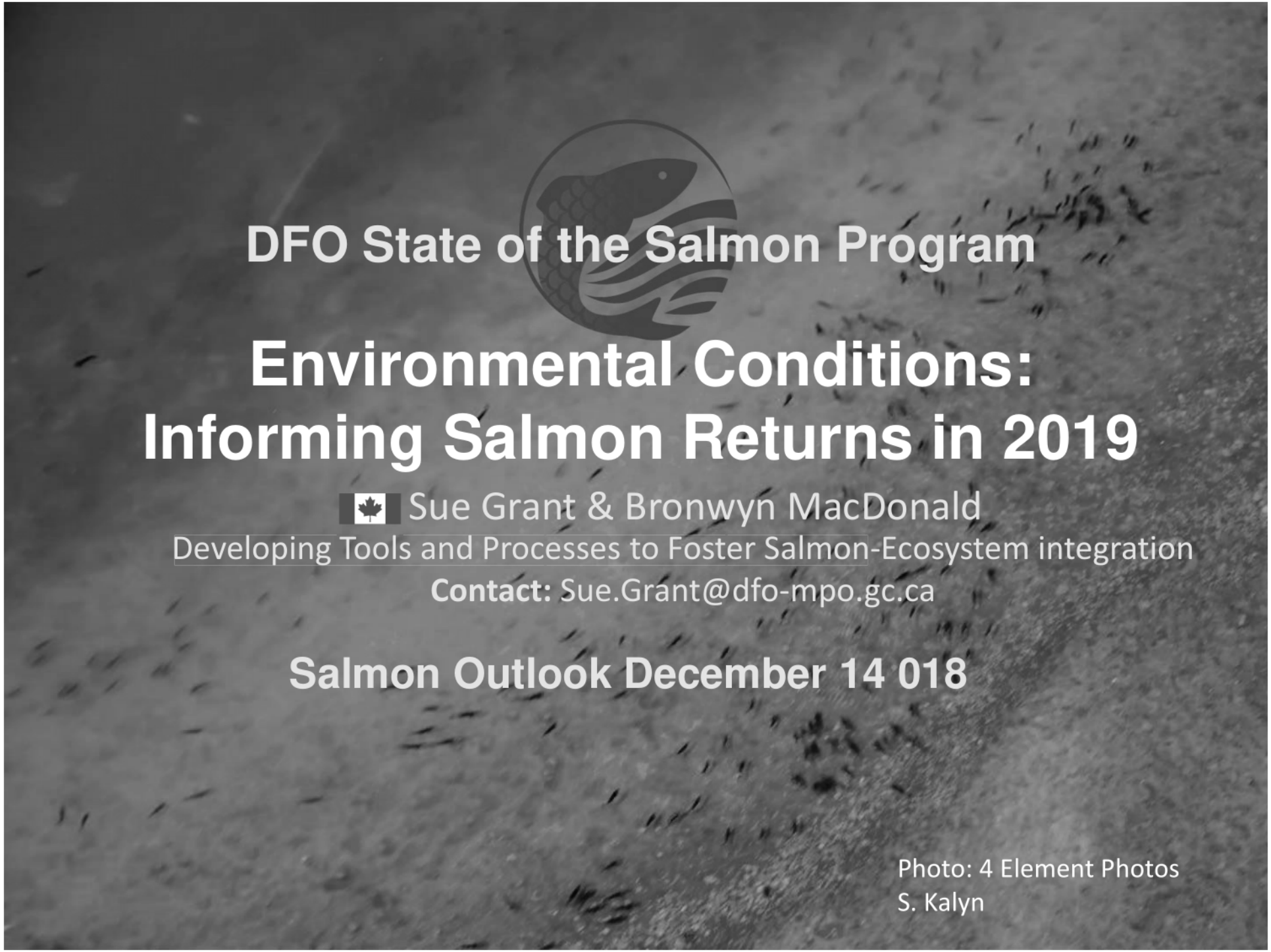

DFO State of the Salmon Program

Environmental Conditions: Informing Salmon Returns in 2019

Sue Grant & Bronwyn MacDonald
Developing Tools and Processes to Foster Salmon-Ecosystem integration
Contact: Sue.Grant@dfo-mpo.gc.ca

Salmon Outlook December 14 018

Photo: 4 Element Photos
S. Kalyn

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DFO State of Salmon Contributors

DFO Marine
J. King
C. Neville
I. Perry
J. Boldt
P. Chandler
T. Ross

DFO Freshwater
D. Patterson
D. Selbie
L. Pon
M. Bradford

DFO Salmon
C. Holt
K. Hyatt
J. Irvine
M. Thiess
D. Dobson
G. Brown
J. Sawada

Carrier Sekani Tribal Council
Tl'azt'en Nation
Upper Fraser Fisheries Conservation Alliance
Tsilhqot'in National Government
N'Quatqua Fisheries
Lil'wat First Nations
Little Shuswap Indian Band
Shuswap Nation Tribal Council / Secwepemc Fisheries Commission
AND MANY MORE…WE ARE JUST STARTING SO DO NOT HAVE THE COMPLETE LIST OF First Nations and other groups that are contributing….
…

Instream Fisheries Research Inc.
DFO, Salmonid Enhancement Program

DFO Fraser Area
T. Whitehouse
K. Benner
R. Bailey
C. Parken
J. Tadey

DFO North Coast
S. Cox-Rogers
C. Carr-Harris
I. Winther

DFO South Coast
W. Luedke
P. Van Will

DFO Yukon Transboundary
N. Millar
A. Foos
J. Harding

Photo: 4 Element Photos
S. Kalyn

WILD SALMON POLICY IMPLEMENTATION PLAN
Key Partner Session

SESSION SUMMARY

November 14, 2018
Pan Pacific Hotel | 300-999 Canada Place | Oceanview Suite 7 & 8
Vancouver, BC

AFT

Welcome/Introductions/Review Agenda

Sarah Murdoch, Regional Director, Policy and Economic Analysis, Pacific Region, Department of Fisheries and Oceans Canada (DFO), welcomed participants to the Session at 1:15 p.m. and acknowledged it was being held on the traditional lands of the Tsleil-Waututh, Musqueam, and Squamish First Nations.

David Marshall, Executive Director, Fraser Basin Council (FBC), Facilitator, acknowledged those in attendance, and also Michael Turner and Larry Nielson present via teleconference. He provided an overview of the Session agenda, and the objectives to evaluate and reflect on the Wild Salmon Policy Implementation Plan Key Partner process and final document.

WSP Implementation Plan Development – Process Evaluation

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The Session concluded at 2:48 p.m.

DRAFT

Reference Material

The following materials were provided for reference at the Session:

- Draft Agenda for the Wild Salmon Policy Implementation Roundtable Meeting
- Wild Salmon Policy | Fisheries and Oceans Canada | Pacific Region – 2018-2022 Implementation Plan
- Chart titled "Expected Roundtable Participants"
- Wild Salmon Policy | Fisheries and Oceans Canada | Pacific Region – 2018-2022 Implementation Plan – The Goal of Canada's Wild Salmon Policy (WSP)
- Presentation titled "The Road Ahead – Moving Forward with WSP Implementation" dated November 14, 2018
- What We Heard: Report on Consultation and Response from the Fall 2017 Draft Initial Wild Salmon Policy Implementation Plan Meetings.

Participants

Angela Addison, Fisheries Program Director, North Coast Skeena, First Nations Stewardship Society, First Nations Fisheries Council Salmon Coordinating Committee (FNFC SCC) Skeena (North Coast and Upper Skeena)
Mark Cleveland, First Nations Fisheries Council Salmon Coordinating Committee (FNFC SCC) – Skeena (North Coast and Upper Skeena), Gitanyow Hereditary Chiefs/Gitanyow Fisheries Authority
Katrina Connors, Director, Salmon Watersheds Program, Pacific Salmon Foundation (PSF)
Amy Coutts, Policy Analyst, Policy and Economic Analysis, Pacific Region, Department of Fisheries and Oceans Canada (DFO)
Jason Jim, Vice-Chair, Yukon Salmon Sub-Committee
Gerry Kristianson, Board Director, Sport Fishing Institute of BC, Sport Fisheries Advisory Board (SFAB)
Julia MacKenzie, Manager, Policy and Planning, Policy and Economics Branch, Pacific Region, DFO
Ken Malloway, First Nations Fisheries Council (FNFC)
Pat Matthew, FNFC SCC – Fraser (Lower, Mid, Upper)
Sarah Murdoch, Regional Director, Policy and Economic Analysis, Pacific Region, DFO
Murray Ned, FNFC SCC – Fraser (Lower, Mid, Upper)
Larry Neilson, Senior Manager, Intergovernmental Relations, Fisheries and Aquaculture, Ministry of Agriculture (via teleconference)
Andy Olson, FNFC SCC – Vancouver Island (WCVI and ECVI)
Dr. Brian Riddell, Chief Executive Officer, Pacific Salmon Foundation (PSF)
Angela Stadel, Manager, Consultation Secretariat, Policy Branch, Pacific Region, DFO
Michael Turner, Senior Policy Analyst, Ministry of Agriculture (via teleconference)
Andy Witt, Manager, Fish and Aquatic Habitat Branch, Resource Stewardship Division, Deputy Minister's Office, Minister of Forests, Lands, Natural Resources Operations and Rural Development
Janson Wong, Operations Manager, FNFC SCC

Facilitator: David Marshall, Executive Director, Fraser Basin Council (FBC) Facilitator
Recording Secretary: Rae Ratslef, Raincoast Ventures Ltd.

DRAFT

WILD SALMON POLICY IMPLEMENTATION PLAN
Minister Roundtable Meeting

MEETING SUMMARY

November 14, 2018
Pan Pacific Hotel | 300-999 Canada Place | Oceanview Suite 7 & 8
Vancouver, BC

Opening/Introductions

David Marshall, Executive Director, Fraser Basin Council (FBC), Facilitator, welcomed participants to the Meeting at 3:02 p.m. The traditional territory on which the meeting was being held was recognized, and the effort and involvement that has gone into developing the *Wild Salmon Policy 2018-2022 Implementation Plan* was acknowledged. The agenda noted the objectives of the meeting to identify partner perspectives, priorities and opportunities for collaboration with respect to protecting and rebuilding wild salmon.

WSP 2018-2022 Implementation Plan

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Reference Material

The following materials were provided for reference at the Meeting:

- Draft Agenda for the Wild Salmon Policy Implementation Roundtable Meeting
- Wild Salmon Policy | Fisheries and Oceans Canada | Pacific Region – 2018-2022 Implementation Plan
- Chart titled "Expected Roundtable Participants"
- Wild Salmon Policy | Fisheries and Oceans Canada | Pacific Region – 2018-2022 Implementation Plan – The Goal of Canada's Wild Salmon Policy (WSP)

- Presentation titled "The Road Ahead – Moving Forward with WSP Implementation" dated November 14, 2018
- What We Heard: Report on Consultation and Response from the Fall 2017 Draft Initial Wild Salmon Policy Implementation Plan Meetings.

Participants

Angela Addison, Fisheries Program Director, North Coast Skeena, First Nations Stewardship Society, First Nations Fisheries Council Salmon Coordinating Committee (FNFC SCC) Skeena (North Coast and Upper Skeena)
Hugh Braker, First Nations Fisheries Council (FNFC)
Mark Cleveland, FNFC SCC – Skeena (North Coast and Upper Skeena), Gitanyow Hereditary Chiefs/Gitanyow Fisheries Authority
Katrina Connors, Director, Salmon Watersheds Program, Pacific Salmon Foundation (PSF)
Amy Coutts, Policy Analyst, Policy and Economic Analysis, Pacific Region, Department of Fisheries and Oceans Canada (DFO)
Larry Greba, Coastal First Nations
Jason Jim, Vice-Chair, Yukon Salmon Sub-Committee
Brenda Kuecks, Coastal First Nations
Eric Kristianson, Assistant Deputy Minister, Strategic Issues, Premier's Office
Gerry Kristianson, Board Director, Sport Fishing Institute of BC, Sport Fisheries Advisory Board (SFAB)
Julia MacKenzie, Manager, Policy and Planning, Policy and Economics Branch, Pacific Region, DFO
James Mack, Provide of BC, Agriculture
Ken Malloway, First Nations Fisheries Council (FNFC)
Pat Matthew, FNFC SCC – Fraser (Lower, Mid, Upper)
Rob Morley, Fisheries Council of Canada, West Coast Representative – BC Seafood Alliance
ZoAnn Morton, Executive Director, Pacific Streamkeepers Federation
Sarah Murdoch, Regional Director, Policy and Economic Analysis, Pacific Region, Department of Fisheries and Oceans Canada (DFO)
Murray Ned, FNFC SCC – Fraser (Lower, Mid, Upper) – Lower Fraser Fisheries Alliance
Andy Olson, FNFC SCC – Vancouver Island (WCVI and ECVI)
Bob Purdy, Fraser Basin Council (FBC)
Rebecca Reid, Regional Director General, Pacific Region, Department of Fisheries and Oceans Canada
Dr. Brian Riddell, Chief Executive Officer, Pacific Salmon Foundation (PSF)
Angela Stadel, Manager, Consultation Secretariat, Policy Branch, Pacific Region, DFO
Andrew Thomson, Regional Director, Fisheries Management, Pacific Region, Department of Fisheries and Oceans Canada
Cheryl Webb, Regional Director, Ecosystems Management Branch, Pacific Region, Department of Fisheries and Oceans Canada
The Honourable Jonathan Wilkinson, Minister of Fisheries, Oceans and the Canadian Coast Guard
Andy Witt, Manager, Fish and Aquatic Habitat Branch, Resource Stewardship Division, Deputy Minister's Office, Minister of Forests, Lands, Natural Resources Operations and Rural Development
Janson Wong, Operations Manager, FNFC SCC

Facilitator: David Marshall, Executive Director, Fraser Basin Council (FBC) Facilitator
Recording Secretary: Rae Ratslef, Raincoast Ventures Ltd.

DRAFT

Fisheries and Oceans Canada | Pêches et Océans Canada

WILD SALMON POLICY IMPLEMENTATION PLAN
Minister Roundtable Meeting

APPENDIX 1

November 14, 2018
Pan Pacific Hotel | 300-999 Canada Place | Oceanview Suite 7 & 8
Vancouver, BC

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From:	Davis, Jennifer C FLNR:EX
To:	McGuire, Jennifer ENV:EX; Rasmussen, Paul FLNR:EX; Ethier, Tom FLNR:EX; Mack, James AGRI:EX
Cc:	Kerr-Upal, Manjit ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Neilson, Larry AGRI:EX; Witt, Andy FLNR:EX; Ramsay, Mike K FLNR:EX; Trotter, Ward FLNR:EX
Subject:	ADM Meeting Follow up - Quick summary of Interior Fraser Steelhead, Concerns with DFO"s Science Summary
Date:	Thursday, December 13, 2018 13:26:15
Attachments:	Steelhead breifing note RESEARCH v2.docx

Jennifer, thank you for organizing the call yesterday afternoon.

The actions were:

1. Provide a short update on the issue. We used a BN format (It isn't CLIFFED etc)
2. Tom's office to arrange a call with RDG Reid.

Please let any of us cc'd know if you would like other details/background.

Jennifer.

JENNIFER DAVIS

Fish and Aquatic Habitat Branch, Resource Stewardship Division

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

4th Floor, 2975 Jutland Road, Victoria, BC

Tel: 778-974-2336

e-mail: Jennifer.C.Davis@gov.bc.ca

From: Turner, Michael R AGRI:EX
To: Hrycuik, Lorie AGRI:EX; Travia, David V AGRI:EX
Cc: Neilson, Larry AGRI:EX; Romanin, Kevin AGRI:EX
Subject: s.12;s.
Date: Tuesday, December 18, 2018 11:02:23
Attachments: s.12;s.13

Hi All,

s.12;s.13

Also in thinking about moving forward, here is a short timeline based on yesterday's discussions:

s.12;s.13

- Mid Jan – BC/DFO meetings with stakeholders
- Mid Feb – BC Budget approval
- Mid Feb-March 31– Ministers sign Agreement

s.12;s.13

- April 1- May – Proposals developed and reviewed
- June – projects approved, money flows out
- July – November – Feds go dark for election.

Also, thinking about stakeholders we need to meet with informally, I've come up with a quick list:

- Commercial: BCSA, CFC
- Recreational: SFI, SFAB
- Aquaculture: BCSFA, BCSGA
- ENGOs: PSF, Suzuki, Wild Salmon Forever
- First Nations: CFN, CHN, FNFC

Thanks,
Mike

Mike Turner | Senior Fisheries and Seafood Policy Analyst | Corporate Governance, Policy & Legislation Branch
Agriculture Science & Policy Division | Ministry of Agriculture
Office: 778-698-3129 | Mobile: 250-886-6318 | Email: Michael.R.Turner@gov.bc.ca

From: Davis, Jennifer C FLNR:EX
To: "Kenyon, Robyn"; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; Lowe, Carmel
Cc: Turner, Michael R AGRI:EX; Grout, Jeff; Candy, John; Kennedy, Eddy; Shepherd, Pippa
Subject: Circling Back -- Follow-up to our teleconference on Steelhead SAR
Date: Friday, December 14, 2018 14:58:54

Re: Use of Science Wording in SAR.

Good afternoon to the BC-DFO Executive team,

First, I want to thank everyone for participating in a difficult discussion on Monday, and for all the additional information.

I would like to correct the reference provided by DFO to Trevor's work being the reason for changing some of the summary bullets. All the BC experts worked within the process, contributed during the peer review process, and felt their input was considered by the lead authors when finalizing the document.

Our request remains the same: Please remove the current SAR document from the public website and replace the wording with the summary bullets as per the report completed by the three lead science authors. However, we have heard clearly that DFO is not amenable to this request.

As I relayed on our call, executive-level discussions continue to be underway regarding how BC wants to proceed on the science issue.

Moving forward, I understand the teams are working well together on the CBA. Thank you for accommodating our need for more than 1 work-week to review and provide meaningful content. For those of you heading off for a well-deserved break, on behalf of the BC team, we wish you very **Happy Holidays**.

Sincerely,

Jennifer.

JENNIFER DAVIS
Fish and Aquatic Habitat Branch, Resource Stewardship Division

Ministry of Forests, Lands, Natural Resource Operations and Rural Development
4th Floor, 2975 Jutland Road, Victoria, BC
Tel: 778-974-2336
e-mail: Jennifer.C.Davis@gov.bc.ca

From: Lowe, Carmel [mailto:Carmel.Lowe@dfo-mpo.gc.ca]
Sent: Thursday, December 13, 2018 9:59 AM
To: Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; michael.Turner@gov.bc.ca
Cc: Grout, Jeff; Candy, John; Kennedy, Eddy; Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Maxwell, Marla; MacDougall, Lesley
Subject: RE: Follow-up to our teleconference on Steelhead SAR

Hello Jennifer and fellow provincial colleagues,

As a follow-up to my email below, I also wanted to let you know that Proceedings of CSAS peer-review meetings document all points of consensus and dissent. We will share a draft of the Proceedings report for the Steelhead RPA with participants to ensure we have appropriately captured these points. As an alternate, we are open to the Province preparing a dissenting opinion addition to the Proceedings document to acknowledge that the final SAR bullets do not correspond with your preferred language and are a deviation from your understanding of the intended message. Please let me know your preference and we will proceed accordingly.

Carmel

Carmel Lowe, Ph.D.
Regional Director Science | Directrice régionale des sciences
Fisheries and Oceans Canada | Pêches et Océans Canada
Pacific Biological Station | Station biologique du Pacifique
3190 Hammond Bay Rd, Nanaimo, BC, Canada V9T 6N7
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Telephone | Téléphone 250-756-7177
Facsimile | Télécopieur 250-729-8360
Government of Canada | Gouvernement du Canada

From: Lowe, Carmel
Sent: December 10, 2018 5:11 PM
To: 'jennifer.c.davis@gov.bc.ca' ; 'manjit.Kerr-Upal@gov.bc.ca' ; 'Ted.Zimmerman@gov.bc.ca' ; 'david.travia@gov.bc.ca' ; 'andy.Witt@gov.bc.ca' ; 'Larry.Neilson@gov.bc.ca' ; 'michael.Turner@gov.bc.ca'
Cc: Grout, Jeff ; Candy, John ; Kennedy, Eddy ; Kenyon, Robyn ; Nener, Jennifer ; Webb, Cheryl ; Leslie, Karen ; Maxwell, Marla ; MacDougall, Lesley
Subject: Follow-up to our teleconference on Steelhead SAR

Hello Jennifer and fellow BC colleagues,

Following up on our conversation this morning I wanted to provide you with two pieces of information related to concerns you raised. The first relates to the general process for development of a CSAS Science Advisory Report (SAR), and the second describes the rationale for the changes to the wording of the two summary bullets that you identified as of highest concern for the province.

1. The general process regarding the development of a CSAS SAR:
   - A draft SAR, developed based on the discussion throughout the peer review, is provided to participants for *initial* review and discussion at the peer review meeting.
   - Summary bullets, which reflect the key issues, results, uncertainties, conclusions, and recommendations, are drafted during the peer review. Participants are reminded that they will not be wordsmithing during the meeting, but that the goal is to come to consensus on the general INTENT of a bullet.
   - The draft SAR, with the draft bullets, are then circulated to ALL participants of the peer review for a more fulsome review of the draft and opportunity to provide edits.

- The Chair then receives all written edits from the circulated SAR, and incorporates submitted edits to finalize the SAR. Invariably, this WILL RESULT IN changes to the bullets (and other parts of the SAR) that were reviewed during the meeting.
- The Chair, submits the SAR to the CSAS coordinator (who also attended the meeting) to begin the approval process. There are specific criteria a SAR is expected to meet consequently the CSAS coordinator may also request changes (e.g. for readability, brevity, language that is consistent with the intent of the SAR, ensuring that recommendations do not fetter the Minister`s authority, etc.)
- The SAR is then reviewed by senior management in Science and further changes may be requested to ensure quality of the document.
    - DFO`s publication policy: At no time will the inclusion of sensitive material (e.g. data, scientific conclusions) prevent publication of scientific papers.
- The approved SAR is then translated into both official languages, and submitted to the National CSAS office for publication, and public posting on the website.

For the Steelhead RPA this general process was followed and a draft SAR was developed and shared at the peer review meeting, then distributed via email to participants for review, and based on the feedback received it was finalized.

2. For the two bullets/issues of concern:

	Wording - Initial draft	Wording - Approved version	Rationale for wording change
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. **If productivities improve slightly to the recent 5 or 10 year levels,** simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates.	"IF PRODUCTIVITIES IMPROVE SLIGHTLY" – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvements (e.g. doubling). See notes below.
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.	IF PRODUCTIVITIES IMPROVE SLIGHTLY – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvement s(e.g. doubling). See notes below.
#2	Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.	The new language was deemed to be stronger – as 'lowest possible harm' could be interpreted as a level higher than current harm.

Note: changes to #1 were based, in part, on input provided by Trevor Davies (BC) who pointed to the need to clarify the ambiguity associated with 'present' productivity and 'improved slightly'.

Based on his input, a third productivity scenario, which assumes that productivity remains at the last data year's level, was simulated for trajectories of future escapement. In both Chilcotin and Thompson this productivity scenario is less optimistic than the 5 and 10 year averages. Additionally, given that Thompson continues to decline even the terminal year productivity trajectory likely overestimates future productivity

given the trend. In the summary bullets, clarification is provided regarding the selection of simulation parameters: and the expected consequences for trajectories.

It was clarified that for the Thompson DU, recovery is not expected at current productivity, regardless of exploitation rate. Elimination of exploitation rate alone will not result in population recovery. This stems from a discussion during the peer review meeting, brought up by Trevor Davies (BC) that what the authors were referring to as 'current level of productivity' was actually an average of the previous 5 years and was by consequence already a higher productivity than terminal year.

Regards

Carmel

Carmel Lowe, Ph.D.
Regional Director Science | Directrice régionale des sciences
Fisheries and Oceans Canada | Pêches et Océans Canada
Pacific Biological Station | Station biologique du Pacifique
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Government of Canada | Gouvernement du Canada

Fisheries and Oceans Canada
Pêches et Océans Canada

Deputy Minister
Sous-ministre

DEC 0 7 2018

Mr. Mark Zacharias
Deputy Minister of Environment
Ministry of Environment and Climate Change Strategy
PO Box 9339 Stn Prov Govt
Victoria, BC
V8W 9M1

Ms. Bobbi Plecas
Deputy Minister of Climate Change
Ministry of Environment and Climate Change Strategy
PO Box 9339 Stn Prov Govt
Victoria, BC
V8W 9M1

Dear Mr. Zacharias and Ms. Plecas:

I am writing to you to seek the position of your government with respect to potentially listing two aquatic species on Schedule I of the *Species at Risk Act* (SARA).

These species were assessed on an emergency basis by the Committee on the Status of Endangered Wildlife in Canada and found to be at risk:

- Steelhead Trout (Thompson River) as endangered (2018); and
- Steelhead Trout (Chilcotin River) as endangered (2018).

Following an emergency assessment, the Minister of Environment and Climate Change must form an opinion on whether imminent threat to survival exists. If the Minister is of the opinion there is an imminent threat to one or both populations of Steelhead Trout, she must recommend to Governor in Council (GiC) that the population(s) be listed on an emergency basis. Following such a recommendation, GiC would make a listing decision based on information provided by the Minister, and may consider additional information, such as socio-economic impacts and the results of consultations.

In the event that imminent threat exists, I am requesting that you provide a government-wide position on listing for each Steelhead population by January 18, 2019 to ensure that British Columbia's views can be taken into account by GiC in making a decision on whether or not these species should be added to Schedule I of SARA.

Canada

.../2

Detailed information on these species and the listing process under SARA can be found on the Species at Risk Public Registry (*http://www.sararegistry.gc.ca/*). As well, please contact Rebecca Reid, Regional Director General (Pacific Region) at the following address if you wish to obtain further information: Rebecca Reid, Regional Director General, Fisheries and Oceans Canada, 401 Burrard Street, Suite 200, Vancouver, British Columbia, V6C 3S4, Telephone: 604-666-6098.

Thank you for the Province of British Columbia's continued cooperation as we implement SARA. I look forward to hearing from you on this matter.

Yours sincerely,

Catherine Blewett

cc: SARA.XPAC@dfo-mpo.gc.ca
Rebecca Reid, Regional Director General, Pacific Region, Fisheries and Oceans Canada
Philippe Morel, Assistant Deputy Minister, Aquatic Ecosystems, Fisheries and Oceans Canada
Alec Dale, Executive Director, Ecosystems Branch, Ministry of Environment and Climate Change Strategy

.../3

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Withheld pursuant to/removed as

s.13; s.12

Page 069 of 564 to/à Page 090 of 564

Withheld pursuant to/removed as

s.12; s.13

Page 091 of 564

Withheld pursuant to/removed as

s.13; s.12

Page 092 of 564

Withheld pursuant to/removed as

s.12; s.13

Page 093 of 564

Withheld pursuant to/removed as

s.13; s.12

Page 094 of 564 to/à Page 095 of 564

Withheld pursuant to/removed as

s.12; s.13

Freshwater Sport Fishing in British Columbia

Sending Ripples through the Provincial Economy

Prepared for:

Freshwater Fisheries Society of BC
Victoria, BC

Prepared by:

GSGislason & Associates Ltd.
Vancouver

In Association with:

Edna Lam Consulting, Vancouver
BriLev Consulting Inc., Ottawa
Ellen F. Battle Consulting Inc., Victoria

October 2009

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From:	Travia, David V AGRI:EX
To:	Mack, James AGRI:EX
Cc:	Neilson, Larry AGRI:EX; Turner, Michael R AGRI:EX
Subject:	FW: Canada/BC Steelhead discussion (Dec 17)
Date:	Monday, December 17, 2018 14:18:26

Based on what is below, would appear Tom Ethier has spoken to RR on steelhead.

From: Kerr-Upal, Manjit ENV:EX
Sent: Monday, December 17, 2018 2:16 PM
To: Paquin, Lisa C ENV:EX
Cc: Dale, Alec R ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Davis, Jennifer C FLNR:EX
Subject: FW: Canada/BC Steelhead discussion (Dec 17)

FYI

Lisa – can we talk about possible next steps re: MZ?

From: Kerr-Upal, Manjit ENV:EX

Sent: December 17, 2018 2:10 PM

To: Witt, Andy FLNR:EX

Cc: Davis, Jennifer C FLNR:EX ; McGuire, Jennifer ENV:EX

Subject: Canada/BC Steelhead discussion (Dec 17)

Proposed email for Tom. I have texted this to ADM McGuire but have not heard a response from her s.22

_____

Rebecca,

Thank you for making the time for me to talk Steelhead this morning.

I wanted to re-iterate that BC still has a strong preference for the original SAR bullets. They are reflective of the open, peer review process.

Recognizing that DFO is unlikely to change their SAR summary bullets, I do appreciate that it is your interpretation of the revised bullets acknowledges that harvest rates cannot continue at current levels, and in fact should be reduced to the maximum extend possible, if we want to recover the Chilcotin and Thompson River Steelhead DUs.

Sincerely,

Tom

_____

Manjit Kerr-Upal
Director, Conservation Science
Ministry of Environment and Climate Change Strategy
Mail address: PO Box 9338 Stn Pov Gov't, Victoria BC, V8W 9M1
Street address: 525 Superior St (4th Floor), Victoria, BC V8V 1T7
Tel: 250 896-2231
Manjit.Kerr-Upal@gov.bc.ca

From:	Kerr-Upal, Manjit ENV:EX
To:	Davis, Jennifer C FLNR:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX
Cc:	Wilson, Greg ENV:EX; Stefanyk, Karen ENV:EX; Turner, Michael R AGRI:EX; Neilson, Larry AGRI:EX; Witt, Andy FLNR:EX; Dale, Alec R ENV:EX
Subject:	Fwd: Letter to BC on Listing Steelhead Trout under SARA
Date:	Monday, December 10, 2018 07:58:06
Attachments:	SKM_C65818120713020.pdf ATT00001.htm

FYI

Official DFO Letter was finally received on Friday asking for BC's position on this matter. See attached.

I know Greg has started to canvass the various ministries for input ...

We can discuss the path forward on this response. I suspect today's meeting may have some insights on our approach.

Happy Monday!
Manjit

Sent from my iPhone

Begin forwarded message:

From: "Dale, Alec R ENV:EX" <Alec.Dale@gov.bc.ca>
Date: December 10, 2018 at 7:07:21 AM PST
To: "Kerr-Upal, Manjit ENV:EX" <Manjit.Kerr-Upal@gov.bc.ca>
Subject: FW: Letter to BC on Listing Steelhead Trout under SARA

FYI, we will be getting asked to respond and assume we are working on already given the focus?
Thanks
A

From: Daspe, Caroline <Caroline.Daspe@dfo-mpo.gc.ca>
Sent: December 7, 2018 10:25 AM
To: Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>
Subject: Letter to BC on Listing Steelhead Trout under SARA
Good day,
You were carbon copy on the attached letter.
Regards,

Caroline Daspe
Document control and administrative officer | Agente contrôle des documents et administration
Aquatic Ecosystems | Secteur des écosystèmes aquatiques
Fisheries and Oceans Canada/Pêches et océans Canada
Tel: 613-990-7110

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MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE STRATEGY
INFORMATION NOTE

Date: December 7, 2018

PREPARED FOR:
ADM Jennifer McGuire, ENV Environment Sustainability and Strategic Policy
ADM Tom Ethier, FLNRO Resource Stewardship Division
ADM James Mack, AGR Agriculture Science and Policy

ISSUE: Update on DFO process to inform federal decisions to protect Chilcotin and Thompson River populations of Steelhead Trout

BACKGROUND:
In February 2018, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) concluded that the Chilcotin and Thompson River populations of Steelhead Trout *(Oncorhynchus mykiss*) were assessed as Endangered. There were three principal reasons for this conclusion: 1) population decline of 79% and 81% respectively over the last three generations, 2) projected continued decline of these populations, and 3) very low number of mature individuals. In addition, COSEWIC determined these populations were at imminent risk of extinction. Among the factors contributing to the decline of these populations, COSEWIC identified that "*Bycatch mortality in commercial Pacific salmon fisheries and declines in marine and freshwater habitat quality are the key factors driving the declines."* A map of the Interior Steelhead range, including these populations, is provided in Appendix 1.

Fisheries and Oceans Canada (DFO) is leading a modified Recovery Potential Assessment (RPA) intended to inform a Ministerial opinion on the imminent threat to survival of these populations, and a potential Governor in Council listing decision for the addition of Steelhead Trout to Schedule 1 of the *Species at Risk Act* (SARA).

The Ministry of Environment and Climate Change Strategy (ENV) is the provincial lead for species at risk policy and legislative development and holds substantive conservation science and research expertise for many aquatic and terrestrial species, including Steelhead Trout. ENV is also the jurisdictional representative on COSEWIC.

The Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRO) holds the majority of Provincial legislative responsibility.

- Through delegated authority under the Federal *Fisheries Act*, FLNRO has responsibility for non-salmon freshwater sport fishing, sea-run steelhead, cutthroat and dolly-varden.
- BC's recreational fisheries are high value and licenced by FLNRO under the *Wildlife Act.*
- FLNRO leads habitat sustainability and recovery, as well as land and water use decisions.
- While salmon harvesting decisions are federal, the Province has delegated authority under the Federal *Fisheries Act* for steelhead and management of salmon habitat and ecosystem conditions.
- The lead provincial scientist for Steelhead Trout is with FLNRO (Thompson Region).

A summary of the suite of actions that FLRNO has been working on to protect Chilcotin and Thompson River populations of Steelhead Trout are identified in Appendix 2.

The Ministry of Agriculture (AGRI) is the provincial lead for British Columbia's interests in recreational and commercial marine fisheries and is the lead agency for national work with DFO through the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM).

- AGRI participates and influences fisheries advisory board decisions, which develop the regulations around commercial salmon fisheries in B.C.
- B.C. has a designated commissioner at the Pacific Salmon Treaty table, which includes a chapter on steelhead management. AGRI participates directly in that work.

AGRI works directly with the commercial and marine recreational fishing industries to help maximize sustainable benefits to British Columbians.

DISCUSSION

It was known from the beginning that that workload and timing of DFO's modified RPA would be challenging. DFO region is required to provide DFO headquarters a finalized package in December 2018. This package will include a set of scientific documents (Science Advisory Report, Research Document and Proceedings Report), as well as a list of management options, a cost benefit analysis, and summaries of recent consultations with stakeholders and First Nations.

ENV and FLNRO staff are working collaboratively to engage directly with DFO senior management and technical staff in developing the RPA. Scientists from ENV and FLNRO have been working closely with federal and external experts to ensure the science advice informing any ministerial decision is universally supported. The process of engagement in support of this process, at both the technical and executive level, was based on the principles of openness and transparency.

On November 27, 2018, DFO published a Science Advisory Report that significantly differed from earlier drafts that incorporated ENV and FLNRO's perspectives on the risks to steelhead stocks. The report, as published, downplays the threats associated with salmon fisheries bycatch mortality and concludes that stopping fishing will not reverse the decline of populations in the future. This conclusion is inconsistent with both the conclusions of the peer review conducted under DFO's formal Canadian Science Advisory Secretariat (CSAS) process and the joint Canada-BC science team's agreement on draft content.

In preparation for the December 3, 2018 Federal/Provincial Steelhead Executive Committee meeting, ENV and FLNRO clearly outlined the concerns associated with the published Science Advisory Report and indicated that DFO's decision to change and publish the altered content significantly undermines the trust between partners and jeopardizes ongoing science-based collaborations.

NEXT STEPS:

- The Federal/Provincial Steelhead Executive Committee is meeting on December 10, 2018 to resolve the current science-collaborations challenges. If these challenges are not resolved, a decision-note will be drafted for ADM Either and ADM McGuire (as per their membership on the Canada-BC Species at Risk Steering Committee). ADM Mack will be included in this note.
- The DM of Environment and Climate Change Strategy is expected to receive a letter from the DM of DFO asking for the Government of BC's input on listing recommendations for the Chilcotin and Thompson River populations of Steelhead Trout. ENV has started canvassing ministries for input in anticipation of receipt of this letter.

Appendices:

Appendix 1: Map of Interior Steelhead Range

Appendix 2: Summary of FLRNO Regulatory Actions in support of protection of Chilcotin and Thompson River populations of Steelhead Trout .

Contact:
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Ecosystem Branch
ENV
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Alternate Contact:
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Prepared by:
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Appendix 1: Map of Interior Steelhead Range

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Appendix 2: Summary of FLRNO Regulatory Actions in support of protection of Chilcotin and Thompson River populations of Steelhead Trout .

FLRNO has been actively using regulatory authorities to protect the Chilcotin and Thompson River populations of Steelhead Trout .

- There are no longer any open recreational fisheries.
- Both the Chilcotin and Thompson are closed for all recreational fishing. In 2018, the Thompson closures started a month earlier to match Chilcotin (October 1, rather than November 1).
- The provincial recreational trout fishery might incidentally catch steelhead. These have not been closed, or regulations put into place to limit incidental harms.
- DFO continues to highlight concerns with freshwater habitat. However, there are similar declines in steelhead for both the Thompson watershed, which is quite developed, and the Chilcotin, which is largely untouched. If habitat was a limiting factor, we would also expect to see declines in native rainbow populations, which occupy a similar niche.

DFO authorizes the salmon fisheries which cause by-catch mortality to steelhead in nets. Staff requested enhanced protection, these requests were not implemented.

- Increasing DFO's steelhead-protection rolling-closure window from five weeks to a minimum of seven, preferably longer given estimates of an 11 week run.
- DFO allows First Nation chum-salmon fisheries within the steelhead closure. Staff requested no gillnet fisheries during the steelhead run. In October there have been instances of large quantities of fish being left on the riverside, including dead steelhead.
- Limiting how long gill-nets are left unattended (limited soak time).

Inter-Nation tensions are growing over the management and protection of Chilcotin and Thompson River populations of Steelhead Trout. Several interior First Nations are voluntarily forgoing their constitutional right to salmon in order to support steelhead recovery. Lower Fraser First Nations continue to access their DFO allocations to salmon which causes by-catch mortality to steelhead.

Modernizing Salmon/Net Fisheries.

Salmon are a BC fish, and the Province is undertaking action to explore ways to modernize fisheries in order to sustain appropriate harvest levels and implement Steelhead Trout (and sturgeon) protection. While salmon fisheries are authorized by DFO, Provincial, Indigenous, Commercial and other interests are able to undertake voluntary protection measures. Examples already exist, such as Interior First Nations forgoing salmon harvest during Steelhead Trout runs.

- Late Nov. ADMs Ethier and Sutherland (FLNR) and Mack (AGRI) agreed to identify a small team to start exploring options and opportunities associated with increasing the use of selective fishing methods, and modernizing use of gill nets. This team will commence in Dec.
- Late Nov. Meeting between FLNRO senior management and the Commercial Fishing Sector identified a willingness to explore gill net modernization and improved monitoring to support IFS. No specifics have been proposed; follow up discussions will occur.
- Late Nov. Minister Donaldson has reached out to Minister Wilkinson to set up a time to discuss common interests in selective fishing and modernizing gill net use, potentially through a task-team.
- Nov 26th. House of Commons Gill-net Petition. Fraser White Sturgeon recovery is also affected as by-catch in salmon nets. MP Fin Donnelly supported a petition and as of Nov 26th it was certified for presentation to the House as early as this same week.

We, the undersigned, citizens of Canada, call upon the Government of Canada to:

1. Encourage, implement and promote alternative sustainable salmon harvesting techniques that will reduce impact on salmon stocks of concern, and reduce and eliminate sturgeon by-catch and their subsequent physical damage and mortality;

2. Provide funding to research and implement sustainable fish harvesting technologies, such as fish wheels, fish traps, and fish-safe seines;

3. Adopt policies and regulations that require gill nets to be fully attended and monitored during entire gill net soak time, while this transition phase of implementation will take time; and

4. Ban all night-time gill net use.

Fisheries and Oceans Canada | Pêches et Océans Canada

Preliminary Salmon Outlook for 2019

December 2018

Prepared by

Pacific Region Salmon Stock Assessment &
Fisheries Management

Canada

Page 177 of 564 to/à Page 197 of 564

Withheld pursuant to/removed as

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Questions?

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Canada

From: Li, Ge
To: "Barry Curic"; "Chris Cue"; "Chris Jr. Cook"; "Darrell Enger"; "Dennis Woloshuk"; "Don Heron"; "Erling Olsen"; "John Legate"; "Richard Haugan"; "Richard Michelson"; "Robert Rezansoff"; "Barry Marcotte"; "Donald Ekroth"; "Henry Clifton"; "Kim Olsen"; "Robert Burkosky"; "James Lawson"; "Jay Soleway"; "Arnie Hengstler"; "Barry Crow"; "Brad Goodyear"; "Calvin Siider"; "Darrel McEachern"; "David Taylor"; "Dean MacDonald"; "Elvis Chickite"; "John Murray"; "Mabel Mazurek"; "Paul Kershaw"; "Ryan McEachern"; "Bob McKamey"; "Gary Nakashima"; "Len Carr"; "Michael Forrest"; "Phil Eidsvik"; "Ryan Mceachern"; "Stewart McDonald"; "Bob Fraumeni"; "Chris Acheson"; "Lawrence Paulson"; "Lindsey Doerksen"; "Mark Fredheim"; "Mike Banks"; "Steve Martinelli"; "Sverre Hauknes"; "William Gilker"; "Douglas Kimoto"; "Gordon Moseley"; "Greg Gower"; "Jim Willott"; "Michael Smith"; "Paul Cootes"; "Rod Cootes"; "Roger Paquette"; "Dane Chauvel"; "Guy Johnston"; "Jody Eriksson"; "Michael Griswold"; "Michael Wells"; "Pat Cullen"; "Peter Sakich"; "Rick Rebitt"; "Stephen Johansen"; "Steve Lewis"; "Aaron Hill"; "Angela Addison"; "Bill Gladstone - Heiltsuk Band"; Travia, David V AGRI:EX; "Greg Knox"; XT:Nyce, Harry FLNR:IN; "John McCulloch"; "Joy Thorkelson"; "Ken Franzen"; Neilson, Larry AGRI:EX; "Lawrence Paulson - Area F"; "Mabel Mazurek - Area C"; "Mark Cleveland - Skeena Fisheries Commission"; Psyllakis, Jennifer FLNR:EX; "Rick Haugan - Area A"; "Rob Morley - Processor"; "Ron Fowler - Area F"; "Rupert Gale"; "Stu Barnes - Skeena Fisheries Commission"; "Tom Protheroe"; "Urs Thomas"; Hold - 180404 - Wilson, Diana; "Wan li Ou (wanli@fnfisheriescouncil.ca)"; "Chris Ashton - Area B"; "Christopher Bos"; "Gerry Kristianson"; "Jeffery Young"; "Jeremy Maynard"; "Kim Olsen - UFAWU"; "Laurie Milligan"; "Marilyn Scanlan"; Maxwell, Marla; Turner, Michael R AGRI:EX; "Misty MacDuffee"; Mueller, Barbara; Ramsay, Mike K FLNR:EX; "Ray Jesse - Area G"; "Aidan Fisher"; "Andy Olson"; "Andy Rosenberger"; "Bernette Laliberte"; "Bill Shepert"; "Brian Assu"; "Camiile Rivard-Sirois"; "Dixie Smeeton"; "Earl Newman"; "Elinor McGrath"; "Eric Angel"; "Gord Sterritt"; "Greg Taylor"; XT:Wright, Howie Okanagan Nation Alliance EAO:IN; "Janson Wong"; "Karl English"; "Kelsey Campbell"; "Ken Malloway"; "Larry George"; "Larry Greba"; "Marcel Shephert"; "Mark Cleveland"; "Mark Spoljaric"; "Mike Baird"; "Mike Staley"; "Murray Ned"; "Murray Ross"; "Pat Matthew"; "Penny White"; "Pete Nicklin"; "Richard Bussanich"; "Richard Erhardt"; "Robert Grodecki"; "Ted Assu"; "Vanessa Bellis"; "Wayne Paige Sr."
Subject: RE: 2019 Preliminary Salmon Outlook
Date: Monday, December 17, 2018 07:57:20
Attachments: Preliminary 2019 Salmon Outlook_14Dec2018_FINAL.PDF
(SGrant & BMacDonald) State of the Salmon-Environmental Conditions infor....pdf

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Hello everyone,
Please see below the link to the 2019 Salmon Outlook presentation that was presented on December 14th, as well as supporting documents.

2019 Preliminary Salmon Outlook Webex-20181214 1712-1
December 14, 2018, 10:38 am San Francisco Time
1 hr 16 min

https://gts-ee.webex.com/gts-ee/ldr.php?RCID=a062e528fb26d482df981a8fd2763745

Thank you and happy holidays!

Ge Li

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From: Li, Ge
Sent: December-13-18 11:14 AM
To: 'Barry Curic'; 'Chris Cue'; 'Chris Jr. Cook'; 'Darrell Enger'; 'Dennis Woloshuk'; 'Don Heron'; 'Erling Olsen'; 'John Legate'; 'Richard Haugan'; 'Richard Michelson'; 'Robert Rezansoff'; 'Barry Marcotte'; 'Donald Ekroth'; 'Henry Clifton'; 'Kim Olsen'; 'Robert Burkosky'; 'James Lawson'; 'Jay Soleway'; 'Arnie Hengstler'; 'Barry Crow'; 'Brad Goodyear'; 'Calvin Siider'; 'Darrel McEachern'; 'David Taylor'; 'Dean MacDonald'; 'Elvis Chickite'; 'John Murray'; 'Mabel Mazurek'; 'Paul Kershaw'; 'Ryan McEachern'; 'Bob McKamey'; 'Gary Nakashima'; 'Len Carr'; 'Michael Forrest'; 'Phil Eidsvik'; 'Ryan Mceachern'; 'Stewart McDonald'; 'Bob Fraumeni'; 'Chris Acheson'; 'Lawrence Paulson'; 'Lindsey Doerksen';

'Mark Fredheim'; 'Mike Banks'; 'Steve Martinelli'; 'Sverre Hauknes'; 'William Gilker'; 'Douglas Kimoto'; 'Gordon Moseley'; 'Greg Gower'; 'Jim Willott'; 'Michael Smith'; 'Paul Cootes'; 'Rod Cootes'; 'Roger Paquette'; 'Dane Chauvel'; 'Guy Johnston'; 'Jody Eriksson'; 'Michael Griswold'; 'Michael Wells'; 'Pat Cullen'; 'Peter Sakich'; 'Rick Rebitt'; 'Stephen Johansen'; 'Steve Lewis'; 'Aaron Hill'; 'Angela Addison'; 'Bill Gladstone - Heiltsuk Band'; 'David Travia (David.Travia@gov.bc.ca)'; 'Greg Knox'; 'Harry Nyce - Nisga'a Lisims Government'; 'John McCulloch'; 'Joy Thorkelson'; 'Ken Franzen'; 'larry.neilson@gov.bc.ca'; 'Lawrence Paulson - Area F'; 'Mabel Mazurek - Area C'; 'Mark Cleveland - Skeena Fisheries Commission'; 'Psyllakis, Jennifer FLNR:EX'; 'Rick Haugan - Area A'; 'Rob Morley - Processor'; 'Ron Fowler - Area F'; 'Rupert Gale'; 'Stu Barnes - Skeena Fisheries Commission'; 'Tom Protheroe'; 'Urs Thomas'; 'Walter Joseph - Wet'suwet'en First Nation'; 'Wan li Ou (wanli@fnfisheriescouncil.ca)'; 'Chris Ashton - Area B'; 'Christopher Bos'; 'Gerry Kristianson'; 'Jeffery Young'; 'Jeremy Maynard'; 'Kim Olsen - UFAWU'; 'Laurie Milligan'; 'Marilyn Scanlan'; Maxwell, Marla; 'Mike Turner'; 'Misty MacDuffee'; Mueller, Barbara; 'Ramsay, Mike K FLNR:EX'; 'Ray Jesse - Area G'; 'Aidan Fisher'; 'Andy Olson'; 'Andy Rosenberger'; 'Bernette Laliberte'; 'Bill Shepert'; 'Brian Assu'; 'Camiile Rivard-Sirois'; 'Dixie Smeeton'; 'Earl Newman'; 'Elinor McGrath'; 'Eric Angel'; 'Gord Sterritt'; 'Greg Taylor'; 'Howie Wright'; 'Janson Wong'; 'Karl English'; 'Kelsey Campbell'; 'Ken Malloway'; 'Larry George'; 'Larry Greba'; 'Marcel Shephert'; 'Mark Cleveland'; 'Mark Spoljaric'; 'Mike Baird'; 'Mike Staley'; 'Murray Ned'; 'Murray Ross'; 'Pat Matthew'; 'Penny White'; 'Pete Nicklin'; 'Richard Bussanich'; 'Richard Erhardt'; 'Robert Grodecki'; 'Ted Assu'; 'Vanessa Bellis'; 'Wayne Paige Sr.'

Subject: RE: 2019 Preliminary Salmon Outlook

Hello,

Please see attached the supporting document for the presentation tomorrow.

Thank you,

Ge Li

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Vancouver, BC. V6C 3S4
Phone: 604-666-3935
Email: ge.li@dfo-mpo.gc.ca

From: Li, Ge

Sent: November-22-18 4:41 PM

To: 'Barry Curic'; 'Chris Cue'; 'Chris Jr. Cook'; 'Darrell Enger'; 'Dennis Woloshuk'; 'Don Heron'; 'Erling Olsen'; 'John Legate'; 'Richard Haugan'; 'Richard Michelson'; 'Robert Rezansoff'; 'Barry Marcotte'; 'Donald Ekroth'; 'Henry Clifton'; 'Kim Olsen'; 'Robert Burkosky'; 'James Lawson'; 'Jay Soleway'; 'Arnie Hengstler'; 'Barry Crow'; 'Brad Goodyear'; 'Calvin Siider'; 'Darrel McEachern'; 'David Taylor'; 'Dean MacDonald'; 'Elvis Chickite'; 'John Murray'; 'Mabel Mazurek'; 'Paul Kershaw'; 'Ryan McEachern'; 'Bob McKamey'; 'Gary Nakashima'; 'Len Carr'; 'Michael Forrest'; 'Phil Eidsvik'; 'Ryan Mceachern'; 'Stewart McDonald'; 'Bob Fraumeni'; 'Chris Acheson'; 'Lawrence Paulson'; 'Lindsey Doerksen'; 'Mark Fredheim'; 'Mike Banks'; 'Steve Martinelli'; 'Sverre Hauknes'; 'William Gilker'; 'Douglas Kimoto'; 'Gordon Moseley'; 'Greg Gower'; 'Jim Willott'; 'Michael Smith'; 'Paul Cootes'; 'Rod Cootes'; 'Roger Paquette'; 'Dane Chauvel'; 'Guy Johnston'; 'Jody Eriksson'; 'Michael Griswold'; 'Michael Wells'; 'Pat Cullen'; 'Peter Sakich'; 'Rick Rebitt'; 'Stephen Johansen'; 'Steve Lewis'; 'Aaron Hill'; 'Angela Addison'; 'Bill Gladstone - Heiltsuk Band'; 'David Travia (David.Travia@gov.bc.ca)'; 'Greg Knox'; 'Harry Nyce - Nisga'a Lisims Government'; 'John McCulloch'; 'Joy Thorkelson'; 'Ken Franzen'; 'larry.neilson@gov.bc.ca'; 'Lawrence Paulson - Area F'; 'Mabel Mazurek - Area C'; 'Mark Cleveland - Skeena Fisheries Commission'; 'Psyllakis, Jennifer FLNR:EX'; 'Rick Haugan - Area A'; 'Rob Morley - Processor'; 'Ron Fowler - Area F'; 'Rupert Gale'; 'Stu Barnes - Skeena Fisheries Commission'; 'Tom Protheroe'; 'Urs Thomas'; 'Walter Joseph - Wet'suwet'en First Nation'; 'Wan li Ou (wanli@fnfisheriescouncil.ca)'; 'Chris Ashton - Area B'; 'Christopher Bos'; 'Gerry Kristianson'; 'Jeffery Young'; 'Jeremy Maynard'; 'Kim Olsen - UFAWU'; 'Laurie Milligan'; 'Marilyn Scanlan'; Maxwell, Marla; 'Mike Turner'; 'Misty MacDuffee'; Mueller, Barbara; 'Ramsay, Mike K FLNR:EX'; 'Ray Jesse - Area G'; 'Aidan Fisher'; 'Andy Olson'; 'Andy Rosenberger'; 'Bernette Laliberte'; 'Bill Shepert'; 'Brian Assu'; 'Camiile Rivard-

Sirois'; 'Dixie Smeeton'; 'Earl Newman'; 'Elinor McGrath'; 'Eric Angel'; 'Gord Sterritt'; 'Greg Taylor'; 'Howie Wright'; 'Janson Wong'; 'Karl English'; 'Kelsey Campbell'; 'Ken Malloway'; 'Larry George'; 'Larry Greba'; 'Marcel Shephert'; 'Mark Cleveland'; 'Mark Spoljaric'; 'Mike Baird'; 'Mike Staley'; 'Murray Ned'; 'Murray Ross'; 'Pat Matthew'; 'Penny White'; 'Pete Nicklin'; 'Richard Bussanich'; 'Richard Erhardt'; 'Robert Grodecki'; 'Ted Assu'; 'Vanessa Bellis'; 'Wayne Paige Sr.'

