendation from the NBTC to the Northern Panel to continue use of the NBSRR model in its current form and continue to supplement the work with efforts to improve genetic baselines for Boundary Area sockeye salmon. A letter outlining this recommendation was provided from the NBTC to the Northern Panel and was signed by both Panel co-Chairs.

Chapter 2 Evaluation of Performance: Under the renewed provisions within Chapter 2, it is stated that “the Parties shall complete a review of the results of the implementation of this Chapter by the Commission post-season meeting in January 2022. The review shall identify management actions taken to support the conservation of Nass River and Skeena River sockeye, to evaluate the consistency of those actions with the obligations of this Chapter and outline, if feasible, the benefit of those actions for Nass River and Skeena River sockeye.” Much of this review will be informed from the results of the on-going assignments listed above. As such, with it is expected that the review of Chapter 2 performance will begin during the January 2022 Post Season Review meeting.

Transboundary Panel Report to Pacific Salmon Commission

February 11, 2021

The Transboundary Panel (Panel), and Transboundary Technical Committee (TTC) and Enhancement Sub-Committee (TESC) representatives, met bilaterally during both the 2020 Post-Season (January 12-14) and the 2021 Annual meetings of the Pacific Salmon Commission (February 9-11).

January Meeting Session: The Panel received post-season reporting on 2020 Transboundary terminal and in-river fisheries, stock status of Stikine, Taku and Alsek salmon runs and associated harvest, enhancement and escapement results. As required in Chapter 1 (Paragraph 4), 2020 U.S. and Canadian fishery management measures and associated catch were evaluated to confirm if bilateral escapement goals and harvest shares were achieved. Minimum spawning escapement was not achieved for: Taku and Stikine River Chinook; Stikine River sockeye (Tahltan Lake and Mainstem stocks); and, Alsek (Klukshu River stock) sockeye. Management actions are required by the Parties in 2021 for Taku and Stikine River Chinook stocks, which have not achieved minimum spawning escapement objectives in 5 of the past consecutive 5 years. In 2020 U.S. fisheries exceeded PST harvest share allocations for Taku coho (1 of 5 years) and Stikine sockeye (1 of 5 years) while Canadian fisheries exceeded the harvest share allocation for Stikine sockeye (3 of 5 years). The latter requires Canada to implement mitigative fishery management actions in 2021. The Panel requested the TTC to provide presentations on Chinook salmon base-level catch rates in Transboundary terminal and in-river fisheries as well as information on incidental Chinook salmon mortality resulting from non-directed fisheries at its February 2021 meeting. The Panel also received reports for enhancement activities in 2020 which focused on egg takes and fry stocking levels completed as part of the joint Stikine and Taku sockeye salmon enhancement programs (SEPP and TEPP). The results of the Final 2019 SEPP was reviewed, which prompted the Panel to request a presentation from the TESC on in-season protocol for determining in-season adjustments to sockeye enhancement production plans at its February 2021 Pre-Season meeting. Proposed 2021 Stikine and Taku enhancement production plans were reviewed by the Panel. The Panel also received presentations: salmon passage at the Stikine River (Tahltan River) 2014 landslide site; the development of new Alsek River Chinook and sockeye assessment programs; the status of the Stikine River sockeye escapement goal review; and, the Taku River December 2020 landslide event.

February Meeting Session: The Panel received bilateral forecasts for Stikine, Taku, and Alsek River stocks for the 2021, proposed bilateral assessment fisheries (*no bilaterally-recognized assessment fisheries were recommended for 2021*) and 2021 Chinook and coho salmon Coded Wire Tagging programs to be delivered on the Taku and Stikine Rivers. The Panel was also provided presentations from the TTC, TESC and Parties on: 2021 fishery management measures proposed for U.S. terminal and Canadian in-river fisheries (*which included strategies intended to conserve Taku and Stikine River Chinook salmon as well as specific Canadian Stikine River sockeye salmon fishery management measures required in response to the 2020 Paragraph 4 fishery harvest trigger*); Chinook salmon base-level catch rates in Transboundary terminal and in-river fisheries; incidental Chinook salmon mortality resulting from non-directed fisheries (*which resulted in assignment of the Transboundary Technical Committee to provide recommend incidental mortality rates for Transboundary terminal and in-river fisheries by January 2022, for Panel consideration and recommendation*); and, Northern Fund project proposals under consideration for 2021. The Panel approved the Final 2019 Stikine Enhancement Production Plan report as well as Taku and Stikine River sockeye salmon enhancement production plans for the coming year (2021-22). Finally, the Panel reviewed progress on Chapter 1 Transboundary Rivers Implementation Plan activities.

The Transboundary Panel's next bilateral meeting is scheduled for January 2022 (2021 Post-Season Reporting).

Pacific Salmon Treaty – Chapter 1 Implementation Plan

Report to PSC Commissioners - January 17, 2019

The renewal of Chapter 1 of the Pacific Salmon Treaty effective in January 2019 includes a number of new and renewed commitments to improve assessment, management, and enhancement of Canadian-origin Transboundary Chinook, sockeye and coho salmon stocks. The implementation plan is provided below.