Subject: RE: 2019 Preliminary Salmon Outlook

Webinar and teleconference information below (the number of recipients reached a maximum so emails will be sent in batches):

Topic: 2019 Preliminary Salmon Outlook Webex
Date: Friday, December 14, 2018
Time: 9:00 am, Pacific Standard Time (San Francisco, GMT-08:00)
Meeting Number: 559 986 849
Meeting Password: Outlook2019

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Ge Li

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-----Original Appointment-----
From: Li, Ge
Sent: November-07-18 11:25 AM
To: Li, Ge; 'Barry Curic'; 'Chris Cue'; 'Chris Jr. Cook'; 'Darrell Enger'; 'Dennis Woloshuk'; 'Don Heron'; 'Erling Olsen'; 'John Legate'; 'Richard Haugan'; 'Richard Michelson'; 'Robert Rezansoff'; 'Barry Marcotte'; 'Donald Ekroth'; 'Henry Clifton'; 'Kim Olsen'; 'Robert Burkosky'; 'James Lawson'; 'Jay Soleway'; 'Arnie Hengstler'; 'Barry Crow'; 'Brad Goodyear'; 'Calvin Siider'; 'Darrel McEachern'; 'David Taylor'; 'Dean MacDonald'; 'Elvis Chickite'; 'John Murray'; 'Mabel Mazurek'; 'Paul Kershaw'; 'Ryan McEachern'; 'Bob McKamey'; 'Gary Nakashima'; 'Len Carr'; 'Michael Forrest'; 'Phil Eidsvik'; 'Ryan Mceachern'; 'Stewart McDonald'; 'Bob Fraumeni'; 'Chris Acheson'; 'Lawrence Paulson'; 'Lindsey Doerksen'; 'Mark Fredheim'; 'Mike Banks'; 'Steve Martinelli'; 'Sverre Hauknes'; 'William Gilker'; 'Douglas Kimoto'; 'Gordon Moseley'; 'Greg Gower'; 'Jim Willott'; 'Michael Smith'; 'Paul Cootes'; 'Rod Cootes'; 'Roger Paquette'; 'Dane Chauvel'; 'Guy Johnston'; 'Jody Eriksson'; 'Michael Griswold'; 'Michael Wells'; 'Pat Cullen'; 'Peter Sakich'; 'Rick Rebitt'; 'Stephen Johansen'; 'Steve Lewis'; 'Aaron Hill'; 'Angela Addison'; 'Bill Gladstone - Heiltsuk Band'; 'David Travia (David.Travia@gov.bc.ca)'; 'Greg Knox'; 'Harry Nyce - Nisga'a Lisims Government'; 'John McCulloch'; 'Joy Thorkelson'; 'Ken Franzen'; 'larry.neilson@gov.bc.ca'; 'Lawrence Paulson - Area F'; 'Mabel Mazurek - Area C'; 'Mark Cleveland - Skeena Fisheries Commission'; 'Psyllakis, Jennifer FLNR:EX'; 'Rick Haugan - Area A'; 'Rob Morley - Processor'; 'Ron Fowler - Area F'; 'Rupert Gale'; 'Stu Barnes - Skeena Fisheries Commission'; 'Tom Protheroe'; 'Urs Thomas'; 'Walter Joseph - Wet'suwet'en First Nation'; 'Wan li Ou (wanli@fnfisheriescouncil.ca)'; 'Chris Ashton - Area B'; 'Christopher Bos'; 'Gerry Kristianson'; 'Jeffery Young'; 'Jeremy Maynard'; 'Kim Olsen - UFAWU'; 'Laurie Milligan'; 'Marilyn Scanlan'; Maxwell, Marla; 'Mike Turner'; 'Misty MacDuffee'; Mueller, Barbara; 'Ramsay, Mike K FLNR:EX'; 'Ray Jesse - Area G'; 'Aidan Fisher'; 'Andy Olson'; 'Andy Rosenberger'; 'Bernette Laliberte'; 'Bill Shepert'; 'Brian Assu'; 'Camiile Rivard-Sirois'; 'Dixie Smeeton'; 'Earl Newman'; 'Elinor McGrath'; 'Eric Angel'; 'Gord Sterritt'; 'Greg Taylor'; 'Howie Wright'; 'Janson Wong'; 'Karl English'; 'Kelsey Campbell'; 'Ken Malloway'; 'Larry George'; 'Larry Greba'; 'Marcel Shephert'; 'Mark Cleveland'; 'Mark Spoljaric'; 'Mike Baird'; 'Mike Staley'; 'Murray Ned'; 'Murray Ross'; 'Pat Matthew'; 'Penny White'; 'Pete Nicklin'; 'Richard Bussanich'; 'Richard Erhardt'; 'Robert Grodecki'; 'Ted Assu'; 'Vanessa Bellis'; 'Wayne Paige Sr.'
Cc: Davies, Sandra; Martens, Corey; 'aaron@watershed-watch.org'; Kuzyk, Melanie; 'dvictorisaac560@gmail.com'; Grant, Sue; Ottley, Jessica; 'Mona Madill'; 'Roger Dunlop'; 'Nic Dedeluk'; Grout, Jeff; 'nfrederickson.imawg@gmail.com'; 'Heather Adams'; 'Midoli Bresch'; 'Sue Hanley'; 'katherine_fisheries@laxband.com'; Markevicius, Feliksas; 'Pat Ahern'; 'Sonora Thompson'; Keir, Tammy; 'SFC Public Calendar'; 'Tawney Lem'; rob@gibbsdelta.com; Allan, Dean; chuckashcroft@telus.net; Beaith, Brad; birdo@shaw.ca; gallaughers1@shaw.ca; governor@shaw.ca; Brent.McCallum@redlsports.com; brian_braidwood@hotmail.com; Chow, Darren; ttbc@shaw.ca; davidandmarielewis@gmail.com; kumdis2@haidagwaii.ca; Eros, Carole; johngraham992003@yahoo.ca; info@tidesandtales.com; Ryan.Lothrop@dfw.wa.gov; sandyandmary@hotmail.com; Alan.martin1710@gmail.com; McCullough, Robin; martinpaish1@gmail.com; Jpew@telus.net; ljproteau@telus.net; rclapton@shaw.ca; dawns@telus.net; tedbrookman6@gmail.com; bateseag@shaw.ca; golden@qcislands.net; Martin Paish; Saul Milne; Lesko, Melissa; Christina Ciesielski
Subject: 2019 Preliminary Salmon Outlook
When: December-14-18 9:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: 1-877-413-4781; ID:s.15
Hello CSAB, IHPC, and SCC members,

This is a placeholder for the 2019 Salmon Outlook webinar on December 14th, 2018. Please forward to those who may not be in this distribution. An agenda will be sent out once finalized.
Thank you,

Ge Li

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Email: ge.li@dfo-mpo.gc.ca

From:	Wilson, Greg ENV:EX
To:	Neilson, Larry AGRI:EX; Courcelles, Danielle FLNR:EX; Willcox, Michael FLNR:EX; Lensky, Kristina FLNR:EX; Barrett, Scott FLNR:EX; Ramsay, Mike K FLNR:EX; Quayle, James F ENV:EX; Ban, Stephen ENV:EX; Helmer, Lisa FLNR:EX; Czernick, Greg G TRAN:EX; Persello, Brent L TRAN:EX; Traverso, Mark TRAN:EX; Thoroughgood, Garth A EMPR:EX; Roth, Myron AGRI:EX; Smith, Chris EMPR:EX; Cutler, Scott EMPR:EX; Vukelich, Vera FLNR:EX; Kerr-Upal, Manjit ENV:EX; Williston, Lee X FLNR:EX; Bison, Robert FLNR:EX; Beere, Mark C FLNR:EX; Davis, Jennifer C FLNR:EX; Zimmerman, Ted FLNR:EX; Dale, Alec R ENV:EX; Dolhaine, Daphne ENV:EX; Shatford, Jeffrey FLNR:EX; Tillie, Johnathan TRAN:EX; Faria, Maria EMPR:EX; Curry, Sean OGC:EX; Vukelich, Vera FLNR:EX; Witt, Andy FLNR:EX; Travia, David V AGRI:EX; Turner, Michael R AGRI:EX; Paquin, Lisa C ENV:EX
Subject:	RE: Input requested: proposed listing of endangered Interior Steelhead (2DUs) under SARA
Date:	Monday, December 17, 2018 17:11:03

Hi Larry, at least initially we are following the usual process. Input is provided to Conservation Science, where it is collated and summarized, points of agreement and disagreement identified, and concerns listed. Depending on the amount and details of the disagreements, additional discussions usually take place at the director level and/or above.

The following step(s) are not as clear at this time, as this is an Emergency Assessment and Emergence Listing processes there are some differences from the usual consultation process.

The big difference is the imminent risk decision by the federal minister of ENVCCC. If the minister decides the fish are not at "imminent risk", the listing process stops and consultations are not necessary. Timeline on this decision is not known, but suspect anytime in the next few weeks. If the minister agrees they are at imminent risk, then we need the above input on hand.

Another difference is this consultation is single stage. Usually listing consultation is two-stage, so we can ask for additional information (e.g. scoio-economics, or critical habitat implications), while providing an initial position in the first (director to director) stage. In this case, the available science advice has been distributed, the cost benefit analysis has just been received by Resource Stewardship and is in initial review. I'm not sure when the information will be available. Andy Witt may have some insight, and I suspect you have been involved in its preparation, so you may as well.

Regardless of the minister of ENVCCC's imminent risk decision, Interior Fraser Steelhead are currently undergoing a full COSEWIC assessment (Nov 2019), followed by a regular RPA (science advice), and more detailed consultation process. So we will be doing the full consultation process for listing Interior Fraser steelhead again in about a year or two.

Hope this helps,

Greg

From: Neilson, Larry AGRI:EX
Sent: December 13, 2018 3:32 PM
To: Wilson, Greg ENV:EX ; Courcelles, Danielle FLNR:EX ; Willcox, Michael FLNR:EX ; Lensky, Kristina FLNR:EX ; Barrett, Scott FLNR:EX ; Ramsay, Mike K FLNR:EX ; Quayle, James F ENV:EX ; Ban, Stephen ENV:EX ; Helmer, Lisa FLNR:EX ; Czernick, Greg G TRAN:EX ; Persello, Brent L TRAN:EX ; Traverso, Mark TRAN:EX ; Thoroughgood, Garth A EMPR:EX ; Roth, Myron AGRI:EX ; Smith, Chris EMPR:EX ; Cutler, Scott EMPR:EX ; Vukelich, Vera FLNR:EX ; Kerr-Upal, Manjit ENV:EX ; Williston, Lee X FLNR:EX ; Bison, Robert FLNR:EX ; Beere, Mark C FLNR:EX ; Davis, Jennifer C FLNR:EX ; Zimmerman, Ted FLNR:EX ; Dale, Alec R ENV:EX ; Dolhaine, Daphne ENV:EX ; Shatford, Jeffrey FLNR:EX ; Tillie, Johnathan TRAN:EX ; Faria, Maria EMPR:EX ; Curry, Sean OGC:EX ; Vukelich, Vera FLNR:EX ; Witt, Andy FLNR:EX ; Travia, David V AGRI:EX ; Turner, Michael R AGRI:EX ; Paquin, Lisa C ENV:EX
Subject: RE: Input requested: proposed listing of endangered Interior Steelhead (2DUs) under SARA

Hi Greg and you thank for this, and for sharing the DM to DM letter.

We're looking forward to working with you in developing the BC response on this. Will you be setting

up a process to arrive an overarching Provincial position on this– and include some key freshwater fisheries management and strategic policy direction? It might be good to sit down together to discuss some of this, as the draft is being developed.
Food for thought?
Cheers, Larry.

From: Wilson, Greg ENV:EX
Sent: Thursday, December 13, 2018 1:46 PM
To: Courcelles, Danielle FLNR:EX; Willcox, Michael FLNR:EX; Lensky, Kristina FLNR:EX; Neilson, Larry AGRI:EX; Barrett, Scott FLNR:EX; Ramsay, Mike K FLNR:EX; Quayle, James F ENV:EX; Ban, Stephen ENV:EX; Helmer, Lisa FLNR:EX; Czernick, Greg G TRAN:EX; Persello, Brent L TRAN:EX; Traverso, Mark TRAN:EX; Thoroughgood, Garth A EMPR:EX; Roth, Myron AGRI:EX; Smith, Chris EMPR:EX; Cutler, Scott EMPR:EX; Vukelich, Vera FLNR:EX; Kerr-Upal, Manjit ENV:EX; Williston, Lee X FLNR:EX; Bison, Robert FLNR:EX; Beere, Mark C FLNR:EX; Davis, Jennifer C FLNR:EX; Zimmerman, Ted FLNR:EX; Dale, Alec R ENV:EX; Dolhaine, Daphne ENV:EX; Shatford, Jeffrey FLNR:EX; Tillie, Johnathan TRAN:EX; Faria, Maria EMPR:EX; Curry, Sean OGC:EX; Vukelich, Vera FLNR:EX; Witt, Andy FLNR:EX
Subject: RE: Input requested: proposed listing of endangered Interior Steelhead (2DUs) under SARA
Hi again, as we have not received comments from all of you yet, and we recently received the consultation letter from DFO (attached) which came with a later deadline, please take until January 5th for your responses, if needed.
An early Christmas present, maybe?
All the best,
Greg

From: Wilson, Greg ENV:EX
Sent: November 22, 2018 12:25 PM
To: Courcelles, Danielle FLNR:EX <Danielle.Courcelles@gov.bc.ca>; Willcox, Michael FLNR:EX <Michael.Willcox@gov.bc.ca>; Hold - 180208 - Lensky, Kristina <Kristina.Lensky@gov.bc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Barrett, Scott FLNR:EX <Scott.Barrett@gov.bc.ca>; Ramsay, Mike K FLNR:EX <Mike.Ramsay@gov.bc.ca>; Quayle, James F ENV:EX <James.Quayle@gov.bc.ca>; Ban, Stephen ENV:EX <Stephen.Ban@gov.bc.ca>; Helmer, Lisa FLNR:EX <Lisa.Helmer@gov.bc.ca>; Czernick, Greg G TRAN:EX <Greg.Czernick@gov.bc.ca>; Persello, Brent L TRAN:EX <Brent.Persello@gov.bc.ca>; Traverso, Mark TRAN:EX <Mark.Traverso@gov.bc.ca>; Thoroughgood, Garth A EMPR:EX <Garth.Thoroughgood@gov.bc.ca>; Roth, Myron AGRI:EX <Myron.Roth@gov.bc.ca>; Smith, Chris EMPR:EX <Chris.Smith@gov.bc.ca>; Cutler, Scott EMPR:EX <Scott.Cutler@gov.bc.ca>; Vukelich, Vera FLNR:EX <Vera.Vukelich@gov.bc.ca>; Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Williston, Lee X FLNR:EX <Lee.Williston@gov.bc.ca>; Bison, Robert FLNR:EX <Robert.Bison@gov.bc.ca>; Beere, Mark C FLNR:EX <Mark.Beere@gov.bc.ca>; Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Dolhaine, Daphne ENV:EX <Daphne.Dolhaine@gov.bc.ca>; Shatford, Jeffrey FLNR:EX <Jeffrey.Shatford@gov.bc.ca>; Tillie, Johnathan TRAN:EX <Johnathan.Tillie@gov.bc.ca>; Faria, Maria EMPR:EX <Maria.Faria@gov.bc.ca>; Curry, Sean OGC:EX <Sean.Curry@BCOGC.ca>; Vukelich, Vera FLNR:EX <Vera.Vukelich@gov.bc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>
Subject: Input requested: proposed listing of endangered Interior Steelhead (2DUs) under SARA
Hi, hope you are having a good day,
The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) recently conducted an emergency assessment (EA) of Interior Steelhead (Thompson River and Chilcotin River populations), in response to requests from several NGOs. COSEWIC released the results of the EA in January 2018,

attached. COSEWIC determined Interior Steelhead to be Endangered and at imminent risk of extinction. The COSEWIC assessment of Endangered was based on 3 criteria:

- past population decline rate (-80%),
- inferred continuing decline,
- and a very small number of mature individuals (approximately 200, lowest on record, 10% of historical).

The major threats to the populations were identified as:

- declining habitat quality in marine and freshwater environments, low productivity,
- By-catch in various Pacific salmon fisheries.

As a result of this conservation emergency, the federal government (DFO) has initiated several fast-track processes to gather information to inform the Federal Minister of Environment and Climate Change Canada on imminent risk, and Governor in Council (GIC, Federal Cabinet) on the socio-economic implications and results from consultations (GIC will make a listing decision in January). These processes include:

1. Preparation of a Interim Recovery Potential Assessment and Science Advice Report (SAR) – (SAR) completed, attached, summary below:

"Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead Trout populations, every returning adult is valued and any harm will inhibit or delay potential for recovery. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction (i.e., through restoration initiatives, and ensure adequate water quantity) and reducing exploitation, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels."

2. Socio-Economic analysis - underway
3. Consultations with First Nations, stakeholder groups, the general public and the provincial government on the potential impacts of listing Thompson and Chilcotin Steelhead, and collecting any additional information submitted for GiC to consider:

Consultations are underway, attached are the management scenarios for the list and do not list options, which inform the consultations and socio-economic analysis. Be aware that in the management scenarios both the run duration and migration speed for steelhead are incorrect (see SAR and RPA for correct data). The do-not-list scenario proposed by DFO in the consultations is status quo from a steelhead fishing mortality perspective (interception rate of 15-20% per year). We continue to work with DFO to improve the information which they will provide to the Federal Minister of Environment. Please refer to the consultation website for more information including webinars, meeting dates, and many other details, https://wildlife-species.canada.ca/species-risk-registry/involved/consultation/default_e.cfm

THIS IS THE IMPORTANT PART FOR YOU:

Fisheries and Oceans Canada are currently consulting the provincial government regarding listing the Interior Steelhead (Thompson River and Chilcotin River populations) on Schedule 1 of the Species at Risk Act (SARA). **I am gathering the government wide comments on the potential impacts of listing these species under SARA**.

For species assessed as Endangered under SARA, prohibitions under the Act will make it an offence to kill, harm, capture, harass or possess an individual, or damage the residence (e.g. nest or den). Proponents would need to apply to DFO for a permit where projects would result in a contravention of a prohibition. In addition, DFO would prepare Recovery Strategies and Action Plans and critical

habitat would be identified and legally protected. Additional funding would become available for research and other recovery activities.

For a detailed description of implications please consult the species at risk web site: (www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=6AC53F6B-1).

You are receiving this email because you were listed as the contact person for your ministry or branch in earlier consultations, and you still appear in the directory. If you are not the current contact person please let me know who is.

If you have any questions or concerns don't hesitate to ask, I look forward to your response before December, 15 2018, if they are to be included in the response to Fisheries and Oceans Canada.

HEADS UP: COSEWIC recently assessed 24 Sockeye Salmon Populations in the Fraser River and found 16 to be at-risk of extinction (En, Th, SC), and are currently assessing 28 populations of Chinook Salmon from southern BC. See attached Pacific Salmon Listing – one pager. Status results from the first 16 Chinook populations assessed will be available in December, the remainder in May 2019. There will be a lot more of these input requests over the coming years.

Thanks and Regards,

Greg Wilson, R.P.Bio.
Aquatic Species-at-Risk Specialist
Ecosystem Protection and Sustainability Branch
BC Ministry of Environment and Climate Change Strategy
525 Superior Street / Victoria, BC / V8W 1T7
(O) 778-698-4414

From:	Wilson, Greg ENV:EX
To:	Courcelles, Danielle FLNR:EX; Willcox, Michael FLNR:EX; Lensky, Kristina FLNR:EX; Neilson, Larry AGRI:EX; Barrett, Scott FLNR:EX; Ramsay, Mike K FLNR:EX; Quayle, James F ENV:EX; Ban, Stephen ENV:EX; Helmer, Lisa FLNR:EX; Czernick, Greg G TRAN:EX; Persello, Brent L TRAN:EX; Traverso, Mark TRAN:EX; Thoroughgood, Garth A EMPR:EX; Roth, Myron AGRI:EX; Smith, Chris EMPR:EX; Cutler, Scott EMPR:EX; Vukelich, Vera FLNR:EX; Kerr-Upal, Manjit ENV:EX; Williston, Lee X FLNR:EX; Bison, Robert FLNR:EX; Beere, Mark C FLNR:EX; Davis, Jennifer C FLNR:EX; Zimmerman, Ted FLNR:EX; Dale, Alec R ENV:EX; Dolhaine, Daphne ENV:EX; Shatford, Jeffrey FLNR:EX; Tillie, Johnathan TRAN:EX; Faria, Maria EMPR:EX; Curry, Sean OGC:EX; Vukelich, Vera FLNR:EX; Witt, Andy FLNR:EX
Subject:	RE: Input requested: proposed listing of endangered Interior Steelhead (2DUs) under SARA
Date:	Thursday, December 13, 2018 13:45:36
Attachments:	Dec 2018 consultation letter from DFO for IFS SKM_C65818120713020.pdf

Hi again, as we have not received comments from all of you yet, and we recently received the consultation letter from DFO (attached) which came with a later deadline, please take until January 5th for your responses, if needed.

An early Christmas present, maybe?

All the best,

Greg

From: Wilson, Greg ENV:EX

Sent: November 22, 2018 12:25 PM

To: Courcelles, Danielle FLNR:EX ; Willcox, Michael FLNR:EX ; Hold - 180208 - Lensky, Kristina ; Neilson, Larry AGRI:EX ; Barrett, Scott FLNR:EX ; Ramsay, Mike K FLNR:EX ; Quayle, James F ENV:EX ; Ban, Stephen ENV:EX ; Helmer, Lisa FLNR:EX ; Czernick, Greg G TRAN:EX ; Persello, Brent L TRAN:EX ; Traverso, Mark TRAN:EX ; Thoroughgood, Garth A EMPR:EX ; Roth, Myron AGRI:EX ; Smith, Chris EMPR:EX ; Cutler, Scott EMPR:EX ; Vukelich, Vera FLNR:EX ; Kerr-Upal, Manjit ENV:EX ; Williston, Lee X FLNR:EX ; Bison, Robert FLNR:EX ; Beere, Mark C FLNR:EX ; Davis, Jennifer C FLNR:EX ; Zimmerman, Ted FLNR:EX ; Dale, Alec R ENV:EX ; Dolhaine, Daphne ENV:EX ; Shatford, Jeffrey FLNR:EX ; Tillie, Johnathan TRAN:EX ; Faria, Maria EMPR:EX ; Curry, Sean OGC:EX ; Vukelich, Vera FLNR:EX ; Witt, Andy FLNR:EX

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Thanks and Regards,

Greg Wilson, R.P.Bio.
Aquatic Species-at-Risk Specialist
Ecosystem Protection and Sustainability Branch
BC Ministry of Environment and Climate Change Strategy
525 Superior Street / Victoria, BC / V8W 1T7
(O) 778-698-4414

From:	Christina Burridge
To:	Neilson, Larry AGRI:EX; "Gordon Gislason"
Cc:	Turner, Michael R AGRI:EX; Matthews, Carmen AGRI:EX
Subject:	RE: SARA & Steelhead - DFO SEIA
Date:	Wednesday, December 12, 2018 06:18:20

You would think DFO might want an industry review too!
C/

-----Original Message-----
From: Neilson, Larry AGRI:EX [mailto:Larry.Neilson@gov.bc.ca]
Sent: December 11, 2018 6:38 PM
To: Gordon Gislason <gsg@gsg.bc.ca>
Cc: Christina Burridge <cburridge@telus.net>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Matthews, Carmen AGRI:EX <Carmen.Matthews@gov.bc.ca>
Subject: Re: SARA & Steelhead - DFO SEIA

Hi Gord and Christina.
It is still very much a draft DFO document which we just received. We have a quick meeting tomorrow to discuss. I don't know that I can share it just yet given it's very draft and it is a DFO document but I will ask for sure.
Cheers Larry
Sent from my iPhone

On Dec 11, 2018, at 4:58 PM, Gordon Gislason <gsg@gsg.bc.ca<mailto:gsg@gsg.bc.ca>> wrote:

Larry

I was talking to Christina Burridge of the BC Seafood Alliance about another matter - but I mentioned that the Province had received the DFO Policy document on socio-economic impacts of the SARA listing of Thompson/Chilcotin steelhead (not sure if the material is a Draft or a Final ?)

She hasn't seen the report - and would appreciate receiving a copy.

Gordon

GSGislason & Associates Ltd.
405 - 535 Howe Street
Vancouver, BC, Canada
V6C 2Z4
ph: 604-685-7936
fax: 604-685-7993

From:	Mahaux, Patrick
To:	Neilson, Larry AGRI:EX; Matthews, Carmen AGRI:EX; Witt, Andy FLNR:EX
Cc:	Sidhu, Jas; Murdoch, Sarah; Kenyon, Robyn; Turner, Michael R AGRI:EX; MacKenzie, Julia
Subject:	RE: Status of Socio-Economic Analysis of Pacific Salmon
Date:	Wednesday, December 12, 2018 10:51:42

HI Larry,
Following the internal peer review and feedback from the province we hope to have an external economist review as well. However, at this stage we ask that you not share the report yet.
Patrick

From: Neilson, Larry AGRI:EX [mailto:Larry.Neilson@gov.bc.ca]
Sent: December-12-18 9:08 AM
To: Mahaux, Patrick; Matthews, Carmen AGRI:EX; Witt, Andy FLNR:EX
Cc: Sidhu, Jas; Murdoch, Sarah; Kenyon, Robyn; Turner, Michael R AGRI:EX
Subject: RE: Status of Socio-Economic Analysis of Pacific Salmon

Good Morning Patrick et al;
Quick question: Is this being shared more broadly at this point? Are you thinking of sharing the draft for comment with other fisheries economic experts..i.e. like Gord Gislason?
Thanks in advance, Larry

From: Mahaux, Patrick [mailto:Patrick.Mahaux@dfo-mpo.gc.ca]
Sent: Thursday, December 6, 2018 4:11 PM
To: Neilson, Larry AGRI:EX; Matthews, Carmen AGRI:EX; Witt, Andy FLNR:EX
Cc: Sidhu, Jas; Murdoch, Sarah; Kenyon, Robyn
Subject: RE: Status of Socio-Economic Analysis of Pacific Salmon

Hi,
For your review, here is the draft of the Steelhead CBA we had discussed.
cheers
Patrick Mahaux
Manager, Economic Analysis Unit,
Policy Branch – Pacific Region
Suite 200 - 401 Burrard Street
Vancouver, BC
V6C 3S4

From: Mahaux, Patrick
Sent: November-26-18 10:01 AM
To: Neilson, Larry AGRI:EX; Matthews, Carmen AGRI:EX
Subject: RE: Status of Socio-Economic Analysis of Pacific Salmon

Hi Larry,
Yes, a CBA for steelhead is currently being finalised. My response was specific to the 5 species listed in the document Carmen attached to her email.
Patrick

From: Neilson, Larry AGRI:EX [mailto:Larry.Neilson@gov.bc.ca]
Sent: November-26-18 9:56 AM
To: Mahaux, Patrick; Matthews, Carmen AGRI:EX
Subject: RE: Status of Socio-Economic Analysis of Pacific Salmon

Thanks Patrick – I thought that a CBA was being done separately for the steelhead Emergency Assessment?

Thanks, Larry

From: Mahaux, Patrick [mailto:Patrick.Mahaux@dfo-mpo.gc.ca]
Sent: Monday, November 26, 2018 8:59 AM
To: Matthews, Carmen AGRI:EX
Cc: Neilson, Larry AGRI:EX
Subject: RE: Status of Socio-Economic Analysis of Pacific Salmon

Hi Carmen,

The CBA for the five salmon species listed in the document would only occur once management scenarios with recovery measures have been identified. I believe the plan is that Sakinaw (the first on the list) would have management scenarios identified in early 2019.

Patrick

From: Matthews, Carmen AGRI:EX [mailto:Carmen.Matthews@gov.bc.ca]
Sent: November-22-18 4:58 PM
To: Mahaux, Patrick
Cc: Neilson, Larry AGRI:EX
Subject: Status of Socio-Economic Analysis of Pacific Salmon

Hi Patrick – Our fisheries policy group was wanting an update if you have one - checking in on how the socio-economic analysis is coming along for this work referred to in the attached document.

Specifically:

Socio-Economic Analysis: A peer-reviewed process led by DFO Policy, socio-economic analysis estimates the costs and benefits to Canadians of species protection and recovery measures, and assesses the regional impacts and distribution of costs and benefits.

Thanks,

Carmen Matthews
Manager, Corporate Statistics & Research
Corporate Governance, Policy & Legislation
Ministry of Agriculture
New phone# 778 698-3652 | Cell: 250 812-9018

From:	Kenyon, Robyn
To:	Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX
Cc:	Turner, Michael R AGRI:EX; Grout, Jeff; Candy, John; Lowe, Carmel; Kennedy, Eddy
Subject:	RE: Steelhead Emergency Listing - Fed/Prov Executive Committee - AGENDA
Date:	Tuesday, December 11, 2018 10:23:48

Good morning,

Please see our action items from yesterday's call. I will be cancelling the Jan. 7 call due to a scheduling conflict - apologies for the inconvenience.

December 10 Action Items:

- **Action:** Committee members to weigh in by Dec. 21 on proposal to provide Steelhead emergency listing process updates in 2019 via Fed/Prov Exec Cmttee for White Sturgeon (as listing package will have left region Dec. 31)
- **Action Carried Over:** Fed-Prov consultation meeting to be scheduled by DFO in new year focused on lessons learned
- **Action Carried Over:** BC (via Andy Witt) to indicate how long BC requires for CBA review (draft CBA shared Dec. 6)

Thank you,

Robyn

-----Original Appointment-----

From: Kenyon, Robyn

Sent: Monday, June 25, 2018 4:23 PM

To: Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Davis, Jennifer C FLNR:EX; 'Kerr-Upal, Manjit ENV:EX'; Maxwell, Marla; Ted.Zimmerman@gov.bc.ca; david.travia@gov.bc.ca; Witt, Andy FLNR:EX; 'Larry.Neilson@gov.bc.ca' (Larry.Neilson@gov.bc.ca)

Cc: 'Turner, Michael R AGRI:EX'; AGRI IGRS/FPT Events AGRI:EX; Grout, Jeff; Candy, John; Carmel Lowe; Kennedy, Eddy

Subject: Steelhead Emergency Listing - Fed/Prov Executive Committee - AGENDA

When: Monday, December 10, 2018 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: Conference Call: 1-877-413-4781 Conf ID:s.15 (DFO CONF Vancouver-401BurrardSt-14-Fraser CONF MPO)

Please let me know if you are able to attend and if there are any agenda items you would like to put forward.

As requested, the Regional Director of DFO's Science Branch (Carmel Lowe) and Division Head (Eddy Kennedy) will attend to discuss the recovery potential assessment (RPA) and the Canadian Science Advisory Secretariat (CSAS).

Draft Agenda for December 10:

1) Review of last meeting's Action Items

2) **Overview of CSAS process**
   - Structure and role of Science Branch w/in department, and structure and role of CSAS
   - Process to develop Science advice, including for Steelhead RPA
   - Status update on Steelhead RPA components, specifically ResDoc finalization

3) **BC's content and process concerns**
   - Provide opportunity for BC to reiterate their concerns regarding content and process
   - Provide feedback on how BC comments were considered in SAR development and finalization

4) **Looking ahead/next steps**
   - Timelines/process to finalize ResDoc

- Emergency Listing Process Next Steps

5) Steelhead Emergency Listing Process Updates in 2019

December 3 Action Items:

- **Action:** Fed-Prov consultation meeting to be scheduled by DFO in new year focused on lessons learned
- **Action:** DFO to track DM to DM letter regarding BC's position on listing
- **Action:** DFO to follow-up on BC request to withdraw RPA SAR
- **Action:** DFO (J. Sidhu) to share draft CBA with BC for review
- **Action:** BC (via Andy Witt) to indicate how long BC requires for CBA review

Thank you,

Robyn Kenyon
A/ Team Lead - Salmon | Chef d'équipe par intérim – saumon
Species at Risk | Espèces en péril
Fisheries Management | Direction des pêches
Department of Fisheries and Oceans | Pêches et Océans Canada
200-401 Burrard Street | 401, rue Burrard, bureau 200
Vancouver, BC | C.-B. V6C 3S4
Phone | téléphone: (604) 666-2074
Robyn.Kenyon@dfo-mpo.gc.ca

From:	Turner, Michael R AGRI:EX
To:	Travia, David V AGRI:EX; Neilson, Larry AGRI:EX
Cc:	Romanin, Kevin AGRI:EX
Subject:	RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
Date:	Monday, December 10, 2018 14:00:17

Looks good!

From: Travia, David V AGRI:EX
Sent: December 10, 2018 1:58 PM
To: Neilson, Larry AGRI:EX ; Turner, Michael R AGRI:EX
Cc: Romanin, Kevin AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Few more changes – please take a look

James:

Attached is a briefing note that covers an emerging BC-DFO issue on the steelhead front. The note highlights disagreements between BC science staff (FLNR & ENV) and DFO in what was included in a final Science Advice Document (SAR), that has now been made public.

- The SAR is part of a broader Recovery Potential Assessment (RPA) being led by DFO.
- The RPA follows the usual process outlined by the Canadian Science Advisory Secretariat (CSAS), which results in 3 deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:
    1. **Science Advice Document (SAR)**: this is a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants.
    2. **Research Document:** this document is authored by experts and is submitted for the peer-review process. This document is not yet public.
    3. **Proceedings**: this document is developed by the CSAS Secretariat and provides a public record of the format, discussion, and decisions made in the peer-review meeting. The Proceedings are not yet publicly available.
- The ENV and FLNR concerns center on the content of the final published SAR being different from what they had provided.
- This issue was discussed on a call today that included DFO Science staff (DG Carmel Lowe and others).
- It became clear on the call that FLNR and ENV may not have completely understood the RPA process when going into it. Specifically, that BC science staff were just a single contributor in a multi-stakeholder forum that considers diverse perspectives from academia, First Nations, NGOs, Industry, etc. Instead, ENV and FLNR appear to see the process as bilateral.
- FLNR and ENV have officially requested DFO remove the public document and have continued to highlight issues of trust between DFO and BC science staff. They also noted that they may stand down from the process.
- DFO Science have committed to ensuring the views of ENV and FLNR scientists will be represented in the Proceedings document. They have clarified that the Province is free to differ from the views of DFO, as presented in the SAR, and brief up accordingly.

s.16

and FLNR's Minister will be meeting soon with DFO Minister Wilkinson to discuss the issue. There is some concern that FLNR staff advice on this issue may potentially put their Minister in an awkward position considering the high level of cooperation and collaboration between BC and DFO currently underway as we move forward with the development of the BCSRIF.

David Travia, MPA
Director | Intergovernmental Relations, Trade and BC Seafood Secretariat
Corporate Governance, Policy and Legislation Branch | Ministry of Agriculture
Ph: 778 974-3764

From: Neilson, Larry AGRI:EX
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To: Turner, Michael R AGRI:EX; Travia, David V AGRI:EX
Cc: Romanin, Kevin AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Thanks Mike – a couple of minor edits to consider.

Larry

From: Turner, Michael R AGRI:EX
Sent: Monday, December 10, 2018 12:43 PM
To: Neilson, Larry AGRI:EX; Travia, David V AGRI:EX
Cc: Romanin, Kevin AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Some updated bullets to consider:

- Attached is a briefing note that covers another emerging BC-DFO issue on the steelhead front. The note highlights disagreements between BC science staff (FLNR & ENV) and DFO in what was included in the final public paper (the SAR).
- On a recent BC-DFO steelhead call, this issue got a little heated, but ultimately DFO handled it very professionally, and deferred the discussion to a December 10th call that included DFO Science staff (DG Carmel Lowe and others).
- It became clear in the Dec 10 call that FLNR and ENV did not completely understand the scientific (CSAS) process, thinking that it was more a bilateral process as management agencies, especially for document edits and comments. BC science staff were in this case just a single contributor in a multi-stakeholder forum within DFO's broader scientific process, which considers all input.

s.16

s.16

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Sent: December 7, 2018 5:40 PM
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- This note was drafted by MENV and FLNR staff to provide information to ADMs on this issue, and AGRI have provided input/comments which mostly has been included

s.16

Just my thoughts for consideration..
Larry

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To: Travia, David V AGRI:EX; Neilson, Larry AGRI:EX; Davis, Jennifer C FLNR:EX
Cc: Witt, Andy FLNR:EX; Zimmerman, Ted FLNR:EX; Turner, Michael R AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Awesome. Let's all send this forward.

Here in ENV, its going up now.
Manjit

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Sent: December 5, 2018 12:32 PM
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I've taken a crack at addressing your comments. Can you see if this current version works?

- I did not change mentions of COSEWIC (and DFO's) concerns re: freshwater habitat (in addition to bycatch) as that aspect was not changed in the SAR report. The report changed only references to bycatch. I included mention of freshwater habitat quality for completeness sake, in the background. Was there somewhere in particular you thought I should include this later in the note?
- I adjusted the last two paragraphs, to try and respond to your comments (continuity with next steps portion and tone). Let me know.

I'd like to move this up… supportive?

Thanks!

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Hi Manjit,

Please find some comments/suggestions in the attached. Thanks for the opportunity to review.

Best,

David

David Travia, MPA

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David/Michael

I'm just wondering on your thoughts on this note. I'd like to put it forward ASAP, but wanted to know if you had any comments first?

Thanks!

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Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Here is the DRAFT IN. I have had it reviewed by FLNRO Branch, Region and ENV.

AGR content and comments welcome.

Possible to respond tomorrow am as I'd like to move this up. It essentially brings our ADMs up to speed on current status.

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Thanks Manjit,

It would be great to have an IN to bring all the ADMs up to speed on this. As we've seen recently with the work going on between our agencies on Indigenous Reconciliation, aquaculture in the Broughton, and wild salmon, it is always helpful to have all the NRS ADMs engaged. Looking forward to the IN.

David

From: Kerr-Upal, Manjit ENV:EX
Sent: Monday, December 3, 2018 7:42 PM
To: Neilson, Larry AGRI:EX
Cc: Travia, David V AGRI:EX; Davis, Jennifer C FLNR:EX; Dale, Alec R ENV:EX; Witt, Andy FLNR:EX; Turner, Michael R AGRI:EX; Zimmerman, Ted FLNR:EX
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You are correct Larry.

I have drafted a IN for ADMs on the science situation. I was waiting for this am before finalizing it

Let's talk tomorrow... happy to share as I think Flnro chain has been briefed, here at env it's a verbal briefing to adm only ... this IN was to go up tomorrow

Manjit

Sent from my iPhone

On Dec 3, 2018, at 11:07 AM, Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca> wrote:

> Quick question folks...I recall that Alec Dale will coordinate the DM to DM letter correct? As per usual for a SARA list. We really will need a full government of BC view on this. Perhaps an NRS ADM Briefing note?
>
> Cheers, Larry
>
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> **From:** Kenyon, Robyn [mailto:Robyn.Kenyon@dfo-mpo.gc.ca]
> **Sent:** Friday, July 13, 2018 3:50 PM
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Where: Conference Call: 1-877-413-4781 Conf ID: s.15 (Tentative: DFO CONF Vancouver-401BurrardSt-14-Fraser CONF MPO)

Please let me know if you are able to attend and if there are any agenda items you would like to put forward.

Draft Agenda for December 3:

1. Review of last meeting's Action Items
2. Update on Process and Timeline
- Recovery Potential Assessment
- DM-DM Letter: BC Position on Listing
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- Feedback to date
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October 29 Action Items:

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Thank you,

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Robyn Kenyon
A/ Team Lead - Salmon | Chef d'équipe par intérim – saumon
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Vancouver, BC | C.-B. V6C 3S4
Phone | téléphone: (604) 666-2074
Robyn.Kenyon@dfo-mpo.gc.ca

From: Gordon Gislason
To: Neilson, Larry AGRI:EX
Cc: Matthews, Carmen AGRI:EX
Subject: RE: Steelhead study
Date: Thursday, December 13, 2018 11:29:06
Attachments: Skeena Guides - Feb 1998.pdf
Skeena Watershed Sport Fishing - Nov 1991.pdf

Larry
Attached are two more reports re Skeena sport fishing/steelhead issues - you may send all these reports to DFO as they are all public documents.
Gordon

GSGislason & Associates Ltd.
405 - 535 Howe Street
Vancouver, BC, Canada
V6C 2Z4
ph: 604-685-7936
fax: 604-685-7993

From: Neilson, Larry AGRI:EX [mailto:Larry.Neilson@gov.bc.ca]
Sent: December 13, 2018 8:56
To: Gordon Gislason
Cc: Matthews, Carmen AGRI:EX
Subject: RE: Steelhead study

Morning Gord...I had a quick look at both of these and think they are both relevant. May I forward these to DFO (Jas and Patrick) and the BC Economist?
Thoughts?
Thanks Larry

From: Neilson, Larry AGRI:EX
Sent: Wednesday, December 12, 2018 7:45 PM
To: Gordon Gislason
Cc: Matthews, Carmen AGRI:EX
Subject: Re: Steelhead study

Thank you so much Gord! Will follow up tomorrow.
Cheers Larry

Sent from my iPhone

On Dec 12, 2018, at 4:59 PM, Gordon Gislason <gsg@gsg.bc.ca> wrote:

> Larry
> Attached is a study done for the FFFSBC based on the 2005 national survey - Appendix B gives regional profiles inc. steelhead catch & released (UBC Fisheries did a smaller study on the 2010 survey results for which they essentially followed my format).
> I will look for other reports - but I don't think that I have done a " steelhead-only " report.
> GG
> ----

GSGislason & Associates Ltd.
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Vancouver, BC, Canada
V6C 2Z4
ph: 604-685-7936
fax: 604-685-7993

From: Neilson, Larry AGRI:EX [mailto:Larry.Neilson@gov.bc.ca]
Sent: December 12, 2018 16:22
To: GSG@GSG.bc.ca
Cc: Matthews, Carmen AGRI:EX
Subject: Steelhead study

Hi Gord: do you have an e-version of your steelhead study (ies)? I have hard copy of the 1991 Skeena paper.

BTW – DFO said we can't share the CBA yet....

Cheers, Larry

Larry Neilson
Marine Fisheries and Seafood Policy
Corporate Governance Policy and Legislation Branch
Ministry of Agriculture
Phone (778) 974-3833 NEW Fax (250) 387-0357
Mobile (250) 889-5054
Larry.Neilson@gov.bc.ca

From: Gordon Gislason
To: Neilson, Larry AGRI:EX
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Subject: RE: Steelhead study
Date: Wednesday, December 12, 2018 16:59:14
Attachments: FFSBC Report - Revised Final.pdf

Larry
Attached is a study done for the FFFSBC based on the 2005 national survey - Appendix B gives regional profiles inc. steelhead catch & released (UBC Fisheries did a smaller study on the 2010 survey results for which they essentially followed my format).
I will look for other reports - but I don't think that I have done a " steelhead-only " report.
GG

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From: Neilson, Larry AGRI:EX [mailto:Larry.Neilson@gov.bc.ca]
Sent: December 12, 2018 16:22
To: GSG@GSG.bc.ca
Cc: Matthews, Carmen AGRI:EX
Subject: Steelhead study

Hi Gord: do you have an e-version of your steelhead study (ies)? I have hard copy of the 1991 Skeena paper.
BTW – DFO said we can't share the CBA yet....
Cheers, Larry

Larry Neilson
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From: Mack, James AGRI:EX
To: Travia, David V AGRI:EX
Cc: Neilson, Larry AGRI:EX; Turner, Michael R AGRI:EX; Romanin, Kevin AGRI:EX
Subject: Re: Update on Steelhead
Date: Monday, December 10, 2018 15:18:26

I think a discussion would be a good idea.

Thanks for the update

Sent from my iPhone

On Dec 10, 2018, at 5:56 PM, Travia, David V AGRI:EX <David.Travia@gov.bc.ca> wrote:

> James:
> The information below and attached is FYI to apprise you of some issues around steelhead. The attached BN highlights disagreements between BC science staff (FLNR & ENV) and DFO in what was included in a final Science Advice Document (SAR), that has now been made public.
>
> <!--[if !supportLists]-->● <!--[endif]-->The SAR is part of a broader Recovery Potential Assessment (RPA) being led by DFO.
>
> <!--[if !supportLists]-->● <!--[endif]-->The RPA follows the usual process outlined by the Canadian Science Advisory Secretariat (CSAS), which results in 3 deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:
>
> <!--[if !supportLists]-->1. <!--[endif]-->**Science Advice Document (SAR)**: this is a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants.
>
> <!--[if !supportLists]-->2. <!--[endif]-->**Research Document:** this document is authored by experts and is submitted for the peer-review process. This document is not yet public.
>
> <!--[if !supportLists]-->3. <!--[endif]-->**Proceedings**: this document is developed by the CSAS Secretariat and provides a public record of the format, discussion, and decisions made in the peer-review meeting. The Proceedings are not yet publicly available.
>
> <!--[if !supportLists]-->● <!--[endif]-->The ENV and FLNR concerns center on the content of the final published SAR being different from what they had provided.
>
> - This issue was discussed on a call today that included DFO Science staff (DG Carmel Lowe and others).
> - It became clear on the call that FLNR and ENV may not have completely understood the RPA process when going into it. Specifically, that BC science staff were just a single contributor in a multi-stakeholder forum that considers diverse perspectives from academia, First Nations, NGOs, Industry, etc. Instead, ENV and FLNR appear to see the process as bilateral.
> - FLNR and ENV have officially requested DFO remove the public document and

have continued to highlight issues of trust between DFO and BC science staff. They also noted that they may stand down from the process.

- DFO Science have committed to ensuring the views of ENV and FLNR scientists will be represented in the Proceedings document. They have clarified that the Province is free to differ from the views of DFO, as presented in the SAR, and brief up accordingly.

s.16

- ENV is considering bringing you, Jennifer and Tom together to discuss.

David Travia, MPA
Director | Intergovernmental Relations, Trade and BC Seafood Secretariat
Corporate Governance, Policy and Legislation Branch | Ministry of Agriculture
Ph: 778 974-3764

The Angling Guide Industry in the Skeena Watershed

An Assessment of Business Issues

Prepared for:

BC Ministry of Environment,
Lands and Parks (Victoria)

Prepared by:

Gordon Gislason

The ARA Consulting Group

February, 1998

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APPENDIX A OTHER INFORMATION

I. Introduction

Under the *Wildlife Act*, R.S.B.C 1996, c. 488, the British Columbia Ministry of Environment, Lands and Parks ("MELP" or "the Ministry") regulates the freshwater angling guide industry.

The method of guide regulation was overhauled in 1990 when MELP introduced the Classified Waters management system. Under this system, bodies of water were grouped into different use categories. The angling regulation under the *Wildlife Act* was again amended in 1997. One key change was the increase in fees charged to angling guides for their quota of rod-days. (A rod day is one guided angler fishing for any part of one day.)

Fish and fishable space are limited in their availability in the Skeena Watershed which is the most important freshwater guiding area in the province. As a result, conflicts have risen between guided and non-guided angling interests and between guides and other businesses that cater to visiting anglers.

The Ministry wants to understand better the business environment and the operational issues that face the guiding industry in the Skeena Watershed. (Exhibit 1). In order to do so, the Ministry has sponsored this study. The three main objectives are:

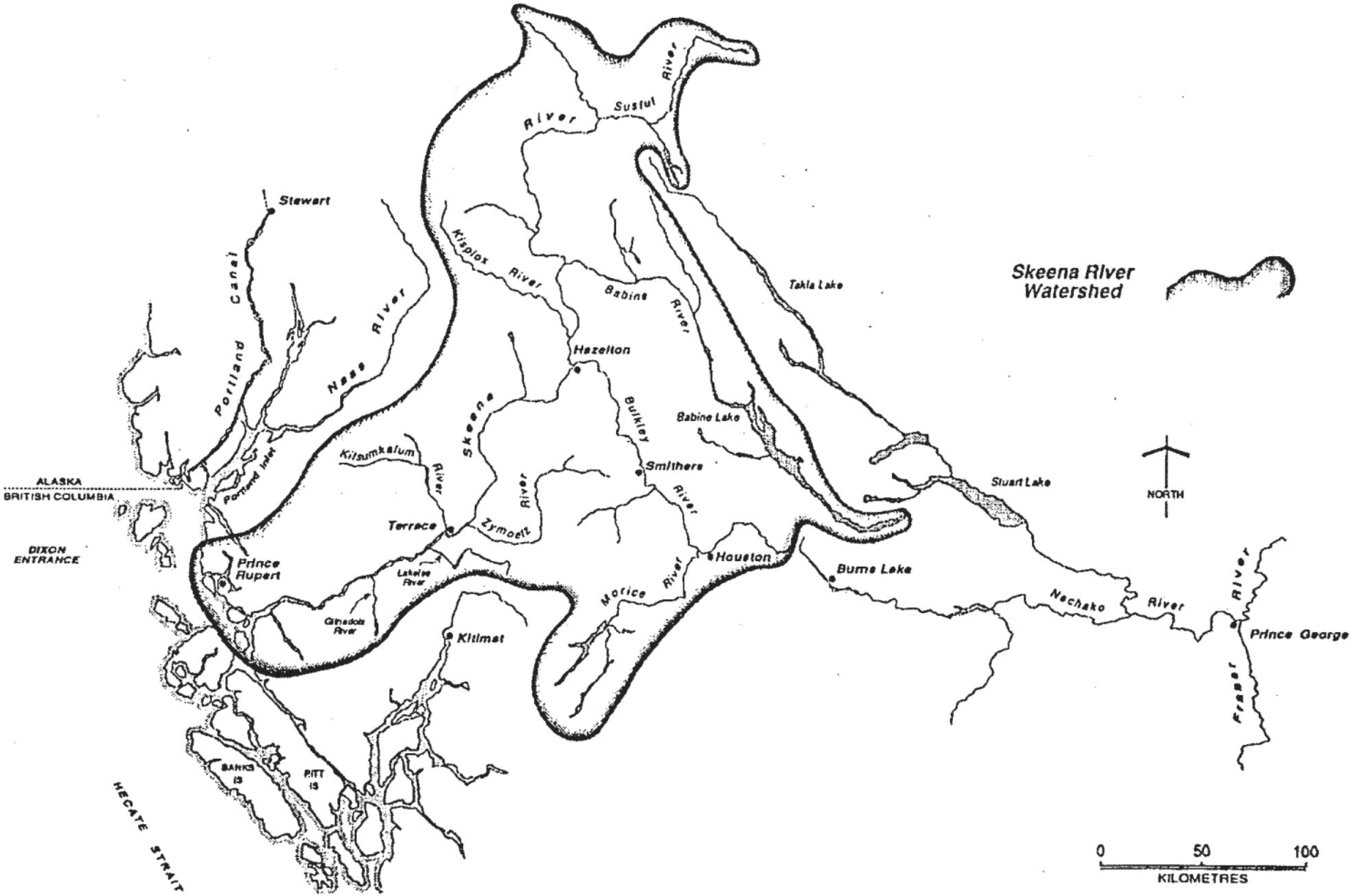
- to review and document the business characteristics of guides in the area;
- to assess the financial burden of the recent increase in guide fees; and
- to provide a preliminary assessment of the business impact of illegal guiding on licensed guides.

MELP can use the results of the study to consider guide business interests in future regulatory and policy decisions.

As part of the study, we visited Smithers and Terrace and interviewed several guides, MELP personnel, and other people. In total, we interviewed 30 individuals during the study (see Appendix A).

This assistance notwithstanding, we have sole responsibility for the results and conclusions of the study.

Exhibit 1: The Skeena Watershed



2. Regulation of the Angling Guide Industry

The guiding of anglers who wish to catch steelhead, chinook, coho, and other species is an important and high profile activity in the Skeena Watershed area and is an important component of the regional economy. The vast majority of guided angling clients are non-Canadian and come solely to the region in order to fish.

Two types of guide operations exist. Guides in the Upper Skeena area near Smithers cater mainly to fly fishermen who practice catch and release of steelhead. Most of these clients are American.

In contrast, guides in the Lower Skeena near Terrace have clients who are mainly bar fishermen seeking a consumptive, kill fishery for salmon. The majority of these clients come from Europe.

Guide Requirements

An angling guide instructs or assists a paying client in angling. Under the *Wildlife Act*, a fishing guide is:

> *Any person who, for compensation or reward, received or promised:*
>
> (a) *accompanies another person and assists that person to angle;*
>
> (b) *attends another person at or near an angling site in a manner that, directly or indirectly, assists that person to angle; or*
>
> (c) *transports, for the purpose of angling, another person to, from or between angling sites.*

Angling guides must have a guide licence which is available from MELP. An angling guide must:

- be 19 years of age or over;
- have not less than $500,000 in public liability insurance; and
- have a working knowledge of the *Wildlife Act* and applicable regulations and the federal *Fisheries Act*

In addition, guides must submit annual operating plans at the beginning of the year for approval by MELP. Angling guides must also provide an end-of-year report to MELP detailing actual angling activity during the year.

Angling guides may use the services of an assistant guide who must possess an assistant guide licence. Assistant guides must also understand the applicable regulations of the provincial *Wildlife Act* and the federal *Fisheries Act*.

The Classified Waters System

The Province introduced a new "Classified Waters" management system in fiscal year 1990/91. The purpose of this new system was threefold:

- to provide a diversity of angling opportunities;
- to maintain quality fishing; and
- to improve regulation of the angling guide industry.

Under the system, bodies of water in the province have been designated into one of three categories — Class 1, Class 2, and Unclassified.

Class 1 waters are remote, pristine, wilderness waterbodies with significant fisheries values and which are largely accessible only by boat or aircraft. The number of angling guides and the total number of guided angler days are specified in the *Wildlife Act* regulations. Each angling guide is limited to a finite number of guided angler days. Non-guided angling use can be limited but this has only been done for the Dean River in the Central Coast. The total number of angler days on these waters is defined in an Angling Use Plan which can also allocate these days between guided and unguided anglers, and among unguided anglers from BC, other parts of Canada, or from other countries.

Class 2 waters are more accessible but they still offer quality fishing experiences. Class 2 waters typically have more local use than Class 1 waters. The number of angling guides and the total number of guided angler days are specified in the *Wildlife Act* regulations. Each angling guide is limited to a finite number of guided angler days. The total number of angler days on these waters is defined in an Angling Use Plan which can also allocate these days between guided and unguided anglers, and among unguided anglers from BC, other parts of Canada, or from other countries.

In fiscal year 1990/91, MELP granted guides in the Skeena Watershed formal rod-day quotas on Classified Waters. The allocations were based on the guides' own estimates of actual rod-days in the late 1980s. Rod-day quotas are annual allocations and no carry-over of unused rod days into another year is permitted.

The number of guides is fixed on each Classified Water. Every guide must operate within his or her particular rod-day allocation. Many guides have allocations on more than one river system.

Rod-days are transferable between guides although approval must be granted by the MELP regional managers. (In the Skeena Watershed, the MELP regional manager is based in Smithers.) The transferral of rod-days must not result in an increase in total guides on a single river system. That is, a guide can sell part of his or her rod-day allocation on a river system to another guide who already operates on that river. However, if a guide wants to sell to someone who is not currently operating there, he or she must sell the total rod-day allocation. MELP does permit the leasing of rod-days.

Unclassified waters have no special restrictions in terms of allowable angler-days by residents or non-residents of BC.

The Skeena Watershed contains four of the seven Class 1 waters and 14 of the 35 Class 2 waters in the BC. (No guiding is allowed on four of the Class 2 waters in the Skeena Watershed.) Clearly the Watershed has been identified as the major quality freshwater fishing area in the province.

Proposed resource developments near Classified Waters face increased scrutiny by MELP before environmental permits are issued.

Classified Waters and Angling Guide Fees

Special licence fees apply to anglers fishing in Classified Waters during the restricted periods, namely:

	Class 1	Class 2
Resident of BC	$10 per year	$10 per year
Non-Resident of BC	$20 per day	$10 per day

In the Spring of 1997, MELP introduced an increase in daily angler-day fees to $40 per day for all non-residents for the 1997/98 fishing year. However, severe opposition by the tourism industry, partly due to the lack of sufficient notice time, caused MELP to rescind the increase.

Fishing guides currently pay a fee of $11 per day for each day of quota allocation on Class 1 and Class 2 rivers regardless of whether the quota rod-days are actually used. Prior to the 1997/98 season the rod-day fee was $1 per rod-day. The $10 per day increase introduced in 1997/98 consists entirely of a conservation surcharge which is dedicated to the Habitat Conservation Trust Fund and is used to fund the "Quality Waters River Guardian Program."

Angling guides and assistant angling guides also pay annual licence fees to MELP.

- an angling guide licence is $240 per year
- an assistant angling guide licence is $100 per year

Guides who purchase rod-days from another guide must pay a $300 transfer fee.

Exhibit 2: 1996/97 Guided Days on Classified Waters within the Skeena Watershed

	Water Class[a]	Maximum No. Licenced Guides	Maximum Quota Days Under Regulation[b]	Days Actually Guided		
				Quota Period	Non-Quota Period	Total
Babine[c]	Class 1	4	1,798	1,722	232	1,954
Bulkley[c]	Class 2	7	1,504	1,096	32	1,128
Ecstall	Class 2	4	163	132	0	132
Gitnadoix[c]	Class 1	5	300	132	0	132
Kitsumkalum	Class 2	13	959	461	6	467
Kispiox[c]	Class 2	4	393	217	14	231
Kluatantan[c]	Class 2	2	55	0	0	0
Morice[c]	Class 2	3	433	308	0	308
Skeena 2	Class 2	17	4,687	2,117	10	2,127
Skeena 4[c]	Class 2	10	1,000	135	0	135
Sustut[c]	Class 1	2	750	373	166	539
Zymoetz 1[c,d]	Class 1	3	250	16	2	18
Zymoetz 2[c,d]	Class 2	5	200	59	35	94
Total		NA	12,492	6,768	497	7,265

a There are four other Class 2 rivers in the Skeena watershed but no guiding is allowed on them (the Kitseguecla, Kitwanga, Lakelse, and Suskwa Rivers).

b Restrictions on guided rod-days apply only to a specific time period. For example, restricted use of the Sustut River applies from September 1 to October 31 of the year (and guided rod-days during this period are called "quota days").

c Upper Skeena area (the remainder are Lower Skeena).

d The Zymoetz River is commonly called the "Copper River".

Source: MELP, Smithers preliminary estimates.

3. The Business of Guiding Anglers

Under the *Wildlife Act,* there is a maximum of 12,492 guided rod-days allowed in the Classified Waters of the Skeena Watershed (see Exhibit 2). These rod-days are divided about evenly between the Classified Waters of the Lower Skeena and the Upper Skeena.

Approximately 10,800 rod-days of the 12,492 were allocated to individual guides and 6,768 or 63% of these were actually used in 1996/97.