Activity	Timeline	Anticipated Process and Outcome
Paragraph 2. & Paragraph 3(c). Develop and implement an abundance-based management regime for Chinook and sockeye salmon in the Alsek River. Design and implement Alsek Chinook and sockeye salmon adult assessment programs that can be used for active fishery management.	Initiate stock assessments in 2020 provided funding is secured from the agencies and/or the NEF.	The intent is to provide the Parties with the scientific basis to manage Alsek River Chinook and sockeye salmon based on abundance and therefore provide appropriate spawning escapements and allow fishers to harvest surplus production.
Paragraph 2. Develop and implement abundance-based management regime for coho salmon in the Stikine River. Paragraph 3(a)(ii). Assessment programs need to be further developed before a biologically based escapement goal can be established. The design and implementation of a Stikine River coho salmon adult assessment program that can be used for active fishery management is needed.	Initiate program development in 2019 with refinement in 2020 and for the duration of the annex period. Review of progress concerning this obligation in 2024 is required.	The outcome is to provide the Parties with the scientific basis to manage Stikine River coho salmon based on abundance. Intent is to provide appropriate spawning escapements and allow fishers to harvest surplus production.
Paragraph 3(a)(i)(a & b). Continue the abundance based management program for Stikine River sockeye salmon.	Maintain existing annual approach.	Meet escapement goals for Tahltan Lake and river stocks of sockeye salmon while allowing fishers to harvest surplus production.
Paragraph 3(a)(i)(c). Expand and initiate new bilateral sockeye salmon enhancement programs in the Canadian portion of the Stikine River watershed.	Initiate new sockeye salmon enhancement program(s) by 2024.	Annually produce 100,000 enhanced sockeye salmon returning to the Stikine River watershed. Canada to identify suitable sockeye fry release or rearing locations.
Paragraph 3(a)(iii). Continue the abundance based management regime for Stikine River Chinook salmon. Expand/improve the CWT and GSI programs used to implement the existing program.	CWT expansion to be initiated in 2019 and continue for duration of annex period. Conversion of GSI program from microsatellites to SNPs initiated in 2019.	Increase CWT tag rates for Stikine River Chinook salmon to achieve CTC indicator stock standards. Improvement of accuracy and decrease in cost of GSI program by conversion to a SNP based approach.

Activity	Timeline	Anticipated Process and Outcome
Paragraph 3(b)(i). Deliver an abundance based management program for Taku River sockeye salmon.	Annual delivery of abundance based assessment and management program.	Intent is to meet escapement goal for Taku sockeye salmon while allowing fishers to harvest surplus production.
Paragraph 3(b)(i)(b). Complete bilateral review of Taku River sockeye salmon MSY escapement goal.	Complete in advance of 2020 fishing season.	The Parties to establish a bilaterally approved MSY escapement goal for Taku River sockeye salmon to be implemented in 2020 and for the remainder of the annex period.
Paragraph 3(b)(i)(c). Complete bilateral review of joint Taku River sockeye salmon assessment program.	Complete in advance of 2020 fishing season.	The Parties to receive and implement recommendations to improve the bilateral Taku River sockeye salmon assessment program prior to the start of the 2020 fishing season.
Paragraph 3(b)(i)(h). Expand and initiate new bilateral sockeye salmon enhancement programs within the Taku River watershed.	Initiate sockeye salmon enhancement expansions and new programs as soon as practical (post 2019).	Annually produce 100,000 enhanced sockeye salmon returning to the Taku River watershed.
Paragraph 3(b)(ii). Implement a Taku River coho salmon abundance based management smolt and adult assessment program.	Initiate program implementation in 2019 and continue for duration of annex period.	Implement annual coho smolt tagging and adult terminal abundance estimate program on the Taku River.
Paragraph 3(b)(iii). Continue the abundance based management program for Taku River Chinook salmon. Expand/improve the CWT and GSI programs used to implement the existing program.	CWT expansion to be initiated in 2019 and continue for duration of annex period. Conversion of GSI program from microsatellites to SNPs initiated in 2019.	Increase CWT tag rates for Taku River Chinook salmon to achieve CTC indicator stock standards. Improvement of accuracy and decrease in cost of GSI program by conversion to a SNP based approach.
Paragraph 4. Continue to evaluate accountability measures associated with Chapter One.	Maintain annual process.	Intent is to provide annual accountability measures of performance of Chapter One provisions.
Paragraph 5. Review of Chapter to determine if renewal or renegotiation is requested by the Parties.	2024 PSC annual meeting.	Identify each parties interests pertaining to renewal or renegotiation of Chapter 1 following 5 years of implementation of current annex.

PSC ANNUAL MEETING February 8-12, 2021

SOUTHERN PANEL MEETING REPORT

Session Activities:

- The US and Canadian Sections of the Southern Panel developed an agenda that enabled bilateral and section time to focus on activities associated with our annual work plans and other related assignments:
 - *Review the implementation plans for new Chum and Coho Chapters of the PST;*
 - *Receiving and discussing reports from Coho and Chum Technical Committees;*
 - *Developing priorities for Endowment Fund proposals for 2022*
 - *Conduct tasks from workplans for 2021.*
- The Bilateral Panel met and received presentations on:
 - *Coho and Chum Technical Committee updates on work tasks and progress on current Endowment Fund projects and potential proposals for consideration (TC co-chairs)*
- The Panel welcomed Linda Higgins as the Canadian Alternate Co-Chair and as the future Co-Chair to replace Laura Brown. The Panel also welcomed Debra Toporowski as a new Canadian Panel member.
- Chapter Implementation Plans
 - Both section and bilateral time was spent to review implementation plans for the new Chapters 5 and 6, including assigning tasks to sub-committees, Technical Committees as appropriate, and assigning short-term and longer-term tasks.
 - *Process to address the development of Southern Panel guidance on how to implement Chapter 5 Coho paragraphs 11(b) and 11(c): A draft process was developed in January and was presented to the Bilateral Southern Panel and further discussed at the February 2021 AGM. This will then be presented to the Commissioners for approval once consensus at the Bilateral Panel is reached.*
- Update from the Coho Technical Committee
 - *The Coho TC welcomes new members: Marlene Bellman, Michael Arbeider, Michael O'Brien*
 - *2019 Coho Annual Summary ER Report*
 - *Southern Endowment Fund (SEF) priority proposals and project updates:*
 - *Update on existing projects*
 - *List of SEF priorities from CoTC*

- *Update on CoTC work towards periodic report (years 2018)*
 - *Planning for Workshop on Environmental Change, tentatively scheduled for May 11, 2021*
 - *SFEC Briefing on Coho Double Index Tagging Review*
 - *Planning for CoWG meeting*
 - *Other CoTC work items*
- Update from Chum Technical Committee
 - *2017 Chum Tech Annual report has been completed and now available on the PSC website.*
 - *Chum TC has been working on the draft report covering 2018 fisheries and research as a principal focus during 2021 PSC meetings.*
 - *Further evaluation of the ChumGEM run reconstruction model for Southern BC and Washington State Chum*
 - *Continue work on the Chum Genetic Baseline and metadata for GIS application*
 - *2020 Southern Endowment Fund (SEF) project updates*
 - *List of SEF priorities for 2022*
 - *Other Chum TC work items*

Preparation for Future Meetings

- Finally, the bilateral Panel worked on a schedule for upcoming meetings, including the timing of the manager-to-manager information exchange in mid-March, a Coho TC workshop on Environmental Variability planned for spring 2021 (see below), and the July Coho Working Group and Coho Technical Committee. Chum TC is also planning a May bilateral session to continue with identified tasks and deliverables.
- For the 2020-2021 cycle, the CoTC is planning to convene a half-day electronic (webinar format) conference to share information regarding the incorporation of environmental information into salmon management during the spring of 2021. Projected participation in the electronic conference is 100 attendees; the format is tentatively planned to consist of approximately 6 presentations and facilitated plenary discussions. **Assistance from the PSC is requested for hosting and recording the conference.**

Chapter 4, Fraser River Panel – February 2021 Meeting Report for Bilateral Commission

Sessions held:

Technical Committee met Monday, February 8th
Bilateral Fraser River Panel met Feb. 9th, 10th, and 11th in the mornings.

Technical Committee completed review of work undertaken to support the bilateral panel.

Bilateral Panel:

1) Conclusion of Review of 2020 Season

- Received preliminary spawning escapement estimates from 2020 season and completed review of the 2020 season including finalization of TAC tables.

Table 1. Preliminary Spawning Escapement Results for Total Fraser Sockeye, 2020

Spawning Escapement	310,778	Spawning Esc (%)
Cycle Average Escapement	921,106	34%
2016 Brood Year Escapement	487,034	64%
Pre-season Forecast of Total Return	802,000	39%
Potential Esc. (In-season estimate)	275,528	113%

Table 2. 2020 Fraser Sockeye Escapement Summary by Run Timing Group

Management Group	Preliminary Spawning Escapement	Spawning Success	% high precision
Early Stuart	30 (Note: broodstock taken to supplement)	(inadequate sample)	0%
Early Summer	80,340	97%	77%
Summer	223,822	98%	95%
Late	6,586	65%	93%
Total	310,778	97%	90%

Key points:

- Overall, returns for 2020 were the lowest on record, with the previous lowest-ever returns occurring in 2019.
- Very high river discharges early in the season hindered migration, with Early Stuarts delayed by 2-3 weeks and Early Summers by 1-2 weeks.
- Fish that did make it to spawning grounds were generally in good condition. Escapements for Early Summers and Summers exceeded in-season estimates.
- For Early Summers and Summer Run sockeye, sex ratios were skewed with more females than males.
- Interestingly, returns to Nadina (above Big Bar) were 78% of cycle line average and 110 % of in-season estimate, with 29,353 spawners.

2) Pre-Season Planning for 2021

Forecast:

- Forecasting models have consistently overestimated returns for recent years in low productivity regime
- This year used models that more closely reflect current low productivities.
- Environmental factors (warm marine water, hatchery pink production) believed to have negatively affected 2020 returns would have also affected sockeye returning in 2021.
- 2021 P25 forecast level for sockeye is most consistent with recent productivity levels.
- There is no sockeye TAC unless returns reach P 75 or higher.
- For pink salmon, did not have fry outmigration data due to COVID-19, so used other methods based on historic information and taking into consideration high spring discharges and high marine water temperatures, known to affect pink salmon survival.
- There is some Pink salmon TAC at all forecast return levels due to harvest rules, even though returns will likely be below escapement target of 6 million.
- Information on Washington State sockeye and pink salmon forecasts was provided and has commonalities with Fraser forecast (low productivities due to marine conditions, etc.)
- As part of pre-season planning, have had preliminary review of management considerations, including timing assumptions, for 2021, and initial discussions of Planning Model needs for March, April and June.

Table 3. Forecast for Fraser Sockeye and Pink Salmon, 2021

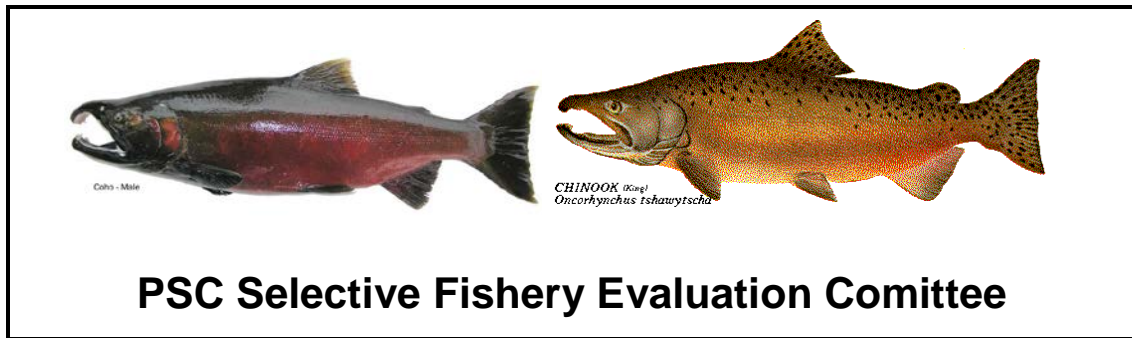
	P 25 Forecast	P50 Forecast	P 75 Forecast
Early Stuart	12,000	18,000	30,000
Early Summer	59,000	108,000	207,000
Summer	474,000	1,046,000	2,225,000
Late	79,000	159,000	313,000
Total sockeye	624,000	1,330,000	2,775,000
Fraser Pinks	2,229,000	3,009,000	4,051,000