The guiding industry earned revenues of approximately $2 million from guiding anglers in the Classified Waters of the Skeena Watershed in 1997/98. This figure excludes revenues from guiding in non-Classified Waters.

Clients of angling guides can be separated into approximately 5% BC residents, 10% other Canadian residents, and 85% non-residents of Canada.

Different Types of Guided Packages

Guiding for anglers is a service industry which is an important component of the regional economy. Services provided include transporting anglers to the fishing grounds and providing assistance in fishing techniques at the angling site. The industry offers a wide variety of guiding products. Some packages include the provision of equipment, accommodation, and meals in addition to guiding services.

Exhibit 3 displays a profile of four different guided angling packages and experiences in the Skeena Watershed. These are:

- day guide service in Lower Skeena;
- two week European-style fishing lodge experience in Lower Skeena;
- one week guide service package in Upper Skeena; and
- one week fly-in fishing lodge experience in Upper Skeena.

The Lower Skeena packages are directed at fishing salmon, specifically chinook, while the Upper Skeena packages are directed at fishing steelhead. Where there is road access to the fishing grounds, guides will normally pick up clients by car at either the Terrace (for Lower Skeena anglers) or the Smithers (for Upper Skeena anglers) airports. The fly-in fishing lodges of the Upper Skeena use planes or helicopters to transport clients from Smithers.

The typical angling packages described in Exhibit 3 are based on our interviews. They are illustrative only and do not represent any particular guide operations. The intent is to display the diversity of fishing experiences in and business arrangements of the guiding industry.

Exhibit 3: Economic Characteristics of Typical Guiding Packages in the Skeena Watershed 1997

	Lower Skeena		Upper Skeena	
	Guide Only	European-Style Lodge	Guide Service Package	Fly-In Lodge
Fishing Experience				
Classified Water	Class 2	Class 2	Class 2	Class 1
Target Species	mainly salmon	mainly salmon	mainly steelhead	mainly steelhead
Gear Used	mainly lures	mainly lures	mainly flies	mainly flies
Type of Fishing	consumptive	consumptive	catch & release	catch & release
Typical Package				
Duration	1 day	14 days	7 days	7 days
Includes: accommodation?	no	yes	yes	yes
meals?	lunch only	yes	yes	yes
gear?	yes	yes	no	no
fish care?	no	yes	N/A	N/A
licences?	no	no	no	no
Price (Cdn dollars)[a]				
Total Package	$180	$2,100	$2,450	$3,500
Per Day Per Person	$180/day	$150/day	$350/day	$500/day
Angler to Guide Ratio	2.5 to 1	8 to 1	2 to 1	2 to 1
Client Origin	mainly US & Europe	Germany, Austria, Switzerland	mainly US	mainly US
Quota Utilization	40%	65%	65%	80%
Typical Revenue Distribution				
Wages[c]	50%	35%	45%	35%
Purchases Goods & Services	30%	45%	29%	32%
Guide Licences/Fees	17%	10%	6%	3%
Residual[b]	3%	10%	20%	30%
	100%	100%	100%	100%

a Prices are before GST but after booking fees, discounts and airfare to Terrace or Smithers have been deducted.
b To cover interest payments, depreciation, and before-tax profits.
c Includes a wage to the guide-operator.

There are significant differences between the four types of operations:

- The steelhead guide packages in the Upper Skeena tend to cater to more affluent anglers than do the salmon guide packages in the Lower Skeena;
- The European-style lodge operation has the lowest daily rate despite its all-inclusive service components — it relies on a longer duration package (two weeks), high volumes, and a high angler-to-guide ratio. These lodges market to the middle class of western and central Europe (Germany, Austria, Switzerland, etc.) rather than to more affluent anglers;
- Many guides, especially at the high end, price their packages in US dollars. The European style lodges near Terrace typically price their packages in German marks;
- Clients of Lower Skeena lodges may not fish every day. Or, they may choose to fish for one or two days in saltwater near Prince Rupert;
- The fly-in lodge operation charges the highest daily rate because it encompasses: significant transport costs from Smithers, a private wilderness fishing experience, greater personalised service, and a greater willingness/ability to pay on the part of its customers;
- The guide who offers daily guide services may partner with an independent accommodation business to provide a "package", but the customer pays for each service component separately;
- The advance booking time for daily guide packages is typically much shorter than for fishing lodge packages. In fact, clients of European-style lodges often plan their vacations and book their packages two to three years in advance; and
- The steelhead fishing experience in the Skeena Watershed is a unique experience because of: the summer/fall season, the large size of fish, the fact the fish are wild, the relatively uncrowded conditions, and the beautiful wilderness setting.

Packages have evolved over time. Some Skeena guides used to provide guide services only and arranged for angler accommodation and meals at separate establishments. Now more guides are building lodges or other accommodation units and providing all-inclusive packages.

Guide Business Requirements

Angler guiding is a service business with a largely foreign client base. Accordingly, normal business practices such as following exchange rate fluctuations and tailoring the product to meet client demand apply to this industry.

However, the guiding business is also somewhat different from many other businesses. The industry relies heavily on a healthy natural resource and environmental setting and the government regulates the industry extensively in order to sustain the quality of the fisheries resource.

All guiding businesses provide the expectation and opportunity to catch fish. This product is affected by three main factors.

- the resource;
- government regulation; and
- internal and external business issues.

The guiding industry needs healthy fish stocks with strong resource management. It needs predictable, transparent and fair regulations, that is , legal and policy certainty. Guide operators must also have strong business skills and a skilled workforce. Finally, external economic factors such as exchange rates and business cycles will have major impacts on the profitability of the operations.

Exhibit 4 displays what we consider to be the critical factors to a successful guiding business.

The Key Role of Rod-Day Tenure

Rod-day allocations are only applicable to the Classified Waters. For those guides who do operate on Classified Waters, the property rights associated with the rod-days are central to their business planning and profitability.

In 1996 MELP undertook a review of angling guide policy. During the review a mechanism whereby the Ministry could readjust the allocation of guide rod-days was discussed. Under the existing regime guided rod-days in each Classified Water were fully allocated. Only a sale or lease of these days by a guide with a quota would create an opportunity for an existing guide operation to expand or for a new guide to enter the business.

In 1997 MELP added section 11.1 to the Angling and Scientific Collection Regulation, BC Reg 125/90 to provide for the adjustment of angler days quotas. In essence, the new provision gave MELP Regional Managers the power to rescind rod-day quotas that were not being used, if the overall allocation of guided angler days determined by the Angling Use Plan was revised downward. However, MELP has not yet developed the formal criteria to identify unused angler days or the procedures to recall angler days.

Exhibit 4: Elements of a Successful Guiding Business

The Natural Environment

- healthy fish resource
- fish available during a long "window" period
- scenic setting
- lack of crowding
- good weather and water conditions
- absence of resource degradation, e.g., washouts from upstream logging

The Regulatory Environment

- simple, predictable and fair regulations for guides and their angler-clients
- appropriate licence, permit, and user fees
- strong legislation
- strong enforcement
- strong environmental protection by non-fish resource users, e.g., forestry, mining
- secure tenure or property rights to rod-days
- effective resource management including management of upstream and downstream fish users
- meaningful consultation before changes to MELP regulations and policies
- 1 to 2 year advance notice before changes to MELP regulations and policies
- a partnership relationship between MELP and guides

The Business Environment

- know client needs and wants
- generate customer goodwill and trust
- professional and skilled operators and workers
- high level of repeat business (given the cost of marketing)
- bring a multitude of skills, e.g., a skilled teacher, entertainer, biologist
- low Canadian dollar versus US dollar, German mark to attract foreign customers
- buoyant US and German economies
- effective marketing
- an effective guide association to present a strong, cohesive voice
- a partnership relationship between guides and MELP

In the Skeena Watershed, some guides have reportedly tried to buy or sell unused quota days in the last year but the transactions were not approved by the MELP Regional Manager in Smithers.

The result has been considerable uncertainty within the industry concerning the security or tenure of rod-days, the very foundation of the guiding business on Classified Waters. Guides face considerable difficulty in planning their business operations because they are unsure how the Regional Manager in Smithers will exercise his considerable discretionary powers.

Guides view the "use it or lose it" principle embodied in the 1997 legislation as unfair. They argue that:

- There was no to little directed discussion on this issue during the 1996 angling guide policy review;
- Many guides purchased rod-days in the open market at full market value after 1990;
- Angling guides pay the same annual rod-day fee for used and unused rod-days;
- The provision could undermine their property rights, their asset base, and their business sale value in violation of the provisions of the 1990 guide policy and legislation; and
- Some guides now question the motives and decisions of the Ministry

Other uncertainty issues also exist with respect to MELP guide policy. For example, what happens to the rod-day quotas of a guide who dies? Do they become part of the estate?

The guides who we interviewed consider the uncertainty over rod-day allocations to be the number one contentious issue in guide policy.

The Difficulty in Meeting Rod-Day Quotas Each Year

The initial rod-day allocations to guides in 1990 were based on estimates of guiding activity (provided by the guides themselves) in the late 1980s. This was a period of exceptional chinook and steelhead runs and guiding activity increased accordingly. In fact, the primary reason for the new guide policy of 1990 was the rapid growth of the industry and the shared desire to protect the angling experience.

MELP personnel and guides alike acknowledge that there was little verification of estimates of guide activity during the grandfathering period. Some guides overstated their historical use and received inflated rod-day quotas. (Some of these inflated rod-day quotas were sold in the early 1990s).

Both these reasons — strong fish runs in the late 1980s and inflated use estimates — account for some of the fact that actual guided rod-days in the Watershed are 37% less than the available quota rod-days. However, guides also identify other reasons for not using rod-days, namely:

- Last minute cancellations occur and these cannot be rebooked (many anglers book a year in advance);
- Adverse water conditions such as floods can prevent planned angling activity (one or two such events may occur each year in each river system); and
- It takes time to build a business.

The latter point requires clarification. A person planning to expand his or her guide business will normally acquire the additional rod-day quota before building infrastructure. This in turn means that there is a lag in time between obtaining the new higher rod-day level and expansion of the business base.

Accordingly, a guide may not use his or her rod-day quotas in a given year for several reasons, many of which are legitimate and beyond the control of the guide. The rod-day quota is an annual ceiling and guides cannot carry over unused rod-days to subsequent years. (This provision reflects the limited availability of the fish resource.)

We note that the quotas assigned to big game guide outfitters in BC are more flexible than those assigned to angling guides. For example, a guide outfitter may be allowed to take nine grizzly bears over three years with a maximum take of four in any year.

This administrative flexibility, which reflects differences between wildlife and fisheries resources, enhances business planning for the guide outfitter. Angling guides do not have access to this same flexibility — fish resources fluctuate more widely on an annual basis,

Guide Business Viability Today

Operations in the Upper Skeena that target steelhead anglers appear to be more viable than those in the Lower Skeena. Steelhead angling is a more unique product so these operations face less competition in the international marketplace. And, as we explore in Section 5, competition from illegal guide operations appears to be a more serious problem in the Lower Skeena than in the Upper Skeena.

There is significant potential for the industry as a whole to be more profitable and to generate greater local economic benefits. But this will require stronger resource management, more efficient government regulation, and enhanced business skills (see Exhibit 4).

The guide industry, MELP, and the public also need much better information on the angling guide industry in the Skeena Watershed. Exhibit A.2, Appendix A, displays what we view to be the most pressing data needs.

4. The Issue of Guide Fees

In April 1997, MELP announced significant increases in guide fees for the 1997/98 season:

- an increase from $1 to $11 per day for each day of quota allocation on Classified Waters (regardless of whether the quotas are actually used);
- an increase from $200 to $240 for a basic guide licence; and
- an increase from $50 to $100 for each assistant guide licence.

The Habitat Conservation Trust Fund receives $10 of the $11 rod-day fee, $40 of the $240 guide licence fee, and $20 of the $100 assistant guide licence fee.

Impact of the Fee Increases

Increased guide fees increase the costs of guiding and therefore **decrease the net returns available to the business** in the absence of offsetting revenue increases. However, if some or all of the fee increases can be passed forward to clients, the full burden ("incidence") of the licence fee will not fall to the guide.

The ability to pass cost increases onto clients depends on the competitive structure of the industry. Guides in the Upper Skeena appear better able than their colleagues in the Lower Skeena to pass on cost increases to their clients. The steelhead angling experience in the Upper Skeena is a more unique, and consequently valuable, experience for angling clients. And, steelhead angling clients are typically more affluent. Guides in the Lower Skeena offer salmon angling experiences and they face stiff competition in Alaska and elsewhere.

However, the MELP announced the 1997/98 fee increases at the onset of the season. As a consequence, guides in both Upper and Lower Skeena had virtually no ability to pass on cost increases in 1997. Most angling packages are booked six or more months in advance; 50% or more clients are repeat clients and they often book the next year's trip on the last day of their current vacation. In recognition of the relative lateness of the announcement, the MELP instituted a deferred payment schedule program for guides for the 1997 season.

Over time, some (but not all) of the guiding and rod-day fee increase can be passed onto clients without losing business volume. Our estimates of the burden of guiding fee increases vary depending on the time horizon.

In 1997, the cost of guide fees and permits increased from approximately 1% to 6% of industry revenues overall in the Skeena Watershed. Given that industry had no time to react, the entire cost increase was borne by the guides themselves in 1997. The 1997 cost of fees represent essentially all of the guides' normal net profit before tax after drawing a reasonable wage for themselves and any family members working for them. The burden of the fee increase was especially severe for Lower Skeena guides (see Exhibit 3, Section 3).

In 1998 and beyond, the guide industry does have some ability to pass on part of the increase in fees to their clients. But as we indicated earlier, steelhead guides in the Upper Skeena have greater ability to do so than salmon guides in the Lower Skeena.

Some guides who we interviewed have increased their package rates for 1998, partly in response to the new $11 per rod-day fee. Others have kept their rates the same. These guides may be absorbing the entire increase in licensing costs at the expense of their profits.

One would also expect an increase in government fees to **decrease the trading or market value of rod-day quotas**. Although estimates vary widely, these quotas can range in value from $100 to $150 per rod-day on Class 2 salmon rivers in the Lower Skeena and from $300 to $700 per rod-day on steelhead rivers in the Upper Skeena.

The market value of a rod-day quota depends on its future stream of earnings potential. A rod-day allows its owner to earn income from one rod-day of guiding each year. If costs increase, because the rod-day fee increases for example, then the earnings potential of a rod-day quota falls and so too should its market value.

A rule of thumb is that for every one dollar decrease in net income per rod-day, the rod-day trading value decreases by five dollars. That is, if the full $10 increase in rod-day fees in 1997 was borne by the guide, then the trading value of rod-days would decrease by $50.

Guides who we interviewed confirm that the market value of rod-days decreased in 1997 as a result of the increased rod-day fee.

The Rationale for Licence Fees

The rationale for guide fees is tied to the rationale for licensing guides. Put simply, limited entry licensing of guides can benefit the resource, the guiding industry, and the general public.

The resource can benefit because licensing can facilitate resource management and conservation. Limited entry licensing of guides can also benefit industry by creating barriers to entry. Restricted competition enhances the economic viability of industry participants.

The public as resource owner can benefit since fish are a valuable resource and potentially can generate significant revenues or access fees akin to those from forestry, minerals, oil and gas, and other natural resources.

These benefits come at a cost. The Ministry is the management authority for BC freshwater fisheries and as such, incurs considerable costs to undertake this responsibility.

The rationale for licence or other fees to guides can fall into one of two main categories:

- **Cost recovery** – reimburse MELP for management services provided, i.e., the "user pay" principle; and
- **Rent recovery** – capture some of the private benefits received under restricted access to a public resource.

The Rationale for the 1997 Fee Increase

MELP embraced both rationales for implementing the fee increases in 1997. MELP wanted to recover reasonable "rent" on behalf of the public for the private use of a scarce resource. As well, MELP sought to direct the increase to the Habitat Conservation Trust Fund (HCTF) to fund the River Guardian Program launched in 1997.

Many guides view the fee increases as nothing more than a "tax grab" despite the fact that MELP is funnelling the money into the HCTF. Guides and other people assert that in the past HCTF projects have had a very low profile in the region. Accordingly, the industry was skeptical of any license fee increase that would purportedly fund the HCTF.

The River Guardian Program

The Habitat Conservation Trust Fund did fund the Quality Rivers Program, of which River Guardian Program (RGP), is the major component. Under the RGP, four Guardians were hired to enforce MELP regulations and to collect information on three rivers in the Skeena Watershed between late July and November 1997. All three rivers —the Bulkley, Babine, and Kispiox Rivers — lie in the Upper Skeena Watershed.

The Guardians were given Deputy Conservation Officer (CO) status. Each patrol consisted of one regular Conservation Officer and one Guardian.

During the course of the season, the River Guardians contacted or checked 1,192 anglers and completed 758 angler surveys. In addition, the Program included the use of 12 helicopter flights over the Bulkley River to monitor aggregate angling activity. Information from MELP indicates that 76 enforcement actions were initiated as a result of the Program.

Guide Fees and the Guardian Program

We offer several comments:

- In 1997, guides on the 14 Classified Waters in the Skeena Watershed where guides are permitted paid increased rod-day fees but the River Guardian Program operated on only three rivers, all of which lie in the Upper Skeena. (However, it appears that MELP plans to expand the program to the Lower Skeena in 1998);
- Management of anglers on rivers can be viewed as MELP's statutory ("base budget") responsibility and not a special initiative;
- Due to budget cutbacks however, MELP is experiencing difficulties in executing its mandated enforcement responsibilities;
- The rod-day fee is $11 per day for both Class 1 and Class 2 waters but guides in Class 1 waters typically have higher package rates and greater profit margins and, therefore, are better able to pass on fee increases to their clients;
- The guides view the fee increases as coming at a time when there is less fish in the river and less MELP presence in the field, that is, they are being asked to pay more and receive less;
- The industry needs a phase-in period for large fee increases; this did not happen in 1997 where little advance notice was given;

- The perception of the guiding industry is that Conservation Officers (COs) are making hunting enforcement their first priority over angling enforcement. That is, when there are competing demands on their time, the COs will investigate hunting issues first;
- The guides partially paid for the River Guardian Program but had no say as to how it operated in 1997;
- Guides have mixed views as to the effectiveness of the Program's enforcement. Some guides thought that the Program targeted guides and their clients unjustly. In contrast, other guides thought that it was beneficial to themselves and their clients to have the guardians on the river system; and
- Most guides and anglers support an increased enforcement presence . Merely seeing the guardians on the river is important because it reinforces MELP's stewardship role on the river.

As we explore below, the guiding industry appears willing to pay more for fisheries management services such as the $11 per rod-day fee if its members see direct benefit and if they are involved in the implementation process.

Accountability and Willingness-to-Pay

Based on our discussions with guides and our experience in other resource-dependent sectors, we believe that angling guides are willing to pay the $11 per day rod fee, but only under certain conditions:

- Fees must be earmarked to programs of direct benefit to guides;
- Guides have some input into how funds are spent;
- MELP must improve its relationship with guides and try to understand how the guiding business operates;
- Guides receive increased security or tenure under the guide licensing system;
- Fees must be predictable to facilitate business planning; and
- Fees must be fair across segments of the guiding community.

Most of these conditions were not met in 1997.

In our view, the major problem with the 1997 fee increase was not the fee increase per se, but rather the timing and implementation process. Moreover, the fee increase came during a period of difficulty in the relationship between the guiding community and the Ministry. This topic is explored further in our closing Section 6.

Becoming Shareholders

That the guiding industry would resist MELP's fee increases is understandable. No one wants to pay more, unless one receives something in return. The guide industry would be more willing to pay the increased fees if it received in exchange greater influence on MELP decisions that affect the industry.

Currently guides are "stakeholders" on industry regulation and management, often watching from the sidelines. As "shareholders", they could be more actively involved and have greater responsibility. More input would empower the industry.

In addition, if the guiding industry and MELP worked in partnership, they would be better positioned to protect fish and fish habitat from competing resource and development interests.

5. The Issue of Illegal Guiding

Illegal guiding is a constant irritant to the licensed guide community, MELP, and the general public. But its prevalence and repercussions are largely unknown. This section explores its ramifications.

Types of Illegal Behaviour

Illegal guiding has two main components

- unlicensed individuals guiding clients; and
- licensed individuals guiding outside the terms of their license e.g., guiding on non-approved rivers, guiding in closed seasons, guiding in excess of their quota days, etc.

The first category attracts most of the attention but the second category also exists.

Evidence

There is little direct formal evidence regarding the extent of illegal guiding. What we can say is that where there are economic incentives to guide illegally, where legislation is weak, and where there is little field enforcement, we can expect illegal guiding to occur.

All three conditions hold in the Skeena Watershed. Daily guide fees per day can amount to several hundred dollars per person and one individual can guide several people at a time. Industry and MELP agree that there is no legally enforceable definition of illegal guiding ("one actually has to see the money changing hands to prosecute"). To exacerbate the problem, MELP has faced severe budget cutbacks and has been forced to significantly curtail its field presence.

Discussions with guides, MELP, and licence vendors (retail stores) seem to indicate that illegal guiding does occur but it is more common on certain river systems.

- More illegal guiding occurs in the Lower Skeena than Upper Skeena area. Lower Skeena rivers are more accessible and illegal guides prefer road access to fishing sites;

- Although River Guardians investigated two occurrences of illegal guiding in 1997, we can draw no conclusions about total illegal guiding activity in the entire Skeena Watershed. The River Guardian Program operated only on three rivers in the (less accessible) Upper Skeena. Furthermore, the presence of River Guardians may have been a deterrent in itself;
- Some Americans come to the area for a month or more and fish with a new group of "friends" every week (meeting them at the airport, essentially arranging accommodations and meals, etc.);
- It is very difficult, it not impossible, to police "bed and breakfast" establishments that advertise all-inclusive packages in European trade magazines; and
- Licence vendors report individuals in vans or trucks bringing anglers to their establishments and "coaching" them how to apply for and complete angling licence applications.

In conclusion, there is no direct evidence on the extent of illegal guiding. Most activity exists in the "grey areas" of the law and enforcement is very problematic. But, there is a great deal of circumstantial evidence and that evidence is consistent — illegal guiding is occurring in the Skeena Watershed and its prevalence is more than just occasional. We suspect that illegal guiding presently is 15% or more of legal guiding activity, i.e., 1,000 or more rod-days annually.

Impacts of Illegal Guiding

The negative impacts of illegal guiding or unlicensed guides have at least four dimensions:

- unfairness — it is unfair for illegal guides to operate with impunity side-by-side with legal guides;
- business erosion — illegal guides take business away from legal guides;
- a diminished product — illegal guides dilute the product and opportunity for legal guides by taking fish, taking fishing spots, etc.; and
- bad reputation — illegal guides can sully the reputation of all guides through poor service, unsafe boating practices, and other disreputable practices.

Illegal guides may also hurt the economy as a whole through, for example, not remitting employment source deductions, income tax, and GST or diverting money away from local business.

Measures to Improve Enforcement and Compliance

What is needed to deal with illegal guiding is a more legally enforceable definition of a legal guide and by implication, an illegal guide. Without an improved legislative base to deal with illegal activity, all other potential solutions are "second best".

A number of solutions have been identified by stakeholders. (Many of these proposals have been discussed in other forums.) We advise a review of the following suggestions:

1. All non-resident anglers on Classified Waters should be guided;
2. Non-resident, non-guided anglers should pay high Classified Water fees but guided anglers could be exempt from paying such fees;
3. Non-resident anglers should not be permitted to fish on Classified Waters using boats unless accompanied by a guide (note that this is outside of provincial jurisdiction);
4. All non-resident anglers be restricted to at most eight days on a single river; and
5. Lotteries be held for non-resident, non-guided anglers for fishing blocks of time on popular rivers. This system is used on the Dean River, a popular Class 1 River in the Central Coast area of BC

We have not investigated the pros and cons of the suggestions in detail.

We do note, however, that under current legislation and regulation, MELP can more easily enforce the Classified Water management system than it can the legal guiding system. That is, a Conservation Officer can more easily determine if an angler is legally fishing in Class 1 or Class 2 waters than if the angler is using a guide.

We favour implementation of the latter two measures as a first step to address the illegal guiding problem.

6. A Better Relationship

If the potential of the regional guiding industry is to be fully realized, the angling guides of the Skeena Watershed and the Ministry need to develop a more supportive and responsive relationship. Poor consultation, insufficient communications, and uncertainty in the regulatory environment have all contributed to recent problems in this relationship, and all parties must shoulder some of the blame.

In fact, one of the reasons this study was initiated was to better understand the guiding community and its business interests. It is hoped that this study will provide an improved understanding of mutual issues and contribute to the building of this new relationship.

Our view is that the guides and MELP have to forge a new partnership and find a new and better way of doing business. This new partnership should entail much greater mutual trust, respect and cooperation including the setting aside of past differences. It also should entail acknowledging each party's perspective and that angling regulation and the health of the guiding industry are shared responsibilities.

The guides who we interviewed during the course of our investigations appear eager to embark on a new course, but they are unsure as to how to proceed given past difficulties in their relationship with the Ministry.

We see an important role for the regional and headquarters offices of MELP to play. It appears prudent for the Ministry to make the initial overture to implement the true "partnership" concept that is critical to the long-term health of the angling guide industry, the resource, and the public interest in the Skeena Watershed.

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APPENDIX A

OTHER INFORMATION

Exhibit A.I Individuals Interviewed

	Name	Location	Business/Affiliation
1.	Dick McMaster	Kamloops	BC Fishing Resorts & Outfitters Association
2.	Pierce Clegg	Smithers	angling guide
3.	Jim Ismond	Smithers	angling guide
4.	Bob Hooton	Smithers	MELP
5.	Jim Yardley	Smithers	MELP
6.	Ken Belford	Smithers	angling guide
7.	Gordon Wadley	Smithers	angling guide
8.	Dennis Farnworth	Smithers	angling guide
9.	Lynn Christie	Smithers	Sport Fishing Advisory Board
10.	Jim Culp	Terrace	angling guide
11.	Steve Nickolls	Terrace	fishing lodge agent
12.	Harald Kossler	Terrace	angling guide
13.	Andrew Rushton	Terrace	angling guide
14.	Noel Gyger	Terrace	angling guide
15.	Brian Patrick	Terrace	Misty River Hunting & Tackle (retailer)
16.	Dave Haddad	Terrace	Redl Sports Distributors (wholesaler)
17.	Mike Young	Smithers	The Sports Advantage (retailer)
18.	Randy Murray	Terrace	North Coast Anglers (retailer)
19.	Bob Henderson	Smithers	angling guide
20.	Bob Wickwire	Kelowna	angling guide
21.	Dieter Hruby	Terrace	angling guide
22.	Hal Stupnikoff	St. Albert, Sask.	Sask Outfitters Assn.
23.	Steve Hidber	Smithers	Oscar's Source for Sports (retailer)
24.	Mike O'Neill	Smithers	Regional Rep, BC Wildlife Federation
25.	Terry Hood	Vancouver	Pacific Rim Institute of Tourism
26.	Steve Willett	Kamloops	MELP
27.	Robert Hull	Telkwa	angling guide
28.	Keith Douglas	Smithers	angling guide
29.	Dale Drown	Vancouver	Guide Outfitters Association of BC
30.	Craig Murray	Port McNeil	angling guide

Exhibit A2: The Angling Guide Industry in the Skeena Watershed — Information Needs

Introduction

There is a compelling need for much better information on the angling guide industry of the Skeena watershed. Some of the data needs are chronic and have been well-known for years, for example, those related to the motivations of anglers.

Data Needs

In our view the most pressing data needs are:

- revenues, expenditures and employment for different types of guided operations e.g. day guiding service vs all-inclusive European style lodge
- the expenditures that guided anglers make in the local economy that do not flow through guide operations e.g. money spent on gear, airfare, accommodation, etc. that flows to other local businesses
- angler motivations and the types of experiences that guided anglers seek
- the value or money that guided anglers are willing to pay to maintain or improve resource access, and
- the change or response of angling activity levels, and of angler satisfaction values, to changes in fish availability and/or fishing regulations

Some of these data needs may be met by a detailed analysis of existing information provided by guide plans and reports, and existing angler surveys. However, further data collection and analysis would likely be required.

The first need could be addressed through a survey of guides. The latter four needs could be addressed through a survey of anglers.

The surveys could be repeated periodically, say every five years, to account for changing circumstances. The surveys also could serve as a consultation vehicle to solicit guide and angler views on a variety of angling policy topics e.g. licence fee policy, the "crowding" issue, catch limits, etc.

Conclusions

Despite its importance, the angling guide industry of British Columbia is not well-appreciated. In our opinion, a major contributory factor is that there is no reporting of industry performance similar to that produced for other major industries such as forestry and mining. Without timely strategic information, the public may never see the important role that the angling guide industry plays in the regional economy.

ECONOMIC IMPACTS OF THE SKEENA RIVER FRESHWATER SPORT FISHERY

Prepared for:
B.C. Ministry of Tourism

Prepared by:
The ARA Consulting Group Inc.
(formerly The DPA Group Inc.)

November 1991

Executive Summary

The Skeena watershed represents one of the last major Pacific drainages where record size chinook and wild summer run steelhead can be found. The watershed is unique in the diversity of species available, the large size of fish, the fly-fishing opportunities, and its pristine wilderness settings. No other area in North America combines these fishery attributes in the manner of the Skeena system.

Skeena steelhead populations are in a state of decline, a decline which has occurred in spite of progressively more stringent angling regulations. Current angler participation and catch rates are only one-half of what they were five years ago. Many individuals and interest groups are now concerned that steelhead stocks are, in fact, threatened.

The Skeena River situation has been identified by the provincial government as one of the most important issues facing the angling community today. In spite of its high profile, there has been no information on the economic significance of the sport fishery in the area. This analysis was intended as a first step in filling this gap and enhancing understanding of this important fishery and its impact on the local area and the province.

The intent was to document the economic impacts of the Skeena freshwater sports fishery as one part of the broader multi-faceted resource and management picture. By necessity, the study has a narrow focus and addresses economic impacts for the year 1990 and for angling in the Skeena watershed area only (and not other watersheds such as the Nass and Kitimat Rivers). Impacts are estimated for the Province as a whole and a specifically defined local area, and for the freshwater component of the sports fishery. The study does not consider the potential of the sport fishery, nor does it consider the downward trends in use and impacts experienced in the past 5 years.

Information sources included: mail surveys of guides and anglers conducted for this study, British Columbia Ministry of Environment (MOE) guide reports and Steelhead Harvest Analysis data, and other secondary data.

Angling Activity 1990

In 1990 an estimated 190,000 angler-days of angling activity occurred in the Skeena watershed area (Exhibit 1). The 190,000 days can be segmented in several ways -- by angler residence, by target species and by guided use.

Angler Residence		Target Species		Type	
Local Area	66%	Steelhead	19%	Guided	6%
Rest of B.C.	13%	Salmon	42%	Non-guided	94%
Rest of Canada	8%	Freshwater	39%		
Outside Canada	13%				

The angler effort estimates did not include angling in saltwater that is targeted at Skeena fish stocks -- an estimated 4000 boat-days (or 10,000 angler-days) in the Prince Rupert area.

Guide Operations

The guiding of anglers for steelhead, chinook, coho and other species is an important and high profile activity in the area. The vast majority of clients are non-Canadian and come to the region solely to fish.

In 1990 the 54 active guide operators:

- guided 15,400 angler-days;
- earned $3.4 million in revenues;
- provided 187 seasonal jobs for themselves, assistant guides, and other workers.

The 15,400 guided days included 12,000 days within the watershed proper and 3,400 in non-watershed areas such as the Kitimat River. Half of the 12,000 guided days were targeted at steelhead, and 46% of watershed guided days occurred on the Skeena River mainstem. Guide days were evenly split between Lower Skeena and Upper Skeena guides.

Economic Impacts

Total local expenditures by anglers on fishing trips to the Skeena watershed were an estimated $12.6 million. Total in-province expenditures were an estimated $15.8 (including the $12.6 million in local expenditures).

Many people take trips to the Skeena Region to fish and to conduct other activities such as general touring, visiting friends and relatives, business, etc. The result is that not all of the expenditures identified above can be attributed to angling in the Skeena watershed. Information from the angler survey as to primary trip purpose was used to prorate or allocate trip expenditures to isolate expenditures attributable to sport fishing.

Impacts on the local economy from the $10.4 million in local expenditures attributable to Skeena sport fishing in 1990 were (Exhibit 2):

- 190 person-years of local employment;
- $4.7 million in local wages and salaries; and
- $7.0 million in local value-added or income.

The impacts include both direct effects as well as ripple effects on supplier and consumer industries.

Estimated impacts on the provincial economy from the $13.5 million in provincial expenditures attributable to Skeena sport fishing were:

- 300 person-years of provincial employment;
- $8.7 million in provincial wages and salaries; and
- $12.7 million of provincial value-added or income.

The share of impacts attributable to steelhead angling, as opposed to angling for salmon or freshwater species, was 27% of the total impacts. The number of steelhead angler-days has declined by close to a half since 1986, a year of very strong steelhead returns. Guides indicated that guiding activity was down in 1990 from 1989 and 1988 activity levels. It appears, therefore, that the 1990 angler expenditures and associated economic impacts were lower than those in the late 1980's.

Resource Concerns

The common underpinning to the variety of angling experiences is a strong and healthy resource. There is great potential for the sport fishery from an economic development perspective. The Skeena watershed is very productive, and its unique aspects draw anglers from around the world.

However, this potential can not be realized under the present fisheries management regime, and the dual, sometimes conflicting management responsibility vested in the federal and provincial governments. The commercial fishery at the mouth of the Skeena is the major harvester of Skeena steelhead even though commercial steelhead bycatch is relatively small as a share of the number of target sockeye caught. There is also concern about the impacts of Indian food fishing practices, and other (logging and mining) resource users on fish stocks and habitat.

Angling is still relatively high quality but declining. This decline in success rates ultimately will result in loss of angling activity and angler expenditures to the region, if in fact this has not already occurred.

The resource and management problems in the area are pressing and escalating rapidly. The evidence is compelling that a better system of management is required. There is a need to tap the potential of the Skeena sport fishery, without at the same time, significantly reducing the substantial benefits of the commercial fishery. This is not a simple task; otherwise a solution would have been found by now. It is hoped, however, that this economic study will raise the profile of the resource issue, and help foster a new spirit of cooperation and resolve among users, resource managers and the public in searching for solutions.

Exhibit 1: Estimated Angler-Days in the Skeena Watershed 1990

Target Species /Type	Angler Residence				
	Local	Rest of B.C.	Rest of Canada	Outside Canada	Total
Steelhead Days					
Guided	100	300	600	5,000	6,000
Non-guided	20,800	6,600	1,200	2,300	30,900
All	20,900	6,900	1,800	7,300	36,900
Other Species Days					
Guided	100	300	600	5,000	6,000
Non-guided	104,000	17,800	12,600	12,700	147,100
All	104,100	18,100	13,200	17,700	153,100
All Days					
Guided	200	600	1,200	10,000	12,000
Non-guided	124,800	24,400	13,800	15,000	178,000
All	125,000	25,000	15,000	25,000	190,000

Exhibit 2: Economic Impacts of Sport Fishing in the Skeena River Watershed 1990[a]

	Local Impacts	Provincial Impacts
Steelhead Angling		
Direct Expenditures ($ million)	$2.8	$3.7
Income ($ million)[a]	$1.9	$3.5
Wages & Salaries ($ million)[b]	$1.3	$2.4
Employment (PY's)[c]	50	85
Other Angling		
Direct Expenditures ($ million)	$7.6	$9.8
Income ($ million)[a]	$5.1	$9.2
Wages & Salaries ($ million)[b]	$3.4	$6.3
Employment (PY's)[c]	140	215
All Angling		
Direct Expenditures ($ million)	$10.4	$13.5
Income ($ million)[a]	$7.0	$12.7
Wages & Salaries ($ million)[b]	$4.7	$8.7
Employment (PY's)[c]	190	300

a Income or value-added is the sum of wages and salaries and business income (business income or capital surplus comprises interest payments, depreciation, taxes and after-tax profit).
b Included in income.
c Person years.

Note: Impacts include direct, indirect supplier and induced consumer spending impacts.

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1.0 Introduction

The Skeena watershed represents one of the last major Pacific drainages where record size chinook and wild summer run steelhead can be found. The watershed is unique in the diversity of species available, the large size of fish, the fly-fishing opportunities, and its pristine wilderness settings. No other area in North America combines these fishery attributes in the manner of the Skeena system.

The uniqueness and quality of the Skeena fishery have become known throughout North America and the world through numerous publications, including the book Steelhead Paradise[1] and the 1990 "Splendid Skeena" article in Trout magazine.[2] The area provides an international sports fishery, and numerous tourism businesses have been established that cater to the visiting angler. These include individual guides, fishing camps and lodges, transportation services, and sport fishing retail stores.

The Skeena watershed is a nursery area producing millions of adult fish. These fish form the basis of not only a recreational fishery in freshwater, but also an Indian food fishery, a saltwater recreational fishery, and a commercial fishery in Canadian and U.S. waters.

The variety of fish stocks distributed over a wide and remote area makes management very difficult. Many target angling species such as steelhead, chinook and coho spend much of their adult life cycle in the ocean, but must migrate through the gauntlet of international and domestic commercial fisheries in tidal waters before being available to the Skeena River angler. Fish within the river system proper contribute to an Indian food fishery. Other resource users within the watershed such as forest companies, mining companies and urban developers, can have an impact on fish habitat and fish stocks.

Skeena steelhead populations are in a state of decline, a decline which has occurred in spite of progressively more stringent angling regulations. Current angler participation and catch rates are only one-half of what they were five years ago. Many individuals and interest groups are now concerned that steelhead stocks are, in fact, being threatened.

The Skeena River situation has been identified by the provincial government as one of the most important issues facing the angling community today. In spite of its high profile, there has been no information on the economic significance of the sport fishery in the area. This analysis was intended as a first step in filling this gap and enhancing understanding of this important fishery and its impact on the local area and the province.

---

1 John F. Fennelly, Steelhead Paradise, 1963.

2 Thomas R. Pero, "Splendid Skeena", Trout Autumn 1990, pp. 24-29.

The intent was to document the economic impacts of the Skeena freshwater sports fishery as one part of the broader multi-faceted resource and management picture. By necessity, the study has a narrow focus and addresses economic impacts for the year 1990 and for angling in the Skeena watershed area only (and not other watersheds such as the Nass and Kitimat Rivers). Impacts are estimated for the Province as a whole and a specifically defined local area, and for the freshwater component of the sports fishery. **The study does not consider the potential of the sport fishery, nor does it consider the downward trends in use and impacts experienced in the past 5 years.**

1.1 Study Objectives

The overall objective of the study was to determine the gross economic impact of freshwater sport fishing activity in the area defined as the Skeena River, its tributaries and dependent lakes for the year 1990.

Specific objectives included:

- measure direct, indirect and induced economic impacts including value-added, employment and tax revenues;
- identify market profiles, origin of visitors and criteria for angler decisions in selecting fishing destinations and/or locations; and
- identify constraints to development.

Economic impacts were estimated for two geographic regions -- the local area and the province as a whole. As well, the economic impact of steelhead fishing as a distinct activity was estimated.

1.2 Information Sources

In order to meet the study objectives as outlined above, two surveys were conducted. The first was a survey of angling guides operating in the Skeena watershed. The second was a survey of anglers who purchased a sport fishing licence in the area during the 1990/91 fiscal year. In addition, existing data sources on the sport fishery in the area were used, as well as personal interviews with key representatives of government and local interest groups.

Angling Guide Survey

A total of 54 surveys were sent out to the guides who operate on the Skeena watershed (copy of survey is provided in Annex A). This list was provided by the B.C. Ministry of Environment (MOE) Regional Fish and Wildlife office in Smithers. All guides received a follow-up phone call to encourage them to complete the survey.

In total, 32 surveys were returned. Of these, 5 were not used, as 90% or more of revenues, investment and operating costs were due to non-guiding activities. One guide did not operate in 1990. The remaining 26 surveys were analyzed. The survey sample represents 70% of the total guided angler days generated during the 1990 season in the watershed.

Angler Survey

A total of 787 questionnaires were mailed to anglers in late June/early July 1991. The names and addresses of 656 were randomly selected from the 1990/91 licenses sold at Terrace, Smithers and Burns Lake.[3] These three locations represented the greatest number of license sales within the region. In addition, names and addresses of 131 license holders living in the Lower Mainland were randomly selected. The intent was to bolster the returns from the rest of B.C. segment (many Lower Mainland steelhead anglers fishing the Skeena watershed buy their angling license outside the Skeena region). The survey results were extrapolated to the population of all anglers fishing in the area (See Annex F).

Exhibit 1.1: Angler Survey Response

Angler Residence	Number Mailed	Number Returns		
		Active	Inactive	Total
Local Area	238	68	13	81
Rest of B.C.	232 [a]	38	15	53
Rest of Canada	90	25	6	31
Outside Canada	227 [b]	62 [c]	15	77
All	**787**	**193**	**49**	**242**

[a] 101 random license holders from local area sales plus 131 random license holders from the Lower Mainland.

[b] 181 U.S. plus 46 Europe.

[c] 51 U.S. plus 11 Europe.

In total, 242 surveys were returned -- 193 from "active" anglers who fished the Skeena watershed and 49 from "inactive" anglers who did not fish the watershed (but who may have fished other parts of the province). The nominal response rate was 31% (242/787). However, close to 75 survey questionnaires were returned as undeliverable. Consequently, the effective

[3] Systematic (1 in 10) random samples were taken within three distinct license classes until a target number of licenses were selected.

response rate of one-third was close to the normal or average response rate of 35% for mail surveys.

Originally the study was to rely only on secondary sources for angler participation and expenditure data. The limited angler survey was added to the work plan in the middle of the study as it became evident that available secondary data was inadequate. The angler survey results, although based on a limited number of 193 active angler responses, provided a credible basis for analysis. Survey angler effort and daily expenditure results were correlated with provincial angler survey results for the whole northwestern B.C. (see Section 4). As a result, any concerns related to small sample size or non-response issues should not be serious.

1.3 Analysis Framework

The analysis framework is illustrated in Exhibit 1.2. The economic impacts of sport fishing in the Skeena watershed represent the economic activity generated by cash expenditures by anglers in the region. An initial angler expenditure is associated with income and employment to guide operations and to local suppliers of angling goods and services (e.g., sporting good stores, gas stations etc.) These suppliers in turn can purchase goods and services from second stage local suppliers and generate a further round of impacts. In addition the local spending of wage income generates impacts in the consumer goods and service industries. The total economic impact of angling is the sum of direct industry, indirect supplier and induced consumer spending impacts.

The total magnitude of income and employment impacts depends on the absolute level of expenditures as well as the multiplied effects on the rest of the region. The regional multiplied effect of the initial level of expenditures, in turn, depends on the economic structure of the region, particularly the import content of goods and services purchased. Larger regions have a larger "multiplier effect" since a greater share of input purchases would be made within the region.

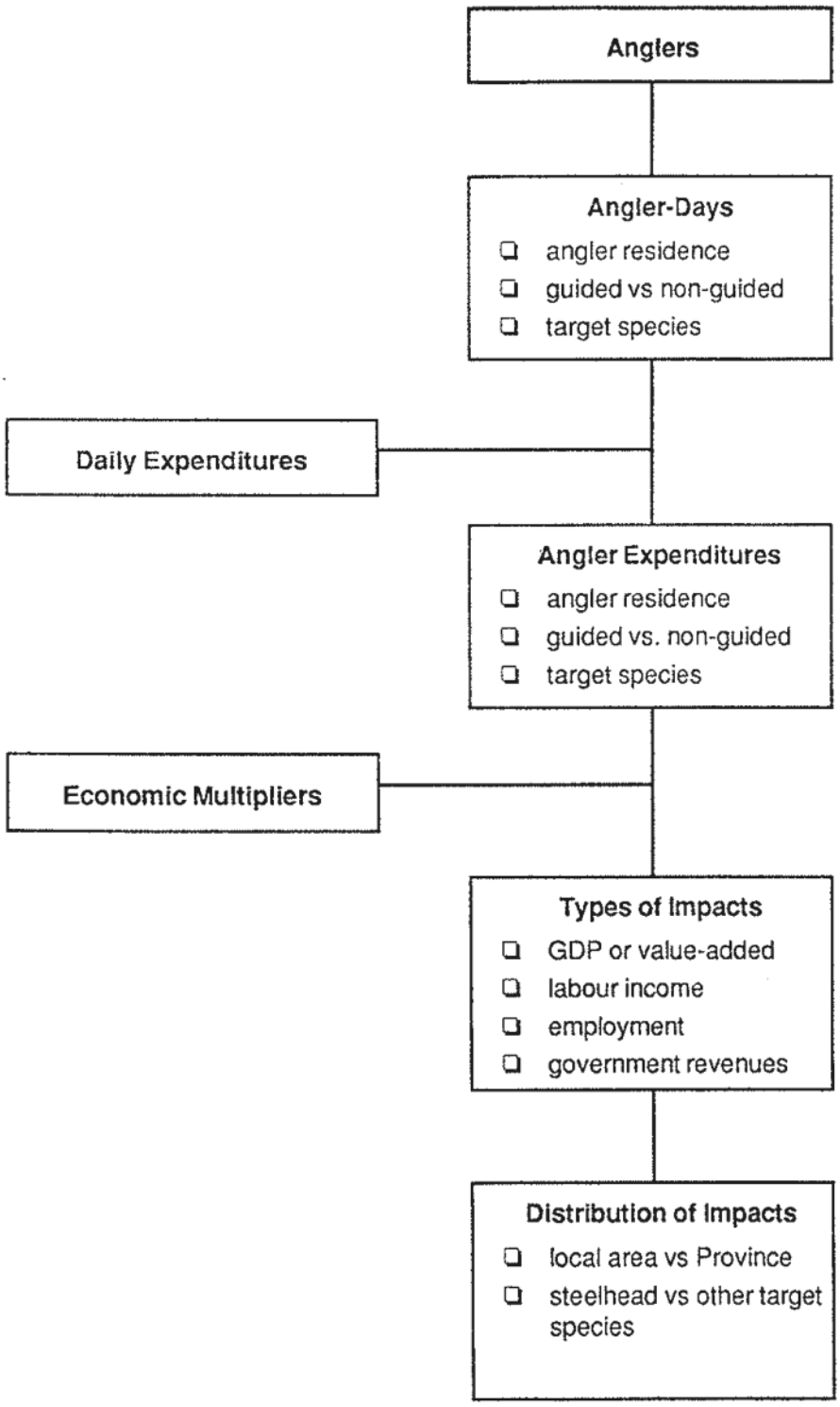
The following impact measures were employed:

- Gross Domestic Product (GDP) or value-added;
- labour income;
- employment;
- government resource tax revenues.

Economic impacts were estimated for two referent groups -- the local area and the province of British Columbia. Finally, the share of total impacts attributable to steelhead angling was estimated.

The economic impacts of the sports fishery and the economic value of the sports fishery are two completely different concepts. This study addressed the former using the above framework.

Exhibit 1.2: Economic Impacts Associated with Sportfishing in the Skeena River Watershed



Economic impacts are generally considered to be gross impacts in the sense that no corrections are included for the possibility that expenditures would have been made in the absence of the fishing activity, and for the alternative uses of the capital and labour in the economy.

In contrast, economic value is gross benefits of fishing less the economic (opportunity) costs of labour, capital and other fishing inputs in their next best alternative use. Opportunity, and hence economic costs, reflect the viewpoint that using resources for one purpose precludes their use to generate benefits in alternative uses. Further discussion of the differences between the two concepts is given in Annex B.

2.0 Overview of the Fishery

The Skeena watershed is one of the most productive areas for sport fishing in the province. The watershed supports a wide variety of salmon and freshwater species of fish, including very large, trophy size salmon and steelhead. The Skeena River and its tributaries are noted internationally for wild steelhead fishing. As well, the Skeena River is well known in Europe for chinook salmon fishing. Both guided and non-guided (self-directed) angling occurs. Lure and fly fishing are the predominant angling methods.

2.1 Study Area

The study area as illustrated in Exhibit 2.1 encompasses all of the rivers, creeks, and lakes within the Skeena watershed. The watershed begins at the freshwater boundary at the month of the Skeena, and literally includes hundreds of lakes/streams and thousands of lakes. Major waterbodies supporting angling activity in the watershed include the Skeena mainstem, the Babine River, Babine Lake, Bulkley River, Kitsumkalum River, Morice River, Kispiox River, Lakelse River, the Zymoetz (Copper) River, the Sustut River and the Gitnadoix River.

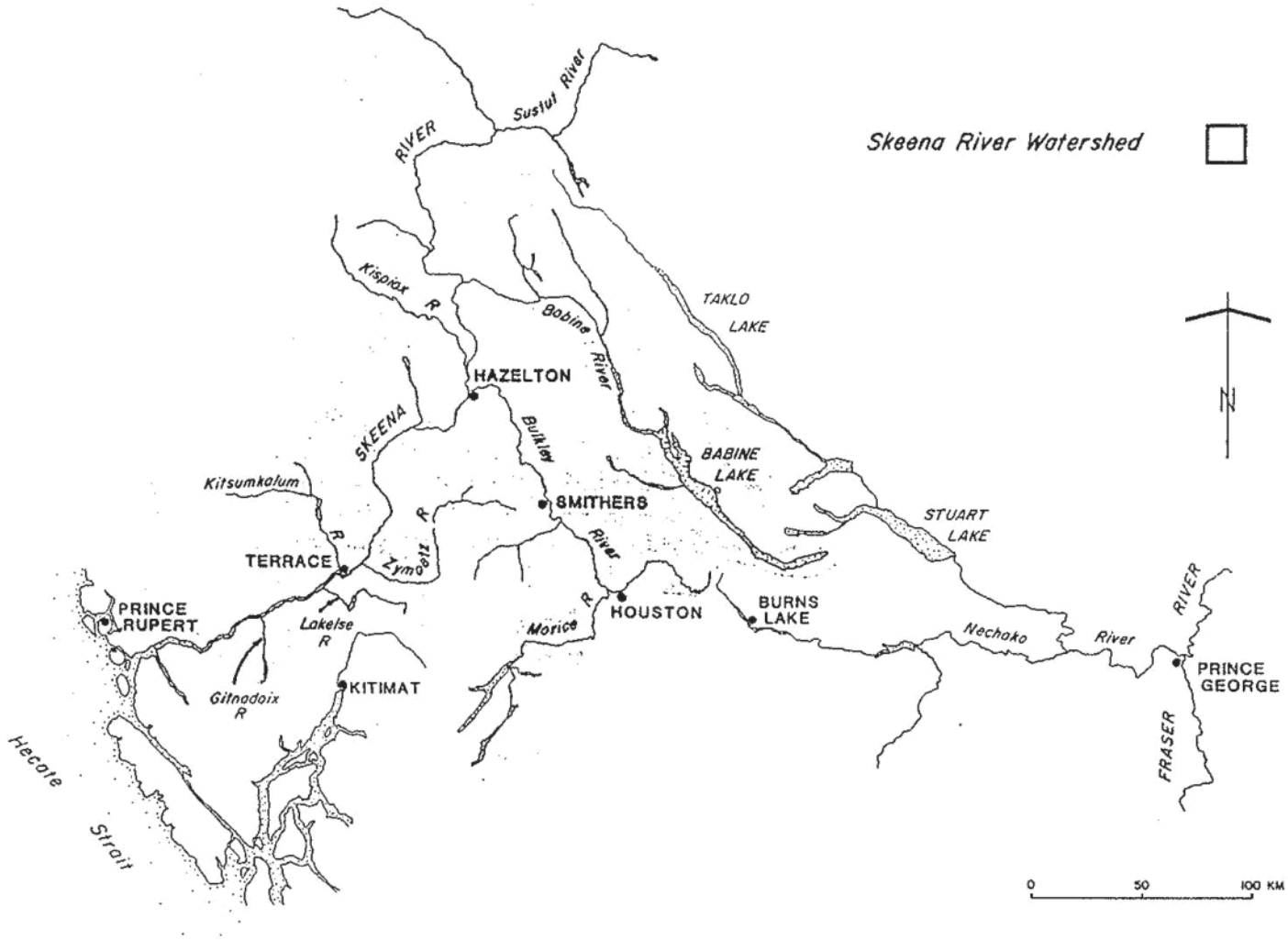
There are several communities within the watershed which benefit directly from sport fishing activity. They include Prince Rupert, Terrace, Hazelton, Smithers, Houston and Burns Lake. For the purposes of this study, these communities (and surrounding villages such as Telkwa) comprise the "local area".

2.2 Types of Activity

There is great diversity of angling opportunities in the watershed. A variety of species of fish are found during the different seasons which support sport fishing activity. The main chinook season in the watershed runs from April through August. Coho are caught primarily in the Fall. Freshwater species such as Dolly Varden, rainbow trout and whitefish are caught over a much longer Spring to Fall season. The steelhead fishery encompasses a late winter and spring fishery followed by a summer fishery targeted at fish entering the Skeena between early July and late September. The summer steelhead traditionally have supported a mainstem Skeena bar fishery from July through mid-September, and a tributary fishery from late August until the onset of winter. Because of special problems and management interest for steelhead, angling activity for steelhead is identified separately from activity for other species.

The fishery attracts an international clientele from the United States and Central Europe (Germany, Austria, Switzerland) for guided fishing trips. This demonstrates that the Skeena fishery is a world class fishing destination. In addition, residents from the Pacific Northwest and British Columbians visit the area as part of a motor touring trip through the province, i.e., "rubber tire" traffic. Alternately, others visit the area primarily to fish. These anglers house themselves in self-contained recreational vehicles (RV's), or utilize motels, hotels or campsites.

Exhibit 2.1: The Skeena River Watershed



2.3 Level of Activity 1990

In calendar year 1990 an estimated 190,000 angler-days of angling activity occurred in the Skeena watershed area (one angler fishing all or part of one day is an angler-day).[1] Of this total 36,900 angler days were targeted for steelhead and 153,100 for other species, as illustrated in Exhibit 2.2. The largest angler segment was local residents as opposed to visitors from outside the region. Based on Exhibit 2.2 it was estimated that:

- 66% of total angler-days in the region accrued from local resident activity,
- 6% of total angler-days were guided, and
- 19% of total angler-days were targeted at steelhead (42% for salmon and 39% for freshwater species).

Exhibit 2.2: Estimated Angler-Days in the Skeena Watershed 1990

Target Species /Type	Angler Residence				
	Local	Rest of B.C.	Rest of Canada	Outside Canada	Total
Steelhead Days					
Guided	100	300	600	5,000	6,000
Non-Guided	20,800	6,600	1,200	2,300	30,900
All	20,900	6,900	1,800	7,300	36,900
Other Species Days					
Guided	100	300	600	5,000	6,000
Non-Guided	104,000	17,800	12,600	12,700	147,100
All	104,100	18,100	13,200	17,700	153,100
All Days					
Guided	200	600	1,200	10,000	12,000
Non-Guided	124,800	24,400	13,800	15,000	178,000
All	125,000	25,000	15,000	25,000	190,000

Source: Derived from the guide and angler surveys conducted for this study as well as available secondary data (See Annex F).

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[1] The estimates were derived from the guide and angler surveys conducted for this study, and from secondary data. The estimation procedure is discussed in Annex F.