3) Test Fishing Issues

- Preliminary test fishing plans being developed.
- As there is no TAC expected below P75 returns, it is very unlikely that there will be any retention of pay-fish.
- 2021 is a Pink salmon return year, and as pinks usually return a bit later in the season their in-season assessment requires a prolonged test fishery assessment period, which is costly as it requires the use of seine vessels.
- Even with reduce program there is an expected deficit of \$671,000 for 2021. Full program would result in deficit of about \$924,900. Current balance in the Test Fish Revolving Fund is \$857,000.
- Initial discussion about alternate site for Cottonwood test fishery due to greatly reduced effectiveness of this test fishery – hope to receive SEF funds to explore alternate site (project leads include PSC staff, DFO, First Nations, US)

4) Additional Issues

- Received presentations on Big Bar, and Pink Salmon genetic stock identification
- Further planning for spring and summer meetings
- Completion of administrative business.



**SELECTIVE FISHERY EVALUATION COMMITTEE
PROGRESS REPORT TO COMMISSION
February 11, 2021**

The SFEC met in November 2020 to review 2021 Mass Marking (MM) and Mark Selective Fishery (MSF) proposals.

The planned Mass Marking for 2021 included:

- Coho proposals included a region-wide total of approximately 33.6 million MM fish, including production for Southern Resident Killer Whale (SRKW) prey. This is approximately equal to 2020.
- Chinook proposals included approximately 136 million MM fish. This is approximately 14 million more than 2020. This reflects substantial increases in Puget Sound, Washington Coast, and Columbia R. associated with increasing the prey base for SRKW.

Agency	Coho (in millions)		Chinook (in millions)	
	2020	2021	2020	2021
ADFG	-	-	-	1.0
CDFO	3.8	3.8	3.1	3.2
USFWS	1.9	2.0	22.2	26.1
WDFW/Tribes	24.1	22.4	77.1	80.7
ODFW/Tribes	4.7	5.3	19.6	24.9
Total	34.4	33.6	122.0	135.9

- Canada has proposed MM 3.2 million Chinook in WCVI rivers, building upon the 2019 pilot release of approximately 300,000 (releases in 2020 were largely unmarked due to COVID) . The purpose of the marking is for brood stock management in rivers where there is a focus on conserving natural production.
- Chinook and Coho DIT groups are limited to Puget Sound, the Washington Coast and the Columbia River. WDFW, USFWS and NWIFC are the only agencies still tagging DIT groups.

Planned MSFs for 2021 include 33 proposals for Coho fisheries and 43 for Chinook

- The number of Coho MSF proposals increased from 30 in 2020. Coho MSF proposals included 9 from CDFO, 5 from ODFW and 3 joint ODFW/WDFW proposals for Columbia River fisheries. Sixteen Coho MSF proposals were submitted by WDFW, three of which were new for sport fisheries in the Nisqually and Clearwater Rivers, and tributaries to the Columbia River from the mouth to McNary Dam.
- Chinook MSF proposals included 2 from CDFO, 29 from WDFW, 4 from ODFW and 5 joint ODFW/WDFW proposals for Columbia River fisheries. CDFOs 2 proposals include several small openings in mainland inlets and, portions of Georgia St. and Juan de Fuca St. Two new proposals were submitted by WDFW for the Okanagan-Similkameen Rivers and Icicle Creek. WDFW discontinued an MSF for the Cathlamet spring Chinook test fishery. Alaska did not submit any proposals for 2021.
- Canada is in the process of submitting a proposal for a recreational Chinook MSF from April to July in offshore areas of WCVI. This proposal will be reviewed by SFEC when received.
- An IDFG proposal received after the initial review will also be reviewed.

Agency	Coho		Chinook	
	2020	2021	2020	2021
ADFG	0	0	0	0
CDFO	9	9	2	3
WDFW	13	16	31	29
ODFW	5	5	4	4
WDFW/ODFW	3	3	5	5
IDFG	0	0	0	1
Lummi	0	0	0	1
Total	30	33	42	43

Potential issues for the Commissioners and obstacles for completing bilateral tasks:

- Post-season MSF fishery reporting.
- Complexity of MSF regulations.
- Lack of electronic CWT sampling in some areas (lack of sampling of unmarked fish).
- Inaccuracies in data, including reporting MSF recoveries and DIT release programs.
- Lack of DIT programs geographically representing the PST area.
- The adequacy of monitoring , enforcement, and reporting programs for MSFs.
- Expansion of Chinook MSFs.

Progress on 2020/21 Annual Work Plan

- The SFEC annual report *Review of Mass Marking and Mark-Selective Fishery Activities Proposed to Occur in 2020* is in final draft. We also anticipate the 2021 version to be submitted by spring.

- The SFEC held its annual meeting in November to review 2021 proposals and discuss how SFEC can best support CYER improvement and implementation as outlined in the CYER working group report.
- We have given a draft Coho DIT report to the Coho Technical Committee (CoTC) and presented findings at a joint meeting this week. We have scheduled a follow-up meeting with the Coho Work Group (CoWG) mid-summer. The Coho DIT report is in final review within SFEC and Coho TCs. Following review and revision, the report will be submitted for consideration by the PSC. Depending upon PSC acceptance, the report could be published as early as Spring 2021.
- We have discussed with the CoTC the estimation of unmarked mortalities specified in the SFEC MOU as an agency responsibility and intend to have further discussions with both the Coho and Chinook Technical Committees.



Report of the Standing Committee on Finance and Administration

February 10, 2021

The Standing Committee on Finance and Administration met by teleconference on March 26, May 20, June 16, July 2 and December 16, 2020, January 13, 2021, and February 10, 2021. The Committee addressed several issues and made recommendations for the Commission's consideration as noted below.

Budget proposal for FY 2021/2022

The Committee reviewed the proposed budget for FY 2021/2022 as presented on December 16, 2020 (Table I).

It was agreed that the proposed budget for FY 2021/2022 would incorporate the annual salary and benefits of the CTC Coordinator position. The Committee understood that funding applications totaling \$389K for FY 2021/2022 were submitted by the Secretariat to the Northern and Southern Endowment Funds for some of these costs (including \$104K to offset the salary and benefits cost of the CTC Coordinator). The potential grant revenue and related project expenses are not reflected in the proposed budget, as decisions on these grants will be known on or about February 24, 2021.

The Committee understood that should these grant applications not be successful, the Secretariat is projected to expend most of its carryover and end the year with a small cumulative surplus of \$197,511.

Accordingly, the Committee recommends that the Commission adopt the proposed budget for FY 2021/2022 as shown in Table I.

Secretariat staffing - workforce strategy

The Committee reviewed the document "Secretariat workforce planning" dated November 30, 2020 prepared by the Secretariat and presented at the December F&A meeting (attached). The document outlined the Secretariat's proposed workforce strategy, as summarized below:

- The workforce strategy is currently focused on the technical support that the Secretariat offers to the Parties through its Fisheries Management Division (FMD);
- The Secretariat identified three goals of the FMD to guide its workforce strategy:
 1. Make data and information accessible and publicly available;
 2. Provide technical support to the PSC community;
 3. Achieve the above without compromising the services provided to the Fraser River Panel (FRP);
- To achieve these goals, the Secretariat is proposing a number of actions:

1. The expansion of the current Fraser data management policy in collaboration with the Commission/Panels/ Technical Committees and the Secretariat's internal Data and Information Sharing Committee (DISCO), to facilitate the development of any desired non-Fraser databases and data apps;
2. Expanding Secretariat support to the Parties through the implementation of Chinook Technical Committee (CTC) and Fraser River Panel (FRP) databases, the hiring of a CTC Coordinator to provide direct support to the CTC, and extending Secretariat assessment work to Fraser River Chinook and Chum through the development of an integrated multi-species Fraser River stock assessment model;
3. Implementing task-oriented versus department/species-only oriented job descriptions, managing succession planning, ensuring adequate cross-training amongst technical staff, and improving recruitment and retention of staff by making the PSC more competitive in the talent-recruitment market (through augmented pay scales).

The Committee agreed to consider the Secretariat's workforce strategy proposal and tasked the Secretariat with drafting a compensation analysis across various organizations (in Canada and the U.S.A.) that compete with the PSC for talent, for additional context. It was agreed that the Secretariat will submit the compensation analysis document to the F&A Committee by the October 2021 meeting, for review.

Test Fishing

Test fishing finances

Test fishing finances remained a significant issue for the Parties, after record-low return of Fraser River sockeye and pink salmon in 2015, 2016, 2017, 2019, and 2020. The low returns have precluded the capture and sale of adequate fish to recover test fishing costs in those years, and the Parties have made supplementary financial contributions to the Test Fishing Revolving Fund (TFRF) to help defray the test fishing costs.

Through a combination of supplementary contributions from the Parties, and a financial surplus generated in 2018 (an Adams-dominant year) due to better-than-projected per pound fish prices, the TFRF balance is projected to be \$858K as of March 31, 2021, which would not be sufficient to cover the 2021 season test fishing program cost (even when taking into account projected sales of test fishery catch). The Committee recommends that the Parties consider supplementation of the TFRF ahead of the 2021 test fishing season.

Supplemental remuneration for idled test fishers

Ahead of the 2020 test fishing season, the Secretariat proposed the partial compensation of Fraser River sockeye and pink salmon test fishers in cases of delayed or cancelled test fisheries, unless such test fishers were (temporarily) released from their obligation to be on standby. Upon consultation with the Fraser River Panel, and in the interest of consistency across test fisheries, the Committee did not recommend the implementation of supplemental remuneration for idled test fishers. Instead, they authorized more flexibility for idled test fishers to pursue other business opportunities if their PSC start date is delayed unreasonably.

National dues and projected deficits

The Committee acknowledged that regular annual PSC dues have remained level since FY 2011/2012 at \$1,879,636 CAD per Party, and that the Secretariat has been able to operate at level dues for the past ten years due to: a) budget savings from poor fish returns and low sampling intensity, b) having certain large equipment purchases funded by the Southern Endowment Fund (prior to the creation of the Capital Asset Replacement Reserve Fund), and c) certain unforeseen events.

The Committee recognizes that without a significant increase in annual dues, the PSC is poised to exhaust most of its carryover by the end of FY 2021/2022 and enter a cumulative deficit position thereafter. Without adequate cash flow, the Secretariat would be unable to continue supporting the Parties at current levels of service.

The Committee acknowledged that the Parties preferred different approaches to address budget deficits. The U.S. approach is to secure a one-time large increase in dues that would be maintained over the next 9 years and offset its share of the large cumulative deficit projected by FY2030/31. Canada's approach is to adjust its annual contribution to offset its share of the projected deficit in that year. The Committee understood that the two approaches could be implemented simultaneously, subject to appropriate invoicing to the Parties, as recommended by the PSC auditors.

Administrative fees for Mark-Selective Fisheries Fund

Chapter 3, paragraph 4(g)(v) of the Pacific Salmon Treaty requires the U.S. to establish, subject to the availability of funds, a Mark Selective Fishery Fund (Fund) to address equipment, operations, and other implementation funding needs associated with mass marking and mark-selective fisheries (MSF). The Terms of Reference, dated October 22, 2020 and approved by the Commission via the CIG Report, describe the process the Parties will use to implement Chapter 3, paragraph 4(g)(v) including the solicitation, evaluation, and selection of projects. The Terms of Reference allow the PSC Secretariat to assess an administrative fee of "up to 10% of the expended value of the contracts administered."

For the purpose of maximizing the funds available for grants, while ensuring that the Secretariat is fairly compensated for administering the Fund, the Commission tasked the Committee with recommending an appropriate administrative fee.