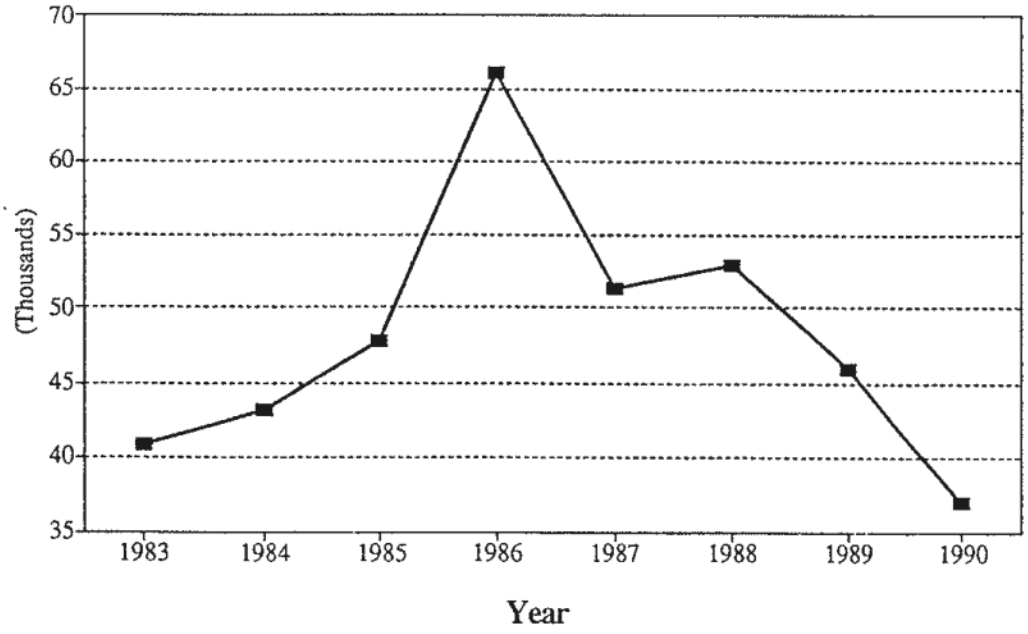
Differences existed between guided and non-guided anglers. Guided anglers focused more on steelhead than other species, and were more likely to come from out-of-country than were non-guided anglers.

Approximately half of the angler-days for "other" species were targeted at salmon species, mainly chinook and coho. Approximately 75,000 angler-days were directed at freshwater species such as rainbow trout, lake trout (char), whitefish, Dolly Varden, etc. Angling for freshwater species was a significant component of angling activity in the watershed.

Approximately 20-25% of total provincial angling days for steelhead occurred in the Skeena watershed. An even greater share (in excess of 50%) of provincial steelhead angler effort by out-of-province anglers occurred in the watershed.

The 1990 year was the single "snapshot" year chosen for analysis, but may not be typical of angler effort in recent years. For example, 1990 steelhead effort was only one half of the 66,100 steelhead angler days in 1986, a year of very strong steelhead returns to the Skeena. The current 1990 level of 36,900 steelhead days was representative of steelhead angler effort in the 1970's and early 1980's, but was less than steelhead effort in the late 1980's (see Exhibit 2.3).

Exhibit 2.3: Steelhead Angler-Days in the Skeena Watershed 1983 to 1990



The angler effort estimates did not include angling in saltwater that is targeted at Skeena fish stocks. Canada Fisheries and Oceans (DFO) estimated that 1990 angling effort in the Prince Rupert Area 4 was 4,000 boat days[2] (or approximately 10,000 angler-days).

2.4 Regulations

There is joint provincial-federal regulation of the fish resources in the Skeena watershed. Salmon is managed by the federal government in both tidal and non-tidal waters of British Columbia. The provincial government manages the steelhead resource and freshwater species of fish in non-tidal waters. Because steelhead are anadromous, federal and foreign government policies and regulations for commercial fisheries in tidal waters greatly affect the steelhead resource and provincial management opportunities.

Classified Waters

The Province introduced a new management system in fiscal year 1990/91 (hereafter called year 1990). The purpose of this new system was threefold[3]:

- to provide a diversity of angling opportunities;
- to maintain quality fishing; and
- to improve regulation of the angling guide industry.

The system classified water systems into three designations -- Class 1, Class 2 and Unclassified.

Class 1 waters are remote, pristine, wilderness waterbodies with significant fisheries value that are largely accessible only by boat or aircraft. For Class 1 waters all guided and non-guided angling use is managed, i.e., an annual use level is specified, and angler-days regulated according to a water-specific management plan.

Class 2 waters are more accessible, but still represent a quality fishing experience. Class 2 waters typically have more local use than Class 1 waters. On these waters angling guides are limited to the guided angler-days specified in the water-specific management plan. Angling use by non-B.C. residents can be limited but, unlike Class 1 waters, use by B.C. residents is not restricted.

Unclassified waters have no special restrictions in terms of allowable angler-days by residents or non-residents of the province.

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[2] Dave Peacock, DFO Prince Rupert, pers. comm.

[3] The discussion in this section and the section on regulations was taken largely from: British Columbia Ministry of Environment, British Columbia Freshwater Fishing Regulations Synopsis, April 1, 1990 to March 31, 1992, Victoria.

The Skeena watershed has 4 of the 5 Class 1 waters in the province, and 13 of the 42 Class 2 waters (Exhibit 2.4). Clearly the watershed has been identified as the major quality freshwater fishing area in the province.

Exhibit 2.4: Classified Waters in Skeena River Watershed

Class 1	Class 2
Babine River	Bulkley River
Gitnadoix River	Ecstall River
Sustut River	Kispiox River
Zymoetz (above Limonite Cr.)	Kitseguecla River*
	Kitsumkalum River
	Kitwanga River*
	Kluatantan River
	Lakelse River*
	Morice River
	Skeena (Exchamsiks - 1.5 km above Kitsumkalum River)
	Skeena (above Zymoetz River)
	Suskwa River*
	Zymoetz (below Limonite Cr.)

* no guiding allowed

The restrictions for each classified water only apply to a specified time period. For example, restricted use of the Sustut River only applies from September 1 to October 31 of the year. Use in the other ten months is not restricted.

Catch Limits

Catch limits vary by species, size of fish, time of year and waterbody. Highlights for certain species are presented below for the Skeena watershed area in 1990.

	Catch Limits		
	Daily	**Annual**	**Possession**
Chinook (over 50 cm)	1	10	2
Coho (over 50 cm)	1	NA	2
Pink or Sockeye	zero	zero	zero
Steelhead Trout*	1	1	1
Other Trout & Char	5	NA	10
Whitefish	25	NA	50
Arctic Grayling	8	NA	16

* June 1 to October 31

Many of the upper tributaries of the Skeena River, such as the Morice and the Kispiox Rivers have compulsory release of steelhead regulations in the Fall. As well, chinook fishing is closed from the day after the August Civic Holiday to December 31 in the Lower Skeena River.

In 1991 from mid July to mid August Canada Fisheries and Oceans (DFO) opened the Skeena River to angling for sockeye and pink salmon for the first time since the 1950's.

Licence Fees

All individuals choosing to fish in non-tidal waters must be in possession of a basic freshwater angling licence. Any angler fishing for steelhead must also purchase a steelhead licence which is a stamp that is affixed to the basic licence.

Licence fees vary by angler residences and by type (6-day versus annual).

	Basic Licence		Steelhead
	6-day	Annual	Licence
Resident of B.C.	$10	$17	$ 7
Other Canadian	$11	$19	$17
Non-Resident of Canada	$15	$27	$42

Senior citizens of British Columbia over 65 years of age can receive an annual basic licence for a $1 fee.

If an angler fishing in non-tidal waters wants to catch and keep a chinook salmon over 50 cm in length, they must possess a chinook conservation stamp. The chinook stamp costs $3 for all anglers.

In addition to the above licences, anglers fishing classified waters must pay a daily fee.

	Daily Fee	
	Class 1	Class 2
Resident of B.C.	$1/day	$1/day (guided only)
Non-Resident of B.C.	$20/day	$10/day

Guides also pay annual licence fees and daily fees. A guided operation pays:

- $200 per year for a basic guide licence (one per operation),
- $50 per person per year for each assistant guide, and;
- $1 per day for each day of quota allocation on Class 1 and 2 waters (regardless of whether the quota was actually used).

The provincial system of freshwater angler and guide licence fees differentiated by quality of the fishing experience is more advanced than that for tidal angling in British Columbia.

3.0 Profile of Fishing Guide Operations

The guiding of anglers for steelhead, chinook, coho and other species is an important and high profile activity in the Skeena watershed area. The vast majority of clients are non-Canadian and come solely to the region in order to fish.

In this section we outline the nature and extent of the guiding industry in terms of several indicators -- number of operations, guided days, client origin, revenues and so on. The industry profile was derived from two main data sources -- the survey of Skeena area guides conducted for this study and the 1990 summary reports submitted to the Ministry of Environment (MOE) by guides.

3.1 Number and Size of Operations

In 1990, there were 54 active guiding operations in the Skeena River watershed area, i.e., 54 operations guided at least one day in the area. Some of these operations were very small and guided under 10 days a year. Others were substantial, high volume operations with over 1,000 guided days.

The number of operations by size class according to MOE guide reports was[1]:

Angler-Days Guided	Number of Operations
1-49	11
50-99	11
100-199	12
200-499	11
500-999	6
1,000+	3
Total	54

The categories include guided days both within and outside the study area. The Kitimat River outside the Skeena watershed area is a major guiding area.

3.2 Product Profile and Pricing

Two main types of guide operations exist. Guides in the Smithers and Upper Skeena area cater mainly to fly fishermen who practice catch and release. The majority of clients are Americans.

[1] MOE guide reports to date indicate 52 active operations. In addition, two respondents to our guide survey indicated that they fished in the study region although MOE does not have a guide report from them. These were included in the analysis.

Clients of guides in the Lower Skeena near Terrace in contrast are mainly bar fishermen who seek a consumptive, kill fishery. The majority of clients come from Central Europe.

The industry offers a variety of fishing experiences or packages to anglers. Anglers can fish more than one species in one day. For example, many anglers fish steelhead on a "catch and release" basis. They also may fish chinook or coho on the same day on a "kill" basis (sometimes to provide food for a shore lunch).

The average package cost was approximately $220 per day Canadian. There was a wide range in package costs within the industry, from $100 per day to over $400 per day. Most packages included food and accommodation (package costs excluded booking agent fees).

Fifty-percent (50%) of the guides offered additional activities to sport fishing. These activities were offered to their sport fishing clients or were used to attract other clients who do not sportfish. The range of activities included:

- 29% wildlife viewing, nature or wilderness tours
- 21% sightseeing
- 17% hunting
- 17% jet boat, drift boat or river tours
- 13% photography tours
- 4% resort
- 4% hiking
- 4% air charters

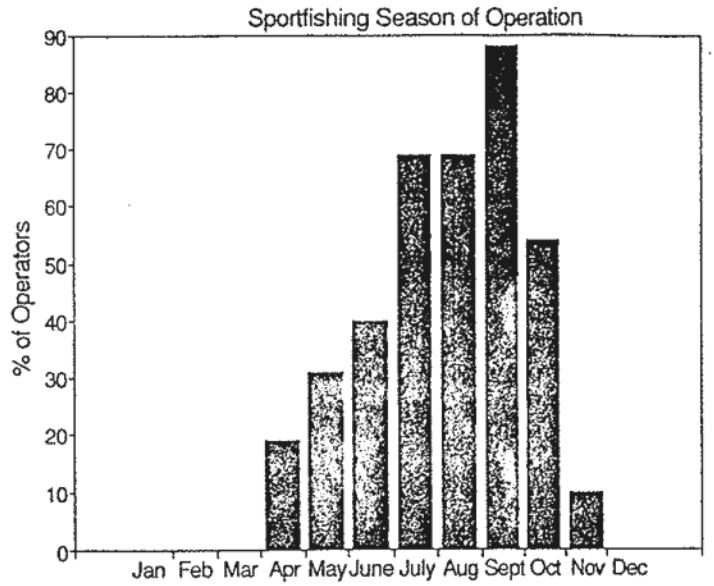
It was common for guides to smoke and vacuum sealpack salmon for travel to the U.S. or Europe for their clients.

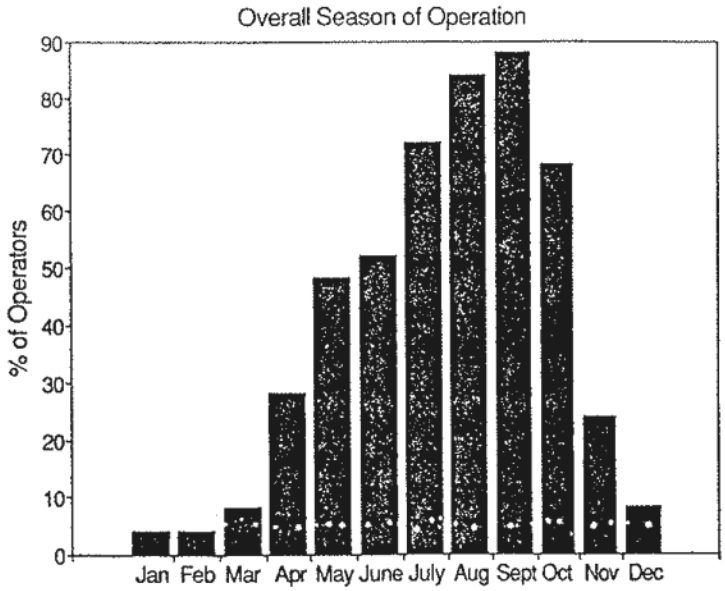
3.3 Season of Operation

The sport fishing season for guides takes place from April through November of the year. The peak months of guiding activity were July through October (Exhibit 3.1). Guiding for chinook occurred early in the season with guiding for steelhead predominating in late August through early November.

Some guides operated within a narrow season, while others were able to extend their season by offering additional products or services. The season for guiding however is limited by the timing of the runs of fish.

Exhibit 3.1: Season of Operation For Angling Guides, 1990





The guiding season can also be limited by weather, specifically rainstorms and floods on tributaries in October. Fishing conditions are usually much better prior to October but the strength of the early part of the summer steelhead run has been very weak in recent years. As a result, the guiding season has been shortened.

3.4 Days Guided

MOE guide reports indicated that the 54 operators guided 15,400 days in 1990 (rounded) -- 12,000 days in the Skeena watershed area and 3,400 days outside the area. The main waterbodies within the watershed for guiding activity are displayed in Exhibit 3.2.[2]

Exhibit 3.2: Guided Days by Waterbody Within the Skeena River Watershed 1990

	Number Guides Licensed	Quota Days	Days Actually Guided	% Guided Days for Steelhead
Skeena River[a]	42	6,831	5,473	33%
Babine River[b]	4	1,706	2,656	65%
Bulkley River[b]	7	1,448	1,067	96%
Kitsumkalum River[b]	12	861	739	21%
Sustut River[b]	2	750	486	83%
Morice River[b]	3	433	390	100%
Kispiox River[b]	4	393	279	78%
Zymoetz River[b]	4	450	262	95%
Gitnadoix River[b]	4	132	132	0%
Other Waters[c]	NA	45	528	5%
All Waters	**54**	**13,049**	**12,012**	**50%**

[a] The Skeena River is comprised of 4 distinct sections, 2 of which are classified waters.
[b] Classified waters.
[c] Ecstall River, Kluatantan River, freshwater lakes, unclassified waters etc.

Source: MOE Smithers administrative data and guide reports.
Exhibit C.1, Annex C.

[2] Some small differences exist between Exhibit 3.2 figures on guide days and MOE records due to the inclusion of two guides who responded to the guide survey, but who had not submitted a guide report to MOE.

Days guided can be greater than the quota days allocated to guides since the quota restriction applies only to a specific time period i.e., guiding activity is unrestricted outside the period.

Half of the guided days within the watershed were for steelhead.[3] Very few guided days outside the watershed were for steelhead.

	Guided Days by Target Species			
	Steelhead	**Salmon**	**Other**	**Total**
Skeena Watershed Area	6,000	4,700	1,300	12,000
Other Areas	200	2,400	800	3,400
Total	**6,200**	**7,100**	**2,100**	**15,400**

One third of the guided days on the Skeena River mainstem were for steelhead.

Guide days were split evenly between Lower Skeena guides working that part of the watershed below the Zymoetz River (6300 guide days) and Upper Skeena guides (5700 guide days). The Upper Skeena guides had 70% of guide days targeted at steelhead whereas the Lower Skeena guides had only 30% of guide days targeted at steelhead.

3.5 Client Origin

Over 90% of guided angler-days flow from out-of-province clients with over 80% from clients living outside Canada. The client origin data from the guide survey suggested the following client mix (these numbers have been weighted based on angler days):

Client Origin	**Number of Angler Days**	
Local Area	200	1%
Rest of B.C.	800	5%
Rest of Canada	1,500	10%
Outside Canada	12,900	84%
ALL	15,400	

The clients from outside Canada were primarily US and German residents. The guiding fishing business in the Skeena area has a high "export" content. The smaller guiding operations (less than 100 guided days) typically attracted closer in markets, i.e. B.C. residents, while the larger operations predominantly attracted US and overseas markets.

[3] If an angler fished for steelhead and other species on a particular day, the day was counted as a steelhead day and not a "salmon" or "other" day.

3.6 Revenues

Total revenues for the 54 operations from sport fishing guiding in and outside the Skeena watershed were an estimated $3.4 million in 1990, or an average of $63,000 per operation (Exhibit 3.3). The share attributable to guiding activity in the Skeena watershed was $2.6 million or 77%.

There was a wide distribution of income. Most of the 22 operations with under 100 guided days would have less than $15,000 in revenues. Most of the 9 operations with over 500 days would have revenues in excess of $100,000.

3.7 Employment

The Skeena guiding industry provided an estimated 187 jobs directly -- 54 for guides (one for each operation), 67 for assistant guides and 66 for other workers.

These jobs were seasonal. For example, guides worked 3.5 months on average. The result is that the 187 industry jobs in 1990 represented 12,000 work days including days spent on marketing and promotions, or 55 person years (based on 220 work days per year).

The average year-round employment level was 1 person per operation. This translated into an average revenue per person-year employment of $62,000.

3.8 Wages Paid

Wage income earned by employees represented $1.1 million in 1990 or 32% of industry revenues. As total employment was 55 person-years, the average annual wage was $20,000 (approximately $90 per day). The wage figures included a wage to the guide operator.

Most guide operations were owner-operated and many employed family labour. In these cases, the decision by the operator as to what wage to draw and what surplus to leave in the business was arbitrary. Also, some workers received food and lodging, and accordingly received a lower wage than if they had to pay directly for their own accommodation and meals.

3.9 Investment

The total of all capital investment to date for the 54 active operations on an original or purchase cost basis was an estimated $6.2 million in 1990. That is, the industry has invested approximately $1.80 for each $1 of annual revenue. The capital investment strictly dedicated to guiding of anglers would be less than $6.2 million because some of the investment was used to generate revenues from other activities such as nature/wildlife tours.

Exhibit 3.3: Economic Profile of the Skeena Guide Industry, 1990.

	Total	Average per Operation
No. Operations	54	1.0
Days Guided		
For Steelhead	6,200	115
For Other Species	9,200	170
Total	15,400	285
Days Guided		
Within Skeena Watershed	12,000	220
Outside Watershed	3,400	65
Total	15,400	285
Revenues	$3.4 million	$63,000
Revenue Distribution		
Wages and Salaries Paid[a]	$1.1 million	$21,000
Purchases Goods and Services	$1.5 million	$28,000
Capital Return Including Interest Payments, Depreciation, Taxes, Profits	$0.8 million	$14,000
Total	$3.4 million	$63,000
Capital Investment[c]	$6.2 million	$115,000
Positions/Jobs		
Guide	54	1.0
Assistant Guides	67	1.2
Other	66	1.2
Total	187	3.4
Days Worked		
Guide	3,700	69
Assistant Guides	3,700	68
Other	4,600	85
Total	12,000	222
Person-Years Employment[b]	55	1.0

a. Includes a wage to the guide operator.
b. Days worked divided by 220.
c. Original or purchase cost basis.

Source: Estimates derived from the results of the guide survey and MOE guide reports.

Capital investment in the industry was broken down into the following components:

	Investment	% of Total
Land or Land Lease	$1.1 million	18%
Boats	$1.3 million	21%
Vehicles	$0.8 million	13%
Buildings & Facilities	$2.7 million	43%
Other	$0.3 million	5%
	$6.2 million	

Personal interviews with guides suggested a current market value of approximately $200 for a day of guide quota. This would imply an aggregate quota value of $2.6 million for the 13,000 quota days in the Skeena watershed area.

3.10 Supply Purchases

The guide industry provided linkages to other local and provincial economic sectors through the purchases of goods and services. In 1990, guide operators purchased an estimated $1.5 million in supplies broken down approximately as follows:

	Purchases from Suppliers	% Purchased Locally
Repairs & Maintenance	$ 180,000	100%
Food & Accommodation	450,000	97%
Transportation	340,000	90%
Marketing, Promotion, Travel	130,000	40%
Administration & Insurance	170,000	77%
Other	230,000	90%
Total	$1,500,000	87%

Approximately 87% of expenditures on goods and services were made locally.

Supply purchases represented 44% of the $3.4 million in revenue in 1990. Wages paid comprised another 32%. The residual (24%) represented a gross return to capital to cover interest payments on borrowed capital, a depreciation reserve for the recovery of capital, taxes including permits and licenses, and after-tax profit or return to capital (Exhibit 3.3).

4.0 Angler Profile

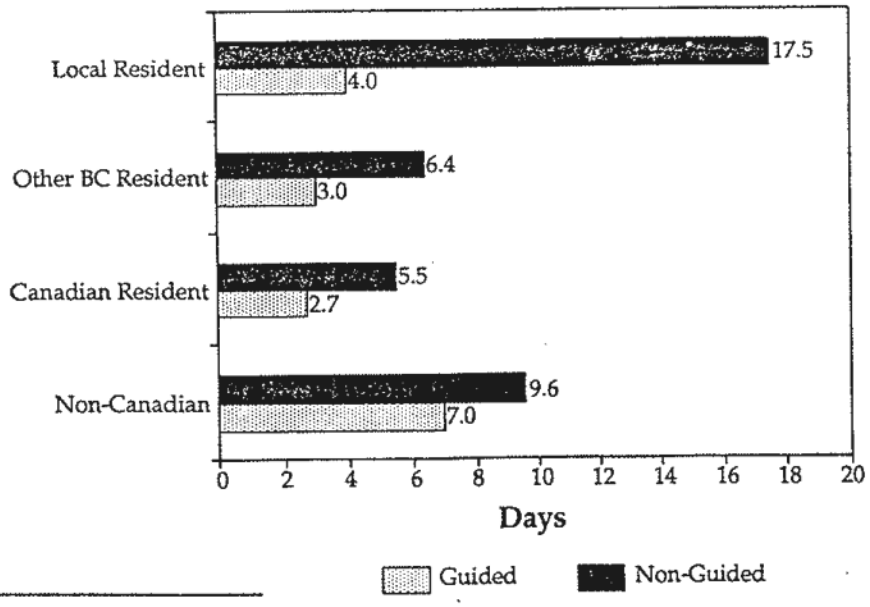
The anglers fishing the Skeena watershed, as well as the fishing opportunities in the watershed are varied. Significant differences in fishing intensity, target species, motivations, expenditure levels and interests occur between guided and non-guided anglers, and among anglers from different origins. For example, the local area angler fishes more days and spends less per day than does the visiting angler to the region. These differences are outlined in the section.

The angler profile was derived from the results of the mail survey of anglers conducted for this study. To the extent possible, survey results were correlated with other available information on the Skeena recreational fishery.

4.1 Average Days Fished

Days fished in the local area varied by residence of angler and whether the angling trip was guided. The average local angler fished 17.5 days in the local area. Guided anglers fished substantially less days on average than did non-guided anglers (Exhibit 4.1).[1] Although the survey sample sizes for the guided component were small, it does appear that guided trips of European anglers were longer than for U.S. anglers.

Exhibit 4.1: Average Days Fished by Angler Type



[1] Lewynsky and Olmsted provided information on the seasonal pattern of guided and non-guided angler activity on specific waters. V.A. Lewynsky and W.R. Olmsted, "Angler Use and Catch Surveys of the Lower Skeena, Zymoetz (Copper), Kispiox and Bulkley River Steelhead Fisheries 1989", Draft Report Prepared for MOE Smithers, March 1990.

The survey results were consistent with those from the 1985 survey of sport fishing in British Columbia[2]. The 1985 survey indicated that resident anglers in the MOE Skeena Resource Management Region fished an average of 22.3 days -- 14.5 days on rivers and streams and 7.8 days on lakes. One would expect that average days fished in the Skeena watershed by local anglers would be less than days fished in the much larger Skeena Resource Management Region[3]. For example, the Kitimat River, Francois Lake, and Ootsa Lake are not in the watershed but many local anglers fish these waters. The 17.5 average days fished for local anglers from our survey therefore appears reasonable.

4.2 Target Species

The target species of anglers varied significantly by angler class. Guided U.S. anglers targeted almost exclusively at steelhead. Canadian and European guided anglers targeted more on chinook or coho salmon (see Exhibit 4.2). Non-guided anglers targeted much more on chinook and coho salmon and on freshwater species than on steelhead.

Exhibit 4.2: Average Days Fished By Target Species for Skeena Watershed Anglers 1990

	Average Days by Target Species			
	Steelhead	Chinook or Coho	Other	Total
Guided Anglers				
Local Resident	0.0	4.0	0.0	4.0
Other B.C. Resident	1.5	1.5	0.0	3.0
Canadian Resident	1.4	1.3	0.0	2.7
Non-Canadian	4.2	2.6	0.2	7.0
Non-Guided Anglers				
Local Resident	2.7	7.0	7.8	17.5
Other B.C. Residents	0.5	2.6	3.3	6.4
Canadian Resident	0.2	4.1	1.2	5.5
Non-Canadian	1.2	5.1	3.3	9.6

Source: Survey of anglers.

[2] Michael Stone, British Columbia Freshwater Results of the 1985 National Survey of Sport Fishing, MOE, Victoria, September 1987.

[3] The Skeena Resource Management Region includes the Queen Charlotte Islands and extends North to the Yukon border.

The above data were averages for all angler respondents, including those who did not fish for steelhead but who fished for other species. Steelhead Harvest Analysis data indicated that among all steelhead anglers in the watershed, guided plus non-guided, the average number of steelhead days fished was 6.9, 3.9, 4.7 and 5.7 for "locals", other B.C. residents, out-of-province residents and non-Canadians respectively (Annex D).

Survey data on the frequency of purchasing steelhead licenses (not everyone who buys a steelhead licence fishes for steelhead), or chinook stamps was also an indication of angling intent.

	Share Purchasing	
	Steelhead Licence	Chinook Stamp
Guided Total	65%	41%
Non-Guided Total	35%	61%

This data reinforces the conclusion that guided anglers target more on steelhead, and less on chinook than do non-guided anglers. (See Exhibit E.1, Annex E).

4.3 Average Expenditure Levels

Anglers spend money on food, accommodation, fishing gear, travel costs, fishing guide packages and other items in pursuit of Skeena watershed fishing opportunities. Guided anglers generally spend considerably more than non-guided anglers, and anglers visiting from outside the local area spend more than local area anglers.

Exhibit 4.2 gives daily expenditures for the various classes of anglers. Daily expenditures included money spent on durable boating and fishing equipment and on non-durable items (eg. food, travel, gasoline, boat rentals etc.) Expenditures were reported for both the local area and the province as a whole. Provincial expenditures were larger since non-local anglers can spend money outside the Skeena region on food, accommodation and travel in transit. Local anglers can purchase boats and fishing gear in Prince George and other communities outside the local area. Component detail on the distribution of expenditures by category is given in Annex E.

The provincial expenditure figures included the amount spent locally. For example, the average local angler spent $39 per angler-day in the local region plus another $6 in the rest of the province (e.g., tackle and boating equipment in Prince George) for a total of $45.

The average guide cost per guided angling day was $220 (Section 3.2). In addition, the average guided angler spent another $64 locally and another $94 in the rest of the province per day fished.

The 1985 survey of Sport Fishing estimated average daily expenditures by anglers living in the Skeena Resource management Region to be $20 per angler-day in direct expenditures[4]. Skeena anglers spent an additional $12 per day on capital items of fishing equipment and boating equipment[5]. The $45 direct plus capital daily cost for local anglers in 1990 as estimated in this study is somewhat above the $32 daily cost in 1985 (even after allowing for cost increases due to inflation). The discrepancy is likely attributable to the much greater use of specialized river boats on the Skeena today as compared to five years ago.

Exhibit 4.3: Expenditure Levels of Anglers in the Skeena Watershed 1990

Angler Type/Residence	Average $ Spent per Angler-Day	
	Locally	In-Province
Guided Angler		
Local Resident	$125	$125
Other B.C. Resident	223	316
Canadian Resident	306	399
Non-Canadian	288	384
All	**284**	**378**
Non-Guided Angler		
Local Resident	$39	$45
Other B.C. Resident	61	83
Canadian Resident	110	132
Non-Canadian	85	119
All	**51**	**63**
Guided plus Non-Guided[a]		
Local Resident	$39	$45
Other B.C. Resident	65	89
Canadian Resident	126	153
Non-Canadian	166	225
All	**66**	**83**

[a] Weighted average of guided and non-guided daily expenditures.
Source: Survey of anglers

[4] Michael Stone, Economic Values and Impacts of Freshwater Sport Fishing in British Columbia, Fisheries Management Report no. 91, Ministry of Environment and Parks, Victoria, 1988.

[5] The $12 per angler-day is an estimate as the Stone study did not report capital expenditures by category for each region of angler residence. Average daily capital expenditures on fishing and boating equipment for all resident anglers in the province was $11. Stone 1988 op.cit.

4.4 Motivation for Visiting Area

In the angler survey non-local anglers were asked to identify the main purpose of their trip to the Skeena watershed region. The vast majority of guided anglers indicated that "fishing" was their primary trip purpose. Approximately half of non-guided anglers identified "fishing" as the main trip purpose.

	% Share Identifying Fishing as Main Trip Purpose
Guided Anglers	86%
Non-Guided Anglers	
B.C. Residents	28%
Canadian Residents	77%
Non-Canadians	58%
All Non-Guided	51%

Many Canadian anglers from other provinces, especially Alberta, visited the Skeena region solely to fish. The most common reason other than fishing cited for visiting the Skeena region was "visiting friends and relatives" (See Exhibit E.4, Annex E).

4.5 Interest in Skeena Watershed Area

The majority of the 1990 anglers had fished previously in the area. An estimated 57% of guided anglers and 74% of non-guided anglers were repeat anglers to the Skeena watershed. Not surprisingly the local anglers exhibited the highest percentage of repeat anglers (93%).

	% Share Repeat Anglers
Guided Anglers	57%
Non-Guided Anglers	
Local Residents	93%
Other B.C. Residents	69%
Canadian Residents	41%
Non-Canadians	65%
All	74%

In addition to past interest in the area, 84% of guided and 92% of non-guided anglers were also interested in returning to the Skeena watershed to fish. These numbers reflect the high percentage (99%) of locals who fish every year in the area. Those anglers which have long distances to travel to the Skeena area were less likely to return in 1991 but would do so within the next five years.

Exhibit 4.4: Interest in Returning to Skeena Watershed Area to Fish

	% Plan to Return	% Plan to Return In[a]		
		1991	Next 2 Years	Next 3-5 Years
Guided	84%	50%	43%	7%
Non-Guided				
Local Resident	99%	98%	2%	0%
Other B.C. Resident	92%	52%	24%	24%
Canadian Resident	91%	50%	35%	15%
Non-Canadian	77%	38%	50%	12%
All Non-Guided	92%	71%	20%	9%

[a] Percentages of those planning to return.

Source: Survey of anglers who purchased a license in Skeena area.

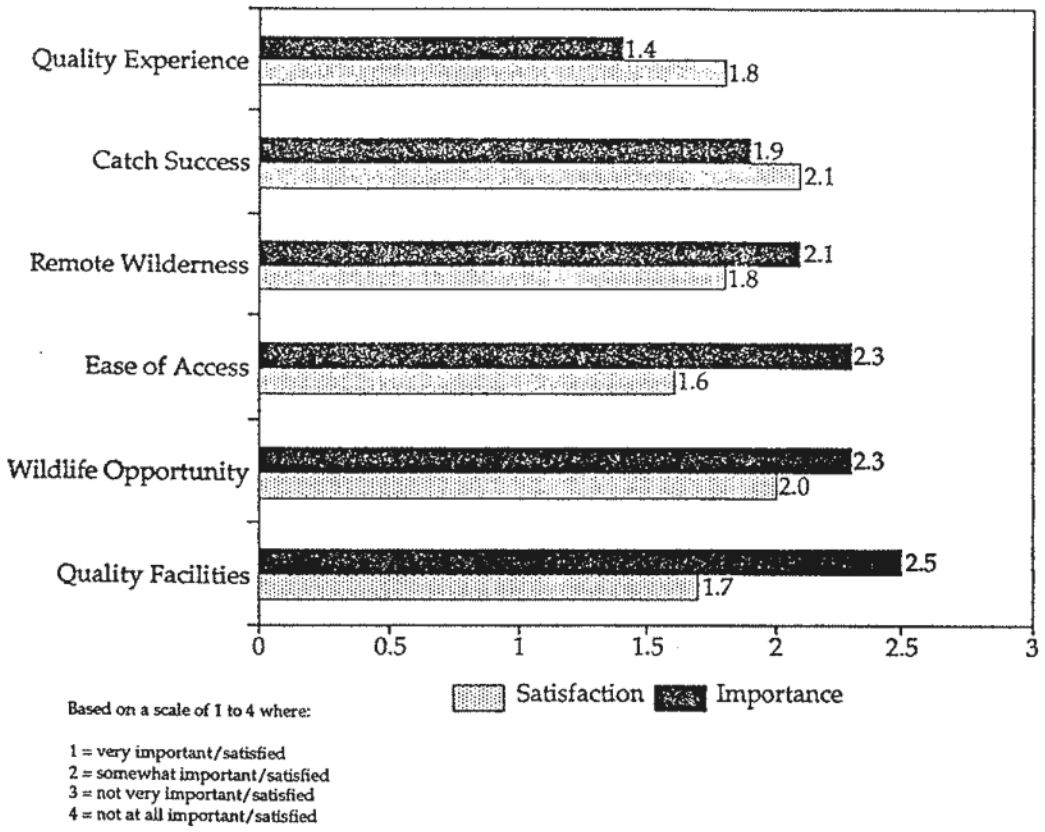
4.6 Important Factors When Fishing the Skeena Watershed

Anglers were asked to identify the level of importance of a series of factors when fishing the Skeena watershed area. The responses provided in Exhibit 4.5 were based on a scale ranging from 1 (very important) to 4 (not at all important). Mean responses below 2.5 indicate a high level of importance. For the guided angler the most important factors were the quality of the fishing experience and the success of catching fish. The same two factors were important to the non-guided angler.

The anglers were also asked to identify the degree to which their 1990 fishing trip met their expectations for these factors. The same 1 to 4 scale was used. Although the expectations of both guided and non-guided anglers generally were met, there is opportunity for improvement in performance of several factors or attributes of the fishing experience. For both angler segments, the importance of the two factors "Quality of the Fishing Experience" and "Success in Catching Fish" exceeded the degree to which expectations for these factors were met. Anglers in general desired better quality fishing experiences and higher angling success rates than they experienced in 1990.

Responses differentiated by guided and non-guided anglers are provided in Exhibit E.5, Annex E. Direct comments by anglers on their fishing experiences in the Skeena watershed are summarized in Annex I.

Exhibit 4.5: Importance and Satisfaction of Skeena Fishery Attributes



5.0 Economic Impacts

Expenditures by anglers make an important economic contribution to the local Skeena area economy in communities such as Terrace, Smithers, Hazelton, Houston and Burns Lake. Economic impacts arise directly from income and employment in guide operations, and from income and employment in local businesses that anglers frequent. In addition, spinoff effects occur through linkages to suppliers of goods and services and through the respending of wage income on consumer goods and services. The sum of direct industry, indirect supplier and induced spending impacts represent the total economic impact of angler expenditures.

The economic profiles of guide operations and angler activities in Section 3 and 4 respectively, and economic multiplier analysis were used to estimate the economic impacts of expenditures on sport fishing in the Skeena watershed (see Annex G).

5.1 Total Expenditures

Total local expenditures by anglers on fishing trips to the Skeena watershed were an estimated $12.6 million. Total in-province expenditures were an estimated $15.8 million (including the $12.6 million in local expenditures). The estimates were derived by multiplying the number of angler days of Exhibit 2.2 by the average daily expenditure of Exhibit 4.3. The breakdown by expenditure component was:

	Expenditures ($ million)	
	Local	**In-Province**
Guide Services	$2.6	$3.2
Accommodation	1.0	1.1
Food	2.2	2.6
Travel	2.4	3.8
Fishing Supplies	1.9	2.0
Boat Costs	1.8	2.4
Licences	0.6	0.6
Other	0.1	0.1
Total	**12.6**	**15.8**

Provincial expenditures were higher because non-local anglers spent money on travel, accommodation, food and other items to get to the Skeena region. Some local anglers brought boats outside the local area (e.g. in Prince George).

In-province expenditures on guide services were $0.6 million higher than the $2.6 million actually received by guides. Many European guided anglers purchased a Skeena fishing package

that included return airfare from say Frankfurt, Germany. Provincial guided angler expenditures therefore were higher than the revenue to guide operations.

The estimates excluded expenditures by saltwater anglers targeting at Skeena stocks -- an estimated $0.5 to $1.0 million in 1990.[1]

5.2 Expenditures Attributable to Angling

Many people take trips to the Skeena region to fish and to conduct other activities such as general touring, visiting friends and relatives, business, etc. The result is that not all of the expenditures identified in Section 5.1 can be attributed to angling in the Skeena watershed. Rather the expenditures should be prorated or allocated to the various trip activities including sport fishing. Information was collected in the angler survey as to primary trip purpose for visitors to the region (see discussion in Section 4.4).

Certain expenditure categories for visiting anglers were allocated 100% to sport fishing, namely -- guide services, fishing supplies, boat costs, licences and other. The remaining trip expenses of accommodation, food and travel were included if sport fishing was the primary trip purpose, and excluded if sport fishing was not the primary trip purpose.

Local anglers also can take trips in the Skeena watershed for several reasons, e.g. sport fishing, camping, day excursions, etc. For this study all expenditures by locals except food costs were allocated to sport fishing. Expenditures by locals on food were considered to be part of daily living expenditures. The result was that the daily expenditure by locals attributable to sport fishing was $32 from a total daily expenditure level of $39. The shares of daily expenditures attributable to sport fishing for the various angler categories are displayed in Annex G.

Aggregate sport fishing expenditures by anglers then were 80-85% of total expenditures on all activities.

	Expenditures ($ million)	
	Local	**In-Province**
Total All Activities	$12.6	$15.8
Sport Fishing Activity	$10.4	$13.5

It is the expenditures that were attributable to sport fishing that were used in the economic impact analysis below.

[1] 10,000 angler-days costed at $50 to $100 per day (average daily local expenditures by freshwater anglers were $66 -- Exhibit 4.3).

5.3 Local and Provincial Impacts

Exhibit 5.1 displays the economic impacts arising from cash expenditures on angling activities in the Skeena watershed. Three economic impact indicators were used in the analysis:

- employment -- measured in person-year equivalents;
- wages and salaries -- including supplementary benefits; and
- income or value-added -- the sum of business income and wages and salaries, sometimes called Gross Domestic Product (GDP).

Exhibit 5.1: Economic Impacts of Sport Fishing in the Skeena River Watershed 1990[a]

	Local Impacts	Provincial Impacts[d]
Steelhead Angling		
Angler Expenditures ($ million)	$2.8	$3.7
Income ($ million)[a]	$1.9	$3.5
Wages & Salaries ($ million)[b]	$1.3	$2.4
Employment (PY's)[c]	50	85
Other Angling		
Angler Expenditures ($ million)	$7.6	$9.8
Income ($ million)[a]	$5.1	$9.2
Wages & Salaries ($ million)[b]	$3.4	$6.3
Employment (PY's)[c]	140	215
All Angling		
Angler Expenditures ($ million)	$10.4	$13.5
Income ($ million)[a]	$7.0	$12.7
Wages & Salaries[b]	$4.7	$8.7
Employment (PY's)[c]	190	300

a Income or value-added is the sum of wages and salaries and business income (business income or capital surplus comprises interest payments, depreciation, taxes and after-tax profit).
b Included in income.
c Person years.
d Provincial impacts include local impacts.

Source: Direct effects of guiding from guide profile (Exhibit 3.3); other effects from multiplier analysis (Annex G).

Income represents the gross return to both labour and capital, and is a valuable measure of aggregate economic activity in a region. Income is less than expenditures since businesses import goods and services from outside the region.

Impacts on the local economy from the $10.4 million in local sport fishing expenditures in 1990 were:

- 190 person-years of local employment;
- $4.7 million local wages and salaries; and
- $7.0 million in local value-added or income.

The impacts include both direct effects as well as ripple effects on supplier and consumer industries.

The economic impacts on the provincial economy were much larger for two reasons. First angler expenditures were higher at the provincial level. Secondly the provincial economy is more integrated and has much smaller import leakages than the local economy i.e., provincial "multiplier" effects are greater. Estimated impacts on the provincial economy from the $13.5 million in provincial sport fishing expenditures were:

- 300 person-years of provincial employment;
- $8.7 million in provincial wages and salaries; and
- $12.7 million of provincial value-added, income or GDP.

The share of impacts attributable to steelhead angling, as opposed to angling for salmon or freshwater species, was 27% of the total impacts. The 27% steelhead angling share was greater than the 19% steelhead angling share of angler-days (Exhibit 2.2). A greater share of steelhead anglers used guides, and each guided day contributed more to the economy than did a non-guided day.

5.4 Resource Tax Revenue

The provincial government collects revenue directly from anglers for the licences (basic and steelhead), chinook stamps and charges for fishing classified waters. The government also collects revenue directly from guides for licences (basic guide and assistant guides) and guide quota days on classified waters.

The revenues from both sources were estimated to be $585,000 in 1990 -- $560,000 from anglers and $25,000 from guide operators. These direct revenues were included in the value-added or income measures of Exhibit 5.1

The estimated economic impacts for 1990 may not adequately portray the recent level of economic activity from the Skeena sports fishery for several reasons -- 1990 was a poor year for steelhead; the economy was in a recession in 1990; there was some angler resistance to daily charges for classified waters introduced in 1990; and Skeena pink and sockeye salmon were not open to angling until 1991.

6.0 Resource and Management Concerns

The economic impacts of angling in the Skeena watershed have been demonstrated. The continuing flow of angler expenditures and impacts to the region is dependent upon a strong and healthy resource. The visitor to the area is not only interested in the fish resources, but as noted in Section 4.6, also the remote wilderness and the wilderness experience.

Strong concerns have been raised that the resources are being threatened. The 1990 article on the Skeena steelhead in Trout magazine brought the resource concerns to the attention of anglers across North America.

A key area of concern and conflict among various fishing groups and governments is the impacts that mixed stock commercial salmon fisheries have on Skeena stocks. The commercial fishery targets on abundant salmon stocks such as enhanced sockeye, and in the process weaker stocks are overharvested. Small incidental catches of non-target species can have significant impacts on wild stock conservation and numbers of fish available to anglers.

Another area of concern is habitat loss through the expansion of the logging and mining industries into sensitive areas. The practices and duration of the native in-river subsistence fishery also impact Skeena fish stocks.

The B.C. Ministry of Environment is very concerned with the Skeena sport fishery in general and with the Skeena steelhead in particular. The priority of the provincial Fisheries Program as reflected in its new strategic plan is the conservation of wild fish stocks. The Provincial Inter-Ministry Tidal Sport Fishing Steering Committee and the Federal/Provincial Recreational Fishing Coordinating Committee have identified the Skeena River situation as one of the most important fisheries management issues.

Following are perspectives of angling guides and anglers on resource management, regulations and other issues.

6.1 Angling Guide Perspective

Business Constraints to Growth of the Guiding Sector

Guides were asked to comment on the most serious constraint to the growth of their business in the guide survey. Guides focused their responses on internal business aspects, specifically the 1990 introduction of quota allocation of guided rod-days on classified waters. This was understandable as the system was new.

Many guides felt that the new government regulations were constraining their business. These regulations required the guide to complete a guide area plan at the beginning of the year and a guide area report at the end of the year. The allocation of rod days was also a concern. Some

guides felt that the allocation of rod days limited their ability to operate; others were concerned that over time they may lose their quota of rod days. On the other hand, some of the guides stated that the quota system was not a concern and that they used the positive benefits of the quota system in their marketing material. One would expect guide concerns over reporting requirements and rod-day quotas to subside somewhat as guides become more familiar with the new management system.

Issues with business operations such as limited ability to obtain financial assistance and the limitation in expansion were identified by the guides. Concern also existed that the fish stocks were declining. Some guides felt that the lack of steelhead and salmon fishing opportunities was restricting their ability to maintain repeat clientele.

Guides indicated that the commercial fishery at the mouth of the Skeena was compressing the guiding and angling season for steelhead and coho. The fish take several weeks to travel from the Skeena mouth to the upper Skeena tributaries. The commercial fishery in July and early August has caused very few fish to be available in the upper tributaries until mid September.

Some guides focused on native issues. These included the Indian Food Fishery, the need to settle land claims and the unrest in some areas due to native concerns. This unrest has disrupted some guiding operations.

Steps to Reduce These Constraints

The guides were asked to identify the requirements to reduce these constraints. Common suggestions included the need for less government regulations, better management of the resource and the need to limit the commercial fishery. The guides would like to see changes in the gillnet fishery at the mouth of the Skeena to reduce the interception of steelhead. In addition several guides identified the need for more cooperation and communication between MOE, DFO and the various user groups.

Management of the Resource

The guides were asked to comment or make suggestions regarding the management of the fishery and resource. The most common comments focused on the need to address the issue of commercial fishing at the mouth of the Skeena to reduce the incidental catch of steelhead and the need to include the sport fishery in the management of the Skeena fish resources. Another common comment was the need to improve communication between the various user groups and government.

The final question on the survey asked the guides to add any additional comments. Most of these comments centred around the guides' concerns over the resource. Several guides felt that there was good potential for growth of their industry if the fish stocks could be improved. Some felt that they are already experiencing an increase in their business and were very optimistic towards the future. On the other hand, some guides were pessimistic and felt that the new regulations and the depleting fish stocks were having negative impacts on their business.

A listing of guide comments is given in Annex H.

6.2 Angler Perspective

Anglers choose the Skeena watershed as a fishing destination for various reasons. The most important factors in this selection process were the quality of the fishing experience, success of catching a fish and the opportunity to see wildlife in a wilderness setting (Section 4.6).

Angler comments from the mail survey covered a diverse array of opinions touching on resource concerns, regulations and enforcement access and infrastructure, management and other areas. Some comments were clearly in conflict. For example, some anglers wanted more access and facilities. Others thought that access was too good and this had led to overcrowding. This reflects differences in angling experiences desired by different segments of the angler population.

Representative comments by anglers were:

Resource Protection

- protect the fish resources, especially steelhead, and the natural beauty and viewscapes of the area;
- steelhead are much too important/valuable to the sport fishery to be caught by the commercial fishery;
- there is a lot of fish wasted/injured in the Indian gaff fishery at Moricetown;
- reduce the commercial bycatch of steelhead;
- the remoteness, wildlife and natural beauty of the area are being jeopardized by logging and mining;
- you need to develop incentives for selective commercial and Indian food fisheries where steelhead can be returned unharmed to the river.

Regulations and Enforcement

- two salmon possession limit is restrictive for overseas visitors;
- get pink and sockeye salmon open to sport fishing to relieve pressure in other species;
- go to more restrictive fishing regulations such as catch and release, barbless hooks, lower limits;
- there is very little enforcement;
- the daily fees for classified waters will drive out-of-province anglers away;
- endorse the fees for fishing classified waters;
- need more flexible system of daily fees for classified waters so that you don't have to specify in advance exactly which days you will fish;

Access and Crowding

- access is too good; the area is too crowded/commercialized;
- need affordable access to fishing areas other than lodges; more boat launch access is needed;
- do not overpromote the fishery; this will ruin it for locals;

Fishing Quality and Success Rates

- catch success is getting worse each year;
- fishing in the Skeena area is unrivalled in North America;
- probably won't return unless fish populations increase dramatically;

Guide Operations

- guide operations are first rate;
- guides are inexperienced;

Information Needs

- need easier interpretation of angling regulations;
- increase information on fly fishing and other opportunities;

A more complete listing of angler comments is given in Annex I.

7.0 Conclusions

The sport fishery in the Skeena watershed provides an important economic stimulus to several regional economies. A much greater share of Skeena angler-days comprise guide activity and activity by out-of-province anglers than for the freshwater fishery in the Province as a whole. This higher "export" content suggests that much of angler expenditures is tourist spending that would not occur otherwise, and hence truly represents a net injection of income to the local and provincial economies. At the same time, the fishery provides an important recreation opportunity for local residents.

There is diversity of anglers and angler preferences. Some aspects of this diversity are:

- some anglers prefer pristine isolated settings whereas others prefer easy assess to urban amenities;
- some anglers prefer fly-fishing whereas others prefer bar fishing using lures;
- anglers target on different species (summer run wild steelhead, salmon and freshwater species such as rainbow trout);
- some anglers practice catch-and-release whereas others seek a consumptive, kill fishery; and
- some anglers seek trophy size fish exclusively whereas others seek fish of any size.

What makes the Skeena watershed unique is the diversity of species available, the large size of fish, the fly-fishing opportunities and its pristine wilderness settings.

The common underpinning to the variety of angling experiences is a strong and healthy resource. There is great potential for the sport fishery from an economic development perspective. The Skeena watershed is very productive, and its unique aspects draw anglers from around the world.

However, this potential can not be realized under the present fisheries management regime, and the dual, sometimes conflicting management responsibility vested in the federal and provincial governments. The commercial fishery at the mouth of the Skeena fishery is the major harvester of Skeena steelhead even though commercial steelhead bycatch is relatively small as a share of the number of target sockeye caught. There is a severe mixed stock management problem in the commercial fishery.

Angling is still relatively high quality but declining. This decline in success rates ultimately will result in loss of angling activity and angler expenditures to the region, if in fact this has not already occurred.

The resource and management problems in the area are pressing and escalating rapidly. The evidence is compelling that a better system of management is required. There is a need to tap the potential of the Skeena sport fishery, without at the same time, significantly reducing the substantial benefits of the commercial fishery. This is not a simple task; otherwise a solution would have been found by now. It is hoped, however, that this economic study will raise the profile of the resource issue, and help foster a new spirit of cooperation and resolve among users, resource managers and the public in searching for solutions.

The estimated economic impacts from steelhead angling were less than half of the economic impacts from all angling activity in the Skeena watershed. However, these measures do not adequately reflect the importance of the steelhead fishery and resource. The Skeena steelhead is important because:

- the wild steelhead runs and habitat in the Skeena watershed are unique and have a high preservation value to present and future generations;
- 4 of the 5 Class I waters in the province are in the Skeena watershed, and angling in these waters is primarily directed at steelhead;
- the watershed draws more than 50% of total out-of-province steelhead angling, i.e., the steelhead fishery has a large "export" content;
- it provides substantial value or satisfaction to the angler over and above the amount s/he pays to go fishing (see discussion in Annex B).

The importance of the steelhead and the urgency of its management problems surpass its contribution to regional income and employment, as these measures only portray part of the story.

ANNEX A

SURVEY QUESTIONNAIRES

Skeena River Guide Survey

The British Columbia Ministry of Tourism in Association with the Ministry of Environment has commissioned a study of the conomic impacts of the sports fishery in the Skeena River watershed. The purpose of this survey is to document the operations id economic importance of the guiding component of the fishery.

Survey results will be kept strictly confidential and only industry aggregate information will be reported. The final report which resents the results of the survey will be forwarded to you. If you have any questions feel free to phone us collect (number at ottom of page 2).

We will phone within two weeks to go through the survey with you. Alternately, you can forward the completed questionnaire in the attached envelope. The term "local" refers to the Pr. Rupert, Terrace, Smithers, Houston and Hazelton area.

. YOUR OPERATION

. How many years have you been in business? _____ years

2. What is your home base during the season? (Name the community)

_____

What is your permanent/winter residence? (Name the community or city)

_____

. GUIDING ACTIVITY

. What species do you guide for? (Check all that apply)

- ☐ Steelhead
- ☐ Chinook
- ☐ Coho
- ☐ Lake trout
- ☐ Rainbow trout
- ☐ Other (specify) _____

. During which months did you guide in 1990? (Check all that apply)

- ☐ Jan
- ☐ Feb
- ☐ Mar
- ☐ Apr
- ☐ May
- ☐ June
- ☐ July
- ☐ Aug
- ☐ Sept
- ☐ Oct
- ☐ Nov
- ☐ Dec

. What is included in your daily rate? (Check all that apply)

- ☐ Accommodation
- ☐ Meals/food
- ☐ Rod & gear
- ☐ Transportation to river/lake
- ☐ Transportation to base (Terrace or Smithers)
- ☐ Other (specify)_____

7. On each of the waters on which you guide what do you judge is the approximate mix between guided and non-guided anglers?

Name of River, Stream or Lake	Share of Anglers: Guided	+ Non-Guided	= Total
1 _____	____%	+ ____%	=100%
2 _____	____%	+ ____%	=100%
3 _____	____%	+ ____%	=100%
4 _____	____%	+ ____%	=100%
5 _____	____%	+ ____%	=100%
6 _____	____%	+ ____%	=100%
7 _____	____%	+ ____%	=100%
8 _____	____%	+ ____%	=100%

8. Guided anglers can spend more than the package cost on their fishing trip (e.g. gifts, airfare, hotels, etc., not covered in the package). Can you estimate how many additional $'s each angler spends locally as part of their fishing trip?

$'s Spent Locally / angler trip (exclude package costs)

BC Anglers $ _____ Cdn

Non-BC Anglers $ _____ Cdn

9. Where do your clients live?

_____% Local residents

_____% Rest of BC

_____% Other Canadians

_____% Non-Canadians

100%

. What waters did you guide in 1990, what were the numbers of anglers and angler days guided, and what was the main target species of these angler days? (eg. 2 anglers for 4 days = 8 angler days)

Name of River, Stream or Lake	No. Days by Main Target Species: Steelhead A	+ Chinook & Other B	= Total No. of Angler Days	No. of Anglers	Average Daily Rate
_____	_____	_____	_____	_____	$_____
_____	_____	_____	_____	_____	$_____
_____	_____	_____	_____	_____	$_____
_____	_____	_____	_____	_____	$_____
_____	_____	_____	_____	_____	$_____
_____	_____	_____	_____	_____	$_____
_____	_____	_____	_____	_____	$_____
_____	_____	_____	_____	_____	$_____

10. How many people did your operation employ in 1990?

	Number	Days Worked
Guide (Yourself)	1	
Assistant Guides		
Other Employees		
Total		

D. Investment and Expenditures

11. What capital expenditures are associated with your guiding business?

	Total Capital Investment to Date*	1990 Capital Expenditures	% Share 1990 Expenditures Made Locally
Land or Land Lease	$	$	%
Boats	$	$	%
Vehicles	$	$	%
Buildings & Equipment	$	$	%
Other (e.g. aircraft)	$	$	%
Total	$	$	%

*original or purchase cost in as spent dollars, including 1990 expenditures.

12. What operating expenditures on goods and services related to your guiding business did you make in 1990?

	Expenditures	% Share of Expenditures Made Locally
Wages & Salary Costs (including benefits and payments to yourself)	$	%
Cost of Goods for Retail (e.g. food, liquor, gasoline, etc.)	$	%
Repairs & Maintenance	$	%
Food & Accommodation	$	%
Air Charter	$	%
Other Transportation (including fuel)	$	%
Marketing/Promotion /Travel	$	%
Administration/ Office	$	%
Insurance[a]	$	%
Other[b]	$	%
Total Expenditures	$	%

a) Exclude property taxes, permits, licenses

b) Exclude interest payments, principal payments, depreciation and taxes.