The Committee recommends that the Secretariat assesses an administrative fee equal to 7% of the total Fund to be applied proportionally as funds are expended.

TABLE I

PACIFIC SALMON COMMISSION

FORECAST BUDGETS

	Forecast results 2020/2021	Proposed Budget 2021/2022	Forecast Budget 2022/2023	Forecast Budget 2023/2024
	(none)	(pink)	(Adams)	(pink)
1 INCOME				
A. Contribution from Canada	1,879,636	1,879,636	1,879,636	1,879,636
B. Special contribution pension CA	163,701	166,250	166,250	166,250
C. Contribution from U.S.A.	1,879,636	1,879,636	1,879,636	1,879,636
D. Special contribution pension U.S.A.	163,701	166,250	166,250	166,250
Sub total	4,086,674	4,091,772	4,091,772	4,091,772
E. Interest	22,000	20,000	20,000	20,000
F. Other income	231,500	180,000	180,000	180,000
G. Carry-over from previous fiscal year	777,106	1,078,389	197,511	(837,792)
H. Total Income	5,117,280	5,370,161	4,489,283	3,453,980
2 EXPENDITURES				
A. 1. Permanent Salaries and Benefits	2,789,686	3,265,098	3,320,472	3,393,409
2. Unfunded pension liability payments	327,402	332,500	332,500	332,500
3. Temporary Salaries and Benefits	179,702	218,592	233,673	234,337
4. Total Salaries and Benefits	3,296,790	3,816,190	3,886,644	3,960,246
B. Travel	8,288	124,020	157,158	164,249
C. Rents, Communications, Utilities	47,532	229,085	230,273	236,630
D. Contractual Services	405,011	728,545	785,578	689,760
E. Supplies and Materials	58,270	51,810	44,422	46,485
F. Equipment	223,000	223,000	223,000	223,000
G. Total Expenditures	4,038,891	5,172,650	5,327,075	5,320,371
3 BALANCE (DEFICIT)				
	1,078,389	197,511	(837,792)	(1,866,392)
Carry-over generated (expended) in the year	\$301,283	(\$880,878)	(\$1,035,303)	(\$1,028,599)



Secretariat workforce planning

Prepared by the Executive Secretary and PSC staff

November 30, 2020

Background

The amendments to Annex IV have changed workloads for panels, committees, and domestic management entities. These changes have prompted discussions about potentially expanding Secretariat services to support the Parties and the PSC family. These discussions have already yielded change, with the hiring of a database manager (Mark McMillan, 2018) and a CTC Coordinator (Jessica Gill, 1-year term, 2020) to facilitate implementation of Chapter 3.

Commissioners remain interested in this topic, and the Executive Secretary's 2019/2020 performance agreement included the following deliverable:

A workforce strategy, including succession planning, is undertaken for the Secretariat staff and Executive Secretary to support the Commission's work over the current agreement period and to position the organization over the long term.

This document responds to that directive and is intended to facilitate Commission discussion about the future of the Secretariat's workforce.

Focus of the strategy

The Secretariat currently has 29 employees, including a 1-year term pilot project (CTC Coordinator). Of those, 16 positions are assigned primarily to Fraser River sockeye/pink salmon assessment and support for the Fraser River Panel (FRP)/Technical Committee (FRTC). Another two staff divide their time between Fraser programs and other initiatives (CTC data management and endowment fund clerical support). These 18 staff comprise the Secretariat's Fisheries Management Division. The remaining personnel (including the Executive Secretary) comprise the Administrative Division responsible for supporting the broader PSC family and the restoration and enhancement funds. The attached organization chart illustrates staff distribution.

In recent years, the Commission has worked with the Secretariat to refine and improve administrative support for the PSC. This includes creation of an additional accounting position (to address growing financial workloads), expanded IT infrastructure (e.g., website redesign, SharePoint workspaces, GitLab, Shiny server), and support for online meetings (e.g., through software licenses). Input to date indicates the National Sections are satisfied with this evolution. Based on that input, and projected needs through the current Annex IV period, the Secretariat is currently positioned to support the Parties with general administrative services through 2028.

Therefore, this document focuses on evolving technical support possibly required by the Parties to implement the revised Annex IV. Discussions within and outside the Secretariat indicate the potential for improved support from the Fisheries Management Division to enhance scientific collaboration, centralize and secure data, and develop shared analytical tools.

Fisheries Management Division goals and staffing implications

The Secretariat has identified three goals for the Fisheries Management Division to guide its workforce strategy as discussed below:

1. Make data and information accessible and publicly available
2. Provide technical support to the PSC community
3. Achieve the above without compromising the services provided to the Fraser River Panel

1. Making data and information accessible and publicly available

The most important pathway to strengthen the science and policy nexus is to make data accessible and available (FAO 2020¹). Regional Fishery Management Organizations (RFMOs) like the PSC can facilitate this by curating and distributing data and information across member countries, and Secretariats can play a significant role in this regard.

In the PSC, data used by various panels/committees can suffer from inadequate version control, lack of centralized access, and/or ad hoc security. This has been evident within the Secretariat's Fraser River records and elsewhere. Therefore, in recent years the Secretariat has amplified its data management processes in a number of ways. This includes development of an internal data management policy, cross-training staff in data stewardship, and a three-year term position (2015-2018) for an expert to build a suite of relational databases.

Moving forward, curation of Fraser sockeye and pink salmon data will be supported by the Database Administrator (Mark McMillan, CS3²) and a number of biologists whose job descriptions now incorporate certain data management duties. These include the Quantitative Biologist (Eric Taylor, BI3) and the Fisheries Biologist (Rachael Hornsby, BI2). The Quantitative Biologist, supported by the IT manager, will be leading staff in making our data available on our website (e.g., through R Shiny apps). The September 2020 vacancy for the Director of Stock Monitoring (Erica Jenkins, BI4) would allow the Commission to reconfigure the position (eventually) to further increase capacity for data management within and beyond the Fraser process (see "Succession planning and cross-training" below).