14. Do wages and salary costs include payment to yourself?

☐ Yes ☐ No

15. What were your total gross revenues from sport fishing guiding (Canadian $) in 1990?

$ _____ Cdn

What were your total gross revenues from guiding (Canadian $) in:

$ _____ in 1989 (Cdn)

$ _____ in 1988 (Cdn)

16. Do you offer other activities besides quided sport fishing trips?

☐ No

☐ Yes What are they? _____

E. THE FUTURE

17. What do you view to be the most serious constraint to the growth and expansion of your guiding business?

18. What is required to reduce these constraints?

19. Do you have any comments or suggestions regarding managment of the fishery resource?

20. Do you have any additional comments?

Thank you

For Information Contact:
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The ARA Consulting Group
#402-475 Howe Street
Vancouver, B.C. V6C 2B3
Phone (604) 681-7577 Fax (604) 669-7390

Skeena River Sport Fishery

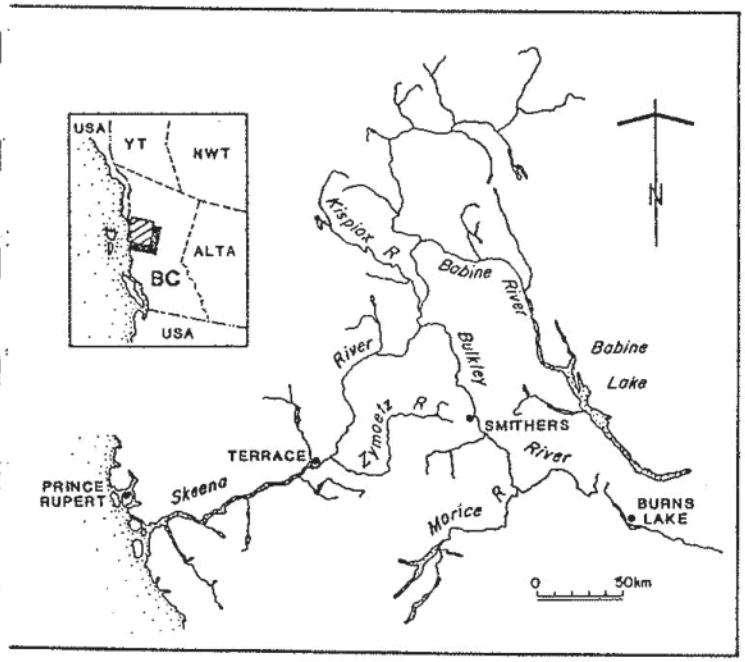
The Province of British Columbia is conducting a study of the Skeena River Sport Fishery. One of the primary goals of this study is to determine the fishing effort and to estimate the economic contributions of the angler. It is our understanding that you purchased a B.C. Freshwater sport fishing license in the Smithers/Terrace area. Could you please answer the following questions as they pertain to your fishing activity in the Skeena River watershed. All replies will be kept strictly confidential.

1. **In 1990 did you fish in British Columbia**

   ❑ Yes
   ❑ No ⟶ *Go to Question 15*

   Did you fish within the Skeena watershed? (see map below)

   ❑ Yes
   ❑ No ⟶ *Go to Question 15*



Angling Activity in Skeena Watershed

2. **How many days did you fish in the Skeena watershed area in 1990?** _____ **days**

3. **Which rivers, streams or lakes did you fish in the Skeena watershed area in 1990? How many days did you fish on each?**

Skeena mainstem	❑ No	❑ Yes	_____days
Morice R.	❑ No	❑ Yes	_____days
Kispiox R.	❑ No	❑ Yes	_____days
Sustat R.	❑ No	❑ Yes	_____days
Copper/ Zymoetz R.	❑ No	❑ Yes	_____days
Bulkley R.	❑ No	❑ Yes	_____days
Babine R.	❑ No	❑ Yes	_____days
Babine Lake	❑ No	❑ Yes	_____days
Freshwater Lakes	❑ No	❑ Yes	_____days
Other Rivers (specify)			
_____	❑ No	❑ Yes	_____days
_____	❑ No	❑ Yes	_____days

4. **Of your total days fished in the area, how many days did you fish for?**

   _____ days for steelhead
   _____ days for chinook or coho
   _____ days for other species (specify) _____

5. **Did you buy a chinook stamp for fishing the Skeena watershed?**

   ❑ Yes ❑ No

6. **Did you buy a steelhead licence for fishing the Skeena watershed?**

   ❑ Yes ❑ No

7. **Did you employ a paid guide while fishing the Skeena watershed in 1990?**

   ❑ Yes ⟶ For how many days? _____
   ❑ No

8. **Was 1990 the first year that you fished in the area?**

   ❑ Yes
   ❑ No. **How many years have you been fishing the Skeena watershed area?** _____ **Years**

9. **Do you plan to return to the Skeena watershed area to go fishing?**

   ❑ Yes ❑ No

   If Yes, when do you think that will be?

   ❑ 1991
   ❑ within the next two years
   ❑ within the next three years
   ❑ within the next five years

   If not, why not?

   _____
   _____
   _____

10. **Were you a non-paying guest on a fishing trip to the Skeena watershed area in 1990 (for example, your costs were covered by a company, a friend, etc.)**

    ❑ Yes
    ❑ No ⟶ *Go to Question 11*

    How much do you estimate the cost would have been if you had personally paid for the trip?

    $ _____

11. In 1990, how much did you personally spend on yourself to fish in the Skeena watershed area?

	$ Spent on Yourself to Fish	% Breakdown of Expenditures by Area			
		Skeena Local Area	Rest of BC	Outside BC	Total
Guiding Services/Packages	$	%	%	%	= 100%
Accommodation*	$	%	%	%	= 100%
Food & Beverage*	$	%	%	%	= 100%
Travel Costs*	$	%	%	%	= 100%
Fishing Supplies	$	%	%	%	= 100%
Boat costs/ rentals*	$	%	%	%	= 100%
Fishing licence fees*	$	%	%	%	= 100%
Other _____	$	%	%	%	= 100%
Total	$				

* *Enter zero if included in package.*

Are these expenditures in

❑ Canadian dollars or ❑ US dollars

12. How important are the following factors when you fish the Skeena watershed area?

Enter (1,2,3,4 or 5) for each factor based on the scale below.

1 very important
2 somewhat important
3 not very important
4 not at all important
5 no opinion

❑ ease of access to the fishing sites
❑ remote wilderness
❑ quality of fishing experience
❑ success of catching fish
❑ opportunity to see wildlife
❑ quality of the facilities

13. To what extent did your 1990 fishing experience in the Skeena watershed area meet your expectations for each of the following factors?

Enter (1,2,3,4 or 5) for each factor based on the scale below.

1 very satisfied
2 somewhat satisfied
3 not very satisfied
4 not at all satisfied
5 no opinion

❑ ease of access to the fishing sites
❑ remote wilderness
❑ quality of fishing experience
❑ success of catching fish
❑ opportunity to see wildlife
❑ quality of the facilities

14. What changes would have made your fishing experience in the Skeena watershed area more enjoyable?

_____
_____
_____
_____
_____

Angler Information

15. What type of license did you purchase?

❑ 6 day
❑ annual

16. Where do you live?

❑ BC Which community? _____
❑ Outside of BC Which province or State? _____

17. If you do not live in the local Pr. Rupert- Terrace- Smithers-Burns Lake area, what was the primary reason for travelling to the Skeena watershed area? (check one)

❑ fishing
❑ other outdoor recreation (e.g. hunting, canoeing)
❑ business
❑ touring
❑ passing through to another destination
❑ visiting friends & relatives
❑ Other (specify_____)

18. What is your age?

❑ 19-24
❑ 25-34
❑ 35-44
❑ 45-54
❑ 55-64
❑ 65+

19. Please write any further comments you may have on the Skeena watershed sport fishery?

_____
_____
_____
_____
_____
_____

Please return this questionnaire in the self addressed stamped envelope.

Thank You Again

ANNEX B

ECONOMIC IMPACTS VERSUS ECONOMIC VALUES

ANNEX B - ECONOMIC IMPACTS VERSUS ECONOMIC VALUES

The economic impacts of sport fishing in the Skeena watershed represent the economic activity generated by cash expenditures by anglers in the region. An initial angler expenditure is associated with income and employment to guide operations and to local suppliers of angling goods and services (e.g., sporting good stores, gas stations etc.) These suppliers in turn can purchase goods and services from second stage local suppliers and generate a further round of impacts. In addition the local spending of wage income generates impacts in the consumer goods and service industries. The total economic impact of angling is the sum of direct industry, indirect supplier and induced consumer spending impacts.

In contrast, the net economic value of sport fishing is the gross benefits of the fishing activity less full economic costs. The gross economic value or benefit of any good or service is measured by the amount of money people are willing to exchange for it. Economic costs represent the opportunity costs of material and service inputs, labour, capital and raw resources in their next best alternative use. Opportunity, and hence economic costs, reflect the concept that using resources for one purpose precludes their use to generate benefits in alternate uses.

Sport fishing is a form of recreation, or more specifically, outdoor recreation. As such, the sport fishing product is the recreational experience the quantity of which is measured by the number of angler-days. The quality of the sport fishing experience is affected by weather, scenery, congestion, and camaraderie with fellow fishermen, as well as fishing success rates. The amount of fish caught, on its own, is not the appropriate measure of sport fishing output.

Since the measure of output is the experience, the value of sport fishing is derived from the experience. The value cannot be measured by the value of fish caught, as in the commercial fishery, or by the expenditures on equipment, supplies and services incurred by anglers.

The value of sport fishing in terms comparable to other goods and services in society is properly measured by the amount of money anglers are willing to pay to go fishing. The federal and provincial governments have adopted a policy of nominal pricing of fishing opportunities so that the actual amount anglers pay in licence fees does not reflect the value of angling. Nevertheless, the amount anglers would be willing to pay is still the correct measure of value.

Sport fishing expenditures are a cost of fishing, and, accordingly, do not represent the value or benefit of sport fishing. This explains why sport fishermen are willing to spend much more on gear, transportation and other goods and services than the cost of purchasing the equivalent weight of fish in the retail market. It also explains why anglers can enjoy a fishing experience even though they did not catch any fish or did not eat the fish they did catch.

It is the excess of benefit, as measured by willingness to pay, over and above all economic costs that constitute the net economic value of sport fishing activity. This means that the economic value of the fishing experience is the amount of money anglers are willing to pay over and above

their actual costs (i.e. the measure of net benefit or satisfaction accruing to the angler-consumer). This benefit may be large due to the nominal costs (low licence fees) for access to Skeena River watershed fish resources. The majority of the benefits from angling accrue to the anglers rather than the resource owners.

Economic impacts are generally considered to be gross impacts in the sense that no corrections are included for the possibility that expenditures would have been made in the absence of the fishing activity, and for the alternative uses of the capital and labour in the economy. Some small part of the estimated economic impacts may represent net economic benefits, depending on the level of unemployment in the economy and the need for the expenditure that leads rise to the impact. As a general rule, however, impacts should be considered separately from economic values.

Economic benefit or value analysis is important in assessing the economic contribution of the fishery to the size of the economy, and hence is the most useful economic criteria in resource allocation decisions. Economic impact (income and employment) measures are useful in indicating potential impacts in specific supplier industries and in specific regions.

ANNEX C

GUIDE REPORT DATA

Exhibit C1: Guided Angler-Days in the Skeena River Watershed, 1990

Waterbody	Guided Days by Target Species			
	Steelhead	Salmon	Other	Total
Babine Lake	0	0	44	44
Babine River 1	1,728	26	31	1,785
Babine River 2	3	18	850	871
Bulkley Lake	0	0	2	2
Bulkley River	1,024	32	11	1,067
Collins Lake	0	0	2	2
Ecstall River	0	102	0	102
Exchamsiks River	0	18	0	18
Fish Pan Lake	0	0	28	28
Gitnadoix River	0	132	0	132
Kasiks River	22	46	0	68
Khtada River	0	0	4	4
Khyex River	7	0	0	7
Kidprice Lake	0	0	4	4
Kispiox River	217	34	28	279
Kitsumkalum River	154	585	0	739
Kluatantan River	3	5	0	8
McBride Lake	0	0	7	7
Morchuea Lake	0	0	5	5
Morice Lake	0	0	12	12
Morice River	389	1	0	390
Morrison River	0	0	16	16
Morrison Lake	0	0	40	40
Pine Lake	0	0	2	2
Skeena River 1	51	269	0	320
Skeena River 2	1,632	2,622	7	4,261
Skeena River 3	22	608	0	630
Skeena River 4	89	156	17	262
Slamgeesh Lake	0	4	0	4
Sustut River	402	72	12	486
Swan Lake	0	0	147	147
Taltapin Lake	0	0	5	5
Zymagotitz River	3	0	0	3
Zymoetz River 1	194	2	1	197
Zymoetz River 2	54	7	4	65
TOTAL	5,994	4,739	1,279	12,012

Source: MOE year-end guide reports

ANNEX D

STEELHEAD SURVEY DATA

Exhibit D1: Estimated Steelhead Angler-Days in the Skeena River Watershed.[a]

Waterbody	Angler-Days						
	1984	1985	1986	1987	1988	1989	1990
Babine River	2,080	2,483	3,330	3,172	3,439	2,503	2,989
Bear River	0	0	0	0	2	6	0
Bulkley River	9,801	10,336	15,651	9,798	10,696	7,977	8,705
Bulkley/Morice Rivers	303	315	281	571	344	297	94
Cedar Creek	30	20	72	35	5	35	19
Ecstall River	37	7	17	0	13	0	0
Exchamsiks River	34	13	47	40	16	222	32
Exstew River	10	0	93	15	8	14	11
Gitnadoix River	7	59	49	118	91	257	51
Kasiks River	74	0	35	50	89	88	23
Khyex River	45	7	21	4	12	8	75
Kispiox River	2,121	2,702	3,412	3,979	4,979	3,994	2,752
Kitseguecla River	172	49	32	53	0	9	15
Kitsumkalum River	4,827	4,405	4,629	4,656	3,344	4,585	3,784
Kitwanga River	70	63	17	135	68	16	15
Kleanza Creek	3	0	45	6	0	4	0
Kwantantan River	19	30	75	4	0	0	0
Lakelse River	2,993	3,001	3,326	3,551	3,240	4,691	2,570
Morice River	4,558	4,276	7,202	3,799	4,129	3,137	2,929
Nanika River	90	0	21	8	0	0	0
Skeena River	12,644	15,058	21,036	17,130	18,228	15,242	10,240
Suskwa River	89	219	227	201	181	258	65
Sustut River	682	623	801	831	857	649	659
Telkwa	122	86	226	97	57	69	160
Zymagotitz River	23	185	33	42	12	46	57
Zymoetz River	2,382	3,899	5,471	3,000	3,152	1,780	1,665
TOTAL	43,216	47,838	66,149	51,295	52,962	45,887	36,910

a. Both guided and non-guided
b. Estimate

Source: MOE survey of Steelhead license holders.

Exhibit D2: Estimated Steelhead Angler-Days in the Skeena River Watershed 1990

Waterbody	Angler Origin				
	Skeena Region	Other BC	Non-Resident Canadian	Non-Canadian	Total
Babine River	799	572	120	1498	2989
Bear River	0	0	0	0	0
Bulkley River	4635	1742	565	1763	8705
Bulkley/Morice River	94	0	0	0	94
Cedar Creek	19	0	0	0	19
Ecstall River	0	0	0	0	0
Exchamsiks River	11	21	0	0	32
Exstew River	0	11	0	0	11
Gitnadoix River	23	26	2	0	51
Kasiks River	15	8	0	0	23
Khyex River	71	0	0	4	75
Kispiox River	908	400	109	1335	2752
Kitseguecla River	15	0	0	0	15
Kitsumkalum River	3064	609	47	64	3784
Kitwanga River	8	0	0	7	15
Kleanza Creek	0	0	0	0	0
Kluatantan River	0	0	0	0	0
Lakelse River	1894	479	124	73	2570
Morice River	1463	626	81	759	2929
Nanika River	0	0	0	0	0
Skeena River	6567	2098	606	969	10240
Suskwa River	49	12	0	4	65
Sustut River	26	172	26	435	659
Telkwa River	135	18	0	7	160
Zymagotitz River	53	0	4	0	57
Zymoetz River	1046	157	124	338	1665
TOTAL	20895	6951	1808	7256	36910

Source: MOE survey of steelhead license holders.

Exhibit D3: Estimated Steelhead Anglers in the Skeena River Watershed 1990

Waterbody	Angler Origin				
	Skeena Region	Other BC	Non-Resident Canadian	Non-Canadian	Total
Babine River	79	148	28	263	518
Bear River	0	0	0	0	0
Bulkley River	574	450	105	309	1438
Bulkley/Morice River	4	0	0	0	4
Cedar Creek	11	0	0	0	11
Ecstall River	0	0	0	0	0
Exchamsiks River	4	11	0	0	15
Exstew River	0	4	0	0	4
Gitnadoix River	11	4	2	0	17
Kasiks River	8	4	0	0	12
Khyex River	15	0	0	2	17
Kispiox River	203	122	32	232	589
Kitseguecla River	11	0	0	0	11
Kitsumkalum River	439	137	11	9	596
Kitwanga River	4	0	0	2	6
Kleanza Creek	0	0	0	0	0
Kluatantan River	0	0	0	0	0
Lakelse River	296	125	32	13	466
Morice River	221	193	19	141	574
Nanika River	0	0	0	0	0
Skeena River	814	423	118	139	1494
Suskwa River	23	8	0	2	33
Sustut River	19	51	9	73	152
Telkwa River	15	11	0	4	30
Zymagotitz River	15	0	2	0	17
Zymoetz River	259	85	30	73	447
TOTAL	3025	1776	388	1262	6451

Source: MOE survey of steelhead license holders.

ANNEX E

ANGLER SURVEY DATA

Exhibit E.1: Frequency of Purchasing Steelhead Licences and Chinook Stamps, Skeena River Watershed Anglers 1990

	Sample Size	Bought Steelhead Licence?		Proportion Yes
		Yes	No	
Guided Anglers				
Canadian Resident	6 [1]	2	4	
Non-Canadian	31	22	9	
All	37	24	13	65%
Non-Guided Anglers				
Local Resident	67	33	34	49%
Other B.C. Resident	36	9	27	25%
Canadian Resident	22	5	17	23%
Non-Canadian	31	8	23	26%
All	156	55	101	35%

	Sample Size	Bought Chinook Stamp?		Proportion Yes
		Yes	No	
Guided Anglers				
Canadian Resident	6 [1]	5	1	
Non-Canadian	31	10	21	
All	37	15	22	41%
Non-Guided Anglers				
Local Resident	67	47	20	70%
Other B.C. Resident	35	18	17	51%
Canadian Resident	18	13	5	72%
Non-Canadian	30	13	17	43%
All	150	91	59	61%

[1] Includes 1 local resident, 2 other B.C. residents and 3 Canadians.

Source: Survey of anglers.

Exhibit E.2: Annual Expenditures by Anglers Fishing the Skeena Watershed Area 1990

Item	$ Spent Locally by Angler Type							
	Guided Local	Non-Guided Local	Guided BC Res.	Non-Guided BC Res.	Guided Cdn.Res.	Non-Guided Cdn. Res.	Guided Non-Res.	Non-Guided Non-Res.
Guide Services	400	0	300	0	567	0	1,610	0
Accommodation	0	21	75	63	71	110	78	108
Food	27	125	56	115	52	154	86	200
Travel Costs	27	124	193	113	109	168	86	304
Fishing Supplies	27	167	25	46	0	97	61	64
Boat Costs	0	227	0	19	0	36	0	49
Licences	20	23	22	27	28	37	69	73
Other	0	3	0	4	0	5	25	14
Total	501	690	671	387	827	607	2,015	812

Item	$ Spent Provincially (including $ spent locally) by Angler Type							
	Guided Local	Non-Guided Local	Guided BC Res.	Non-Guided BC Res.	Guided Cdn.Res.	Non-Guided Cdn. Res.	Guided Non-Res.	Non-Guided Non-Res.
Guide Services	400	0	300	0	675	0	1,960	0
Accommodation	0	23	150	71	102	112	147	135
Food	27	133	75	139	76	172	141	248
Travel Costs	27	130	350	193	195	266	282	535
Fishing Supplies	27	173	50	73	0	97	61	75
Boat Costs	0	302	0	23	0	36	0	55
Licences	20	23	22	27	28	37	69	73
Other	0	3	0	4	0	5	25	17
Total	501	787	947	530	1,076	725	2,685	1,138

Item	$ Spent by Angler Type							
	Guided Local	Non-Guided Local	Guided BC Res.	Non-Guided BC Res.	Guided Cdn.Res.	Non-Guided Cdn. Res.	Guided Non-Res.	Non-Guided Non-Res.
Guide Services	400	0	300	0	759	0	2,534	0
Accommodation	0	23	150	71	102	122	149	137
Food	200	133	75	139	80	173	145	257
Travel Costs	200	130	350	193	233	303	741	638
Fishing Supplies	0	179	50	73	0	99	92	79
Boat Costs	0	302	0	23	0	36	0	63
Licences	20	23	22	27	28	37	69	73
Other	0	3	0	4	0	16	28	18
Total	501	793	947	530	1,202	786	3,758	1,265

Source: Survey of anglers.

Exhibit E.3: Daily Expenditures by Anglers Fishing in the Skeena Watershed Area 1990

Type of Angler/ Residence	$ Per Angler-Day Spent Locally								
	Guide Services	Acc	Food	Travel	Fishing Supplies	Boat Costs	Licences	Other	Total
Local Area Expenditures									
Guided									
Local Residents	$100	$ 0	$ 7	$ 7	$ 6	$ 0	$ 5	$ 0	$125
Other B.C.	100	25	19	64	8	0	7	0	223
Canadian	210	26	19	41	0	0	10	0	306
Non-Canadian	230	11	12	12	9	0	10	4	288
Non-Guided									
Local Residents	$ 0	$ 1	$ 7	$ 7	$10	$13	$ 1	$ 0	$ 39
Other B.C.	0	10	18	18	7	3	4	1	61
Canadian	0	20	28	30	18	6	7	1	110
Non-Canadian	0	11	21	32	7	5	8	1	85

	$ Per Angler-Day Spent Provincially								
	Guide Services	Acc	Food	Travel	Fishing Supplies	Boat Costs	Licences	Other	Total
Provincial Expenditures									
Guided									
Local Residents	$100	$ 0	$ 7	$ 7	$ 6	$ 0	$ 5	$ 0	$125
Other B.C.	100	50	25	117	17	0	7	0	316
Canadian	250	39	28	72	0	0	10	0	399
Non-Canadian	280	21	20	40	9	0	10	4	384
Non-Guided									
Local Residents	$ 0	$ 1	$ 8	$ 8	$10	$17	$ 1	$ 0	$ 45
Other B.C.	0	11	22	30	11	4	4	1	83
Canadian	0	20	31	48	18	7	7	1	132
Non-Canadian	0	14	26	55	8	6	8	2	119

Source: Survey of anglers (annual expenditures divided by local days fished).

Exhibit E.4: Primary Reason for Visiting Skeena Watershed Area

	Number of Responses							
	Fishing	Other Recreation	Business	Touring	Pass Through	Visiting Friends	Other	All
Guided Anglers								
Local Resident	NA	NA	NA	NA	NA	NA	NA	NA
Other B.C. Resident	0	0	1	0	0	1	0	2
Canadian Resident	3	0	0	0	0	0	0	3
Non-Canadian	28	0	0	1	1	1	0	31
All	31	0	1	1	1	2	0	36
Non-Guided Anglers								
Local Resident	NA	NA	NA	NA	NA	NA	NA	NA
Other B.C. Resident	10	3	6	5	1	11	0	36
Canadian Resident	17	0	0	2	0	3	0	22
Non-Canadian	18	0	0	2	2	7	2	31
All	45	3	6	9	3	21	2	89

Source: Survey of anglers.

Exhibit E.5: Important Factors in Fishing the Skeena Watershed and Satisfaction

	Mean Response[a]		
	Guided	Non-Guided	All Respondents[a]
Importance of Factor			
Quality of Fishing Experience	1.2	1.5	1.4
Success of Catching Fish	1.9	1.9	1.9
Remote Wilderness	1.7	2.2	2.1
Ease of Access to Fishing Site	2.3	2.2	2.3
Opportunity to See Wildlife	2.0	2.3	2.3
Quality of the Facilities	1.8	2.6	2.5
Satisfaction with Factor			
Quality of Fishing Experience	1.9	1.7	1.8
Success of Catching Fish	1.9	2.1	2.1
Remote Wilderness	1.6	1.8	1.8
Ease of Access to the Fishing Site	1.4	1.6	1.6
Opportunity to See Wildlife	1.9	2.0	2.0
Quality of the Facilities	1.5	1.8	1.7

Based on a scale of 1 to 4 where:
1 = very important/satisfied
2 = somewhat important/satisfied
3 = not very important/satisfied
4 = not at all important/satisfied

[a] Simple average of responses

Source: Survey of anglers.

ANNEX F

METHODOLOGY FOR ESTIMATING ANGLER-DAYS

ANNEX F - METHODOLOGY FOR ESTIMATING ANGLER-DAYS

Estimated angler-days by residence class were estimated through several independent approaches. The main approach was:

- get MOE license sales information on number of licences sold in the four regional offices in the study area, (i.e. Terrace, Smithers, Burns Lake and Houston);
- apply the angler survey percentage of active licenses to each residence class;
- multiply the estimated active licence holders by the angler survey average days fished.

The results of this exercise were:

Angler Residence	No. Licenses Sold	Share Active	Average Days	Estimated Total Days
Local Area	9,100	.840	17.3	132,200
Rest of B.C.	3,969	.800[a]	6.2	19,700
Rest of Canada	2,146	.806	5.2	9,000
Outside Canada	3,395	.805	8.3	22,700
All	18,610			183,600

[a] Estimate

Non-local angler days could be underestimated if non-locals bought licences outside the local area and then fished locally. Local angler days could be overestimated if reported local days included some angler days for Francois Lake and Ootsa Lake, for example, which are outside of the study region.

For certain residence categories we constructed independent estimates through employing ratios based on the share of total days that was targeted at steelhead, or the share of total days that was guided.

The results of these "multiple lines of evidence" were correlated in generating the following angler-day estimates used in the study.

Angler Residence	Days Fished
Local Area	125,000
Rest of B.C.	25,000
Rest of Canada	15,000
Outside Canada	25,000
All	190,000

ANNEX G

METHODOLOGY FOR ESTIMATING ECONOMIC IMPACTS

ANNEX G - METHODOLOGY FOR ESTIMATING ECONOMIC IMPACTS

Economic impacts to the local and provincial economies were estimated in two main steps. First, income and employment impacts of all expenditures by anglers were estimated. Secondly, impacts attributable to angling in the Skeena watershed were derived by prorating these total impacts.

	Expenditures	
	Local	In-Province
Total All Activities ($ million)	$12.6	$15.8
Sport Fishing Activity ($ million)	$10.4	$13.5
Share Attributable to Fishing	.825	.854

As outlined in Section 5.2, expenditures by anglers were allocated to sport fishing or to other activities based on primary trip purpose. The resulting daily expenditures for the various angler categories are presented in Exhibit G.1.

Approach and Information Sources

Several information sources were used in the economic multiplier analysis:

- direct guide impacts from Exhibit 3.3;[1]
- direct multipliers and total (direct, indirect plus induced) multipliers from the British Columbia portion of Statistics Canada's Interprovincial Input-Output Model;
- provincial Keynesian consumption multipliers from the above Statistics Canada model;
- a local area Keynesian consumption multiplier of 1.19 specifically developed for the study area (based on information/assumptions on the tax rate, savings rate, share of consumer purchases made locally, and the import content of local consumer goods; and
- local area supplier multipliers specifically developed for study area (based on Statistics Canada direct multipliers plus assumption that 25% of direct purchases by suppliers were made locally).

[1] Revenues from guiding in the Skeena watershed were an estimated $2.6 million of the total $3.4 million guide revenue. The direct impacts from all guiding activity in Exhibit 3.3 were adjusted to reflect only Skeena watershed impacts.

The resulting economic impacts from all expenditures made by anglers are summarized in Exhibit G.2, i.e., the results of the first step above. Impacts attributable to angling in the Skeena watershed then were determined by prorating (e.g., provincial income attributable to angling was .854 x $14.9 million or $12.7 million).

Multiplier Analysis

Two very different types of multipliers can be calculated from the information in Exhibit G.2:

- a normal multiplier -- total impacts per $ initial expenditure; and
- a ratio multiplier -- total impacts divided by direct impacts

Ratio multipliers by definition must be greater than one. Normal multipliers can be less than or greater than one since the base or multiplicand is the initial expenditure, and not just the direct income component of the expenditure.

For British Columbia tourism sectors, ratio multipliers usually fall in the range of 1.5 to 2.5, and normal multipliers usually fall in the range of 0.9 to 1.2. The multipliers implicit in Exhibit G.2 are consistent with these ranges.

Local area multipliers are much smaller than provincial multipliers since the local economy is not as integrated as the provincial economy, i.e., imports of goods and services are greater at the local level.

Exhibit G.1: Expenditures by Anglers and Expenditures Attributable to Sport Fishing

Angler Type/ Residence	$ per Angler-Day Spent Locally: $ Total	$ per Angler-Day Spent Locally: $ Attributable to Angling	$ per Angler-Day Spent Provincially: $ Total	$ per Angler-Day Spent Provincially: $ Attributable to Angling
Guided Angler				
Local Resident	$125	$118	$125	$118
B.C. Resident	223	115	316	291
Canadian Resident	306	306	399	399
Non-Canadian	288	282	384	370
All	284	273	378	365
Non-Guided Angler				
Local Resident	$39	$32	$45	$37
B.C. Resident	61	33	83	61
Canadian Resident	110	97	132	116
Non-Canadian	85	67	119	92
All	51	40	63	51
Guided plus Non-Guided				
Local Resident	$39	$32	$45	$37
B.C. Resident	65	35	89	67
Canadian Resident	126	114	153	139
Non-Canadian	166	153	225	203
All	66	55	83	71

Source: Daily expenditure data by Anglers in Annex E plus shares of expenditures attributable to sport fishing as outlined in Section 5.2.

Exhibit G2: Economic Impacts from Expenditures by Anglers Fishing the Skeena Watershed[a]

Guided Activity	Direct	Indirect and Induced	Total
Local Area			
Revenue ($ million)	$2.6	NA	NA
Income or Value-Added ($ million)	$1.5	$0.6	$2.1
Wages and Salaries ($ million)[b]	$0.9	$0.4	$1.3
Employment (PY's)[c]	45	20	65
The Province			
Revenue ($ million)	$3.2	NA	NA
Income or Value-Added ($ million)	$1.6	$1.6	$3.2
Wages and Salaries ($ million)[b]	$1.0	$1.1	$2.1
Employment (PY's)[c]	45	40	85
Non-Guided Activity			
Local Area			
Revenue ($ million)	$10.0	NA	NA
Income or Value-Added ($ million)	$5.0	$1.3	$6.3
Wages and Salaries ($ million)[b]	$3.5	$0.9	$4.4
Employment (PY's)[c]	135	30	165
The Province			
Revenue ($ million)	$12.6	NA	NA
Income or Value-Added ($ million)	$5.5	$6.2	$11.7
Wages and Salaries ($ million)[b]	$3.9	$4.2	$8.1
Employment (PY's)[c]	150	120	270
Guided plus Non-Guided			
Local Area			
Revenue ($ million)	$12.6	NA	NA
Income or Value-Added ($ million)	$6.5	$1.9	$8.4
Wages and Salaries ($ million)[b]	$4.4	$1.3	$5.7
Employment (PY's)[c]	180	50	230
The Province			
Revenue ($ million)	$15.8	NA	NA
Income or Value-Added ($ million)	$7.1	$7.8	$14.9
Wages and Salaries ($ million)[b]	$4.9	$5.3	$10.2
Employment (PY's)[c]	195	160	355

[a] Not all of the impacts are "attributable" to sport fishing.
[b] Included in income.
[c] Person years.

ANNEX H

GUIDE COMMENTS

Selected comments of guides responding to the mail survey are reproduced below under five general headings. The intent is to give the flavour and diversity of guide opinions. Comments are identified by location of guide operation -- Lower Skeena versus Upper Skeena.

I RESOURCE MANAGEMENT AND REGULATIONS

1. "Manage the resource for biodiversity. Enforce the laws on the books. Less rules -- more enforcement." [Lower Skeena guide]

2. "There is no management of the resource. DFO policy is ridiculous and damaging." [Lower Skeena guide]

3. "Need one rather than three branches of government making rules and regulations." [Lower Skeena guide]

4. "Get rid of the commercial fishermen. Would like to see more fish in the river." [Upper Skeena guide]

5. "Make it no kill on Lower Skeena until September 15. This allows upper stocks that are weakest to escape." [Upper Skeena guide]

6. "Eliminate mixed stock gillnet fishery at Skeena mouth." [Upper Skeena guide]

7. "It would be nice to have management that had conservation in mind. We need to protect the wild, fantastic steelhead and enhance the already depleted coho." [Upper Skeena guide]

8. "Changes in fishing policies and regulations make it difficult for Europeans." [Lower Skeena guide]

9. "Reduce kill limits and the commercial activity at the mouth of the Skeena." [Lower Skeena guide]

10. "Open sockeye and pinks to sport fishermen." [Lower Skeena guide]

11. "Logging is a concern." [Upper Skeena guide]

12. "The management of the fishery must allow a minimum escapement of 35,000 summer steelhead and at least triple the current escapement of summer coho past the commercial fishery." [Lower Skeena guide]

13. "Change the two-day possession limit to a weekly possession limit. The current low possession limit is what we get the most complaints about, and the reason why many clients go to Alaska rather than return." [Lower Skeena guide]

14. "Bring back the regulations in place before 1990." [Lower Skeena guide]

15. "The interception of steelhead in the mixed stock fishery at the Skeena mouth, in the native fishery at Moricetown and in the Alaskan fishery at Noyes Island are a great harm." [Upper Skeena guide]

16. "If MOE ever went to a one salmon possession limit, it would kill my operation." [Lower Skeena guide]

17. "The methods of the commercial fishery are almost prehistoric and must be modified along with those of the so called Native Food Fishery which we all know is a hoax." [Upper Skeena guide]

18. "The regulations make it almost impossible to provide good service in an area like Terrace where river conditions are so unpredictable." [Lower Skeena guide]

19. "These are our resources. As long as DFO ignores the necessary management responsibilities, we have no hope." [Lower Skeena guide]

20. "The regulation of 10 fish for non-resident, non-guided versus 2 fish possession for guided is unfair." [Lower Skeena guide]

II GUIDE RESTRICTIONS AND QUOTA ALLOCATION

1. "Policy towards guides is inconsistent and confrontational. The new policy is an improvement. Let the guide business grow at its own rate -- do not force feed us rivers." [Lower Skeena guide]

2. "Lack of rod days and fear of losing rod days (use or lose) are constraints to growth." [Lower Skeena guide]

3. "Need to be credited with activities for three years rather arbitrary time period." [Lower Skeena guide]

4. "The Class 1 and Class 2 designation of waters is bankrupting me." [Lower Skeena guide]

5. "In 1991 I got less clients from Europe due to more stringent regulations." [Lower Skeena guide]

6. "You need to provide for expansion of operations not yet at full capacity." [Lower Skeena guide]

7. "All non-residents on Class 1 and 2 rivers should be guided. Many non-residents don't know the species of fish that they catch." [Upper Skeena guide]

8. "Guiding can not operate satisfactorily on a one year licence system as is now the case." [Upper Skeena guide]

9. "We have no where to expand. We are overcontrolled by policy and regulations which were put in place without any firm data." [Lower Skeena guide]

10. "Rod-day limitations due to decreasing steelhead stocks is a constraint." [Upper Skeena guide]

11. "Guided fishermen should not be penalized for hiring a guide. They should have all the benefits of an unguided non-resident." [Upper Skeena guide]

III BUSINESS CONSTRAINTS

1. "Small business banking policies are a constraint to growth." [Lower Skeena guide]

2. "The opportunity to generate export revenue is endless if we can get more wild steelhead and salmon in the river system." [Upper Skeena guide]

3. "The lack of steelhead and salmon fishery opportunities is making it difficult to get repeat clientele. We need a longer fishing season." [Upper Skeena guide]

4. "Native land claim aspirations." [Upper Skeena guide]

5. "Being able to secure suitable financing for advertising, capital expenditures and loan consideration." [Lower Skeena guide]

6. "Under qualified guides and illegal guides/packers hurt the industry." [Lower Skeena guide]

7. "The commercial fishery is condensing the angling and guiding season into a shorter and shorter time period. Upper Skeena tributaries used to have good steelheading in July and August. These runs have been seriously overfished by the commercial fishery -- only vestigial remnants of these runs remain. The same thing is happening to the run for the first two to three weeks of September." [Upper Skeena guide]

8. "In those years when winter does hold off until mid-November, it is virtually impossible to attract anglers to the lodges at these times due to cold temperatures." [Upper Skeena guide]

IV COMMUNICATION

1. "Management would work a lot better if MOE took seriously the input of guides, Indians and other user groups. MOE managers are serving their own goals, and not those of the user groups." [Upper Skeena guide]

2. "Facts are estimates e.g., MOE says there are too many guides in the river." [Lower Skeena guide]

3. "Better consultation needed with interested groups such as Terrace Angling Guides Association." [Lower Skeena guide]

4. "A closer relationship between lodge owners and MOE is needed." [Lower Skeena guide]

5. "MOE has no idea how a guiding operation works and the requirements guides have to provide to satisfy their clients. Spend more time with guides rather than making more regulations." [Lower Skeena guide]

6. "Unfortunately the Ministry listens to pressure groups like the Steelhead Society which does not speak for the majority of sport fishermen. They have a particularly elitist view." [Lower Skeena guide]

7. "DFO and MOE must cooperate!" [Lower Skeena guide]

8. "Need better and more frequent meetings with Fish and Wildlife officials to address local problems in each area." [Upper Skeena guide]

9. "I have letters dated 1976 begging DFO for better management at the mouth regarding the sport fishery. All have fallen on deaf ears." [Upper Skeena guide]

10. "I feel Fish and Wildlife is working in my best interests." [Upper Skeena guide]

V OTHER

1. "The MOE Steelhead Status Reports are pessimistic and scaring away steelhead anglers." [Upper Skeena guide]

2. "There are no solutions." [Lower Skeena guide]

3. "Native unrest is a constraint to growth. Deal with land claims." [Upper Skeena guide]

4. "The development of new large-scale lodges is using up all the available quota." [Lower Skeena guide]

5. "Our 1991 season in the Babine is a substantial gain over previous seasons, even with the bad publicity and logging." [Upper Skeena guide]

6. "Restrict the sale of salmon by Natives. Clear all creeks of debris where practical and accessible." [Upper Skeena guide]

7. "Unless DFO addresses these important issues immediately, tourism in the Upper Skeena for drawing sport fishermen is doomed. Hundreds of business are being affected. It's an unfair, unjust and cruel situation for DFO to hold a money-making Upper Skeena fishery at bay -- as opposed to a subsidized commercial fishery." [Upper Skeena guide]

8. "Lack of congestion is a key part of the experience." [Upper Skeena guide]

9. "The guide is a teacher, a skilled entertainer." [Upper Skeena guide]

10. "Terrace-area guides are selling pounds of fish that you can take home. We are selling the experience." [Upper Skeena guide]

11. "The guide industry is more mature than it was five years ago. Five years ago guides would not even talk to one another." [Lower Skeena guide]

12. "The non-guided, non-resident who does not spend money in the area is a problem." [Lower Skeena guide]

13. "Repeat customers from Europe see the changes in regulations over the last five years, i.e., every year is different, more stringent." [Lower Skeena guide]

14. "I insist on clients releasing all steelhead -- no problem with clients." [Lower Skeena guide]

15. "Not happy with the light fine an individual got for guiding without a license." [Lower Skeena guide]

ANNEX I

ANGLER COMMENTS

Selected comments of anglers responding to the mail survey are reproduced below under eight general headings. The intent is to give the flavour and diversity of angler opinion. Comments are identified by angler residence, guided versus non-guided and target species.

I RESOURCE PROTECTION

1. "Please protect the resource so future generations can enjoy it." [Smithers non-guided steelhead angler]

2. "The runs must be enhanced; accept some closures, barbless hooks, etc. I have seen the best since 1967 and the worst (last year). I will sorely miss British Columbia, the Babine and Bulkley--they were great rivers" [Washington non-guided steelhead angler]

3. "Do all in your power to preserve your valuable steelhead resource" [New York guided steelhead angler]

4. "The sport fishery is dying. It has become a privilege not a right. Protect the steelhead please! [Burns Lake steelhead angler]

5. "At the rate the federal and provincial governments are handling the stocks, my children will probably never be able to fish steelhead" [Smithers non-guided steelhead angler]

6. "A beautiful area that must be preserved and protected always" [Alberta unguided rainbow trout and char angler]

7. "Keep the Babine watershed pristine. It is priceless and valuable in the long run. The river and the fish should be protected for the long term economic welfare of B.C. [California guided steelhead angler]

8. "Please conserve and enhance my fish resource" [Richmond non-guided steelhead angler]

9. "Maintain integrity of streamside and viewscapes surrounding the high value fishing areas. Maintain limited access by boat or plane." [Burnaby non-guided salmon angler]

10. "I am disturbed by the decline in wilderness areas. I would choose an area undisturbed by logging operations if I could find one that didn't require a helicopter to get to." [Vancouver non-guided trout angler]

11. "Keep fishing in the Skeena as good as it is now. There are not many places in the world as good" [German non-guided salmon angler]

II FISHING SUCCESS RATES

1. "Three years ago, I fished with friends in the Smithers area. We fished Babine Lake and one smaller lake and had real good success on trout. I'll be back in 1992 if things work out" [Nebraska non-guided trout angler]

2. "Stocks are depleted on most accessible lakes" [Terrace non-guided trout angler]

3. "All in all I have been in every province in Canada including James Bay, and find that fishing in Canada cannot be beat" [Nevada non-guided rainbow trout angler]

4. "The fishing has gotten worse each year I've fished the Skeena Watershed. There are simply not enough fish in the rivers" [Alaska guided steelhead angler]

5. "You need more steelhead. I only caught one steelhead in six days' fishing. For good fishing I would have averaged one fish per day--two fish per day would be great steelhead fishing" [California guided steelhead angler]

6. "I just like to get out--it doesn't matter if I catch a fish. I take pictures when I'm not fishing" [Terrace non-guided salmon angler]

7. "The number of fish is inadequate. Probably commercial fishing at river mouth reduces number of steelhead in river. I probably won't return unless fish population increases dramatically. [California guided steelhead angler]

8. "Never caught any fish but enjoyed my trip" [Alberta non-guided salmon angler]

9. "If the fish population does not improve, I am not going to return. I enjoy the area and the guides" [California guided steelhead angler]

10. "Very good fly fishing. Outstanding country. Will be back in 1991 with five other fishermen" [California guided trout angler]

III SPORT FISHING REGULATIONS AND ENFORCEMENT

1. "We need easier interpretation of sport fishing regulations" [Terrace non-guided salmon angler]

2. "Our English is not that good. Perhaps you could put Freshwater Fishing - Regulation Synopsis in German language" [Swiss guided salmon fishermen]

3. "Due to the heavy commercial fishery at the Skeena mouth, the migration of fish has gotten worse in the last few years. On the other hand millions of pinks move up the river but are off-limits to sport fishermen. The two salmon a day regulation is restrictive though overseas visitors have weight limitations on the airplane. The regulations are very complicated to aliens. I have seen Canadian fishermen take up to 20 chinook an afternoon out of the Kispiox mouth" [German guided salmon angler]

4. "Too many mid season changes in the regulations. Simplify the regulations a bit" [Smithers non-guided angler]

5. "Cut the crap and get pinks and sockeye open to sport fishing to relieve pressure on the other species" [Terrace non-guided salmon angler]

6. "I think you should go catch and release in any water with high angler use and you better make sure the logging is done correctly--lose the spawning beds and you will be history!" [California guided steelhead angler]

7. "The Babine River for trout should be made into a catch and release river and fly-fishing only. Now it is supposed to be fly fishing only, but I saw that rule abused--no one around to enforce it." [Oregon non-guided trout angler]

8. "I feel that fishing limits should be lowered. For example, no one needs to keep ten large chinook salmon" [Terrace non-guided salmon angler]

9. "Area should be closed to allow rebuilding of all stocks" [Alberta guided steelhead angler]

10. "Within the last seven to eight years, there has been a drastic increase in sport fishermen and a decrease in fish, especially steelhead. Perhaps limited entry licences for early chinook runs could be initiated" [Terrace non-guided salmon angler]

11. "More people that live in the area should abide by the rules. I see a lot of infractions at peak times of the year--coho at Lakelse for example. Enough funds are collected by licences to afford a stronger policing of rivers in the area" [Terrace non-guided salmon angler]

12. "I would support doubling of licence fees if that money was spent towards enhancement" [Terrace non-guided salmon angler]

13. "I would like to see more public involvement in reporting resident and non-resident fishermen not sticking to catch limits" [Terrace non-guided salmon angler]

14. "Out-of-province people should pay higher licence fees" [Terrace non-guided salmon angler]

15. "Do something about the killing of coho and steelhead by catch and release--poor steelhead with nine fish hook holes in mouth and lip has no chance against the next fishermen" [Smithers non-guided salmon angler]

16. "The book of regulations just gets thicker and thicker every year. The thicker it gets, the less people read it and the more we all lose."

17. "Barbless/catch and release with perhaps one keeper per person per day is the way to go" [West Vancouver inactive angler]

18. "We have always had quality fishing and have been treated great by you Canadians. I hope you do not increase limits on fish taken--they are too liberal and should be shortened up" [Oregon non-guided trout angler]

19. "Daily and possession limit is very low and the price of licences continues to rise" [Alberta non-guided salmon angler]

20. "You should outlaw motorboats in the Kalum River" [Terrace non-guided steelhead angler]

21. "Would like to see more conservation officers checking for licences" [Houston non-guided trout-char angler]

22. "Eliminate boat fishing on the Bulkley River. I takes away from the beautiful experience seeing and hearing a noisy jetboat running up and down a small flowing river [Utah guided steelhead angler]

23. "All the recent changes in regulations tell us that you don't want the tourists to fish, but you do want our money. For the past 15 years, we have been coming to Terrace, B.C. staying at the xxx Trailer Park for four months a year. We purchase groceries, gas, fishing gear, etc. We have been spending several thousands of US dollars in the Terrace area alone. Until your regulations get back to where they were in 1989, we will not be coming back. Several of our friends feel the same as we do" [Washington non-guided salmon angler]

IV CLASSIFIED WATERS

1. "You should eliminate daily fees for Class I and II waters. If you drive 1000 miles, you should not be taxed off the river" [Washington non-guided steelhead angler]

2. "The fee schedule for fishing Class II waters should be more flexible so that the licence could be used on days other than the specific days paid for. I lost $40 because of water conditions that prevented me from fishing the days I paid for" [Alberta non-guided salmon angler]

3. "I truly stand behind the excess fee for out-of-B.C. residents, and enjoy tremendously the quality for us residents" [Terrace non-guided salmon angler]

4. "Less pricey licensing and allow intermittent days on classified waters--you should be able to sightsee some days and fish others without wasting a paid fishing day" [Michigan non-guided steelhead angler]

5. "You need a better way of explaining Class II waters so it is not so confusing for visitors" [Alberta non-guided salmon angler]

6. "Class I and Class II waters are confusing. Also it seems like $10-20 for one day is high when outsiders do not know if these are really better places to fish--locals who know best go free. This may detract tourists" [Alberta non-guided salmon angler]

7. "Lift the restrictions on out-of-province people. Let us fish the Skeena like the locals" [Colorado non-guided salmon angler]

8. "The user fees for classified waters makes it too expensive to fish in B.C. We will not return" [Oregon non-guided salmon angler]

9. "I couldn't afford the extra daily licence for salmon fishing so I left the Terrace area and went back to the Burns Lake area. The Burns Lake area has wonderful fishing and is beautiful. I will probably never go back to the Terrace area because it is not just worth the bother of wading through the regulations and the fortune it costs" [Alberta non-guided angler]

10. "The $10 a day fee on the Skeena is not a problem but the requirements of a two week fishing period is ridiculous" [Washington non-guided steelhead/salmon angler]

11. "Your present river classification is clearly discriminatory (and probably unconstitutional) to Canadians residing outside of B.C. If you don't change, you no doubt will lose these fishermen. If I travel to a remote area, how is one to know exactly how many days one is going to fish?" [Alberta non-guided salmon angler]

12. "1990 was the first year I haven't fished the Skeena system in 16 years. I refuse to pay the B.C. government $10 or $20 a day when the Skeena system has federally funded hatcheries on it" [Alberta inactive angler]

V GUIDE OPERATIONS

1. "XXX runs a first rate operation on the Morice River. I'd go again in a minute if he had a opening" [Montana guided steelhead angler]

2. "A better guide would have made the trip more enjoyable [California guided steelhead angler]

3. "Stop non-citizens from holding guiding licences" [Terrace non-guided salmon angler]

4. "Our guide wasn't willing to try other fishing spots. If he was more experienced, he may have tried harder to please his customers. We would not use the guide or his business again" [Alberta guided salmon angler]

5. "Not experienced for salmon fishing. Next time I'll get a guide" [Alberta non-guided salmon angler]

6. "Need a bed to sleep in--you should not have to bring a sleeping bag that far" [California guided trout angler]

7. "The competition for the guiding business is Alaska where for the same costs you are not flooded out, nor is there a shortage of fish. You need alternate fishing opportunities to fish when the rivers are in flood" [Ohio guided steelhead angler]

8. "A wonderful river–The Babine–fine food and fine guide, but I think the Babine should be restricted to fly fishing only" [New York guided steelhead angler]

9. "There seems to be too many fishing resorts owned by people from the U.S. or Germany. These individuals reside in B.C. for six months or less and do nothing to encourage locals. If anything, they discourage locals to fish near their resorts." [Southbank non-guided trout angler]

VI OTHER RESOURCE USERS

1. "I feel the bycatch of steelhead by the commercial industry must be reduced to save the sport industry" [Pitt Meadows non-guided salmon angler]

2. "The steelhead are too important to take a back seat to commercial fishing at the mouth of the Skeena" [Utah guided steelhead angler]

3. "Indians should not throw humpies out of their nets already dead. I didn't like all the fish that fall off the gaffs at Moricetown canyon right in front of the fish ladders" [Smithers non-guided salmon angler]

4. "No more gaffing at Moricetown. Mandatory 24 hour net check" [Telkwa non-guide salmon angler]

5. "The Kispiox logging condition seems out of control" [Lower Mainland salmon angler]

6. "I have worked and travelled the world and B.C. has the greatest potential as a destination for sportsmen, yet it also clearly has the most antiquated forestry practices. The logging practices I witnessed would have a person incarcerated in most of Europe" [Vancouver non-guided trout angler]

7. "We would have preferred the natives not acting as if they owned the place--made us feel like trespassers. We were very disturbed about the natives openly selling salmon" [Fort St. John salmon angler]

8. "Native fishermen should not injure fish and then throw them back into the river--this is not food fishing. Food fishing for their own use is OK" [Smithers non-guided salmon angler]

9. "Why should the commercial fishermen be allowed in the mouth of the Skeena?" [Terrace non-guided salmon angler]

10. "My only complaint is only being able to catch one or two salmon a day and work hard to do it, and then watch natives at Moricetown gaff hundreds of salmon, some of which are sold" [Alberta non-guided salmon angler]

11. "I'm concerned about the remoteness, wildlife and natural beauty of the area declining because of increased logging and mining in the area" [California non-guided salmon angler]

VII ACCESS, CONGESTION AND LITTER

1. "Access was so good places were crowded and noisy--people leave too much garbage" [Houston non-guided rainbow trout angler]

2. "I liked the remote campsites of the Ministry of Forests" [Alberta non-guided salmon angler]

3. "We have enough people fishing the Skeena Watershed already. We do not need more tourists" [Terrace non-guided salmon angler]

4. "We enjoy the area and the well-maintained campgrounds and facilities. We plan on spending many more years of holidays in the area" [Alberta non-guided salmon angler]

5. "If the area becomes too commercialized, our group will not return" [California non-guided rainbow trout angler]

6. "You should allow some logging in the Tweedsmuir Park area so that there are logging roads to provide access" [Burns Lake non-guided trout angler]

7. "If only anglers would not leave discarded fishing line, hooks, wrapping, etc. on riverbanks" [London, U.K. non-guided salmon angler]

8. "Need less damage by 4x4s and litter; also clear marking of what roads are for logging trucks only or for mixed use" [Richmond non-guided angler]

9. "You need affordable access to fishing areas other than lodges. We do not enjoy guides and formal dining" [California non-guided rainbow trout angler]

10. "Are there any <u>easily accessible</u> rainbow trout streams where a person my age (77) can still have the pleasure of dry fly fishing?" [California non-guided trout angler]

11. "We need spots with less people" [Burns Lake non-guided trout and char angler]

12. "It was very difficult as a local to go to the regular fishing holes because tourists and guides would camp out on them" [Terrace non-guided salmon angler]

13. "My hope is that the Skeena fishery is <u>not</u> promoted to the same extent as the Kitimat River--a problem which ruined the fishing experience on the Kitimat River for locals" [Terrace non-guided salmon angler]

14. "More boat launch access whould be appreciated" [Montana non-guided salmon angler]

VIII OTHER

1. "The value of a fish to the sport fishery far outweighs its value sold as commercial catch. B.C. should pursue every avenue as vigorously as possible to combat high seas driftnetting, commercial fishing and any other industry which threatens the livelihood of this magnificent fish" [Utah guided steelhead angler]

2. "Lay off the Canadian tourists--we are part of this country too" [Alberta non-guided salmon angler]

3. "The declining steelhead stocks are going to cost local tourism dearly. We need to develop incentives for a terminal fishery whereby it would be beneficial for commercial and native fishermen to use methods where steelhead can be returned unharmed to the river where they will provide the greatest dollar return" [Smithers non-guided salmon angler]

4. "You need better campsites for motorhomes" [Alberta non-guided salmon angler]

5. "I fished very little from lack of time" [Burns Lake non-guided trout angler]

6. "You do a good job but you need more resources and less commercial and native fishing pressure on the stocks. Allowing non-Indians to be treated differently from non-natives is nonsensical and racist" [Vancouver non-guided salmon angler]

7. "Foreigners come and think they own our town and fishing rivers, and abuse the rivers and the fish" [Terrace non-guided trout angler]

8. "We were hampered/stopped by Indian blockade against logging. Also, I was appalled by the Indians taking salmon by blocking the stream and hauling them out by hand!" [Texas non-guided trout angler]

9. "Increase information on fishery experiences available to fly fishermen" [New York guided steelhead angler]

10. "We need less Alberta meat mongers in RVs occupying Skeena banks overnight with no contribution to economy" [Burnaby non-guided salmon angler]

11. "You need published maps to show visitors where the good river locations are" [Williams Lake inactive angler]

12. "I need more knowledge of fishing sites and appropriate techniques" [Ohio non-guided salmon angler]

13. "The fishery is becoming a rich man's sport. The lodges are up to $2000 a week--outside the retired person's reach when licence and travel costs are included" [Washington non-guided steelhead angler]

14. "American tourists need more respect for the river" [Prince Rupert non-guided rainbow trout angler]

15. "I fish to get away from the wife" [Prince George non-guided salmon angler]

16. "The money I spent was principally to visit family, not to fish" [Vancouver non-guided salmon angler]

17. "Too many fishermen, not enough fish" [Terrace non-guided salmon angler]

18. "We were treated very well. Even the Indian disturbance was handled well" [California non-guided trout angler]

19. "Need less out-of-town anglers" [Smithers non-guided steelhead fishermen]

20. "We enjoy fishing in lakes in our area. Travelling to rivers where we are allowed only one steelhead is hardly worth it" [Burns Lake non-guided trout angler]

21. "We would like to thank everyone in the town of Terrace. They were very helpful and nice. Very enjoyable to travel in B.C., except the gasoline prices" [Washington non-guided salmon angler]

22. "In spite of more and more restrictions on sport fishermen, success rate on steelhead and coho continues to plummet towards zero" [Smithers non-guided steelhead angler]

23. We are RV'ers and we continue to find the residents friendly, helpful, interesting and hospitable. I'm fully retired and usually spend two to three months in Canada" [California non-guided trout angler]

24. "Need to educate more on catch and release in both saltwater and non-tidal waters" [Alberta non-guided salmon angler]

Fisheries and Oceans Canada
Deputy Minister

Pêches et Océans Canada
Sous-ministre

DEC 0 7 2018

Mr. Mark Zacharias
Deputy Minister of Environment
Ministry of Environment and Climate Change Strategy
PO Box 9339 Stn Prov Govt
Victoria, BC
V8W 9M1

Ms. Bobbi Plecas
Deputy Minister of Climate Change
Ministry of Environment and Climate Change Strategy
PO Box 9339 Stn Prov Govt
Victoria, BC
V8W 9M1

Dear Mr. Zacharias and Ms. Plecas:

I am writing to you to seek the position of your government with respect to potentially listing two aquatic species on Schedule I of the *Species at Risk Act* (SARA).

These species were assessed on an emergency basis by the Committee on the Status of Endangered Wildlife in Canada and found to be at risk:

- Steelhead Trout (Thompson River) as endangered (2018); and
- Steelhead Trout (Chilcotin River) as endangered (2018).

Following an emergency assessment, the Minister of Environment and Climate Change must form an opinion on whether imminent threat to survival exists. If the Minister is of the opinion there is an imminent threat to one or both populations of Steelhead Trout, she must recommend to Governor in Council (GiC) that the population(s) be listed on an emergency basis. Following such a recommendation, GiC would make a listing decision based on information provided by the Minister, and may consider additional information, such as socio-economic impacts and the results of consultations.

In the event that imminent threat exists, I am requesting that you provide a government-wide position on listing for each Steelhead population by January 18, 2019 to ensure that British Columbia's views can be taken into account by GiC in making a decision on whether or not these species should be added to Schedule I of SARA.

Canada

.../2

Detailed information on these species and the listing process under SARA can be found on the Species at Risk Public Registry (*http://www.sararegistry.gc.ca/*). As well, please contact Rebecca Reid, Regional Director General (Pacific Region) at the following address if you wish to obtain further information: Rebecca Reid, Regional Director General, Fisheries and Oceans Canada, 401 Burrard Street, Suite 200, Vancouver, British Columbia, V6C 3S4, Telephone: 604-666-6098.

Thank you for the Province of British Columbia's continued cooperation as we implement SARA. I look forward to hearing from you on this matter.

Yours sincerely,

Catherine Blewett

cc: SARA.XPAC@dfo-mpo.gc.ca
Rebecca Reid, Regional Director General, Pacific Region, Fisheries and Oceans Canada
Philippe Morel, Assistant Deputy Minister, Aquatic Ecosystems, Fisheries and Oceans Canada
Alec Dale, Executive Director, Ecosystems Branch, Ministry of Environment and Climate Change Strategy

.../3

From: Barron Carswell (via Google Docs)
To: Neilson, Larry AGRI:EX
Subject: Some thoughts .....
Date: Sunday, December 9, 2018 11:01:44
Attachments: Untitled document.pdf

---

s.22 has attached the following document:

Untitled document

Hi Lars
..

I've read the document and have a few thoughts ...see attached

Google Docs: Create and edit documents online.
Google LLC, 1600 Amphitheatre Parkway, Mountain View, CA 94043, USA
You have received this email because someone shared a document with you from Google Docs.

MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT
INFORMATION NOTE

Date:
File: [arc/orcs #]
CLIFF: [cliff #]

PREPARED FOR: **Tom Ethier, ADM, Forests, Lands, Natural Resource Operations and Rural Development**

Jennifer McGuire, ADM, Ministry of Environment and Climate Change Strategy

Paul Rasmussen, ADM, Forests, Lands, Natural Resource Operations and Rural Development

James Mack , ADM, Agriculture

ISSUE: Federal Decision on SARA listing for Interior Fraser Steelhead is currently not using Federal-Provincial consensus-science.

BACKGROUND:

- In February 2018 the Committee on the Status of Endangered Wildlife In Canada (COSEWIC) concluded, as part of an Emergency Assessment, that Interior Fraser Steelhead (IFS) were assessed as Endangered and at imminent risk of extinction. COSEWIC noted that while there are several contributing factors the major controllable factor is, *"the high levels of fisheries bycatch mortality are of particular concern in the context of persistently poor ocean survival."*
- The population has declined from over 8,000 spawners to only 277.
- An emergency listing process under the Species At Risk Act (SARA) is underway, led by the Department of Fisheries and Oceans (DFO) and set to conclude Dec 2018 or Jan 2019.
- DFO has diverged from the expected process. The science advice is provided to the federal Minister of Environment and Climate Change in the form of a Science Advice Report (SAR). This report is essentially a summary of the Research Document. DFO has published a SAR, which differs from the summary wording in the final, peer reviewed Research Document endorsed by the Provincial and Federal science teams. Through two seemingly small editorial changes, the new summary conclusions minimize the by-catch issue and support status-quo commercial harvesting.
- It is critical to BC that the Federal decision is informed by best-available science, as concluded by the joint science team through their transparent process. Minimizing the issue of by-catch mortality will result in management actions that do not fully address this impact, thereby increasing the threat of IFS extinction. As the Province is responsible for the management of IFS, BC will ultimately be held responsible for lack of IFS recovery.
- Results of a Federal decision to list under SARA will have far-reaching, significant economic implications for the Province and Indigenous peoples, including impacts to the lower Fraser River Port, commercial fisheries and First Nations' fisheries. The Province prefers all parties take management actions without requiring a SARA listing.
- Given the extremely low numbers, immediate action by all parties is necessary.

- First Nations in the Thompson and Chilcotin areas are voluntarily forgoing their constitutional right to fish, including salmon allocations they are provided through DFO.
- The Province continues to implement additional protective measures, including regulatory closures on all Provincial fisheries during the IFS run-time, and watershed restoration activities which impact timber-supply.
- The commercial gill-net and seine-net sector for the Fraser River area met with Minister Donaldson to discuss additional protective measures they could voluntarily implement.
- The Province has requested DFO take additional measures to reduce IFS mortality in salmon fisheries, such as increasing the closures from 4 weeks to a minimum of 6 (science indicates 10 to 12 weeks may be required). DFO has not accepted these recommendations because their science teams provide them with different advice than the BC science team.

s.13

Appendices: E-mail from BC outlining concerns and requesting use of consensus wording.

Contact:	**Alternate Contact:**	**Prepared by:**
ADM:	*Name:*	*Name:*
Div:	*Div//Branch:*	*Region/Branch:*
Phone:	*Phone:*	*Phone:*

Reviewed by	Initials	Date
DM		
Associate DM		
DMO		
ADM		
PRGM Dir./Mgr.		

Appendix 1: Request sent to DFO on Friday, December 7th. On behalf of the BC team from FLNRORD Director Jennifer Davis.

Request: After much internal discussion, I respectfully ask that the current public document is taken down, and the wording is replaced with the original science-team summary bullets.

Why? This keeps the science piece solid as something both jurisdictions will stand up for. We can have other debates on what is the best plan of management action. I realize that DFO documents are in productions and have timelines, but our responsibility is to provide solutions for our governments. I strongly believe that proceeding with differences of opinion on the science summary will lead to longer-delays later in the timeline.

Process. Both jurisdictions have all put extreme effort into changing the process this time, and achieved what some thought was impossible – **consensus among the two science teams!** To publish a summary that differs from the consensus bullets, undermines all that work, relationship progress, and effort from our scientists to start finding solutions through some tough conversations.

What is the crux of the concern? The new summary report is inconsistent with the joint science team's determination regarding how immediate action to reduce mortality (including in the commercial fisheries) provides the best chance of recovery. With two years of lowest-ever returns, what we have been doing isn't working. The team advised that while we need to assess options for long term recovery, by nature of having an emergency process, we need to immediately take actions to stem any further declines to the extremely low numbers in order to have a chance to recover.

Background:
I needed a simple comparison table to understand why there was such a strong response. For transparency, I have included it here (it may contain errors). Two background bullets were pulled, which we don't care about. Changes are highlighted in yellow. Key changes are highlighted in green.

Science Document Consensus Wording (document not publicly released yet)	DFO's Wording in the Public Document
This Recovery Potential Assessment (RPA) focuses on two Designatable Units (DU) of Steelhead Trout, the Chilcotin River and Thompson River populations, both of which were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.	This Recovery Potential Assessment (RPA) focuses on the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. Both of these DUs were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.
This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.	~~This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.~~
Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.	~~Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.~~
Given the shortened timelines required for an emergency assessment, this advice will only address a subset of the usual elements required in an RPA. Any outstanding elements will be addressed in the future as the *Species at Risk Act* process continues.	Given the shortened timelines required for an emergency assessment, the advice in this RPA only addresses a subset of the elements required in a full RPA. Outstanding elements will be addressed in the future as the Species at Risk Act processes continue.
The number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 and 77 for the Thompson and Chilcotin Rivers, respectively. The estimated decline of Steelhead Trout	The estimated number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 for the Thompson DU and 77 for the Chilcotin DU. The estimated decline of Steelhead Trout spawners over

spawners over the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.	the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.
Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition.	Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition. General categories of threats and limiting factors were agreed to, however the rationale and scoring for level of impact, causal certainty, and threat risk had greater uncertainty and will require further input and evaluation.
The recommended distribution target is to retain the present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial subdivisions within the spawning and juvenile rearing areas of the Thompson DU are recommended and two spatial subdivisions are recommended within the Chilcotin DU.	Recommended Distribution Target is to retain the present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial sub-areas within the spawning and juvenile rearing areas of the Thompson DU, including the main stem are recommended and two spatial subdivisions are recommended within the Chilcotin DU. These distribution targets are consistent with current level of occupancy in freshwater habitats, and are believed to be sufficient to avoiding contraction of freshwater range.
The recommended abundance recovery target for the Thompson Steelhead Trout DU is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year, which is 938 spawners.	Recommended Abundance Recovery Target for Thompson Steelhead Trout DU is 938 spawners. This value, which also meets the distribution target, is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year.
Using a length-standardized requirement of 1.8-2.4 spawners/km, the recommended abundance recovery target for the Chilcotin DU is 562-744 spawners.	Recommended Abundance Recovery Target for Chilcotin Steelhead Trout DU is 562–744 spawners, using a length-standardized requirement of 1.8–2.4 spawners/km. This also meets the distribution target for the Chilcotin DU.
Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	Model simulations suggest increases in future abundances of both DUs are conditional on improvements in natural productivity. Exploitation rate (fishing mortality) reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. ~~If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.~~ However, eliminating exploitation alone will not result in population recovery. Uncertainties regarding the exploitation rate estimates, unaccounted for fixed rate terminal harvest, and variations in escapement were identified as having the potential to affect the estimated productivity of each population. For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates. For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds

	39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.
Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery ~~The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.~~ and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.

Hi Lars

Very interesting document .

I think this document needs to be read in the context of the RPA . "As per the Recovery Potential Assessment for Chilcotin River and Thompson River Steelhead Trout (RPA)", this analysis also considers and compares the different parameters around the species recovery potential under Scenario 2 to the baseline.

DFO. 2018. Recovery Potential Assessment for Chilcotin River and Thompson River Steelhead Trout (Oncorhynchus mykiss) designatable units. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/050

I understand that the Province was consulted and commented on this RPA document. I do note that the RPA seems refers to a population size of 100 (page 14) as possibly causing inbreeding depression this seems low as some geneticists (e.g. Tave) suggest that inbreeding depression occurs at population levels of 500 or less. Given the current numbers of Thompson River stlhd,(77) there is very likely inbreeding depression occurring. This may make them even more susceptible to environmental changes.

"DFO (2018) identified several sources of uncertainty that may affect the estimates of productivity of each population including exploitation rate estimates, unaccounted for fixed rate terminal harvest, and variations in escapement. Three alternate productivity models were presented in the RPA (DFO, 2018) assuming that productivity would be similar to that observed over the most recent year, five years and ten years. While the RPA specified the most likely mean productivity, it did not describe the likelihood of reaching the other productivities, including the most optimistic scenario. Therefore, all three models are assessed in the analysis."

" Estimated recovery probability is zero at all exploitation rates and all productivity levels for the 1-year time period (Table 1b). Because current mean productivity is the most likely scenario, preventing and mitigating habitat destruction and reducing exploitation below current levels of exploitation are immediate actions necessary to increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases " page 9-10

So a realistic outlook for the recovery of these fish is pretty grim.

Sometimes the document ia a little to very confusing especially for a non-economist as they are using their own terms and nomenclature. A prime example for me was the concept of "surplus" which isn't defined in the document until page 58 in section 5.2.6

5.2.6

Within a cost-benefit framework, economic impacts are measured in terms of changes in consumer and producer surplus. Most of the costs identified in this analysis are the result of reductions in producer surplus or economic profits, which are approximated by changes in net revenues[1] to harvesters, processors, and lodges/charters. Reductions in consumer surplus also represent costs. Pg 58

Consumer surplus is a measure of welfare benefits that is grounded in economic theory. The term relates to the amount that consumers are willing-to-pay above what they actually pay for a good or service. .

A glossary of terms might be very helpful for laypersons.

In the province the main audience will be biologists, none of whom are qualified, to challenge the economic analysis, but they will need to understand it.

Further, I don't think there is any need to challenge the economic analysis in this work,(as there are many references to other authors such as GG and Nelson) but it might be very helpful to have Patrick do a presentation to explain the terms and have a Q and A session for provincial staff before the Province responds,.

For me the guts of the analysis are in the tables need the end of the document.

Tables 1,2 17, 18, 19 (bottom of this table), 24, 25 26

[1] The term "net" measures gross revenue minus production costs (i.e. revenues net of costs).

The paper explores three scenarios 2a, 2b and 2c while acknowledging that the most likely is scenario 2b base on 1 year mean productivity.

Page 76

- Under Scenario 2b, assuming that the 1 year mean productivity is accurate, the RPA suggests a low recovery and growth potential for CR DU (0%) and low recovery and growth potential for TR DU (1% and 4%, respectively). Hence, the most likely model does not show sustained growth for TR or CR DUs.

Page 95

- "Scenario 2b is the most likely model. However, benefits are the lowest of all productivity assumptions, but likely positive. Given the high monetized costs and non-monetized costs, it is not clear that net benefits would be positive."

So in terms of presenting this to decision makers I think the impacts shoulds be made in the context of the most likely scenario (i.e. current productivity) and to try to get some explanation of why a 5 and 10 year productivity mean are included from Patrick and others so that can be included.

If I understand the paper, SARA listing either of these species would result in a 60 day rolling closure down the coast and would affect all salmon/finfish fisheries. I'm still not sure where this number of days (60) came from or who decided this. Maybe I've missed it but it might be a question to ask either DFO or FLNRO/ENV staff. I assume it's right in terms of eliminating bycatch of these steelhead, but the paper doesn't appear to explain how it was decided on.

The economic and social impacts would be **very significant** as identified in the tables and comments back from sectors and FNs. If these species are listed, I think there will be a demand for compensation from FNS and every commercial sector.

The decision before the Federal Ministry will be whether these additional impacts are justified. I'm sure the Province will be asked to offer an opinion.

Happy to chat……

Cheers
B

From:	Travia, David V AGRI:EX
To:	Mack, James AGRI:EX
Cc:	Neilson, Larry AGRI:EX; Turner, Michael R AGRI:EX; Romanin, Kevin AGRI:EX
Subject:	Update on Steelhead
Date:	Monday, December 10, 2018 14:56:20
Attachments:	MINSteelhead BN.docx

James:

The information below and attached is FYI to apprise you of some issues around steelhead. The attached BN highlights disagreements between BC science staff (FLNR & ENV) and DFO in what was included in a final Science Advice Document (SAR), that has now been made public.

- The SAR is part of a broader Recovery Potential Assessment (RPA) being led by DFO.
- The RPA follows the usual process outlined by the Canadian Science Advisory Secretariat (CSAS), which results in 3 deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:
    1. **Science Advice Document (SAR)**: this is a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants.
    2. **Research Document:** this document is authored by experts and is submitted for the peer-review process. This document is not yet public.
    3. **Proceedings**: this document is developed by the CSAS Secretariat and provides a public record of the format, discussion, and decisions made in the peer-review meeting. The Proceedings are not yet publicly available.
- The ENV and FLNR concerns center on the content of the final published SAR being different from what they had provided.
- This issue was discussed on a call today that included DFO Science staff (DG Carmel Lowe and others).
- It became clear on the call that FLNR and ENV may not have completely understood the RPA process when going into it. Specifically, that BC science staff were just a single contributor in a multi-stakeholder forum that considers diverse perspectives from academia, First Nations, NGOs, Industry, etc. Instead, ENV and FLNR appear to see the process as bilateral.
- FLNR and ENV have officially requested DFO remove the public document and have continued to highlight issues of trust between DFO and BC science staff. They also noted that they may stand down from the process.
- DFO Science have committed to ensuring the views of ENV and FLNR scientists will be represented in the Proceedings document. They have clarified that the Province is free to differ from the views of DFO, as presented in the SAR, and brief up accordingly.

s.16

- ENV is considering bringing you, Jennifer and Tom together to discuss.

David Travia, MPA
Director | Intergovernmental Relations, Trade and BC Seafood Secretariat
Corporate Governance, Policy and Legislation Branch | Ministry of Agriculture
Ph: 778 974-3764

From:	MacKenzie, Julia
Cc:	Murdoch, Sarah; dmarshall@fraserbasin.bc.ca; Stadel, Angela; Warnock, Melissa; Coutts, Amy
Subject:	Wild Salmon Policy Implementation Meetings - Draft notes for corrections
Date:	Monday, December 17, 2018 15:53:38
Attachments:	181114-WSP Implementation Plan-Key Partner Session-Summary.docx 181114-WSP Implementation Plan-Minister Roundtable Meeting-Summary.docx 181114-WSP Implementation Plan-Minister Roundtable Meeting-Summary-Appen....docx

Good Afternoon,

Thank you for participating in the Wild Salmon Policy Implementation Key Partner Meeting and Minister's Roundtable on Wednesday November 14, 2018. We really appreciated the opportunity hear your thoughts on collaborating to protect and conserve wild Pacific salmon.

For your review, please find attached the draft summaries from the Minister's Roundtable. Please send any suggested edits to Amy Coutts (amy.coutts@dfo-mpo.gc.ca) by January 8, 2019.

We look forward to continuing to work with you this year as we work towards the goal of the Wild Salmon Policy to protect wild salmon and their habitats.

Thank you,

Julia MacKenzie
Acting/Regional Director, Policy and Economics
Pacific Region – Department of Fisheries and Oceans Canada

From:	Davis, Jennifer C FLNR:EX
To:	"Kenyon, Robyn"; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX
Cc:	Turner, Michael R AGRI:EX; Grout, Jeff; Candy, John; Lowe, Carmel; Kennedy, Eddy; Ramsay, Mike K FLNR:EX
Subject:	(For Monday - Discussion of Key edits & path forward) RE: Steelhead Emergency Listing - Fed/Prov Executive Committee - AGENDA
Date:	Friday, December 7, 2018 16:24:47

Good Friday afternoon everyone.

Request: After much internal discussion, I respectfully ask that the current public document is taken down, and the wording is replaced with the original science-team summary bullets.

Why? This keeps the science piece solid as something both jurisdictions will stand up for. We can have other debates on what is the best plan of management action. I realize that DFO documents are in productions and have timelines, but our responsibility is to provide solutions for our governments. I strongly believe that proceeding with differences of opinion on the science summary will lead to longer-delays later in the timeline.

Process. Both jurisdictions have all put extreme effort into changing the process this time, and achieved what some thought was impossible – **consensus among the two science teams!** To publish a summary that differs from the consensus bullets, undermines all that work, relationship progress, and effort from our scientists to start finding solutions through some tough conversations.

What is the crux of the concern? The new summary report is inconsistent with the joint science team's determination regarding how immediate action to reduce mortality (including in the commercial fisheries) provides the best chance of recovery. With two years of lowest-ever returns, what we have been doing isn't working. The team advised that while we need to assess options for long term recovery, by nature of having an emergency process, we need to immediately take actions to stem any further declines to the extremely low numbers in order to have a chance to recover.

Background:

I needed a simple comparison table to understand why there was such a strong response. For transparency, I have included it here (it may contain errors). Two background bullets were pulled, which we don't care about. Changes are highlighted in yellow. Key changes are highlighted in green.

Science Team Consensus Wording	DFO's Wording in the Public Document
This Recovery Potential Assessment (RPA) focuses on two Designatable Units (DU) of Steelhead Trout, the Chilcotin River and Thompson River populations, both of which were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.	
This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.	

Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.

Given the shortened timelines required for an emergency assessment, this advice will only address a subset of the usual elements required in an RPA. Any outstanding elements will be addressed in the future as the Species at Risk Act process continues.

The number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 and 77 for the Thompson and Chilcotin Rivers, respectively. The estimated decline of Steelhead Trout spawners over the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.

Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition.

The recommended distribution target is to retain the present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial subdivisions within the spawning and juvenile rearing areas of the Thompson DU are recommended and two spatial subdivisions are recommended within the Chilcotin DU.

The recommended abundance recovery target for the Thompson Steelhead Trout DU is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year, which is 938 spawners.

Using a length-standardized requirement of 1.8-2.4 spawners/km, the recommended abundance recovery target for the Chilcotin DU is 562-744 spawners.

Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.

Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.

This Recovery Potential Assessment (RPA) focuses on the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. Both of these DUs were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.

~~This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.~~

~~Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.~~

Given the shortened timelines required for an emergency assessment, the advice in this RPA only addresses a subset of the elements required in a full RPA. Outstanding elements will be addressed in the future as the Species at Risk Act processes continue.

The estimated number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 for the Thompson DU and 77 for the Chilcotin DU. The estimated decline of Steelhead Trout spawners over the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.

Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition. General

categories of threats and limiting factors were agreed to, however the rationale and scoring for level of impact, causal certainty, and threat risk had greater uncertainty and will require further input and evaluation.

Recommended Distribution Target is to retain the present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial sub-areas within the spawning and juvenile rearing areas of the Thompson DU, including the main stem are recommended and two spatial subdivisions are recommended within the Chilcotin DU. These distribution targets are consistent with current level of occupancy in freshwater habitats, and are believed to be sufficient to avoiding contraction of freshwater range.

Recommended Abundance Recovery Target for Thompson Steelhead Trout DU is 938 spawners. This value, which also meets the distribution target, is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year.

Recommended Abundance Recovery Target for Chilcotin Steelhead Trout DU is 562–744 spawners, using a length-standardized requirement of 1.8–2.4 spawners/km. This also meets the distribution target for the Chilcotin DU.

Model simulations suggest increases in future abundances of both DUs are conditional on improvements in natural productivity. Exploitation rate (fishing mortality) reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. ~~If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.~~ However, eliminating exploitation alone will not result in population recovery.

Uncertainties regarding the exploitation rate estimates, unaccounted for fixed rate terminal harvest, and variations in escapement were identified as having the potential to affect the estimated productivity of each population.

For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates.

For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.

Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery ~~The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.~~ and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.

JENNIFER DAVIS
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-----Original Appointment-----
From: Kenyon, Robyn [mailto:Robyn.Kenyon@dfo-mpo.gc.ca]
Sent: Monday, June 25, 2018 4:26 PM
To: Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX
Cc: Turner, Michael R AGRI:EX; AGRI IGRS/FPT Events AGRI:EX; Grout, Jeff; Candy, John; Lowe, Carmel; Kennedy, Eddy
Subject: Steelhead Emergency Listing - Fed/Prov Executive Committee - AGENDA
When: Monday, December 10, 2018 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Conference Call: 1-877-413-4781 Conf ID: s.15 (DFO CONF Vancouver-401BurrardSt-14-Fraser CONF MPO)

Please let me know if you are able to attend and if there are any agenda items you would like to put forward.

As requested, the Regional Director of DFO's Science Branch (Carmel Lowe) and Division Head (Eddy Kennedy) will attend to discuss the recovery potential assessment (RPA) and the Canadian Science Advisory Secretariat (CSAS).

Draft Agenda for December 10:

1) Review of last meeting's Action Items

2) Overview of CSAS process

- Structure and role of Science Branch w/in department, and structure and role of CSAS
- Process to develop Science advice, including for Steelhead RPA
- Status update on Steelhead RPA components, specifically ResDoc finalization

3) BC's content and process concerns

- Provide opportunity for BC to reiterate their concerns regarding content and process
- Provide feedback on how BC comments were considered in SAR development and finalization

4) **Looking ahead/next steps**

- Timelines/process to finalize ResDoc
- Emergency Listing Process Next Steps

5) Steelhead Emergency Listing Process Updates in 2019

December 3 Action Items:

- **Action:** Fed-Prov consultation meeting to be scheduled by DFO in new year focused on lessons learned
- **Action:** DFO to track DM to DM letter regarding BC's position on listing
- **Action:** DFO to follow-up on BC request to withdraw RPA SAR
- **Action:** DFO (J. Sidhu) to share draft CBA with BC for review
- **Action:** BC (via Andy Witt) to indicate how long BC requires for CBA review

Thank you,

Robyn Kenyon

A/ Team Lead - Salmon | Chef d'équipe par intérim – saumon
Species at Risk | Espèces en péril
Fisheries Management | Direction des pêches
Department of Fisheries and Oceans | Pêches et Océans Canada

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From:	Davis, Jennifer C FLNR:EX
To:	McGuire, Jennifer ENV:EX; Rasmussen, Paul FLNR:EX; Ethier, Tom FLNR:EX; Mack, James AGRI:EX
Cc:	Kerr-Upal, Manjit ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Neilson, Larry AGRI:EX; Witt, Andy FLNR:EX; Ramsay, Mike K FLNR:EX; Trotter, Ward FLNR:EX
Subject:	ADM Meeting Follow up - Quick summary of Interior Fraser Steelhead, Concerns with DFO"s Science Summary
Date:	Thursday, December 13, 2018 13:26:15
Attachments:	Steelhead breifing note RESEARCH v2.docx

Jennifer, thank you for organizing the call yesterday afternoon.

The actions were:

1. Provide a short update on the issue. We used a BN format (It isn't CLIFFED etc)
2. Tom's office to arrange a call with RDG Reid.

Please let any of us cc'd know if you would like other details/background.

Jennifer.

JENNIFER DAVIS

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e-mail: Jennifer.C.Davis@gov.bc.ca

From: Davis, Jennifer C FLNR:EX
To: "Kenyon, Robyn"; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; Lowe, Carmel
Cc: Turner, Michael R AGRI:EX; Grout, Jeff; Candy, John; Kennedy, Eddy; Shepherd, Pippa
Subject: Circling Back -- Follow-up to our teleconference on Steelhead SAR
Date: Friday, December 14, 2018 14:58:54

Re: Use of Science Wording in SAR.

Good afternoon to the BC-DFO Executive team,

First, I want to thank everyone for participating in a difficult discussion on Monday, and for all the additional information.

I would like to correct the reference provided by DFO to Trevor's work being the reason for changing some of the summary bullets. All the BC experts worked within the process, contributed during the peer review process, and felt their input was considered by the lead authors when finalizing the document.

Our request remains the same: Please remove the current SAR document from the public website and replace the wording with the summary bullets as per the report completed by the three lead science authors. However, we have heard clearly that DFO is not amenable to this request.

As I relayed on our call, executive-level discussions continue to be underway regarding how BC wants to proceed on the science issue.

Moving forward, I understand the teams are working well together on the CBA. Thank you for accommodating our need for more than 1 work-week to review and provide meaningful content. For those of you heading off for a well-deserved break, on behalf of the BC team, we wish you very **Happy Holidays**.

Sincerely,

Jennifer.

JENNIFER DAVIS
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From: Lowe, Carmel [mailto:Carmel.Lowe@dfo-mpo.gc.ca]
Sent: Thursday, December 13, 2018 9:59 AM
To: Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; michael.Turner@gov.bc.ca
Cc: Grout, Jeff; Candy, John; Kennedy, Eddy; Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Maxwell, Marla; MacDougall, Lesley
Subject: RE: Follow-up to our teleconference on Steelhead SAR

Hello Jennifer and fellow provincial colleagues,

As a follow-up to my email below, I also wanted to let you know that Proceedings of CSAS peer-review meetings document all points of consensus and dissent. We will share a draft of the Proceedings report for the Steelhead RPA with participants to ensure we have appropriately captured these points. As an alternate, we are open to the Province preparing a dissenting opinion addition to the Proceedings document to acknowledge that the final SAR bullets do not correspond with your preferred language and are a deviation from your understanding of the intended message. Please let me know your preference and we will proceed accordingly.

Carmel

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From: Lowe, Carmel
Sent: December 10, 2018 5:11 PM
To: 'jennifer.c.davis@gov.bc.ca' ; 'manjit.Kerr-Upal@gov.bc.ca' ; 'Ted.Zimmerman@gov.bc.ca' ; 'david.travia@gov.bc.ca' ; 'andy.Witt@gov.bc.ca' ; 'Larry.Neilson@gov.bc.ca' ; 'michael.Turner@gov.bc.ca'
Cc: Grout, Jeff ; Candy, John ; Kennedy, Eddy ; Kenyon, Robyn ; Nener, Jennifer ; Webb, Cheryl ; Leslie, Karen ; Maxwell, Marla ; MacDougall, Lesley
Subject: Follow-up to our teleconference on Steelhead SAR

Hello Jennifer and fellow BC colleagues,

Following up on our conversation this morning I wanted to provide you with two pieces of information related to concerns you raised. The first relates to the general process for development of a CSAS Science Advisory Report (SAR), and the second describes the rationale for the changes to the wording of the two summary bullets that you identified as of highest concern for the province.

1. The general process regarding the development of a CSAS SAR:
   - A draft SAR, developed based on the discussion throughout the peer review, is provided to participants for *initial* review and discussion at the peer review meeting.
   - Summary bullets, which reflect the key issues, results, uncertainties, conclusions, and recommendations, are drafted during the peer review. Participants are reminded that they will not be wordsmithing during the meeting, but that the goal is to come to consensus on the general INTENT of a bullet.
   - The draft SAR, with the draft bullets, are then circulated to ALL participants of the peer review for a more fulsome review of the draft and opportunity to provide edits.

- The Chair then receives all written edits from the circulated SAR, and incorporates submitted edits to finalize the SAR. Invariably, this WILL RESULT IN changes to the bullets (and other parts of the SAR) that were reviewed during the meeting.
- The Chair, submits the SAR to the CSAS coordinator (who also attended the meeting) to begin the approval process. There are specific criteria a SAR is expected to meet consequently the CSAS coordinator may also request changes (e.g. for readability, brevity, language that is consistent with the intent of the SAR, ensuring that recommendations do not fetter the Minister`s authority, etc.)
- The SAR is then reviewed by senior management in Science and further changes may be requested to ensure quality of the document.
    - DFO`s publication policy: At no time will the inclusion of sensitive material (e.g. data, scientific conclusions) prevent publication of scientific papers.
- The approved SAR is then translated into both official languages, and submitted to the National CSAS office for publication, and public posting on the website.

For the Steelhead RPA this general process was followed and a draft SAR was developed and shared at the peer review meeting, then distributed via email to participants for review, and based on the feedback received it was finalized.

2. For the two bullets/issues of concern:

	Wording - Initial draft	Wording - Approved version	Rationale for wording change
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. **If productivities improve slightly to the recent 5 or 10 year levels,** simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates.	"IF PRODUCTIVITIES IMPROVE SLIGHTLY" – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvements (e.g. doubling). See notes below.
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.	IF PRODUCTIVITIES IMPROVE SLIGHTLY – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvement s(e.g. doubling). See notes below.
#2	Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.	The new language was deemed to be stronger – as 'lowest possible harm' could be interpreted as a level higher than current harm.

Note: changes to #1 were based, in part, on input provided by Trevor Davies (BC) who pointed to the need to clarify the ambiguity associated with 'present' productivity and 'improved slightly'.

Based on his input, a third productivity scenario, which assumes that productivity remains at the last data year's level, was simulated for trajectories of future escapement. In both Chilcotin and Thompson this productivity scenario is less optimistic than the 5 and 10 year averages. Additionally, given that Thompson continues to decline even the terminal year productivity trajectory likely overestimates future productivity

given the trend. In the summary bullets, clarification is provided regarding the selection of simulation parameters: and the expected consequences for trajectories.

It was clarified that for the Thompson DU, recovery is not expected at current productivity, regardless of exploitation rate. Elimination of exploitation rate alone will not result in population recovery. This stems from a discussion during the peer review meeting, brought up by Trevor Davies (BC) that what the authors were referring to as 'current level of productivity' was actually an average of the previous 5 years and was by consequence already a higher productivity than terminal year.

Regards

Carmel

Carmel Lowe, Ph.D.
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Government of Canada | Gouvernement du Canada

From: Lowe, Carmel
To: Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; michael.Turner@gov.bc.ca
Cc: Grout, Jeff; Candy, John; Kennedy, Eddy; Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Maxwell, Marla; MacDougall, Lesley
Subject: Follow-up to our teleconference on Steelhead SAR
Date: Monday, December 10, 2018 17:11:39

Hello Jennifer and fellow BC colleagues,
Following up on our conversation this morning I wanted to provide you with two pieces of information related to concerns you raised. The first relates to the general process for development of a CSAS Science Advisory Report (SAR), and the second describes the rationale for the changes to the wording of the two summary bullets that you identified as of highest concern for the province.

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	lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.	

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Regards

Carmel

Carmel Lowe, Ph.D.
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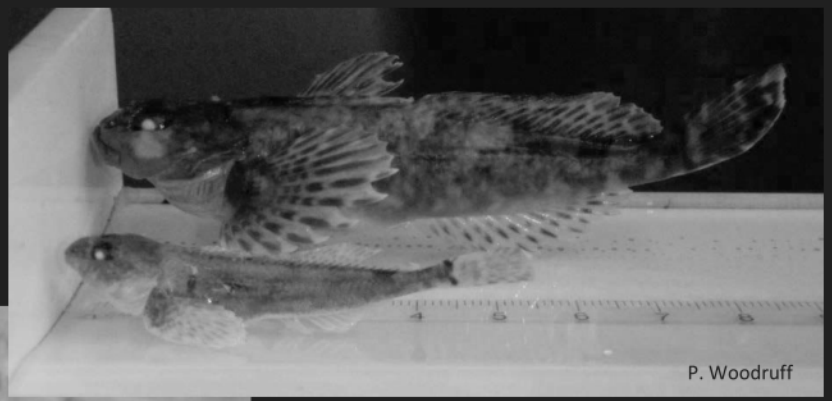
Government of Canada | Gouvernement du Canada

Aquatic Species at Risk in British Columbia: COSEWIC Assessments and Emergency Listing of a Medium Sized Steelhead

Greg Wilson
Aquatic SAR Specialist
MoE



Presentation Overview

Species at Risk Act (SARA) Overview

- COSEWIC Composition and Status Determination Process
  (Committee on the Status of Endangered Wildlife in Canada)
- Listing Process
- BC and the Federal – Provincial Relationship
- Steps following assessment

Recent COSEWIC Assessments:

Fraser watershed Sockeye

O. mykiss (Thompson and Chilcotin populations)

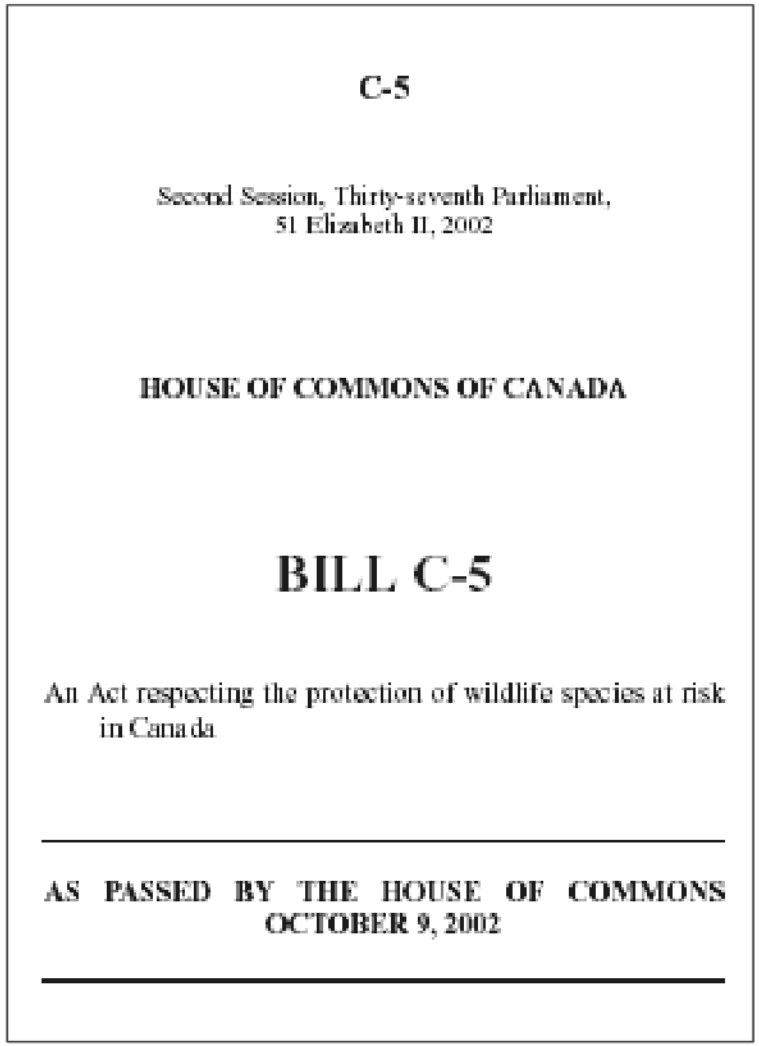
Emergency Listings, implications, the fun ahead

Other Aquatic SAR developments

Upcoming COSEWIC Assessments, listing decisions and consultations

Accord for the Protection of Species at Risk -1996

The Species at Risk Act (SARA) - 2004



C-5

Second Session, Thirty-seventh Parliament,
51 Elizabeth II, 2002

HOUSE OF COMMONS OF CANADA

BILL C-5

An Act respecting the protection of wildlife species at risk in Canada

AS PASSED BY THE HOUSE OF COMMONS OCTOBER 9, 2002

- legally designate species as threatened or endangered
- provide immediate legal protection for threatened or endangered species
- provide protection for the habitat of threatened or endangered species
- provide for development and implementation of recovery plans
- emphasize preventative measures
- foster stewardship

Canada's Species at Risk Act (SARA) - Overview

COSEWIC (Committee on the Status of Endangered Wildlife in Canada, est. 1977):

- a multistakeholder, scientific, committee
- assessmentment of available info, based on science, traditional, local knowledge
- provides a status (extirpated, endangered, threatened, special concern, +)
- its all advice to government, but
- process is independent and transparent and COSEWIC reports to public, CESCC

Following assessment, and status report, consultations are conducted with stakeholders, public, and those potentially affected by a listing – by Federal Government.

The Government of Canada can then:

- accept assessment and formally list under the Species at Risk Act (Sch 1).
- not list species and state why
- refer assessment back to COSEWIC for further info and consideration

If listed under SARA:

- En or Th, additional protection provisions (animal and habitat)
- recovery planning must begin (Recovery Strategy and Action Plan)
- if Special Concern, just a management plan

COSEWIC Committee Composition:

31 voting members:

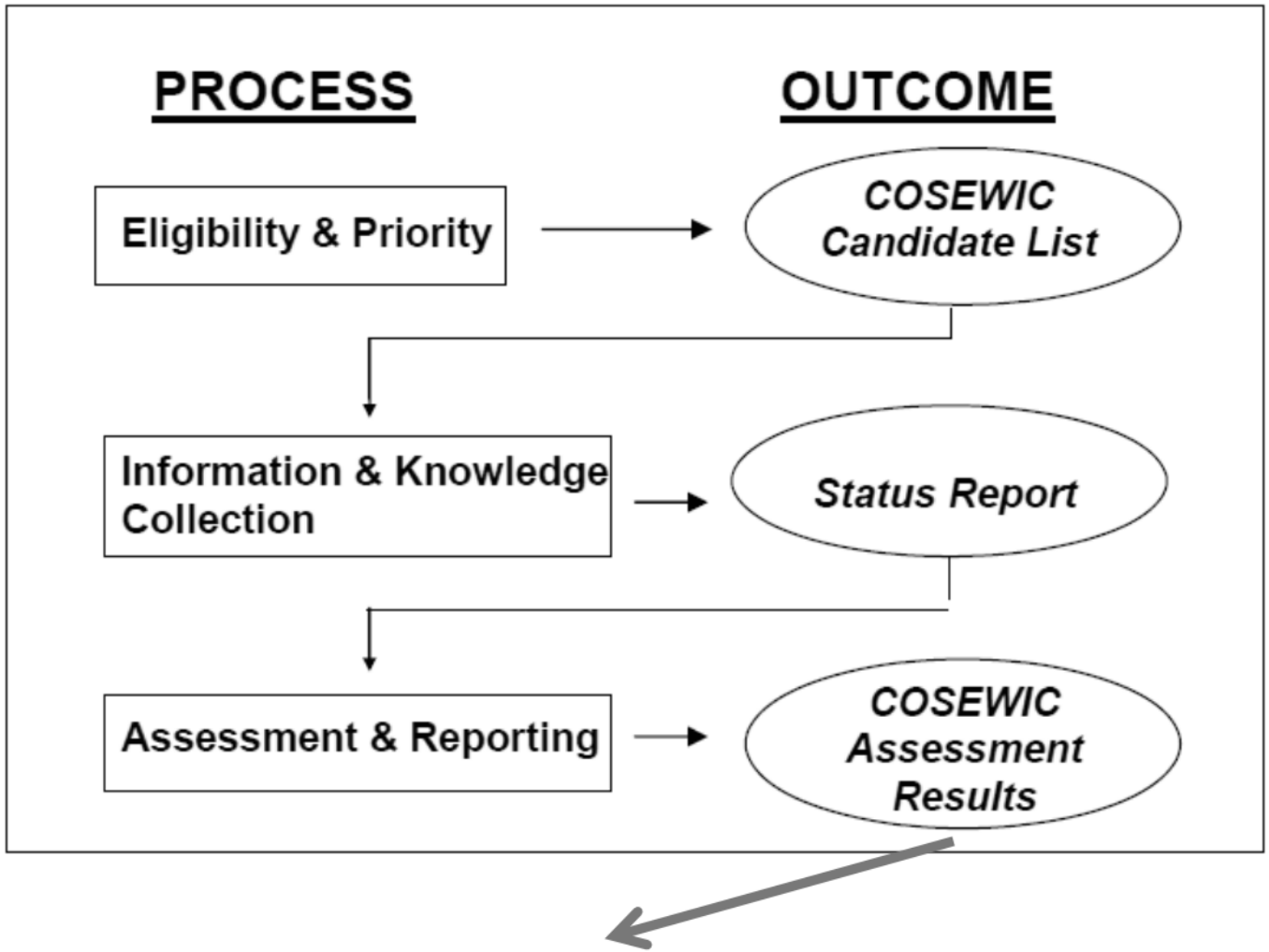
- 13 jurisdictional (1 from each province, territory)
- 4 from federal agencies (CWS, DFO, Parks, Museum of Nature)
- 3 non-gov science members
- 1 co-chair from Aboriginal Traditional Knowledge Subcommittee
- 10 species specialist subcommittee (SSC) co-chair, 1 from each:
    1. Amphibians and Reptiles
    2. Arthropods
    3. Birds
    4. Freshwater Fishes
    5. Molluscs
    6. Marine Fishes
    7. Marine Mammals
    8. Mosses and Lichens
    9. Terrestrial Mammals
    10. Vascular Plants

COSEWIC Supported by a very competent Secretariat

Working groups (criteria for prioritization, etc)
Other subcommittees (CAS, O&P, hiring, etc)

All detailed in: ***Operations and Procedures Manual***

Overview of the COSEWIC Process



(1) Origin of SSCs Candidate list (or how do species get involved)

Each specialist subcommittee (SSC) maintains a candidate list developed from:

- Monitoring the General Status (*Wild Species 2010*)
- info from other multi-jurisdictional monitoring
- jurisdictional and international assessment processes (IUCN, ABI)
- published ranking systems in scientific literature
- expert knowledge of SSC members, queries to regional biologists

Anyone can request a species assessment, public may submit an unsolicited status report, may be upgraded to emergency assessment.

SSC and COSEWIC use eligibility criteria and prioritization process (O&P manual) to rank

i. Taxonomic status (priority: full species, subspecies, DUs)
ii. Proportion of global range in Canada
iii. Existing global conservation status (ICUN or NatureServe, G1-G5)
iv. Canadian population size and trends
v. Threats
vi. Small extent of occurrence or (index of) area of occupancy
Limiting Biological factors (age to maturity, etc)

(2) All About Status Reports

Report review and approval process has 4 stages:

(1) Draft Status Report
- reviewed by SSC, external experts, recovery team, jurisdiction(s), WMBs, ATK SC
- 3 months to review

(2) Interim Status Reports:

6-month before assessment
- reviewed by SSC, external experts, recovery team, jurisdiction(s), WMBs, ATK SC
- 3 months to review, comments to SSC

2-month before assessment
- contains status recommendation from SSC
- reviewed by ALL COSEWIC members,
  - comments and initial assessment to SSC - "straw ballets"

(3) Report presented at annual species assessment meeting by SSC co-chair
- COSEWIC discusses/votes on a formal status designation (2/3 majority)

(4) Final COSEWIC Assessment and Status Report

(3) Determination of a Formal Status Designation

Assessments use regional adaptations of International Union for the Conservation of Nature (IUCN) ranking criteria to determine status:

- Long-term Trend
- Short-term Trend
- Population Size
- Range Extent
- Area of Occupancy
- Number of Occurrences
- Number of Occurrences with Good Viability
- **Threats** (Severity, Scope, and Immediacy)
- Intrinsic Vulnerability
- Environmental Specificity
- Other Considerations

Criteria are guidelines. COSEWIC members become experts at applying criteria.

COSEWIC
Assessment and Status Report

on the

White Sturgeon
Acipenser transmontanus

Lower Fraser River population
Upper Fraser River population
Upper Columbia River population
Upper Kootenay River population

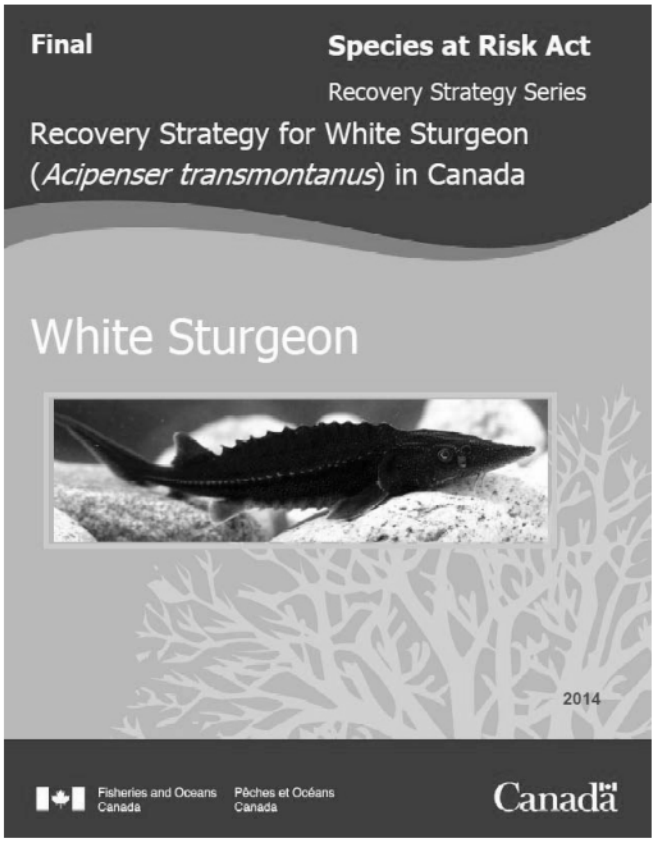
in Canada

Lower Fraser River population - THREATENED
Upper Fraser River population - ENDANGERED
Upper Columbia River population - ENDANGERED
Upper Kootenay River population - ENDANGERED
2012

COSEWIC
Committee on the Status of Endangered Wildlife in Canada

COSEPAC
Comité sur la situation des espèces en péril au Canada

http://www.sararegistry.gc.ca



Following a COSEWIC At-Risk Assessment

- The Federal Minister of ECCC, the CESCC and the public receive the assessment of risk for each species and the Status Reports from COSEWIC.
- Minister has 90 days to respond to the reports, indicating next steps:
  - Timelines for action: Extended consultation process may be followed (e.g. 2 years for salmon)
  - Consultation period: with jurisdictions, the public, Aboriginal people, local stakeholders and industry prior to the Governor in Council (GIC) formally receiving these assessments.
- Recovery planning begins, using COSEWIC status report (threats, range, etc.).
  - DFO prepares a Recovery Potential Assessment (RPA)
- GIC (Cabinet) makes the final listing decision, within 9 month of assessment.
  - Cabinet may accept the assessment and add the species to schedule 1
  - Decide not to add the species to the List, and explain, or
  - Refer back to COSEWIC for further information or consideration
- New ECCC standard: 3 yrs to listing for ``complex species``.
- If listed as Special Concern, a management plan must be developed.

If listed as Endangered or Threatened…

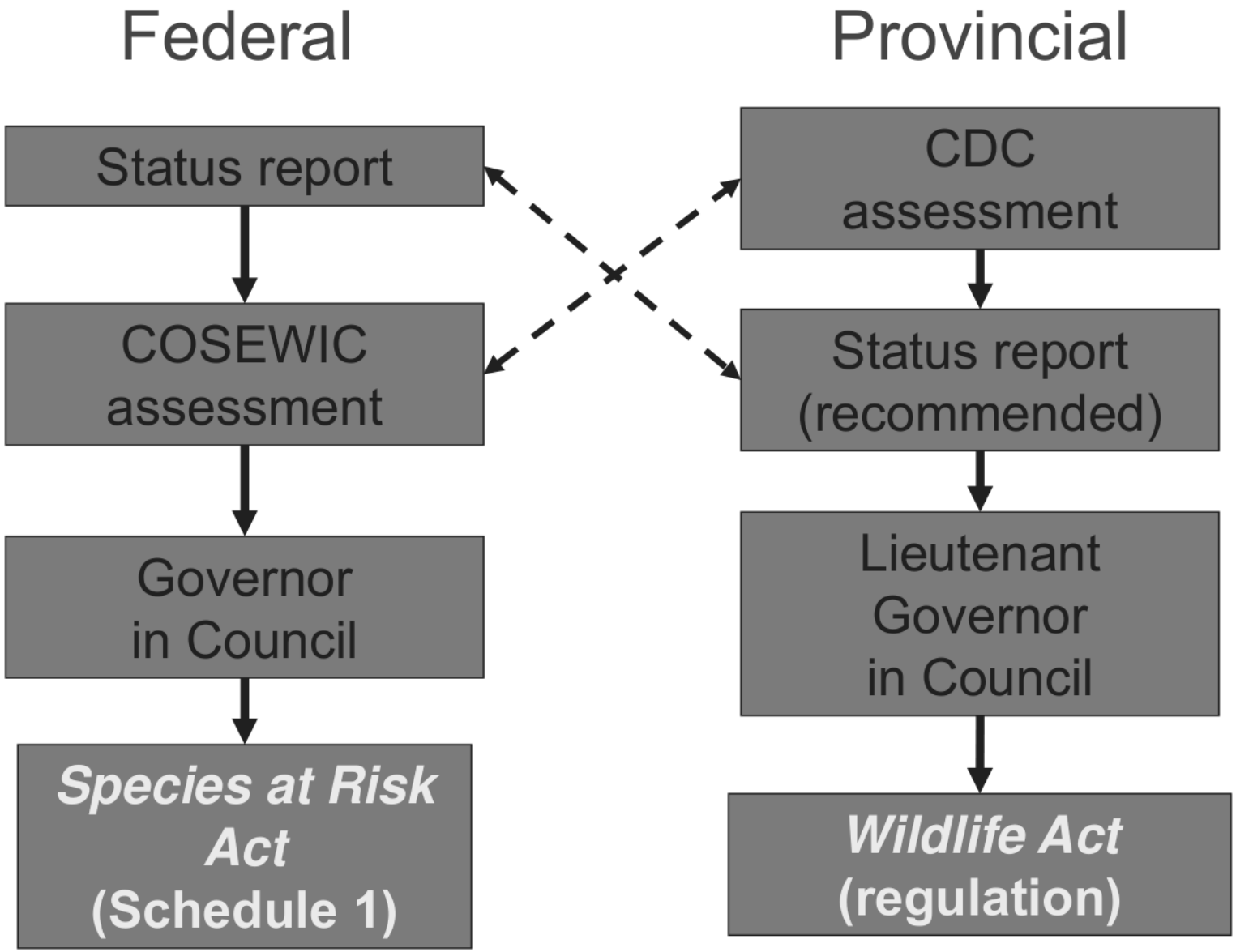
- General prohibitions apply, no person shall:
  - kill, harm, harass, capture or possess an individual,
  - collect, buy, sell or trade an individual are part of one,
  - damage or destroy the residence

- SARA Exemptions (S 74):
  - certain activities may be permitted or exempted,
  - but must not jeopardize the survival and recovery of the species.

- Recovery Planning commences and includes Recovery Strategies and Action Plans:
  - Identifies Critical Habitat for protection
  - For critical habitat located on federal lands or for aquatic species, the Minister has 180 days to either report on existing "legal protection", or make an order under SARA to provide protection

- If GIC decides not to list, recovery is managed using other regulatory tools:
  - *Fisheries Act*
  - Provincial legislation
  - Municipal bylaws
  - others

Legal listing



BC's Current Approach to Managing SAR

- Conservation Data Centre = status ranking
- Legal listing (Wildlife Act, FRPA)
- Support for recovery planning
- Protect habitat through a variety of legal tools & support for private land stewardship
- MoE policy and planning, FLNRO implementation
- Signatory to the:
  - Accord for the Protection of Species at Risk
  - Canada-B.C. Agreement on Species at Risk

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Canada – British Columbia Agreement on Species at Risk

- SARA section 10 agreement
- Signed in April 2005
- Creates a framework for cooperation by:
  - defining roles and responsibilities
  - establishing coordinating mechanisms
  - providing opportunities to jointly develop species at risk policies where appropriate
- Important principles:
  - respect for jurisdictional roles and responsibilities
  - programming tailored to address the ecological, social and economic circumstances of the province

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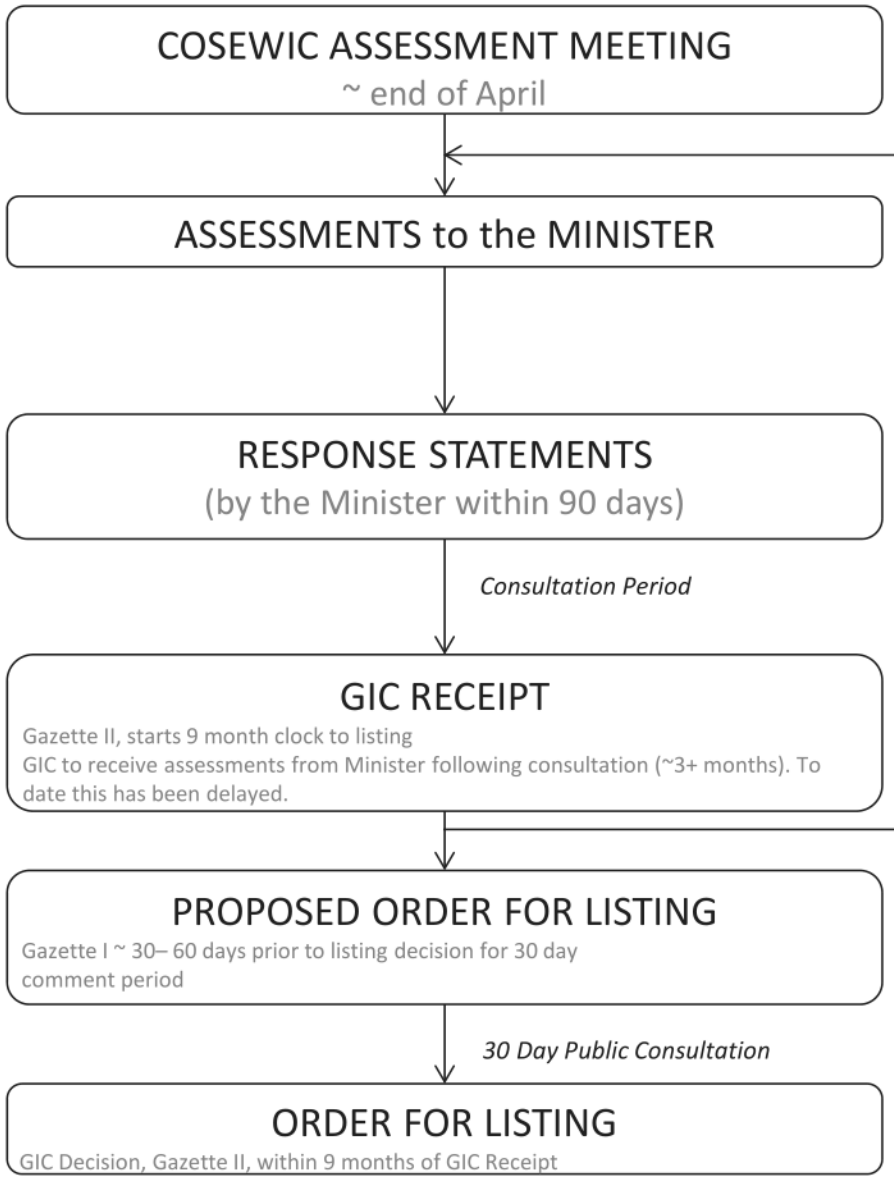
Aquatic Species at Risk in B.C.