The work of these staff members, and the Secretariat's overall approach, will be guided through a) the expansion of our data management policy document in collaboration with the relevant PSC Technical Committees; and b) the Secretariat's Data and Information Sharing Committee (DISCO). The policy document will define pathways to making data available through the appropriate platforms (e.g., website and/or SharePoint portals) and to ensure this is fully supported by the relevant Technical Committees. Initial discussions with the FRTC and FRP have taken place in April and June 2020. DISCO will provide

¹ FAO. 2020. *Proceedings of the International Symposium on Fisheries Sustainability: strengthening the science-policy nexus*. FAO Headquarters, 18–21 November 2019. FAO Fisheries and Aquaculture Proceedings No. 65. Rome.

² Staff classifications (e.g., CS3) refer to the Canadian public service system, used as a guide for PSC positions.

oversight and set priorities for the development of databases and data apps, with expected monthly meetings outside of the Fraser management season.

2. Provide Technical Support to the PSC community

The Fisheries Management Division's formal support to the PSC community, besides the Fraser Panel and Technical Committee, is currently limited to the CTC via the Database Administrator and the CTC Coordinator. The PSC "After Dark" series of informal events at annual meetings has yielded collaboration and information sharing between technical committee members as well. However, the Secretariat has identified areas for expanded support that would not impede support provided to the FRP and FRTC.

Data management: Making key data accessible and secure, plus the development of common analytical tools/apps, are areas where Fisheries Management Division staff could provide support to other technical committees. Over the next year, the Quantitative Biologist will work to make data from the FRP annual report available through an app on the PSC website as agreed with the FRTC. This could provide a blueprint for making data from other technical committees and panels available through appropriate platforms (e.g., cloud-based servers, SharePoint libraries, etc.) whether publicly or internally for given committees/panels.

Following successful implementation of the CTC and FRP databases over the next year (and associated workload reduction), database support can be extended to other technical committees by the Database Administrator. The Secretariat staff could also create common analytical or administrative tools for other technical committees/panels as the need arises such as R-markdown templates.

CTC coordination: The CTC Coordinator (Jessica Gill, BI2) is a one-year term position. Thus far she has provided virtual meeting support, automated the creation of report figures, and advised on the risk assessment methodology for mark-selective fisheries assessments. However, COVID-19 has eliminated much of her ability to interact with the CTC and test her support for their in-person meetings during this trial year. Thus, Secretariat staff have applied for endowment fund money to secure funding for a second pilot year in 2021 (as suggested by the F&A Committee vice-chair).

Other: The Committee on Scientific Cooperation (CSC) and its Commissioner steering committee are discussing a possible coast-wide multispecies forum on salmon productivity, management, and environmental change. Depending on the tasks envisioned, this could require obtaining, organizing, and disseminating multispecies data and information to the appropriate PSC audience. Secretariat staff could assist with such tasks with the support of a Database Manager as noted below (see "succession planning and cross-training" below).

Another area that falls in line with the work of the FRP, supports a recommendation of the Fraser Strategic Review Committee (FSRC), and allows extending our assessments to Fraser River Chinook (and potentially Chum) would be to develop an integrated multi-species Fraser River stock assessment model. The development of such a model is within the job description of the Quantitative Biologist, and plans are underway to engage with other technical committees to ensure their buy-in and potential adoption when completed. If successful, this model could replace current single-species models used to provide management advice and would broaden Secretariat involvement with other technical committees.

3. Achieve the above without compromising the services provided to the Fraser River Panel

When relying solely on current biological staff at the Secretariat, support to the other technical committees will need to increase slowly and incrementally in order not to compromise the traditional services rendered to the FRP and FRTC (see 3rd goal). However, over the last few years, a substantial number of PSC staff have retired and generated turnover. Currently, 40% of the Fisheries Management Division staff dedicated to Fraser River assessments have been in their current position less than one year. When expanding the work of PSC biologists to support other technical committees and to make data available and accessible, it is important that this does not happen at the expense of the Fraser River Panel. This is true especially during high abundance years like 2022 when assessment and management challenges will be more pronounced. This concern guides the “succession planning and cross-training” section below.

The work we do for the FRP and FRTC will help demonstrate and guide Secretariat staff capabilities to better support other technical committees and panels over time.

Task-oriented versus department- and species-oriented job descriptions

In the past, jobs were defined based on the departments to which staff belonged. For example, a biologist from the hydroacoustics department would be solely focused on hydroacoustics tasks. This type of organizational structure discourages collaboration across departments. The recent jobs within the Fisheries Management Division are task-based with tasks bridging various departments. A clear example is the recent backfill of the hydroacoustics manager. Backfilling the position as is would not allow for succession planning of the Hydroacoustics Scientist (Yunbo Xie). Instead, the position has been broken into two different types of tasks: in-season tasks associated with the management of the hydroacoustics operations at Mission and post-season hydroacoustics tasks associated with the development of multispecies models and statistical methods for abundance estimation. The usual in-season tasks have been added to the job description of the new hire (Rachael Hornsby, BI2), who (post-season) supports the stock-assessment and data management group with data preparation and with statistical analysis. The post-season tasks have been assigned to Quantitative Biologist (Eric Taylor, BI3).

Task-oriented positions offer much more flexibility compared to department-based positions. Following the annual performance reviews, job descriptions are adjusted to ensure that the tasks are still relevant and minor adjustments can be made annually to realign jobs. Over time, this might for example allow further incorporation of tasks in support of other technical committees or panels but could equally mean that job adjustments could be reversed if needed. By sharing staff across groups within the Fisheries Management Division, it is also possible to better utilize staff at their designated classification.

Succession planning and cross-training

Ongoing conversations with Commissioners, Panels, Technical Committees, and Secretariat staff will match the needs of the Parties with the capabilities of the staff over the coming years. This document is intended to advance those conversations in general. The departure of the Director of Stock Monitoring (September 2020) offers an opportunity to reassess how the needs of the Fraser Panel can be met while increasing support to other Technical Committees and Panels.

In the case of the Director of Stock Monitoring (Erica Jenkins, BI4³), this position could (in the long term) reconfigure as a Database Manager (CS2⁴). Such a position would be junior to the current Database Administrator (Mark McMillan, CS3) and assist with lower level tasks to dramatically increase Secretariat efficiency and capacity in data management for the PSC. If such a reconfiguration happened, the current stock assessment tasks associated with Jenkins' position could be permanently distributed to other staff.

The Secretariat believes this is the best long-term use of the Director of Stock Monitoring position and looks forward to discussing this idea with the Commission. However, given our relatively new biological staff and the looming demands of the Fraser River sockeye season in 2022 (the next dominant return year for the Fraser), it will be important to still provide additional Fraser sockeye support in the short term. This will be accomplished by a) redistributing Jenkins' former duties to existing staff as appropriate; and b) hiring a junior biologist (BI2 vs. BI4⁵) for a two-year term ending in late 2022 to address "spun off" tasks as existing staff absorb Jenkins' duties. This approach:

- allows the Secretariat to address the full Fraser assessment workload while current staff get more "seasoned" in their duties through the next Adams return year.
- allows us to support the Fraser River Panel while exploring (in conjunction with National Sections) further support for other Technical Committees and Panels.

The Hydroacoustics Scientist (Yunbo Xie, RES3) also requires succession planning. Currently, Dr. Xie brings an in-depth history and knowledge to the hydroacoustics program. This is key as the Secretariat strives to address the data analyses arising from the FSRC review and the Mission memorandum of understanding between DFO, PSC and Sumas First Nation. However, after his retirement (TBD), the Secretariat does not recommend backfilling the position with identical duties. Instead, various aspects of this job could be passed on to other positions. This has already been accounted for in the job description of the new Quantitative Biologist (Eric Taylor, BI3). Under the direction of the Hydroacoustics Scientist and through the use of statistical programs such as R, the Quantitative Biologist will further develop and maintain statistical approaches for our hydroacoustics data. In addition, this Biologist is also expected to advance our Fraser multispecies assessment approach (as recommended by the FSRC).

Once the Hydroacoustics Scientist retires, this position could be used to further extend support to other technical committees and panels as deemed necessary by the Commission and the Secretariat.

Recruitment and retention

The PSC uses its host government's federal pay scales as a guide for classifying and compensating staff, although the staff are considered international (not Canadian) civil servants. This is normal practice for the seven international fisheries organizations headquartered in North America, since it offers a convenient system for base pay scales and job classifications.

However, it is recognized that the small size of these organizations limits career mobility (upward and lateral) compared to federal agencies. The organizations' non-salary benefits (e.g. group health plans,

³ BI4 salary range currently \$100-120K CAD annually

⁴ CS2 salary range currently \$70-88K CAD annually

⁵ Salary savings in BI2 vs. BI4 = c. \$32K annually at highest step

training) are also more limited than what the federal system can provide with its greater purchasing power. Such discrepancies can handicap efforts to recruit and retain qualified staff, who are often comparing career opportunities in the public sector and organizations like the PSC.

For example, while many early PSC staff served for decades, recent events indicate our attractiveness as an employer is waning. In the last twelve months, the Secretariat has lost three young scientific staff to jobs in provincial and federal Canadian agencies. Those staff noted a desire for greater job mobility or the high cost of Vancouver living⁶ when resigning. Likewise, it is rare to find qualified applicants who are not already established residents of Metro Vancouver or southern B.C. for PSC vacancies.

The PSC is an international organization that will benefit from a diverse staff with a variety of educational, cultural, and work experiences. To recruit and then retain the caliber of PSC staff the Parties expect, the Secretariat sees a need for greater incentives like internationally competitive pay scales. Such a change is allowed by the PSC bylaws which state “*notwithstanding that the Public Service of Canada serves as a guide, the Commission may adjust salary scales.*”⁷ It is thus clear the Parties left this option open for consideration when circumstances dictate.

In fact, Canada and the United States have agreed to do this for many years in their two other bilateral fishery commissions (International Pacific Halibut Commission/IPHC; Great Lakes Fishery Commission/GLFC). Each organization has added steps beyond the top pay rate in U.S. federal job classifications. In the case of GLFC, staff who have “topped out” in the base scale are eligible for these extra steps every three years contingent on performance, and the steps continue until retirement or resignation. In the case of IPHC, the Parties have agreed to add three pay steps to each grade (contingent upon performance) for staff who have topped out. It’s also notable that the multilateral commissions in San Diego (IATTC) and Halifax (NAFO), where Canada and the United States are also Parties, have augmented their Secretariat pay scales. All of these Secretariats are in cities with costs of living lower than Vancouver⁸.

The Secretariat therefore recommends adopting augmented pay scales for all permanent/indeterminate staff of the PSC, in line with the two other bilateral commissions in North America. Specifically, such a system would a) retain the use of the Canadian public service pay scales for initial compensation; and b) add three merit-based steps beyond the last step in each pay grade. The steps would increase by the average percentage jump between steps in the original pay grade. The cost of such augmentation is estimated to be \$65,000 for the current fiscal year. This assumes no retroactive pay for those eligible in past years.

Next steps: The Secretariat recommends initiating discussions of this strategy within the F&A Committee in December 2020 and expanding consultations with the Parties as they deem appropriate.

⁶ For example, Vancouver exhibited the world’s least affordable housing market, after Hong Kong, as of late 2018. <https://www.bnnbloomberg.ca/hong-kong-housing-ranked-world-s-least-affordable-for-9th-year-1.1201263>

⁷ PSC bylaws, Chapter X, Rule 22

⁸ <https://www.numbeo.com/cost-of-living/>

Pacific Salmon Commission Secretariat Staff