Count	COSEWIC Assessed Species, Subspecies, Designatable Unit	Conservation Rankings				
		National		Provincial		
		COSEWIC	SARA	BC	CF	CDC
2	Vanada Creek Limnetic/Benthic Sticklebacks (2DUs)	E (2010)	E (2003)	Red	1	S1
4	Paxton Lake Limnetic/Benthic Sticklebacks (2DUs)	E (2010)	E (2003)	Red	1	S1
6	Little Quarry Lake benthic and limnetic (2DUs)	T (2015)				
8	Misty Lake Lake/Stream Sticklebacks (2DUs)	E (2006)	E (2010)	Red	1	S1
9	Western Brook Lamprey (Mossison Creek Population)	E (2010)	E (2003)	Red	1	
10	Speckled Dace	E (2016)	E (2009)	Red	2	
11	Umatilla Dace	T (2010)	3 (2005)	Red	2	S2 (2010)
12	Nooksack dace	E (2007)	E (2003)	Red	1	
13	Hotwater Physa	E (2008)	E (2003)	Red	1	
14	Rocky Mt Ridge Mussel	E (2010)	SC (2005)	Red	1	S2 (2004)
18	White Sturgeon (4 DUs)	E (2006)	E (2012)	Red	1	
19	Salish Sucker	T (2012)	E (2005)	Red	1	S1 (2010)
20	Vancouver (Cowichan Lake) Lampry	T (2008)	T (2003)	Red	1	
21	Coastrange Sculpin (Cultus population)	T (2010)	T (2003)	Red	1	
22	Westslope Cutthroat Trout (Pacific populations)	SC (2016)	SC (2010)	Blue	2	
23	Bull trout (southcoast BC pops)	SC (2012)		Blue		S3 (2011)
24	Bull Trout (western Arctic watershed pops)	SC (2012)				
25	Giant Threespine Stickleback	SC (2013)	3	red	1	S1 (2013)
26	Charlotte Unarmoured Threespine Stickleback	SC (2013)	3	red	1	S2 (2013)
27	Green Sturgeon	SC (2013)	SC (2006)	Blue	2	
28	Mountain Sucker	SC (2010)		Blue	2	S2S3 (2010)
29	Shorthead sculpin	SC (2010)	T (2003)	Blue	2	
30	Columbia sculpin	SC (2010)	SC (2003)	Blue	2	
31	Rocky Mountain Sculpin	SC (2010)		Blue	4	S3S4 (2010)
32	Shortface Lanx	E (2016)		Red	1	
33	Coho salmon (Interior Fraser population)	T (2016)	none			
34	Sockeye Salmon (Sakinaw population)	E (2016)	none			
35	Chinook Salmon (Okanagan population)	E (2017)	none			
50	Sockeye Salmon in the Fraser	8 En, 2 Th, 5 SC (2017)				
51	**Oncorhynchus mykiss (Thompson River population)**	**E (2018)**				
52	**Oncorhynchus mykiss (Chilcotin River population)**	**E (2018)**				

SARA LISTING CYCLE



PROVINCIAL INPUT

Initial Consultation Letter
Provides input on the type of consultation process that may be necessary and highlights any technical information that is missing or inaccurate

Official Consultation Letter
Formal request from ECCC or DFO for Provincial position on legal listing

Follow-up Meetings with Staff

Consultation Debrief with Staff

Final Letter from the Province
Formal response sent by DM of ENV

Courtesy Email
To inform the Province that the proposed Order will be posted

COSEWIC: Committee on the Status of Endangered Wildlife in Canada
GIC: Governor in Council
DM: Deputy Minister
ENV: B.C. Ministry of Environment
ECCC: Environment and Climate Change Canada
DFO: Fisheries and Oceans Canada

Emergency Listing

Using Section 29 of SARA, the GIC may make an emergency order to list a species under the Act if the Minister forms the opinion that its survival is imminently threatened.

1. Dec-Feb 2018: COSEWIC Assessed Interior Steelhead Trout, determined they:
   - consist of 2 Designatable Units (Thompson and Chilcotin populations),
   - both assessed as ENDANGERED, and were
   - determined to be at imminent risk of extinction.

2. The Minister of ECCC is forming an opinion on imminent risk using a Recovery Potential Assessment (RPA) prepared by DFO, which:
   - Looks at status, biology, range, threats
   - estimates population and distribution targets for recovery
   - estimates likelihood of recovery by altering human activities (e.g. fishing rate, things we can control)

3. DFO proposing a "quick" and a "regular" RPA, to inform MECCC decision on imminent risk.
4. Socio-Economic Analysis and consultation conducted to inform GIC decision on listing or not.
5. Timeline to listing: decision unclear, between "emergency basis" and 3 years – 1.5 years from assessment.

Previous Emergency Listings

- The last emergency COSEWIC assessment was for 3 bat species.
  - Feb 2012 COSEWIC results released, in 2014 added to Schedule 1 of SARA

- There has been 4 emergency COSEWIC assessments for salmonids:
  - Sockeye Salmon (Cultus population), assessment of ENDANGERED in 2002
  - Sockeye Salmon (Sakinaw population), assessment of ENDANGERED in 2002 **and** 2006
  - Chinook Salmon (Okanagan population), assessment of ENDANGERED in 2003

  None are listed under SARA, none show signs of recovery, Sakinaw Sockeye likely extirpated in the wild.

- Lack of imminent risk and socio-economic impacts cited by Cabinet.
  - DFO process for determining both the imminent risk and economics regularly criticized (e.g. Cohen Commission, academics, FLNRO).

Past Provincial Positions on Listing Decisions

(Consultations with DFO)

Species	National Status		Consultation	Provincial position on listing
	COSEWIC	SARA	year	
Sockeye Salmon (Sakinaw population)	E (2016);		2004	does not support the listing
Sockeye Salmon (Cultus population)	E (2017);		2004	does not support the listing
Coho Salmon (Interior Fraser population)	T (2016);		2005	should not be listed (rebuilding on their own)
W Sturgeon (Lower Fraser R pop)	T (2012);		2006	ask not to list (negative social and economic impacts)
W Sturgeon (Middle Fraser R pop)	T (2012);		2006	ask not to list (negative social and economic impacts)
Okanagan Chinook	E (2017);		2009	concerns with economic impact
Bocaccio Rockfish	E (2013);		2005, '11, '16	should not be listed (economic impacts)
Umatilla Dace	T (2010)	3 - SC (2005)	2011	generally supportive…reluctant to advise on the listing of the species at this time
Quillback Rockfish	T (2009)		2012	concerns with listing, may not support
Yellowmouth Rockfish	T (2010)		2012	concerns with listing, may not support
North Pacific Spiney Dogfish	SC (2011)		2012	concerns with listing (as an MSC certified sp)
Rocky Mt Ridged Mussel	E (2010);	SC (2005)	2012	generally supportive…reluctant to advise on the listing of the species at this time
Eulachon (Fraser)	E (2011)		2016	not supported by MoA (economic impacts)
Eulachon (Central Pacific)	E (2011)		2016	not supported by MoA (economic impacts)
Salish Sucker	T (2012);	E (2005)	2011, 16	BC supported
Darkblotched Rockfish	SC (2009)		2012	no concerns
Rocky Mt Sculpin (WS pop)	SC (2010)	SC (2017)		no concerns
mountain sucker	SC (2010)	SC (2017)	2012	no concerns
humpback whale	SC (2011)	SC (2017)	2012	no concerns
Northern Fur Seal	T (2010)		2012	no concerns
Bull Trout (South Coast)	SC (2012)		2014	no concerns, and support the proposed legal listings
Bull Trout (Western Arctic)	SC (2012)		2014	no concerns, and support the proposed legal listings
Eulachon (Nass/Skeena)	SC (2013)		2014	no concerns, and support the proposed legal listings
Unarmoured Threespine stickleback	SC (2013)	3 - SC	2016	no concerns, and support the proposed legal listings
Giant Threespine Stickleback	SC (2013)	3 - SC	2016	no concerns, and support the proposed legal listings

some Listing Implications (Steelhead)

Listing is intended to prevent and recover species going extinct.

- general SARA prohibitions on harm:
  - restrict commercial, First Nation and recreational fisheries which capture these fish,
- critical habitat identified and protected:
  - Spawning areas, possibly rearing areas, riparian,
  - Migration corridors (Fraser R.), marine environment
  - Bounding box approach used for other fish (steelhead are not lake fish)
- recovery planning would commence:
  - Resources put in recovery strategy, action plan, management plan…..
  - additional funding available for investigations, research, etc.
- emergency orders under SARA (Section 80) will be considered including:
  - identification of habitat necessary for the survival or recovery of the species,
  - provisions requiring the doing of things that protect the species and their habitat
  - provisions prohibiting activities that may adversely affect species and that habitat.

Recovery without listing has not been demonstrated.

Without listing, the necessary protections and recovery tools identified under SARA are not applied or available to support survival and recovery

draft Provincial Approach

Working to provide science advice for informing management decisions on reducing impacts in the short-term, and understanding reasons for the decline and finding long-term solutions.

- FLNRO looking at options and actions to respond to the status:
  - Management Actions
    - Regulations review, reduce by-catch in rec fisheries
  - Recommendations to Federal government
  - Legislation
  - Communication with public
  - Consultations with FN has begun
  - Data collection (range in f/w, known or possible)
- Looking for ideas…..
  - Not engaging or supporting DFO an option? Their problem they fix it.
- Support DFO RPA work with data, advice and reviews.
- Provincial position on listing will be requested shortly.

Other Aquatic SAR Developments

- Upcoming COSEWIC Assessments (2018):
  - Nooksack Dace (reassessment)
  - Lake Chub (Hotsprings populations) - ?2 DUs
  - Southern BC Chinook (28 DUs)
  - Brassy Minnow (?2DUs)
  - Yelloweye Rockfish

- DFO behind on listing decisions, expect many in 2018:
  - RMRM, Bull Trout, sticklebacks, Umatilla Dace, Bocaccio Rockfish, Salish Sucker

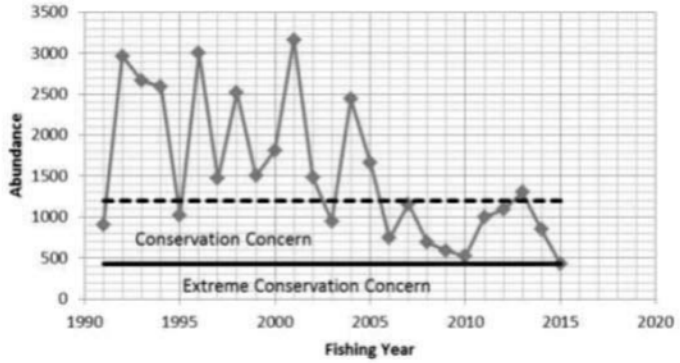
- Consultations with the Province:
  - NOW: Provincial position on Little Quarry Lake Sticklebacks (TH), Shortface Lanx requested (EN), Umatilla Dace (TH).
  - 2018: Sakinaw Sockeye (EN), Interior Fraser Coho (EN), Okanagan Chinook (EN)
  - 2019: Fraser Sockeye (8 En, 2 Th, 5 SC)

There are now 21 aquatic species at risk in the Fraser River
(more in tributaries, and near shore marine waters)

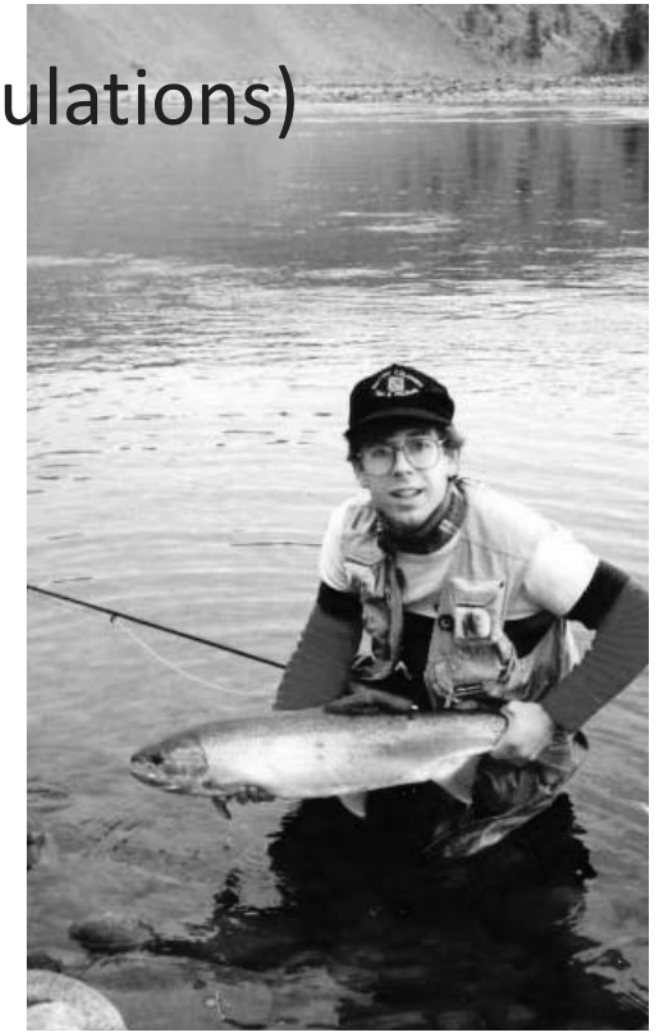
Fin

O. mykiss (southern interior populations)

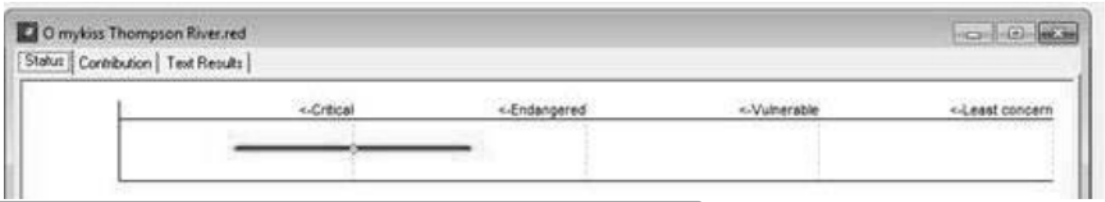
"Thompson Steelhead"



Stewardship group asked COSEWIC to assess (2016).



RAMAS Red List



COSEWIC Criteria:
Endangered, A2(acd) + B2ab(iii,v) + C2a(i)

Designatable unit structure, and treatment of freshwater life history TBD

THREATS ARE CLEAR:
- low ocean survival,
- interception in L Fraser commercial fisheries,
-numerous freshwater habitat impacts

Ecosystem or Species Approach

If you protect ecosystem function without necessarily protecting biodiversity
You can loose rare species, but if you strictly protect SAR you may not protect ecosystem function.

- should protect in parallel

Can't have function (ecological roles) without structure (species units),
but can have structure without function.

Importance of the population:

- Biology and evolution happen at the population level, and not the CU or DU level.
- societal benefits occur at population level

From:	Kerr-Upal, Manjit ENV:EX
To:	Paquin, Lisa C ENV:EX
Cc:	Dale, Alec R ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Davis, Jennifer C FLNR:EX
Subject:	FW: Canada/BC Steelhead discussion (Dec 17)
Date:	Monday, December 17, 2018 14:16:10

FYI

Lisa – can we talk about possible next steps re: MZ?

From: Kerr-Upal, Manjit ENV:EX

Sent: December 17, 2018 2:10 PM

To: Witt, Andy FLNR:EX

Cc: Davis, Jennifer C FLNR:EX ; McGuire, Jennifer ENV:EX

Subject: Canada/BC Steelhead discussion (Dec 17)

Proposed email for Tom. I have texted this to ADM McGuire but have not heard a response from her s.22

_____

Rebecca,

Thank you for making the time for me to talk Steelhead this morning.

I wanted to re-iterate that BC still has a strong preference for the original SAR bullets. They are reflective of the open, peer review process.

Recognizing that DFO is unlikely to change their SAR summary bullets, I do appreciate that it is your interpretation of the revised bullets acknowledges that harvest rates cannot continue at current levels, and in fact should be reduced to the maximum extend possible, if we want to recover the Chilcotin and Thompson River Steelhead DUs.

Sincerely,

Tom

_____

Manjit Kerr-Upal
Director, Conservation Science
Ministry of Environment and Climate Change Strategy
Mail address: PO Box 9338 Stn Pov Gov't, Victoria BC, V8W 9M1
Street address: 525 Superior St (4th Floor), Victoria, BC V8V 1T7
Tel: 250 896-2231
Manjit.Kerr-Upal@gov.bc.ca

From:	Kerr-Upal, Manjit ENV:EX
To:	Karen.Leslie@dfo-mpo.gc.ca; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer; Turner, Michael R AGRI:EX; Webb, Cheryl; Witt, Andy FLNR:EX; Shepherd, Pippa
Cc:	Dale, Alec R ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Grout, Jeff
Subject:	FW: Exec team - concerns with documents. Steelhead Emergency Listing
Date:	Friday, November 30, 2018 16:47:00

Good afternoon.

Thank you for the information in the email below. I appreciate it.

In an effort to provide some clarity on where the challenges are from our perspective, I have put together a quick summary of the issue below. We look forward to understanding if there are competing perspectives, why decisions were made on the SAR document, and what the planned next steps are.

Looking forward to Monday!
Manjit

- COSEWIC conducted an emergency assessment of the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. In February 2018, both DUs were assessed by COSEWIC as Endangered. COSEWIC concluded that "*the unprecedented decline of TRS and CRS owing to bycatch in commercial fisheries for Pacific salmon and poor ocean survival poses a serious and imminent threat to their survival. The high levels of fisheries bycatch mortality are of particular concern in the context of persistently poor ocean survival.*"
- The estimated number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 for the Thompson DU and 77 for the Chilcotin DU.
- A team of experts including Rob Bison (Gov't of BC) were engaged on compiling the science-based advice to inform DFO's modified Recovery Potential Assessment (RPA). This was a part of a deliberately-formed Canada-BC executive-level collaboration to respond to COSEWIC's emergency assessment under an accelerated timeline.
- In late November, the SAR document was published by DFO. It appears that this document's summary findings were altered such that the report, as published, downplays the threats associated with salmon fisheries bycatch mortality. The SAR report now concludes that commercial salmon fishing closures will not likely reverse the future declines of steelhead stocks. This conclusion is inconsistent with the joint Canada-BC science team's agreement on draft content, and is not supported by BC as it is currently written.
- BC's position is based on published science, specific to these two DUs. Fundamentally, the conclusion is that anything that decreases the survival of a steelhead trout, from its smolt to spawning lifestage, should be avoided. This includes predation, competition in marine environments and incidental harvest.
    - Where DFO materially changed the nature of the SAR Summary is in their insertion of the phrase (underlined bold portion) "Allowable harm **should not be allowed to exceed**

current levels and should be reduced to the maximum extent possible." This added phrase gives an impression that current level of harm is an option, despite a continuous decline in both DU populations (as a result of, amongst other factors, known incidental harvest).

  - To justify this conclusion, DFO changed the focus of the SAR document on the "recovery potential", instead of the expert authors' submission in mid September (including BC's expert) that focused on population growth potential, a necessary precondition to recovery. The 'population growth potential' approach was taken by the authors as it is scientifically defensible, consistent with their Research Document (a requirement imposed by DFO), and the discussions at the CSAS workshop.
  - The population growth potential approach is focused on addressing the ongoing population decline, a necessary first step in any emergency population recovery process. The detailed science behind this work is based on published science specific to these two DUs that indicates any assumptions regarding future population projections are viable for the following year, may give an 'idea' within a 3-5 year timeframe, and is not useful to inform projections beyond that timeframe.
  - The DFO recovery-target-centric conclusions rely on longer term population projections (40-50 year) which are not scientifically defensible, include assumptions about predator management (which is unlikely in the near term), and are focused on achieving long term, relatively arbitrary, recovery population targets.

- **A precautionary approach that is scientifically defensible should be used to inform decisions about the RPA of Chilcotin and Thompson Riven Steelhead Trout.**
- **We do not understand why DFO changed the SAR summary points from those recommended by the science expert identified by the Government of BC, which are consistent with the Research Document. Given the nature of the Canada-BC collaboration, these changes should have been discussed with Government of BC executives, the SME who authored the Research Report and possibly the science community involved in its review.**
- **As it currently stands, the SAR report summary is not scientifically defensible, not consistent with the soon-to-be published Research Report, and deviates from the opinions expressed at the CSAS workshop.**

From: Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>
Sent: November 29, 2018 9:29 AM
To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Shepherd, Pippa <Pippa.Shepherd@dfo-mpo.gc.ca>
Cc: Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Wilson, Greg ENV:EX <Greg.Wilson@gov.bc.ca>; Bison, Robert FLNR:EX <Robert.Bison@gov.bc.ca>; Grout, Jeff <Jeff.Grout@dfo-mpo.gc.ca>
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing

Hi all -

As we have other important agenda items to discuss on Dec 3, including an update on the CBA and next steps to complete the listing package, I recommend we defer this discussion to our next scheduled call on Dec 10, and use that full hour to discuss concerns regarding the RPA. We will coordinate w Science Branch for representation on this call.

In advance of this discussion, I would like to reiterate clarification on the components of the RPA, as there appears to be continuing confusion to these elements.

The RPA follows the usual CSAS process which results in 3 deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:

1. **Science Advice Document (SAR)**
    - this is a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants.
    - ***The DFO SAR is the publicly available document***.

2. **Research Document (Res Doc)**
    - this is the document authored by experts (in this case Rob Bison and Josh Korman) that is submitted for the peer-review process. This document received extensive review by the CSAS participants and the three reviewers, and required substantial revisions. The revised version of the document is not yet complete.
    - ***The Research Document is not yet publicly available***.

3. **Proceedings**
    - this document is developed by the CSAS Secretariat and provides a public record of the format, discussion, and decisions made in the peer-review meeting.
    - ***The Proceedings are not yet publicly available***.

Thank you,
Karen

Karen Leslie
604-666-0395

-----Original Message-----
From: Kerr-Upal, Manjit ENV:EX [mailto:Manjit.Kerr-Upal@gov.bc.ca]
Sent: 2018–November-28 12:54 PM
To: Leslie, Karen; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer; Turner, Michael R AGRI:EX; Webb, Cheryl; Witt, Andy FLNR:EX; Shepherd, Pippa
Cc: Dale, Alec R ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing

I suggest that this a major issue that puts at risk our science-based collaborations on this file. I recommend that we plan to spend a significant portion of our agenda on this issue , specifically to understand what changes were made, why, and given the nature of the changes, why BC was not given a heads up before it went public? In short, decisions were made by DFO that significantly affect the findings of the report without informing BC of these changes (including at least one of the listed authors).

As a follow up to this, for the Research Document that was recently made public, can DFO confirm what changes, if any, were made to the document before publishing (from the last version sent to us for comment)? Given the length of this document, a version in track changes would be helpful.

Sincerely,
Manjit

-----Original Message-----
From: Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>
Sent: November 28, 2018 7:50 AM
To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Shepherd, Pippa <Pippa.Shepherd@dfo-mpo.gc.ca>
Cc: Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Wilson, Greg ENV:EX <Greg.Wilson@gov.bc.ca>; Bison, Robert FLNR:EX <Robert.Bison@gov.bc.ca>
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing

Thanks Manjit, I appreciate your further clarifying the concern regarding the review. We will need to defer to the CSAS process to respond to how comments from the review were incorporated. I will forward your email to the CSAS Secretariat and we will invite them to attend the Dec 3 meeting.

Cheers,
Karen

Karen Leslie
604-666-0395

-----Original Message-----
From: Kerr-Upal, Manjit ENV:EX [mailto:Manjit.Kerr-Upal@gov.bc.ca]
Sent: 2018–November-27 12:57 PM

To: Leslie, Karen; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer; Turner, Michael R AGRI:EX; Webb, Cheryl; Witt, Andy FLNR:EX; Shepherd, Pippa
Cc: Dale, Alec R ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing

Thanks Karen.

The dates and description of the report's review are correct. My understanding is that BC experts did provide comments and I don't think these comments were reflected in this last version of the document. Of particular concern are the changes made to the threats table between the draft and final version. As it stands now, the published Summary Report contains substantive changes which are not supported by BC scientists.

We have not yet reviewed the recently published Research Document (to see if other changes were made), but will be doing so with the technical team over the course of the next short while.

As mentioned below, I am working with Jennifer and Ted to better articulate the specifics of our concerns. In terms of next steps, I think we should certainly talk about this at our next meeting, if not sooner.

Sincerely,
Manjit

_____

Manjit Kerr-Upal
Director, Conservation Science
Ministry of Environment and Climate Change Strategy

Mail address: PO Box 9338 Stn Pov Gov't, Victoria BC, V8W 9M1 Street address: 525 Superior St (4th Floor), Victoria, BC V8V 1T7

Tel: 250 896-2231
Manjit.Kerr-Upal@gov.bc.ca

-----Original Message-----
From: Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>
Sent: November 27, 2018 12:23 PM
To: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Witt, Andy FLNR:EX

<Andy.Witt@gov.bc.ca>; Shepherd, Pippa <Pippa.Shepherd@dfo-mpo.gc.ca>
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing

Hi Jennifer -

Thanks very much for your email. As you note, the SAR component of the RPA is now publicly available. We did discuss some of the concerns you identify below at our last executive call, but are happy to revisit them at our next call on Dec 3 if still required now that you have the document and can see its content.

With respect to process to develop the document, I note the Peer Review participants, including the province, were given an opportunity to review the draft SAR from Sept 27 through Oct 4 (see attached). There was no additional review opportunity for this process, so I admit I am confused as to what review BC staff believe they missed. Can you clarify further?

Cheers,
Karen

Karen Leslie
604-666-0395

-----Original Message-----
From: Davis, Jennifer C FLNR:EX [mailto:Jennifer.C.Davis@gov.bc.ca]
Sent: 2018–November-27 11:11 AM
To: Travia, David V AGRI:EX; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer; Turner, Michael R AGRI:EX; Leslie, Karen; Webb, Cheryl; Witt, Andy FLNR:EX; Shepherd, Pippa
Subject: Exec team - concerns with documents. Steelhead Emergency Listing

Jennifer, Cheryl and the DFO team, good morning. Unfortunately, I need to flag a significant concern that has become high profile for team BC.

The concerns are regarding the documents being released.

While I understand the crazy timelines and pressure the DFO team is under, the recent summary document came as a bit of a surprise. There are significant concerns that the content does not reflect the work of the science team's agreement, and specifically removes key points from the bc perspective. The bc technical leads also indicated they did not review the document, which gets everyone upset with process and transparency.

Manjit, Ted and I are getting our technical team to provide us with further specifics so that we can circle back and discuss.

While we do that, can someone on the DFO team provide us with the version of the science report -

that I understand is currently out for translation? I want to assure everyone that the content of that doc didn't change.

We will follow up ASAP, but given the level of concern this has raised again regarding keeping the science protected and transparency, we wanted to give you a heads up.

I'm in meetings all day, but if you want some immediate info, Manjit and I are trying to fast-track this so I suggest you reach out to her. If you want to keep limited circulation if the science report, please feel free to send it just to Manjit and I.

Sincerely,

Jenn

Sent from my iPhone

From: Kerr-Upal, Manjit ENV:EX
To: Davis, Jennifer C FLNR:EX
Cc: Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX
Subject: FW: Follow-up to our teleconference on Steelhead SAR
Date: Thursday, December 13, 2018 11:33:39

I will not respond. Based on the call with some ADMs yesterday, the generally agreed upon path forward was for Jenn D and ADM Either to talk with Rebecca Reid about this … to ensure she is in the know. Jennifer D sent a quick not to James Mack on this. Next steps to be decided, depending on how that call goes.
Jennifer D is working on a updated Note reflecting the challenges associated with the science-based collaborations.
Manjit

From: Lowe, Carmel
Sent: December 13, 2018 9:59 AM
To: Davis, Jennifer C FLNR:EX ; Kerr-Upal, Manjit ENV:EX ; Zimmerman, Ted FLNR:EX ; Travia, David V AGRI:EX ; Witt, Andy FLNR:EX ; Neilson, Larry AGRI:EX ; michael.Turner@gov.bc.ca
Cc: Grout, Jeff ; Candy, John ; Kennedy, Eddy ; Kenyon, Robyn ; Nener, Jennifer ; Webb, Cheryl ; Leslie, Karen ; Maxwell, Marla ; MacDougall, Lesley
Subject: RE: Follow-up to our teleconference on Steelhead SAR
Hello Jennifer and fellow provincial colleagues,
As a follow-up to my email below, I also wanted to let you know that Proceedings of CSAS peer-review meetings document all points of consensus and dissent. We will share a draft of the Proceedings report for the Steelhead RPA with participants to ensure we have appropriately captured these points. As an alternate, we are open to the Province preparing a dissenting opinion addition to the Proceedings document to acknowledge that the final SAR bullets do not correspond with your preferred language and are a deviation from your understanding of the intended message. Please let me know your preference and we will proceed accordingly.

Carmel
Carmel Lowe, Ph.D.
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From: Lowe, Carmel
Sent: December 10, 2018 5:11 PM
To: 'jennifer.c.davis@gov.bc.ca' <jennifer.c.davis@gov.bc.ca>; 'manjit.Kerr-Upal@gov.bc.ca' <manjit.Kerr-Upal@gov.bc.ca>; 'Ted.Zimmerman@gov.bc.ca' <Ted.Zimmerman@gov.bc.ca>; 'david.travia@gov.bc.ca' <david.travia@gov.bc.ca>; 'andy.Witt@gov.bc.ca' <andy.Witt@gov.bc.ca>; 'Larry.Neilson@gov.bc.ca' <Larry.Neilson@gov.bc.ca>; 'michael.Turner@gov.bc.ca' <michael.Turner@gov.bc.ca>
Cc: Grout, Jeff <Jeff.Grout@dfo-mpo.gc.ca>; Candy, John <John.Candy@dfo-mpo.gc.ca>; Kennedy, Eddy <Eddy.Kennedy@dfo-mpo.gc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>; Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; MacDougall, Lesley <Lesley.MacDougall@dfo-mpo.gc.ca>
Subject: Follow-up to our teleconference on Steelhead SAR
Hello Jennifer and fellow BC colleagues,
Following up on our conversation this morning I wanted to provide you with two pieces of information related to concerns you raised. The first relates to the general process for development of a CSAS Science Advisory Report (SAR), and the second describes the rationale for the changes to the wording of the two summary bullets that you identified as of highest concern for the province.

1. The general process regarding the development of a CSAS SAR:
    - A draft SAR, developed based on the discussion throughout the peer review, is provided to participants for *initial* review and discussion at the peer review meeting.
    - Summary bullets, which reflect the key issues, results, uncertainties, conclusions, and recommendations, are drafted during the peer review. Participants are reminded that they will not be wordsmithing during the meeting, but that the goal is to come to consensus on the general INTENT of a bullet.
    - The draft SAR, with the draft bullets, are then circulated to ALL participants of the peer review for a more fulsome review of the draft and opportunity to provide edits.
    - The Chair then receives all written edits from the circulated SAR, and incorporates submitted edits to finalize the SAR. Invariably, this WILL RESULT IN changes to the bullets (and other parts of the SAR) that were reviewed during the meeting.
    - The Chair, submits the SAR to the CSAS coordinator (who also attended the meeting) to begin the approval process. There are specific criteria a SAR is expected to meet consequently the CSAS coordinator may also request changes (e.g. for readability, brevity, language that is consistent with the intent of the SAR, ensuring that recommendations do not fetter the Minister`s authority, etc.)
    - The SAR is then reviewed by senior management in Science and further changes may be requested to ensure quality of the document.
        - DFO`s publication policy: At no time will the inclusion of sensitive material (e.g. data, scientific conclusions) prevent publication of scientific papers.
    - The approved SAR is then translated into both official languages, and submitted to the National CSAS office for publication, and public posting on the website.

For the Steelhead RPA this general process was followed and a draft SAR was developed and shared at the peer review meeting, then distributed via email to participants for review, and based on the feedback received it was finalized.

2. For the two bullets/issues of concern:

	Wording - Initial draft	Wording - Approved version	Rationale for wording change
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. **If productivities improve slightly to the recent 5 or 10 year levels,** simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates.	"IF PRODUCTIVITIES IMPROVE SLIGHTLY" – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvements (e.g. doubling). See notes below.
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.	IF PRODUCTIVITIES IMPROVE SLIGHTLY – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvement s(e.g. doubling). See notes below.
#2	Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.	The new language was deemed to be stronger – as 'lowest possible harm' could be interpreted as a level higher than current harm.

Note: changes to #1 were based, in part, on input provided by Trevor Davies (BC) who pointed to the need to clarify the ambiguity associated with 'present' productivity and 'improved slightly'.

Based on his input, a third productivity scenario, which assumes that productivity remains at the last data year's level, was simulated for trajectories of future escapement. In both Chilcotin and Thompson this productivity scenario is less optimistic than the 5 and 10 year averages. Additionally, given that Thompson continues to decline even the terminal year productivity trajectory likely overestimates future productivity given the trend. In the summary bullets, clarification is provided regarding the selection of simulation parameters; and the expected consequences for trajectories.

It was clarified that for the Thompson DU, recovery is not expected at current productivity, regardless of exploitation rate. Elimination of exploitation rate alone will not result in population recovery. This stems from a discussion during the peer review meeting, brought up by Trevor Davies (BC) that what the authors were referring to as 'current level of productivity' was actually an average of the previous 5 years and was by consequence already a higher productivity than terminal year.

Regards

Carmel

Carmel Lowe, Ph.D.
Regional Director Science | Directrice régionale des sciences
Fisheries and Oceans Canada | Pêches et Océans Canada
Pacific Biological Station | Station biologique du Pacifique

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Government of Canada | Gouvernement du Canada

From: Kerr-Upal, Manjit ENV:EX
To: Travia, David V AGRI:EX; Zimmerman, Ted FLNR:EX; Davis, Jennifer C FLNR:EX; Witt, Andy FLNR:EX; Dale, Alec R ENV:EX
Cc: Paquin, Lisa C ENV:EX; Ramsay, Mike K FLNR:EX; Wilson, Greg ENV:EX
Subject: FW: Follow-up to our teleconference on Steelhead SAR
Date: Tuesday, December 11, 2018 12:02:11
Attachments: SAR Final Summary Points V2.docx
table1a20181122.pdf
table1b20181122.pdf
Korman et al 2018.pdf
FW Exec team - concerns with documents, Steelhead Emergency Listing.msg
(For Monday - Discussion of Key edits path forward) RE Steelhead Emergency Listing - FedProv Executive Committee - AGENDA.msg

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There are many emails being circulated amongst the BC Science team on this.
I wanted to summarize what I think are the most salient points (feel free to add in)

1. The TeamBC Science team, including Rob Bisson who is an author of the Research Report are NOT in agreement with the rationale put forward on December 10, 2018. Josh Korman, the lead author of the Research Report, is also NOT in agreement with the DFO rationale.
2. The science-based rationale for this conclusion is below (and attached). Earlier emails from ENV and FLRNO to DFO on this matter are also attached, for completeness sake. I have asked the TeamBC Science team (FLRNO-ENV) to help me ensure the story is clear and complete.
3. Potential next steps
    a. Respond to DFO's email. Ensure reference to my original email and Jen Davis' more recent email;
    b. For the planned FLRNO Minister and DFO Minister meeting, ensure this challenge is part of that dialogue
    c. Author a letter from DM ENV to DM ECCC, highlighting the challenges with the science-based collaboration work. NOTE: these DMs are talking regularly (caribou, SAR in general) and this could be a side conversation at an existing meeting. The motivation is to simply ensure that Minister McKenna is accurately informed about the Thompson and Chilcotin Steelhead matter. Time is of the essence as I believe that decision (on imminent risk) is happening in late December or early January;
        - The letter could contain the summary bullets on behalf of the science authors and the supporting science document (i.e. the Research Document) could accompany the letter. The letter could state that BC is concerned with the misrepresentation of the science advice as contained in the recently published SAR. It could also state concern over the process that DFO has undertaken to volunteer other information wrt this important listing decision.
    d. Hold an ADM-level meeting on this in the near future (SARSC is not meeting until January at the earliest) to discuss the situation, perhaps begin to articulate BC's position on the actual listing decision, should the ECCC Minister agree there is imminent risk.

In the interim, I will work with FLRNO on a respond to the DFO email, as I suspect these messages would be foundational to other actions. I will connect with D Travia before sending anything. Key messages to go into this proposed response could include:

- The Government of BC wants to ensure that there is complete transparency in the science-based collaborations underpinning the decisions regarding the listing and management decisions that affect these populations of steelhead
- DFO has altered two foundational scientific findings of the Science Advisory Report, conclusions that were supported by DFO's CSAS workshop participants, the authors of the longer, more comprehensive Research Findings Report, and Team BC.
- The Government of BC would like the Minister of ECCC to be knowledgeable of original science conclusions before making her decision on the imminent threat of these DUs
- Despite repeated attempts by the Government of BC, DFO has refused to address these challenges, such that the only publicly available, science-based information on this matter is inconsistent with the views and opinions expressed as a part of the open, peer review process (including the workshop with experts).
- The Government of BC would like the CSAS process, including the modifications necessary for emergency Recovery Potential Assessments, to be reviewed to ensure there is improved transparency on its process and products.

Please let me know what you think of these ideas.
Manjit

From: Bison, Robert FLNR:EX
Sent: December 11, 2018 9:54 AM
To: Kerr-Upal, Manjit ENV:EX ; Davis, Jennifer C FLNR:EX ; Ramsay, Mike K FLNR:EX
Cc: Zimmerman, Ted FLNR:EX ; Davies, Trevor FLNR:EX ; Wilson, Greg ENV:EX ; Witt, Andy FLNR:EX
Subject: FW: Follow-up to our teleconference on Steelhead SAR

From: Bison, Robert FLNR:EX
Sent: Tuesday, December 11, 2018 9:51 AM
To: Zimmerman, Ted FLNR:EX
Subject: RE: Follow-up to our teleconference on Steelhead SAR

No it does not align with my interpretation and there is confirmation from Josh Korman my coauthor that it does not align with his either. See the attached word doc entitled "SAR Final Summary Points V2" for why the released summary points are not supported by Research Document.

Also wrt to process, be aware that the summary points as submitted by the authors occurred after the peer review meeting and AFTER we completed a new set of future simulations based on the peer input including the input of Trevor Davies. We followed up with Trevor further after the meeting prior to submitting the first draft of the SAR and prior to submitting final version of the Research Document about one month after we submitted the SAR draft. The attached tables (pdf's) are the results after all that input and from which the initial summary points in the SAR were crafted. See the comments on why we the authors focused on results regarding "Probability of Population Growth" rather than "Probability of Recovery" as DFO chose to focus on later when they finalized the SAR summary bullets.

I extracted the following from the Research Document (Korman et al 2018). It summarizes and contextualizes a lot of the findings that support the summary bullets as we the authors crafted them. R.

Allowable Harm Assessment

Element 22: Evaluate maximum human-induced mortality and habitat destruction that the species can sustain without jeopardizing its survival or recovery.

In the absence of productivity improvement, simulations indicate that the only way to potentially stop the continued decline in spawning populations for the Thompson Steelhead Trout DU is to substantively reduce all losses from salmon fisheries and directed sport fisheries. The benefits of reductions in exploitation rate depend on the future productivity scenario. If productivity remains at the most recent estimates (~one or < one recruit/spawner) the population will decline even in the absence of harvest. Reducing exploitation rate under this scenario will slow the rate of decline, but achieving positive population growth or the recovery target will not be possible (Figs. 12,13). However under other scenarios that assume productivity in the future will be higher than the most recent available estimates, reducing exploitation rate results in substantive improvements in recovery potential (Figs. 12,13).

Declines in productivity of Thompson and Chilcotin DUs potentially caused by high abundance of pinnipeds and increases in competition on a cyclical or potentially shifting offshore food supply, are partially human-induced mortality effects resulting from the marine mammal protection acts in the US and Canada1 that led to elimination of commercial harvesting and predator control programs in British Columbia (Olesiuk 2010), and hatchery production of salmon, respectively. Historical Pinniped abundance prior to modern commercial harvesting and culls is unknown, but it is possible that it was lower than it is today due to First Nations harvest, a lesser degree of unintended habitat enhancement (log booms, marinas, fish hatcheries, etc.), and higher rates of predation from transient Orcas. Alternatively, current Harbour Seal abundance may be similar to historical levels, but their current predation rate on Steelhead Trout and salmon populations may be much greater than it was historically due to the current lower abundance of steelhead and salmon relative to historic levels, given that Harbour Seals derive the majority of their diet from prey items other than Steelhead Trout and salmon, with the result that their abundance is relatively insensitive to abundance of the latter. Reducing Harbour Seal abundance by a targeted harvest or culling program provides a means of restoring the natural impact of these predators on Steelhead Trout and salmon populations. Reduced Harbour Seal abundance in the Strait of Georgia may have negative effects on transient Orcas that prey on seals, but may provide benefits to endangered resident Orcas that feed on Chinook Salmon that are preyed upon by seals.

Our simulation results and supporting information suggest that a reduction in the Harbour Seal population of ~50% could dramatically improve the recovery potential of Thompson and Chilcotin Steelhead Trout DUs. The time frame over which such a reduction in the Harbour Seal population might occur through natural processes (e.g., through increased predation on seals from an expanding transient Orca population) was not examined in this assessment, but it is undoubtedly much longer than what could be achieved through a targeted reduction effort. Our results also suggest that reducing the abundance of enhanced Pink, Chum, and Sockeye Salmon populations in the North Pacific would also help recover Thompson and Chilcotin DUs. However the likelihood that this could be effected at the necessary international scale is considered to be extremely low. In the absence of management actions or natural processes reducing predation or competition, reducing exploitation is the only remaining option for improving the recovery potential of Thompson and Chilcotin Steelhead Trout populations.

From: Zimmerman, Ted FLNR:EX
Sent: Tuesday, December 11, 2018 8:29 AM
To: Bison, Robert FLNR:EX
Subject: Fwd: Follow-up to our teleconference on Steelhead SAR

Good morning Rob,

Does this explanation align with your understanding of the interpretation of the results?

Ted Zimmerman
Director, Resource Management
Thompson Okanagan Region
Ministry of Forests, Lands, and Natural Resource Operations and Rural Development
Mobile. 778-257-2578

Begin forwarded message:

From: "Lowe, Carmel" <Carmel.Lowe@dfo-mpo.gc.ca>
Subject: Follow-up to our teleconference on Steelhead SAR
Date: December 10, 2018 at 5:11:24 PM PST
To: "jennifer.c.davis@gov.bc.ca" <jennifer.c.davis@gov.bc.ca>, "manjit.Kerr-Upal@gov.bc.ca" <manjit.Kerr-Upal@gov.bc.ca>, "Ted.Zimmerman@gov.bc.ca" <Ted.Zimmerman@gov.bc.ca>, "david.travia@gov.bc.ca" <david.travia@gov.bc.ca>, "andy.Witt@gov.bc.ca" <andy.Witt@gov.bc.ca>, "Larry.Neilson@gov.bc.ca" <Larry.Neilson@gov.bc.ca>, "michael.Turner@gov.bc.ca" <michael.Turner@gov.bc.ca>
Cc: "Grout, Jeff" <Jeff.Grout@dfo-mpo.gc.ca>, "Candy, John" <John.Candy@dfo-mpo.gc.ca>, "Kennedy, Eddy" <Eddy.Kennedy@dfo-mpo.gc.ca>, "Kenyon, Robyn" <Robyn.Kenyon@dfo-mpo.gc.ca>, "Nener, Jennifer" <Jennifer.Nener@dfo-mpo.gc.ca>, "Webb, Cheryl" <Cheryl.Webb@dfo-mpo.gc.ca>, "Leslie, Karen" <Karen.Leslie@dfo-mpo.gc.ca>, "Maxwell, Marla" <Marla.Maxwell@dfo-mpo.gc.ca>, "MacDougall, Lesley" <Lesley.MacDougall@dfo-mpo.gc.ca>

Hello Jennifer and fellow BC colleagues,

Following up on our conversation this morning I wanted to provide you with two pieces of information related to concerns you raised. The first relates to the general process for development of a CSAS Science Advisory Report (SAR), and the second describes the rationale for the changes to the wording of the two summary bullets that you identified as of highest concern for the province.

1. The general process regarding the development of a CSAS SAR:
    - A draft SAR, developed based on the discussion throughout the peer review, is provided to participants for *initial* review and discussion at the peer review meeting.
    - Summary bullets, which reflect the key issues, results, uncertainties, conclusions, and recommendations, are drafted during the peer review. Participants are reminded that they will not be wordsmithing during the meeting, but that the goal is to come to consensus on the general INTENT of a bullet.
    - The draft SAR, with the draft bullets, are then circulated to ALL participants of the peer review for a more fulsome review of the draft

and opportunity to provide edits.

- The Chair then receives all written edits from the circulated SAR, and incorporates submitted edits to finalize the SAR. Invariably, this WILL RESULT IN changes to the bullets (and other parts of the SAR) that were reviewed during the meeting.
- The Chair, submits the SAR to the CSAS coordinator (who also attended the meeting) to begin the approval process. There are specific criteria a SAR is expected to meet consequently the CSAS coordinator may also request changes (e.g. for readability, brevity, language that is consistent with the intent of the SAR, ensuring that recommendations do not fetter the Minister`s authority, etc.)
- The SAR is then reviewed by senior management in Science and further changes may be requested to ensure quality of the document.
    - DFO`s publication policy: At no time will the inclusion of sensitive material (e.g. data, scientific conclusions) prevent publication of scientific papers.
- The approved SAR is then translated into both official languages, and submitted to the National CSAS office for publication, and public posting on the website.

For the Steelhead RPA this general process was followed and a draft SAR was developed and shared at the peer review meeting, then distributed via email to participants for review, and based on the feedback received it was finalized.

2. For the two bullets/issues of concern:

	Wording - Initial draft	Wording - Approved version	Rationale for wording change
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. **If productivities improve slightly to the recent 5 or 10 year levels,**simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates.	"IF PRODUCTIVITIES IMPROVE SLIGHTLY" – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvements (e.g. doubling). See notes below.
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.	IF PRODUCTIVITIES IMPROVE SLIGHTLY – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvement s(e.g. doubling). See notes below.
#2	Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recoveryand potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.	The new language was deemed to be stronger – as 'lowest possible harm' could be interpreted as a level higher than current harm.

Note: changes to #1 were based, in part, on input provided by Trevor Davies (BC) who pointed to the need to clarify the ambiguity associated with 'present' productivity and 'improved slightly'.

Based on his input, a third productivity scenario, which assumes that productivity remains at the last data year's level, was simulated for trajectories of future escapement. In both Chilcotin and Thompson this productivity scenario is less optimistic than the 5 and 10 year averages.

Additionally, given that Thompson continues to decline even the terminal year productivity trajectory likely overestimates future productivity given the trend. In the summary bullets, clarification is provided regarding the selection of simulation parameters; and the expected consequences for trajectories.

It was clarified that for the Thompson DU, recovery is not expected at current productivity, regardless of exploitation rate. Elimination of exploitation rate alone will not result in population recovery. This stems from a discussion during the peer review meeting, brought up by Trevor Davies (BC) that what the authors were referring to as 'current level of productivity' was actually an average of the previous 5 years and was by consequence already a higher productivity than terminal year.

Regards

Carmel

Carmel Lowe, Ph.D.
Regional Director Science | Directrice régionale des sciences
Fisheries and Oceans Canada | Pêches et Océans Canada
Pacific Biological Station | Station biologique du Pacifique
3190 Hammond Bay Rd, Nanaimo, BC, Canada V9T 6N7
Carmel.Lowe@dfo-mpo.gc.ca
Telephone | Téléphone 250-756-7177
Facsimile | Télécopieur 250-729-8360
Government of Canada | Gouvernement du Canada

From: Kerr-Upal, Manjit ENV:EX
To: Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX
Subject: FW: Follow-up to our teleconference on Steelhead SAR
Date: Tuesday, December 11, 2018 10:22:14

I have asked Greg and Ron that all future ENV emails on this specific issues come through me.
Manjit

From: Wilson, Greg ENV:EX
Sent: December 11, 2018 10:09 AM
To: Davies, Trevor FLNR:EX ; Davis, Jennifer C FLNR:EX ; Kerr-Upal, Manjit ENV:EX
Cc: Bison, Robert FLNR:EX ; Witt, Andy FLNR:EX ; Travia, David V AGRI:EX ; Paquin, Lisa C ENV:EX
Subject: Re: Follow-up to our teleconference on Steelhead SAR

Yesterday DFO said it was Ross Claytor's (Marine Fisher SSC co-chair) comments which prompted change, now bringing in Trevor.

Also, yesterday I heard; we only make minor changes nothing to change the meaning, changes to the summary bullets is minor stuff, its our internal process we can make changes, DFO didn't do anything wrong and now they are pointing to everybody else as asking for the changes (clearly there are no mirrors at DFO head quarters). DFO operates like the Trump organization.

I can easily take a pole of the whole review committee to get their impressions.

Also we can work directly with the chair of the committee and the process. Notice they have not brought him in to explain anything.

G

From: Davies, Trevor FLNR:EX
Sent: December-11-18 8:54 AM
To: Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX
Cc: Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Witt, Andy FLNR:EX; Travia, David V AGRI:EX; Paquin, Lisa C ENV:EX
Subject: Re: Follow-up to our teleconference on Steelhead SAR
Manjit, I'll give you a call this morning.

Trevor

From: Davis, Jennifer C FLNR:EX
Sent: Monday, December 10, 2018 11:42:37 PM
To: Kerr-Upal, Manjit ENV:EX
Cc: Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Davies, Trevor FLNR:EX; Witt, Andy FLNR:EX; Travia, David V AGRI:EX; Paquin, Lisa C ENV:EX
Subject: Re: Follow-up to our teleconference on Steelhead SAR
I have asked mike Ramsay to connect with Trevor and Rob and then help us understand ASAP.

Sent from my iPhone

On Dec 10, 2018, at 5:17 PM, Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca> wrote:

> I would appreciate you insights into the rationale provided in the email below.
> Manjit
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> **From:** "Lowe, Carmel" <Carmel.Lowe@dfo-mpo.gc.ca>
> **Date:** December 10, 2018 at 5:11:24 PM PST
> **To:** "jennifer.c.davis@gov.bc.ca" <jennifer.c.davis@gov.bc.ca>, "manjit.Kerr-Upal@gov.bc.ca" <manjit.Kerr-Upal@gov.bc.ca>, "Ted.Zimmerman@gov.bc.ca" <Ted.Zimmerman@gov.bc.ca>, "david.travia@gov.bc.ca" <david.travia@gov.bc.ca>, "andy.Witt@gov.bc.ca" <andy.Witt@gov.bc.ca>, "Larry.Neilson@gov.bc.ca" <Larry.Neilson@gov.bc.ca>, "michael.Turner@gov.bc.ca" <michael.Turner@gov.bc.ca>
> **Cc:** "Grout, Jeff" <Jeff.Grout@dfo-mpo.gc.ca>, "Candy, John" <John.Candy@dfo-mpo.gc.ca>, "Kennedy, Eddy" <Eddy.Kennedy@dfo-mpo.gc.ca>, "Kenyon, Robyn" <Robyn.Kenyon@dfo-mpo.gc.ca>, "Nener, Jennifer" <Jennifer.Nener@dfo-mpo.gc.ca>, "Webb, Cheryl" <Cheryl.Webb@dfo-mpo.gc.ca>, "Leslie, Karen" <Karen.Leslie@dfo-mpo.gc.ca>, "Maxwell, Marla" <Marla.Maxwell@dfo-mpo.gc.ca>, "MacDougall, Lesley" <Lesley.MacDougall@dfo-mpo.gc.ca>
> **Subject: Follow-up to our teleconference on Steelhead SAR**
>
> Hello Jennifer and fellow BC colleagues,
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Regards

Carmel

Carmel Lowe, Ph.D.
Regional Director Science | Directrice régionale des sciences
Fisheries and Oceans Canada | Pêches et Océans Canada
Pacific Biological Station | Station biologique du Pacifique
3190 Hammond Bay Rd, Nanaimo, BC, Canada V9T 6N7
Carmel.Lowe@dfo-mpo.gc.ca
Telephone | Téléphone 250-756-7177
Facsimile | Télécopieur 250-729-8360
Government of Canada | Gouvernement du Canada

From:	Neilson, Larry AGRI:EX
To:	Travia, David V AGRI:EX; Romanin, Kevin AGRI:EX
Cc:	Turner, Michael R AGRI:EX
Subject:	FW: presentation for tomorrow
Date:	Monday, December 3, 2018 13:30:08
Attachments:	For FLNRO May 2018 aquatic SAR process and steelhead.pptx

David – here the process PPT.

Lars

From: Lewis, Vicki FLNR:EX
Sent: Tuesday, May 8, 2018 10:54 AM
To: Turner, Michael R AGRI:EX; Neilson, Larry AGRI:EX; Witt, Andy FLNR:EX; Weir, Tyler FLNR:EX; Johner, David FLNR:EX; LaBoucan, Guuduniia FLNR:EX; Smith, Jennifer FLNR:EX
Subject: FW: presentation for tomorrow

We are having a few issues for online meeting. Here is the presentation just in case.

From: Wilson, Greg ENV:EX
Sent: Monday, May 7, 2018 5:17 PM
To: Lewis, Vicki FLNR:EX
Subject: presentation for tomorrow

I'm bring a laptop wit it loaded, so in case we have multiple system failures..comments welcome

Greg Wilson, R.P.Bio.
Aquatic Species-at-Risk Specialist
Ecosystem Protection and Sustainability Branch
BC Ministry of Environment and Climate Change Strategy
525 Superior Street / Victoria, BC / V8W 1T7
(O) 778-698-4414

From: Neilson, Larry AGRI:EX
To: Travia, David V AGRI:EX; Turner, Michael R AGRI:EX; Romanin, Kevin AGRI:EX
Subject: FW: Steelhead Emergency Listing - Fed/Prov Executive Committee
Date: Friday, December 7, 2018 17:40:13
Attachments: MINSteelhead BN_Dec5.docx

Some point for consideration to include for James:

- Attached is a briefing note that covers another emerging BC-DFO issue on the steelhead front.
- On a recent BC-DFO steelhead call, this issue got a little heated, but ultimately DFO handled it very professionally, and deferred the discussion until the appropriate science/technical staff could be on hand (Monday Dec. 10).
- This note was drafted by MENV and FLNR staff to provide information to ADMs on this issue, and AGRI have provided input/comments which mostly has been included

s.16

Just my thoughts for consideration..
Larry

From: Kerr-Upal, Manjit ENV:EX
Sent: Wednesday, December 5, 2018 1:27 PM
To: Travia, David V AGRI:EX; Neilson, Larry AGRI:EX; Davis, Jennifer C FLNR:EX
Cc: Witt, Andy FLNR:EX; Zimmerman, Ted FLNR:EX; Turner, Michael R AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
Awesome. Let's all send this forward.

Here in ENV, its going up now.
Manjit

From: Travia, David V AGRI:EX
Sent: December 5, 2018 12:32 PM
To: Kerr-Upal, Manjit ENV:EX ; Neilson, Larry AGRI:EX ; Davis, Jennifer C FLNR:EX
Cc: Witt, Andy FLNR:EX ; Zimmerman, Ted FLNR:EX ; Turner, Michael R AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
Hi Manjit,
Reads well to me – thanks again for the opportunity to review and provide comment. One very minor change tracked in the attached to ensure the exec committee is named consistently for clarity.

From: Kerr-Upal, Manjit ENV:EX
Sent: Wednesday, December 5, 2018 11:58 AM
To: Travia, David V AGRI:EX; Neilson, Larry AGRI:EX; Davis, Jennifer C FLNR:EX
Cc: Witt, Andy FLNR:EX; Zimmerman, Ted FLNR:EX; Turner, Michael R AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
David
I've taken a crack at addressing your comments. Can you see if this current version works?

- I did not change mentions of COSEWIC (and DFO's) concerns re: freshwater habitat (in addition to bycatch) as that aspect was not changed in the SAR report. The report changed only references to bycatch. I included mention of freshwater habitat quality for completeness sake, in the background. Was there somewhere in particular you thought I should include this later in the note?
- I adjusted the last two paragraphs, to try and respond to your comments (continuity with next steps portion and tone). Let me know.

I'd like to move this up… supportive?

Thanks!

Manjit

From: Travia, David V AGRI:EX

Sent: December 5, 2018 10:48 AM

To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>

Cc: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>

Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Hi Manjit,

Please find some comments/suggestions in the attached. Thanks for the opportunity to review.

Best,

David

David Travia, MPA

Director | Intergovernmental Relations, Trade and BC Seafood Secretariat

Corporate Governance, Policy and Legislation Branch | Ministry of Agriculture

Ph: 778 974-3764

From: Kerr-Upal, Manjit ENV:EX
Sent: Wednesday, December 5, 2018 10:18 AM
To: Travia, David V AGRI:EX; Neilson, Larry AGRI:EX
Cc: Davis, Jennifer C FLNR:EX; Witt, Andy FLNR:EX; Zimmerman, Ted FLNR:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

David/Michael

I'm just wondering on your thoughts on this note. I'd like to put it forward ASAP, but wanted to know if you had any comments first?

Thanks!

Manjit

From: Kerr-Upal, Manjit ENV:EX

Sent: December 4, 2018 4:20 PM

To: Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>

Cc: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Wilson, Greg ENV:EX <Greg.Wilson@gov.bc.ca>

Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Here is the DRAFT IN. I have had it reviewed by FLNRO Branch, Region and ENV.

AGR content and comments welcome.
Possible to respond tomorrow am as I'd like to move this up. It essentially brings our ADMs up to speed on current status.
Manjit

From: Travia, David V AGRI:EX
Sent: December 4, 2018 11:39 AM
To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>
Cc: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
Thanks Manjit,
It would be great to have an IN to bring all the ADMs up to speed on this. As we've seen recently with the work going on between our agencies on Indigenous Reconciliation, aquaculture in the Broughton, and wild salmon, it is always helpful to have all the NRS ADMs engaged. Looking forward to the IN.
David

From: Kerr-Upal, Manjit ENV:EX
Sent: Monday, December 3, 2018 7:42 PM
To: Neilson, Larry AGRI:EX
Cc: Travia, David V AGRI:EX; Davis, Jennifer C FLNR:EX; Dale, Alec R ENV:EX; Witt, Andy FLNR:EX; Turner, Michael R AGRI:EX; Zimmerman, Ted FLNR:EX
Subject: Re: Steelhead Emergency Listing - Fed/Prov Executive Committee
You are correct Larry.
I have drafted a IN for ADMs on the science situation. I was waiting for this am before finalizing it
Let's talk tomorrow... happy to share as I think Flnro chain has been briefed, here at env it's a verbal briefing to adm only ... this IN was to go up tomorrow
Manjit
Sent from my iPhone

On Dec 3, 2018, at 11:07 AM, Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca> wrote:

> Quick question folks...I recall that Alec Dale will coordinate the DM to DM letter correct? As per usual for a SARA list. We really will need a full government of BC view on this. Perhaps an NRS ADM Briefing note?
> Cheers, Larry
> -----Original Appointment-----
> **From:** Kenyon, Robyn [mailto:Robyn.Kenyon@dfo-mpo.gc.ca]
> **Sent:** Friday, July 13, 2018 3:50 PM
> **To:** Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; Grout, Jeff
> **Cc:** Turner, Michael R AGRI:EX; AGRI IGRS/FPT Events AGRI:EX; Sidhu, Jas; Mahaux, Patrick
> **Subject:** Steelhead Emergency Listing - Fed/Prov Executive Committee
> **When:** Monday, December 3, 2018 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
> **Where:** Conference Call: 1-877-413-4781 Conf ID: 3465734 (Tentative: DFO CONF

Vancouver-401BurrardSt-14-Fraser CONF MPO)

Please let me know if you are able to attend and if there are any agenda items you would like to put forward.

Draft Agenda for December 3:

1. Review of last meeting's Action Items
2. Update on Process and Timeline
   - Recovery Potential Assessment
   - DM-DM Letter: BC Position on Listing
3. Consultations
   - Feedback to date
4. Standing Items (updates if available)
   - DFO Sustainable Fisheries Resource Advisory Council
   - BC Wild Salmon Advisory Council
5. Meeting Schedule

October 29 Action Items:

- **Action Carried Over:** BC (via Andy Witt) to identify staff to participate in consultations and provide names to DFO (Robyn Kenyon / Peter Hall) by Oct. 4
- **Action:** Update on CBA at next meeting
- **Action:** Meeting schedule to be decided on for remaining meetings
- **Action:** BC to identify concerns with RPA to CSAS

Thank you,

Robyn Kenyon
A/ Team Lead - Salmon | Chef d'équipe par intérim – saumon
Species at Risk | Espèces en péril
Fisheries Management | Direction des pêches
Department of Fisheries and Oceans | Pêches et Océans Canada
200-401 Burrard Street | 401, rue Burrard, bureau 200
Vancouver, BC | C.-B. V6C 3S4
Phone | téléphone: (604) 666-2074
Robyn.Kenyon@dfo-mpo.gc.ca

From:	Kerr-Upal, Manjit ENV:EX
To:	Davis, Jennifer C FLNR:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX
Cc:	Wilson, Greg ENV:EX; Stefanyk, Karen ENV:EX; Turner, Michael R AGRI:EX; Neilson, Larry AGRI:EX; Witt, Andy FLNR:EX; Dale, Alec R ENV:EX
Subject:	Fwd: Letter to BC on Listing Steelhead Trout under SARA
Date:	Monday, December 10, 2018 07:58:06
Attachments:	SKM_C65818120713020.pdf ATT00001.htm

FYI

Official DFO Letter was finally received on Friday asking for BC's position on this matter. See attached.

I know Greg has started to canvass the various ministries for input ...

We can discuss the path forward on this response. I suspect today's meeting may have some insights on our approach.

Happy Monday!
Manjit

Sent from my iPhone

Begin forwarded message:

From: "Dale, Alec R ENV:EX" <Alec.Dale@gov.bc.ca>
Date: December 10, 2018 at 7:07:21 AM PST
To: "Kerr-Upal, Manjit ENV:EX" <Manjit.Kerr-Upal@gov.bc.ca>
Subject: FW: Letter to BC on Listing Steelhead Trout under SARA

FYI, we will be getting asked to respond and assume we are working on already given the focus?
Thanks
A

From: Daspe, Caroline <Caroline.Daspe@dfo-mpo.gc.ca>
Sent: December 7, 2018 10:25 AM
To: Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>
Subject: Letter to BC on Listing Steelhead Trout under SARA
Good day,
You were carbon copy on the attached letter.
Regards,

Caroline Daspe
Document control and administrative officer | Agente contrôle des documents et administration
Aquatic Ecosystems | Secteur des écosystèmes aquatiques
Fisheries and Oceans Canada/Pêches et océans Canada
Tel: 613-990-7110

Caroline.Daspe@dfo-mpo.gc.ca

From:	Davis, Jennifer C FLNR:EX
To:	Mack, James AGRI:EX
Cc:	Travia, David V AGRI:EX
Subject:	James - quick upate re Steelhead and SARA listing.
Date:	Thursday, December 13, 2018 10:34:15

Re: Interior Fraser Steelhead – Emergency SARA listing Process.

Hi James,

We had a quick meeting yesterday afternoon with ADMs: Jennifer McGuire, Paul Rasmussen and Tom Ethier. I understand you might have meetings with Minister Wilkinson lined up, and we wanted to give you a heads up. Minister Wilkinson tweeted on Monday that the issue of bycatch in salmon fisheries is an issue to be addressed.

Issue in a nutshell: Previous discussion on management action for steelhead recovery have not gone well because the DFO and Province's science teams were not in agreement. We spent the last 6 months working in a collaborative fashion in the emergency Species At Risk process, and the science teams came to consensus. The research summary published by DFO however, uses different language than the final peer-reviewed research paper.

- We have requested they return to the wording agreed-to by the scientists. (We can all disagree on what management actions to take, but at least we have common science this time.)
- They have said no.
- Moving off of the transparent process has broken trust; the edits all boil down to two points – which appear to purposefully marginalize the by-catch issue.

Next steps: Tom and I will reach out to Rebecca Reid to make sure she is aware of this issue, as she might have a different opinion on how to proceed than her staff do. We don't want to have the Province publicly dissenting from DFO, requesting consensus science be used.

- I will be sending all 4 of you ADMs a short BN update as reference.

Jenn.

JENNIFER DAVIS
Fish and Aquatic Habitat Branch, Resource Stewardship Division

Ministry of Forests, Lands, Natural Resource Operations and Rural Development
4th Floor, 2975 Jutland Road, Victoria, BC
Tel: 778-974-2336
e-mail: Jennifer.C.Davis@gov.bc.ca

EMERGENCY RECOVERY POTENTIAL ASSESSMENT FOR THOMPSON RIVER AND CHILCOTIN RIVER STEELHEAD TROUT (ONCORHYNCHUS MYKISS) (2018)

Josh Korman[1], Robert Bison[2], and A. Scott Decker[3]

[1]Ecometric Research Inc.
3560 W. 22nd Avenue
Vancouver, BC, V6S 1J3

[2]Ministry of Forests, Lands and Natural Resource Operations,
Fish & Wildlife Branch, Kamloops, BC V2C 5Z5

[3]Fisheries and Oceans Canada,
BC Interior Area Office, 986 McGill Place
Kamloops, BC V2C 6X6

October 23, 2018

Forward

This series documents the scientific basis for the evaluation of aquatic resources and ecosystems in Canada. As such, it addresses the issues of the day in the time frames required and the documents it contains are not intended as definitive statements on the subjects addressed but rather as progress reports on ongoing investigations.

Research documents are produced in the official language in which they are provided to the Secretariat.

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ABSTRACT

Thompson River and Chilcotin River Steelhead Trout (*Oncorhynchus mykiss*) were designated as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in January 2018 and are currently under consideration for addition to Schedule 1 of the *Species at Risk Act* (SARA) via an Emergency Order. This Emergency Recovery Potential Assessment provides the background information, population status and mitigation options to support the listing decision. The most recent average spawning population abundance over the last generation is 72% lower than the average abundance three generations earlier for the Thompson DU, and 57% lower for the Chilcotin DU. Model-based estimates of exploitation rates of Thompson and Chilcotin Steelhead Trout due to bycatch in salmon fisheries and through targeted sport fishing were used to calculate pre-fishery abundance (recruitment). A Ricker stock-recruitment model with time-varying productivity was fit to the spawner-recruit time series for each DU using a Kalman Filter approach, and showed that both populations have experienced large declines in productivity over the last 30 years, with the most recent estimates very close to one recruit/spawner.

We evaluated the importance of some factors potentially causing the decline in productivity for Thompson and Chilcotin DUs by comparing the temporal trend in productivity with the trend in covariates. Increasing abundance of Harbour Seals was negatively correlated with productivity, and in conjunction with spawner abundance, explained about 70% of the variation in log recruits/spawner (log(R/S) for both DUs based on a Ricker covariate model. Total biomass of Pink, Chum, and Sockeye salmon in the North Pacific Ocean was also inversely correlated with productivity and explained 60% and 50% of the variation in log(R/S) for Thompson and Chilcotin DUs, respectively. Indices of ocean climate were moderately useful for explaining variation in log(R/S) for both DUs (r^2 = 0.3-0.47), as was minimum summer flow for the Thompson DU (r^2=0.42). The strong effect of Harbour Seal abundance and a pinniped predation index on productivity of Thompson and Chilcotin DUs, combined with similar findings for other salmon species, and information from studies of seal diet, seal energetics, and seal-related salmon mortality, suggest that seal or pinniped predation is an important factor driving the decline of Steelhead Trout in these DUs.

We used a simulation model to project trajectories of spawning population abundance to Thompson and Chilcotin DUs and evaluate the effects of alternate exploitation rates and mitigation measures that could increase productivity. Scenarios which doubled the log of stock productivities estimated in the last five and 10 years of the available time series, intended to simulate effects of reducing Harbour Seal abundance by about 50%, or to simulate a decrease in salmon competition effects on prey availability by about 30%, resulted in substantive improvements in future population trajectories for both DUs. Simulations based on productivity estimated in the last year of the time series, predicted a continuing decline in abundance for both DUs and in some cases this occurred even when log productivity was doubled. The majority of productivity scenarios showed improvements in population growth and recovery statistics under lower exploitation rates. In the absence of management actions or natural processes that would reduce predation or competition, reducing exploitation rate via changes to salmon fisheries and in-river First Nations fisheries targeting Steelhead Trout, is the only option currently available to improve the status of Thompson and Chilcotin DUs.

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MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE STRATEGY
INFORMATION NOTE

Date: December 7, 2018

PREPARED FOR:
ADM Jennifer McGuire, ENV Environment Sustainability and Strategic Policy
ADM Tom Ethier, FLNRO Resource Stewardship Division
ADM James Mack, AGR Agriculture Science and Policy

ISSUE: Update on DFO process to inform federal decisions to protect Chilcotin and Thompson River populations of Steelhead Trout

BACKGROUND:
In February 2018, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) concluded that the Chilcotin and Thompson River populations of Steelhead Trout *(Oncorhynchus mykiss*) were assessed as Endangered. There were three principal reasons for this conclusion: 1) population decline of 79% and 81% respectively over the last three generations, 2) projected continued decline of these populations, and 3) very low number of mature individuals. In addition, COSEWIC determined these populations were at imminent risk of extinction. Among the factors contributing to the decline of these populations, COSEWIC identified that "*Bycatch mortality in commercial Pacific salmon fisheries and declines in marine and freshwater habitat quality are the key factors driving the declines."* A map of the Interior Steelhead range, including these populations, is provided in Appendix 1.

Fisheries and Oceans Canada (DFO) is leading a modified Recovery Potential Assessment (RPA) intended to inform a Ministerial opinion on the imminent threat to survival of these populations, and a potential Governor in Council listing decision for the addition of Steelhead Trout to Schedule 1 of the *Species at Risk Act* (SARA).

The Ministry of Environment and Climate Change Strategy (ENV) is the provincial lead for species at risk policy and legislative development and holds substantive conservation science and research expertise for many aquatic and terrestrial species, including Steelhead Trout. ENV is also the jurisdictional representative on COSEWIC.

The Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRO) holds the majority of Provincial legislative responsibility.

- Through delegated authority under the Federal *Fisheries Act*, FLNRO has responsibility for non-salmon freshwater sport fishing, sea-run steelhead, cutthroat and dolly-varden.
- BC's recreational fisheries are high value and licenced by FLNRO under the *Wildlife Act.*
- FLNRO leads habitat sustainability and recovery, as well as land and water use decisions.
- While salmon harvesting decisions are federal, the Province has delegated authority under the Federal *Fisheries Act* for steelhead and management of salmon habitat and ecosystem conditions.
- The lead provincial scientist for Steelhead Trout is with FLNRO (Thompson Region).

A summary of the suite of actions that FLRNO has been working on to protect Chilcotin and Thompson River populations of Steelhead Trout are identified in Appendix 2.

The Ministry of Agriculture (AGRI) is the provincial lead for British Columbia's interests in recreational and commercial marine fisheries and is the lead agency for national work with DFO through the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM).

- AGRI participates and influences fisheries advisory board decisions, which develop the regulations around commercial salmon fisheries in B.C.
- B.C. has a designated commissioner at the Pacific Salmon Treaty table, which includes a chapter on steelhead management. AGRI participates directly in that work.

AGRI works directly with the commercial and marine recreational fishing industries to help maximize sustainable benefits to British Columbians.

DISCUSSION

It was known from the beginning that that workload and timing of DFO's modified RPA would be challenging. DFO region is required to provide DFO headquarters a finalized package in December 2018. This package will include a set of scientific documents (Science Advisory Report, Research Document and Proceedings Report), as well as a list of management options, a cost benefit analysis, and summaries of recent consultations with stakeholders and First Nations.

ENV and FLNRO staff are working collaboratively to engage directly with DFO senior management and technical staff in developing the RPA. Scientists from ENV and FLNRO have been working closely with federal and external experts to ensure the science advice informing any ministerial decision is universally supported. The process of engagement in support of this process, at both the technical and executive level, was based on the principles of openness and transparency.

On November 27, 2018, DFO published a Science Advisory Report that significantly differed from earlier drafts that incorporated ENV and FLNRO's perspectives on the risks to steelhead stocks. The report, as published, downplays the threats associated with salmon fisheries bycatch mortality and concludes that stopping fishing will not reverse the decline of populations in the future. This conclusion is inconsistent with both the conclusions of the peer review conducted under DFO's formal Canadian Science Advisory Secretariat (CSAS) process and the joint Canada-BC science team's agreement on draft content.

In preparation for the December 3, 2018 Federal/Provincial Steelhead Executive Committee meeting, ENV and FLNRO clearly outlined the concerns associated with the published Science Advisory Report and indicated that DFO's decision to change and publish the altered content significantly undermines the trust between partners and jeopardizes ongoing science-based collaborations.

NEXT STEPS:

- The Federal/Provincial Steelhead Executive Committee is meeting on December 10, 2018 to resolve the current science-collaborations challenges. If these challenges are not resolved, a decision-note will be drafted for ADM Either and ADM McGuire (as per their membership on the Canada-BC Species at Risk Steering Committee). ADM Mack will be included in this note.
- The DM of Environment and Climate Change Strategy is expected to receive a letter from the DM of DFO asking for the Government of BC's input on listing recommendations for the Chilcotin and Thompson River populations of Steelhead Trout. ENV has started canvassing ministries for input in anticipation of receipt of this letter.

Appendices:

Appendix 1: Map of Interior Steelhead Range

Appendix 2: Summary of FLRNO Regulatory Actions in support of protection of Chilcotin and Thompson River populations of Steelhead Trout .

Contact:
Alec Dale Executive Dir
Ecosystem Branch
ENV
Phone: 778 698-4384

Alternate Contact:
Jennifer Davis
Director, Aquatic Resources
FLRNO
Phone: 778 679-1198

Prepared by:
Manjit Kerr-Upal, Director
Ecosystems Branch
ENV
Phone: 250 896-2231

Appendix 1: Map of Interior Steelhead Range

Copyright

Appendix 2: Summary of FLRNO Regulatory Actions in support of protection of Chilcotin and Thompson River populations of Steelhead Trout .

FLRNO has been actively using regulatory authorities to protect the Chilcotin and Thompson River populations of Steelhead Trout .

- There are no longer any open recreational fisheries.
- Both the Chilcotin and Thompson are closed for all recreational fishing. In 2018, the Thompson closures started a month earlier to match Chilcotin (October 1, rather than November 1).
- The provincial recreational trout fishery might incidentally catch steelhead. These have not been closed, or regulations put into place to limit incidental harms.
- DFO continues to highlight concerns with freshwater habitat. However, there are similar declines in steelhead for both the Thompson watershed, which is quite developed, and the Chilcotin, which is largely untouched. If habitat was a limiting factor, we would also expect to see declines in native rainbow populations, which occupy a similar niche.

DFO authorizes the salmon fisheries which cause by-catch mortality to steelhead in nets. Staff requested enhanced protection, these requests were not implemented.

- Increasing DFO's steelhead-protection rolling-closure window from five weeks to a minimum of seven, preferably longer given estimates of an 11 week run.
- DFO allows First Nation chum-salmon fisheries within the steelhead closure. Staff requested no gillnet fisheries during the steelhead run. In October there have been instances of large quantities of fish being left on the riverside, including dead steelhead.
- Limiting how long gill-nets are left unattended (limited soak time).

Inter-Nation tensions are growing over the management and protection of Chilcotin and Thompson River populations of Steelhead Trout. Several interior First Nations are voluntarily forgoing their constitutional right to salmon in order to support steelhead recovery. Lower Fraser First Nations continue to access their DFO allocations to salmon which causes by-catch mortality to steelhead.

Modernizing Salmon/Net Fisheries.

Salmon are a BC fish, and the Province is undertaking action to explore ways to modernize fisheries in order to sustain appropriate harvest levels and implement Steelhead Trout (and sturgeon) protection. While salmon fisheries are authorized by DFO, Provincial, Indigenous, Commercial and other interests are able to undertake voluntary protection measures. Examples already exist, such as Interior First Nations forgoing salmon harvest during Steelhead Trout runs.

- Late Nov. ADMs Ethier and Sutherland (FLNR) and Mack (AGRI) agreed to identify a small team to start exploring options and opportunities associated with increasing the use of selective fishing methods, and modernizing use of gill nets. This team will commence in Dec.
- Late Nov. Meeting between FLNRO senior management and the Commercial Fishing Sector identified a willingness to explore gill net modernization and improved monitoring to support IFS. No specifics have been proposed; follow up discussions will occur.
- Late Nov. Minister Donaldson has reached out to Minister Wilkinson to set up a time to discuss common interests in selective fishing and modernizing gill net use, potentially through a task-team.
- Nov 26th. House of Commons Gill-net Petition. Fraser White Sturgeon recovery is also affected as by-catch in salmon nets. MP Fin Donnelly supported a petition and as of Nov 26th it was certified for presentation to the House as early as this same week.

We, the undersigned, citizens of Canada, call upon the Government of Canada to:

1. Encourage, implement and promote alternative sustainable salmon harvesting techniques that will reduce impact on salmon stocks of concern, and reduce and eliminate sturgeon by-catch and their subsequent physical damage and mortality;

2. Provide funding to research and implement sustainable fish harvesting technologies, such as fish wheels, fish traps, and fish-safe seines;

3. Adopt policies and regulations that require gill nets to be fully attended and monitored during entire gill net soak time, while this transition phase of implementation will take time; and

4. Ban all night-time gill net use.

From:	Kerr-Upal, Manjit ENV:EX
To:	Dale, Alec R ENV:EX; Travia, David V AGRI:EX; Davis, Jennifer C FLNR:EX; Zimmerman, Ted FLNR:EX
Cc:	Witt, Andy FLNR:EX; Paquin, Lisa C ENV:EX
Subject:	MINSteelhead DN_Dec11
Date:	Tuesday, December 11, 2018 18:20:21
Attachments:	MINSteelhead DN_Dec11.docx
Importance:	High

Please find attached my initial draft note in preparation for our ADM meeting (should it happen!).
I will take a cut at the letter to Minister of ECCC tomorrow.
Can you let me know if there is anything problematic in this note (tone or content) sometime Wednesday am? Improvements always welcome.
Manjit

MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE STRATEGY
INFORMATION NOTE

Date: December 11, 2018
File:
CLIFF:

PREPARED FOR:
ADM Jennifer McGuire, ENV Environment Sustainability and Strategic Policy
ADM Tom Ethier, FLNRO Resource Stewardship Division
ADM James Mack, AGR Agriculture Science and Policy
ADM Paul Rasmussen, FLRNO Regional Operations Division

ISSUE: Path forward to inform federal decisions to protect Chilcotin and Thompson River populations of Steelhead Trout

BACKGROUND:

- COSEWIC conducted an emergency assessment of the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. In February 2018, both DUs were assessed by COSEWIC as Endangered. COSEWIC concluded that "*the unprecedented decline of TRS and CRS owing to bycatch in commercial fisheries for Pacific salmon and poor ocean survival poses a serious and imminent threat to their survival. The high levels of fisheries bycatch mortality are of particular concern in the context of persistently poor ocean survival.*"
- ENV, FLNRO and AGRI staff are working collaboratively to engage directly with DFO senior management and technical staff in developing the RPA. Scientists from ENV and FLNRO have been working closely with federal and external experts to ensure the science advice informing any ministerial decision is universally supported. The process of engagement in support of this modified Recovery Potential Assessment (RPA) process, at both the technical and executive level, was based on the principles of openness and transparency.
- The RPA followed the usual DFO CSAS process which results in three deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:
    - Science Advice Document (SAR) – a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants. The DFO SAR is the publicly available document.
    - Research Document (Res Doc) - the document authored by experts (in this case Rob Bison and Josh Korman) that is submitted for the peer-review process. This document received extensive review by the CSAS participants and the three reviewers. The revised version of the document is not yet complete.
    - Proceedings - a public record of the format, discussion, and decisions made in the peer-review meeting, developed by the CSAS Secretariat. The Proceedings are not yet publicly available.
- The team of steelhead science-experts from the Government of BC included Rob Bison (FLNRO), Greg Wilson (ENV), Trevor Davies (FLRNO). Both Canada and BC science staff invested significant time and effort into these collaborations over the last year (since spring 2019), and achieved what some thought was impossible – consensus.
- However, in response to comments or considerations that were not shared as a part of the peer review process, DFO published a summary that differs from the consensus-based bullets, which effectively undermines all that work, relationship progress, and effort on the part of our science community to start finding solutions through some tough conversations.

- In late November, the first of three deliverables associated with DFO's modified RPA process was published. The Science Advisory Report (SAR), which is essentially a summary of the much larger Research Document's findings. The conclusions of the SAR were altered such that the report, as published, downplays the threats associated with salmon fisheries bycatch mortality. The SAR report now concludes that commercial salmon fishing closures will not likely reverse the future declines of steelhead stocks. It also concludes that 'allowable harm **should not be allowed to exceed current levels and** should be reduced to the maximum extent possible" (underlined bold portion is new) giving an impression that the current level of hard is an option, despite continuous decline in both populations (as a result of, amongst other things, known incidental harvest). These changes fundamentally change the conclusions of the joint science-based collaborations.
- As it currently stands, the SAR report summary is not scientifically defensible, not consistent with the soon-to-be published Research Report (or the last version that was submitted by the names authors) and deviates from the debate and consensus reached amongst experts at the CSAS peer-review workshop. There is also a lack of transparency and credibility with the DFO process, that could be interpreted as a bias towards supporting immediate actions to address interception in federally managed fisheries??.

DISCUSSION

- Further to the Information Note sent forward on Dec 5th, 2018, a call with Fisheries and Oceans Canada (DFO) was held on Monday December 10th to discuss the science-based collaborations between staff of both governments. DFO defended their position indicating that the SAR document was a result of a DFO process to inform their Minister. DFO was unwilling to work with BC to amend the SAR document.
- The Province of BC (ENV and FRLNO) has invested decades of effort in the collection of the data and the development of the science should inform the decision of these two DUs.
- The BC science team input is based on published science, specific to these two DUs, and the open debate and consensus of DFO's CSAS process. Fundamentally, it is the opinion of the BC science experts that anything that decreases the survival of a steelhead trout, from its smolt to spawning lifestage, should be avoided. This includes predation, competition in marine environments, and incidental harvest.
- Its important to step back and look at the bigger picture – these two DU are extremely low abundance and as such every fish counts. To put the unique aspects of these DUs in context:
    - There are steelhead stocks that go through the same pinniped gauntlet (predation level) that are not seeing the same declines
    - There are steelhead stocks that are subject to the same marine productivity that are not seeing the same declines
    - There are steelhead stocks that with similar freshwater habitat condition that are not seeing the same declines
    - Rainbow stocks in these watersheds are not seeing the same declines
    - There is evidence to show there is significant under-reporting of steelhead interception in federally managed fisheries

  This would seem to indicate that actions to reduce interception are justified, and could result in greater improvements in productivity than indicated by the authors. As a minimum the conclusions of the BC Science team are solid

- BC's only option to bring forward its science-based work, including the conclusions supported by two of the three authors of the comprehensive Research Document, is to make a submission to the Minister of ECCC directly (basically usurp the DFO process and products). The motivation is to simply ensure that Minister McKenna is accurately informed about science realities underpinning

the Thompson and Chilcotin Steelhead DUs. There is not much time remaining to do this from my understanding, meaning by late December or early January.

- The letter could say that BC has no choice but to submit science information to the Federal Environment Minister unilaterally from DFO.
- The letter could contain the summary bullets on behalf of the science authors and the supporting science document (i.e. the Research Document) could accompany the letter.
- The letter could state that we find ourselves concerned with the misrepresentation of the science advice as contained in the recently published SAR.
- It could also state concern over the process that DFO has undertaken to volunteer other information wrt this important listing decision.

NEXT STEPS:

- ADM meeting
- Send letter from DM ENV to DM ECCC <MUST DRAFT !> on this specific, science issue.
- Discussions on the Government of BC's positing on listing these two DUs, which will need to be articulated in the letter from DM ENV to DM DFO in early January.

Appendices:
Appendix 1: Map of Interior Steelhead Range
Appendix 2: Summary of FLRNO Regulatory Actions in support of protection of Chilcotin and Thompson River populations of Steelhead Trout .

Contact:
Alec Dale Executive Dir
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Alternate Contact:
Jennifer Davis
Director, Aquatic Resources
FLRNO
Phone: 778 679-1198

Prepared by:
Manjit Kerr-Upal, Director
Ecosystems Branch
ENV
Phone: 250 896-2231

Appendix 1: a simple comparison table to understand why there was such a strong response

Two background bullets were pulled, which the BC science team doesn't care about. Changes are highlighted in yellow. Key changes are highlighted in green.

Science Team Consensus Wording	DFO's Wording in the Public Document
This Recovery Potential Assessment (RPA) focuses on two Designatable Units (DU) of Steelhead Trout, the Chilcotin River and Thompson River populations, both of which were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.	This Recovery Potential Assessment (RPA) focuses on the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. Both of these DUs were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.
This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.	~~This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.~~
Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.	~~Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.~~
Given the shortened timelines required for an emergency assessment, this advice will only address a subset of the usual elements required in an RPA. Any outstanding elements will be addressed in the future as the *Species at Risk Act* process continues.	Given the shortened timelines required for an emergency assessment, the advice in this RPA only addresses a subset of the elements required in a full RPA. Outstanding elements will be addressed in the future as the Species at Risk Act processes continue.
The number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 and 77 for the Thompson and Chilcotin Rivers, respectively. The estimated decline of Steelhead Trout spawners over the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.	The estimated number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 for the Thompson DU and 77 for the Chilcotin DU. The estimated decline of Steelhead Trout spawners over the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.
Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition.	Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition. General categories of threats and limiting factors were agreed to, however the rationale and scoring for level of impact, causal certainty, and threat risk had greater uncertainty and will require further input and evaluation.
The recommended distribution target is to retain the present level of occupancy in freshwater habitats, thereby avoiding	Recommended Distribution Target is to retain the

contraction of freshwater range. Five spatial subdivisions within the spawning and juvenile rearing areas of the Thompson DU are recommended and two spatial subdivisions are recommended within the Chilcotin DU.	present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial sub-areas within the spawning and juvenile rearing areas of the Thompson DU, including the main stem are recommended and two spatial subdivisions are recommended within the Chilcotin DU. These distribution targets are consistent with current level of occupancy in freshwater habitats, and are believed to be sufficient to avoiding contraction of freshwater range.
The recommended abundance recovery target for the Thompson Steelhead Trout DU is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year, which is 938 spawners.	Recommended Abundance Recovery Target for Thompson Steelhead Trout DU is 938 spawners. This value, which also meets the distribution target, is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year.
Using a length-standardized requirement of 1.8-2.4 spawners/km, the recommended abundance recovery target for the Chilcotin DU is 562-744 spawners.	Recommended Abundance Recovery Target for Chilcotin Steelhead Trout DU is 562–744 spawners, using a length-standardized requirement of 1.8–2.4 spawners/km. This also meets the distribution target for the Chilcotin DU.
Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	Model simulations suggest increases in future abundances of both DUs are conditional on improvements in natural productivity. Exploitation rate (fishing mortality) reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. ~~If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories~~.However, eliminating exploitation alone will not result in population recovery.
Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	Uncertainties regarding the exploitation rate estimates, unaccounted for fixed rate terminal harvest, and variations in escapement were identified as having the potential to affect the estimated productivity of each population.
	For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time

	periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates. For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10-year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates. Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery ~~The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.~~ and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.

From:	Kerr-Upal, Manjit ENV:EX
To:	Webb, Cheryl
Cc:	Leslie, Karen; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer; Turner, Michael R AGRI:EX; Witt, Andy FLNR:EX; Shepherd, Pippa; Dale, Alec R ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Grout, Jeff; Lowe, Carmel; Kennedy, Eddy
Subject:	Re: Exec team - concerns with documents. Steelhead Emergency Listing
Date:	Monday, December 3, 2018 08:11:48

Thanks Cheryl,

I appreciate this heads up. My major concern is timing as the the modified RPA, from memory, was due to Ottawa in mid December.

We can chat about it later this morning. I did try to provide some insights into our concerns, so you were aware of the specifics. I am hoping that was helpful.

I sincerely understand that the timelines for this work are difficult for everyone involved. My intention is to ensure the science informing the decisions associated with this modified RPA are defensible and benefit from the science-based work our governments have invested in over the past decades.

Looking forward to our discussions later this morning,
Manjit

Sent from my iPhone

On Dec 3, 2018, at 7:50 AM, Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca> wrote:

> Manjit, I recognize the importance of this issue and the need to have a full discussion of the process and outcomes. However, I want to let you know that we are not able to have Science executives available to attend today's this Monday's meeting to speak to this issue. I can confirm that we will have Science managers available to attend the meeting scheduled for December 10.
> Cheryl
> Cheryl Webb
> Regional Director
> Ecosystems Management Branch
> Fisheries and Oceans Canada / Government of Canada
> cheryl.webb@dfo-mpo.gc.ca / Tel: 604-666-6532
> Directrice régionale
> Direction des écosystèmes
> Pêches et Océans Canada / Gouvernement du Canada
> cheryl.webb@dfo-mpo.gc.ca / Tél: 604-666-6532
>
> **From:** Kerr-Upal, Manjit ENV:EX [mailto:Manjit.Kerr-Upal@gov.bc.ca]
> **Sent:** Friday, November 30, 2018 4:48 PM
> **To:** Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>; Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Travia, David V AGRI:EX <David.Travia@gov.bc.ca>;

Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Shepherd, Pippa <Pippa.Shepherd@dfo-mpo.gc.ca>

Cc: Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Wilson, Greg ENV:EX <Greg.Wilson@gov.bc.ca>; Bison, Robert FLNR:EX <Robert.Bison@gov.bc.ca>; Grout, Jeff <Jeff.Grout@dfo-mpo.gc.ca>

Subject: FW: Exec team - concerns with documents. Steelhead Emergency Listing

Good afternoon.

Thank you for the information in the email below. I appreciate it.

In an effort to provide some clarity on where the challenges are from our perspective, I have put together a quick summary of the issue below. We look forward to understanding if there are competing perspectives, why decisions were made on the SAR document, and what the planned next steps are.

Looking forward to Monday!

Manjit

<!--[if !supportLists]-->• <!--[endif]-->COSEWIC conducted an emergency assessment of the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. In February 2018, both DUs were assessed by COSEWIC as Endangered. COSEWIC concluded that "*the unprecedented decline of TRS and CRS owing to bycatch in commercial fisheries for Pacific salmon and poor ocean survival poses a serious and imminent threat to their survival. The high levels of fisheries bycatch mortality are of particular concern in the context of persistently poor ocean survival.*"

<!--[if !supportLists]-->• <!--[endif]-->The estimated number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 for the Thompson DU and 77 for the Chilcotin DU.

<!--[if !supportLists]-->• <!--[endif]-->A team of experts including Rob Bison (Gov't of BC) were engaged on compiling the science-based advice to inform DFO's modified Recovery Potential Assessment (RPA). This was a part of a deliberately-formed Canada-BC executive-level collaboration to respond to COSEWIC's emergency assessment under an accelerated timeline.

<!--[if !supportLists]-->• <!--[endif]-->In late November, the SAR document was published by DFO. It appears that this document's summary findings were altered such that the report, as published, downplays the threats associated with salmon fisheries bycatch mortality. The SAR report now concludes that commercial salmon fishing closures will not likely reverse the future declines of steelhead stocks. This conclusion is inconsistent with the joint Canada-BC science team's agreement on draft content, and is not supported by BC as it is currently written.

<!--[if !supportLists]-->• <!--[endif]-->BC's position is based on published science, specific to these two DUs. Fundamentally, the conclusion is that anything that decreases the survival of a steelhead trout, from its smolt to spawning lifestage, should be avoided. This includes predation, competition in marine environments and incidental harvest.

<!--[if !supportLists]-->▪ <!--[endif]-->Where DFO materially changed the nature of the SAR Summary is in their insertion of the phrase (underlined bold portion) "Allowable harm **should not be allowed to exceed current levels and** should be reduced to the maximum extent possible." This added phrase gives an impression that current level of harm is an option, despite a continuous decline in both DU populations (as a result of, amongst other factors, known incidental harvest).

<!--[if !supportLists]-->▪ <!--[endif]-->To justify this conclusion, DFO changed the focus of the SAR document on the "recovery potential", instead of the expert authors' submission in mid September (including BC's expert) that focused on population growth potential, a necessary precondition to recovery. The 'population growth potential' approach was taken by the authors as it is scientifically defensible, consistent with their Research Document (a requirement imposed by DFO), and the discussions at the CSAS workshop.

<!--[if !supportLists]-->▪ <!--[endif]-->The population growth potential approach is focused on addressing the ongoing population decline, a necessary first step in any emergency population recovery process. The detailed science behind this work is based on published science specific to these two DUs that indicates any assumptions regarding future population projections are viable for the following year, may give an 'idea' within a 3-5 year timeframe, and is not useful to inform projections beyond that timeframe.

<!--[if !supportLists]-->▪ <!--[endif]-->The DFO recovery-target-centric conclusions rely on longer term population projections (40-50 year) which are not scientifically defensible, include assumptions about predator management (which is unlikely in the near term), and are focused on achieving long term, relatively arbitrary, recovery population targets.

<!--[if !supportLists]-->• <!--[endif]-->**A precautionary approach that is scientifically defensible should be used to inform decisions about the RPA of Chilcotin and Thompson Riven Steelhead Trout.**

<!--[if !supportLists]-->• <!--[endif]-->**We do not understand why DFO changed the SAR summary points from those recommended by the science expert identified by the Government of BC, which are consistent with the Research Document. Given the nature of the Canada-BC collaboration, these changes should have been discussed with Government of BC executives, the SME who authored the Research Report and possibly the science community involved in its review.**

<!--[if !supportLists]-->• <!--[endif]-->**As it currently stands, the SAR report summary is not scientifically defensible, not consistent with the soon-to-be published Research Report, and deviates from the opinions expressed at the CSAS workshop.**

From: Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>
Sent: November 29, 2018 9:29 AM
To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Davis, Jennifer C FLNR:EX

<Jennifer.C.Davis@gov.bc.ca>; Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Shepherd, Pippa <Pippa.Shepherd@dfo-mpo.gc.ca>

Cc: Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Wilson, Greg ENV:EX <Greg.Wilson@gov.bc.ca>; Bison, Robert FLNR:EX <Robert.Bison@gov.bc.ca>; Grout, Jeff <Jeff.Grout@dfo-mpo.gc.ca>

Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing

Hi all -

As we have other important agenda items to discuss on Dec 3, including an update on the CBA and next steps to complete the listing package, I recommend we defer this discussion to our next scheduled call on Dec 10, and use that full hour to discuss concerns regarding the RPA. We will coordinate w Science Branch for representation on this call.

In advance of this discussion, I would like to reiterate clarification on the components of the RPA, as there appears to be continuing confusion to these elements.

The RPA follows the usual CSAS process which results in 3 deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:

1. **Science Advice Document (SAR)**
    - this is a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants.
    - ***The DFO SAR is the publicly available document***.
2. **Research Document (Res Doc)**
    - this is the document authored by experts (in this case Rob Bison and Josh Korman) that is submitted for the peer-review process. This document received extensive review by the CSAS participants and the three reviewers, and required substantial revisions. The revised version of the document is not yet complete.
    - ***The Research Document is not yet publicly available***.
3. **Proceedings**
    - this document is developed by the CSAS Secretariat and provides a public record of the format, discussion, and decisions made in the peer-review meeting.
    - ***The Proceedings are not yet publicly available***.

Thank you,

Karen

Karen Leslie

604-666-0395

-----Original Message-----

From: Kerr-Upal, Manjit ENV:EX [mailto:Manjit.Kerr-Upal@gov.bc.ca]

Sent: 2018–November-28 12:54 PM

To: Leslie, Karen; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer; Turner, Michael R AGRI:EX; Webb, Cheryl; Witt, Andy FLNR:EX; Shepherd, Pippa
Cc: Dale, Alec R ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing
I suggest that this a major issue that puts at risk our science-based collaborations on this file. I recommend that we plan to spend a significant portion of our agenda on this issue , specifically to understand what changes were made, why, and given the nature of the changes, why BC was not given a heads up before it went public? In short, decisions were made by DFO that significantly affect the findings of the report without informing BC of these changes (including at least one of the listed authors).
As a follow up to this, for the Research Document that was recently made public, can DFO confirm what changes, if any, were made to the document before publishing (from the last version sent to us for comment)? Given the length of this document, a version in track changes would be helpful.
Sincerely,
Manjit
-----Original Message-----
From: Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>
Sent: November 28, 2018 7:50 AM
To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Shepherd, Pippa <Pippa.Shepherd@dfo-mpo.gc.ca>
Cc: Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Wilson, Greg ENV:EX <Greg.Wilson@gov.bc.ca>; Bison, Robert FLNR:EX <Robert.Bison@gov.bc.ca>
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing
Thanks Manjit, I appreciate your further clarifying the concern regarding the review. We will need to defer to the CSAS process to respond to how comments from the review were incorporated. I will forward your email to the CSAS Secretariat and we will invite them to attend the Dec 3 meeting.
Cheers,
Karen
Karen Leslie
604-666-0395
-----Original Message-----
From: Kerr-Upal, Manjit ENV:EX [mailto:Manjit.Kerr-Upal@gov.bc.ca]
Sent: 2018–November-27 12:57 PM
To: Leslie, Karen; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer;

Turner, Michael R AGRI:EX; Webb, Cheryl; Witt, Andy FLNR:EX; Shepherd, Pippa
Cc: Dale, Alec R ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing
Thanks Karen.
The dates and description of the report's review are correct. My understanding is that BC experts did provide comments and I don't think these comments were reflected in this last version of the document. Of particular concern are the changes made to the threats table between the draft and final version. As it stands now, the published Summary Report contains substantive changes which are not supported by BC scientists.
We have not yet reviewed the recently published Research Document (to see if other changes were made), but will be doing so with the technical team over the course of the next short while.
As mentioned below, I am working with Jennifer and Ted to better articulate the specifics of our concerns. In terms of next steps, I think we should certainly talk about this at our next meeting, if not sooner.
Sincerely,
Manjit

_____

Manjit Kerr-Upal
Director, Conservation Science
Ministry of Environment and Climate Change Strategy
Mail address: PO Box 9338 Stn Pov Gov't, Victoria BC, V8W 9M1 Street address: 525 Superior St (4th Floor), Victoria, BC V8V 1T7
Tel: 250 896-2231
Manjit.Kerr-Upal@gov.bc.ca

-----Original Message-----
From: Leslie, Karen <Karen.Leslie@dfo-mpo.gc.ca>
Sent: November 27, 2018 12:23 PM
To: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Maxwell, Marla <Marla.Maxwell@dfo-mpo.gc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>; Kenyon, Robyn <Robyn.Kenyon@dfo-mpo.gc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Nener, Jennifer <Jennifer.Nener@dfo-mpo.gc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Webb, Cheryl <Cheryl.Webb@dfo-mpo.gc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Shepherd, Pippa <Pippa.Shepherd@dfo-mpo.gc.ca>
Subject: RE: Exec team - concerns with documents. Steelhead Emergency Listing
Hi Jennifer -
Thanks very much for your email. As you note, the SAR component of the RPA is now publicly available. We did discuss some of the concerns you identify below at our last executive call, but are happy to revisit them at our next call on Dec 3 if still required now that you have the document and can see its content.
With respect to process to develop the document, I note the Peer Review participants,

including the province, were given an opportunity to review the draft SAR from Sept 27 through Oct 4 (see attached). There was no additional review opportunity for this process, so I admit I am confused as to what review BC staff believe they missed. Can you clarify further?
Cheers,
Karen
Karen Leslie
604-666-0395
-----Original Message-----
From: Davis, Jennifer C FLNR:EX [mailto:Jennifer.C.Davis@gov.bc.ca]
Sent: 2018–November-27 11:11 AM
To: Travia, David V AGRI:EX; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Neilson, Larry AGRI:EX; Kenyon, Robyn; Zimmerman, Ted FLNR:EX; Nener, Jennifer; Turner, Michael R AGRI:EX; Leslie, Karen; Webb, Cheryl; Witt, Andy FLNR:EX; Shepherd, Pippa
Subject: Exec team - concerns with documents. Steelhead Emergency Listing
Jennifer, Cheryl and the DFO team, good morning. Unfortunately, I need to flag a significant concern that has become high profile for team BC.
The concerns are regarding the documents being released.
While I understand the crazy timelines and pressure the DFO team is under, the recent summary document came as a bit of a surprise. There are significant concerns that the content does not reflect the work of the science team's agreement, and specifically removes key points from the bc perspective. The bc technical leads also indicated they did not review the document, which gets everyone upset with process and transparency.
Manjit, Ted and I are getting our technical team to provide us with further specifics so that we can circle back and discuss.
While we do that, can someone on the DFO team provide us with the version of the science report - that I understand is currently out for translation? I want to assure everyone that the content of that doc didn't change.
We will follow up ASAP, but given the level of concern this has raised again regarding keeping the science protected and transparency, we wanted to give you a heads up.
I'm in meetings all day, but if you want some immediate info, Manjit and I are trying to fast-track this so I suggest you reach out to her. If you want to keep limited circulation if the science report, please feel free to send it just to Manjit and I.
Sincerely,
Jenn
Sent from my iPhone

From: Witt, Andy FLNR:EX
To: Kerr-Upal, Manjit ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Davies, Trevor FLNR:EX; Ramsay, Mike K FLNR:EX; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Paquin, Lisa C ENV:EX
Subject: RE: Follow-up to our teleconference on Steelhead SAR
Date: Wednesday, December 12, 2018 16:26:26

All, Rob has provided that he and his team did the third scenario with Trevor and the final bullets were informed by this third scenario and points made by Trevor.

> Based on his input, a third productivity scenario, which assumes that productivity remains at the last data year's level, was simulated for trajectories of future escapement. In both Chilcotin and Thompson this productivity scenario is less optimistic than the 5 and 10 year averages. Additionally, given that Thompson continues to decline even the terminal year productivity trajectory likely overestimates future productivity given the trend. In the summary bullets, clarification is provided regarding the selection of simulation parameters; and the expected consequences for trajectories. This third scenario was conducted by the authors and Trevor, and it informed the final bullets submitted by the authors. ~~Who did this third productivity scenario? As they were based on input by Trevor Davies was he notified to ensure the results were consistent with his advice? This again goes to lack of transparency and credibitlity of process~~

Andy Witt
Coastal and Aquatic Habitat Manager
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PO Box 9525 STN PROV GOVT
Victoria, B.C.
V8W 9N1
Phone: (778) 974-2414 Cell: (250)213-3849
e-mail: andy.witt@gov.bc.ca

From: Witt, Andy FLNR:EX
Sent: Tuesday, December 11, 2018 1:15 PM
To: Kerr-Upal, Manjit ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Davies, Trevor FLNR:EX; Ramsay, Mike K FLNR:EX; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Paquin, Lisa C ENV:EX
Subject: RE: Follow-up to our teleconference on Steelhead SAR

All:

See my embedded comments.

Ultimately the altered bullets done by unknown DFO staff are inconsistent with the research document , and peer review and input.

There is a lack of transparency and credible process that indicates a potential bias associated with the positive affect that could be realized with immediate actions to address interception in federally managed fisheries.

To be considered:

- There are steelhead stocks that go through the same pinniped gauntlet that are not seeing the same declines
- There are steelhead stocks that are subject to the same marine productivity that are not seeing the same declines
- There are steelhead stocks that with similar freshwater habitat condition that are not seeing the same declines
- Rainbow stocks in these watersheds are not seeing the same declines
- There is evidence to show there is significant underreporting of steelhead interception in federally managed fisheries

This would seem to indicated that actions to reduce interception are justified, and could result in greater improvements in productivity than indicated by the authors. As a minimum the conclusions of the authors and Trevor are solid.

Cheers

Andy Witt
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Phone: (778) 974-2414 Cell: (250)213-3849
e-mail: andy.witt@gov.bc.ca

From: Kerr-Upal, Manjit ENV:EX
Sent: Monday, December 10, 2018 5:18 PM
To: Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Davies, Trevor FLNR:EX
Cc: Davis, Jennifer C FLNR:EX; Witt, Andy FLNR:EX; Travia, David V AGRI:EX; Paquin, Lisa C ENV:EX
Subject: Fwd: Follow-up to our teleconference on Steelhead SAR

I would appreciate you insights into the rationale provided in the email below.

Manjit

Sent from my iPhone

Begin forwarded message:

> **From:** Lowe, Carmel [mailto:Carmel.Lowe@dfo-mpo.gc.ca]
> **Sent:** Monday, December 10, 2018 5:11 PM
> **To:** Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; michael.Turner@gov.bc.ca
> **Cc:** Grout, Jeff; Candy, John; Kennedy, Eddy; Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Maxwell, Marla; MacDougall, Lesley
> **Subject:** Follow-up to our teleconference on Steelhead SAR
>
> Hello Jennifer and fellow BC colleagues,
>
> Following up on our conversation this morning I wanted to provide you with two pieces of information related to concerns you raised. The first relates to the general process for development of a CSAS Science Advisory Report (SAR), and the second describes the rationale for the

changes to the wording of the two summary bullets that you identified as of highest concern for the province.

1. The general process regarding the development of a CSAS SAR:
   - A draft SAR, developed based on the discussion throughout the peer review, is provided to participants for *initial* review and discussion at the peer review meeting.
   - Summary bullets, which reflect the key issues, results, uncertainties, conclusions, and recommendations, are drafted during the peer review. Participants are reminded that they will not be wordsmithing during the meeting, but that the goal is to come to consensus on the general INTENT of a bullet. The authors generated the summary bullets were generated following input from the peer review meeting. The bullets that were altered were these. What I heard at the meeting supported the bullets that were drafted at the meeting.
   - The draft SAR, with the draft bullets, are then circulated to ALL participants of the peer review for a more fulsome review of the draft and opportunity to provide edits. The authors then drafted the bullets following this input.
   - The Chair then receives all written edits from the circulated SAR, and incorporates submitted edits to finalize the SAR. Invariably, this WILL RESULT IN changes to the bullets (and other parts of the SAR) that were reviewed during the meeting. The bullets submitted by the authors incorporated all the input from the peer review. Was there additional changes made at this point? This again goes again to the lack of transparency.
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   - The approved SAR is then translated into both official languages, and submitted to the National CSAS office for publication, and public posting on the website.

   For the Steelhead RPA this general process was followed and a draft SAR was developed and shared at the peer review meeting, then distributed via email to participants for review, and based on the feedback received it was finalized. It was revised by the authors after the meeting following peer review and input. Changes were made subsequent to that. Who directed those changes and why? It would be expected in any credible process that any alteration to conclusions and recommendations made by the authors considering peer review and input the authors would be notified and changes discussed to ensure they are accurate.

2. For the two bullets/issues of concern:

	Wording - Initial draft	Wording - Approved version	Rationale for wording change
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. **If productivities improve slightly to the recent 5 or 10 year levels,** simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates.	"IF PRODUCTIVITIES IMPROVE SLIGHTLY" – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvements (e.g. doubling). See notes below. The authors crafted the wording to specifically make their conclusions (supported by peer review) that changes to exploitation provide a potential for a positive recovery trajectory.
#1	Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.	IF PRODUCTIVITIES IMPROVE SLIGHTLY – was determined to be misleading, in that the 'current productivity' level was already an improvement (due to being a 5 year average) relative to latest year of data. The decision was to be clearer about consequence of 'terminal year' productivity, and then provide consequences of empirical improvement s(e.g. doubling). See notes below. The authors crafted the wording to specifically make their conclusions (supported by peer review) that changes to exploitation provide a potential for a positive recovery trajectory
#2	Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will	Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will	The new language was deemed to be stronger – as 'lowest possible harm' could be interpreted as a level higher than current harm.

	inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	inhibit or delay potential recovery and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.	

Note: changes to #1 were based, in part, on input provided by Trevor Davies (BC) who pointed to the need to clarify the ambiguity associated with 'present' productivity and 'improved slightly'.

Based on his input, a third productivity scenario, which assumes that productivity remains at the last data year's level, was simulated for trajectories of future escapement. In both Chilcotin and Thompson this productivity scenario is less optimistic than the 5 and 10 year averages. Additionally, given that Thompson continues to decline even the terminal year productivity trajectory likely overestimates future productivity given the trend. In the summary bullets, clarification is provided regarding the selection of simulation parameters: and the expected consequences for trajectories. This third scenario was conducted by the authors and Trevor, and it informed the final bullets submitted by the authors. ~~Who did this third productivity scenario? As they were based on input by Trevor Davies was he notified to ensure the results were consistent with his advice? This again goes to lack of transparency and credibitlity of process~~

It was clarified that for the Thompson DU, recovery is not expected at current productivity, regardless of exploitation rate. Elimination of exploitation rate alone will not result in population recovery. This stems from a discussion during the peer review meeting, brought up by Trevor Davies (BC) that what the authors were referring to as 'current level of productivity' was actually an average of the previous 5 years and was by consequence already a higher productivity than terminal year. Here is what the research paper says and what the points drafted by the authors based on peer review and input:

Allowable Harm Assessment

Element 22: Evaluate maximum human-induced mortality and habitat destruction that the species can sustain without jeopardizing its survival or recovery.

In the absence of productivity improvement, simulations indicate that the only way to potentially stop the continued decline in spawning populations for the Thompson Steelhead Trout DU is to substantively reduce all losses from salmon fisheries and directed sport fisheries. The benefits of reductions in exploitation rate depend on the future productivity scenario. If productivity remains at the most recent estimates (~one or < one recruit/spawner) the population will decline even in the absence of harvest. Reducing exploitation rate under this scenario will slow the rate of decline, but achieving positive population growth or the recovery target will not be possible (Figs. 12,13). However under other scenarios that assume productivity in the future will be higher than the most recent available estimates, reducing exploitation rate results in substantive improvements in recovery potential (Figs. 12,13).

Declines in productivity of Thompson and Chilcotin DUs potentially caused by high abundance of pinnipeds and increases in competition on a cyclical or potentially shifting offshore food supply, are partially human-induced mortality effects resulting from the marine mammal protection acts in the US and Canada1 that led to elimination of commercial harvesting and predator control programs in British Columbia (Olesiuk 2010), and hatchery production of salmon, respectively. Historical Pinniped abundance prior to modern commercial harvesting and culls is unknown, but it is possible that it was lower than it is today due to First Nations harvest, a lesser degree of unintended habitat enhancement (log booms, marinas, fish hatcheries, etc.), and higher rates of predation from transient Orcas. Alternatively, current Harbour Seal abundance may be similar to historical levels, but their current predation rate on Steelhead Trout and salmon populations may be much greater than it was historically due to the current lower abundance of steelhead and salmon relative to historic levels, given that Harbour Seals derive the majority of their diet from prey items other than Steelhead Trout and salmon, with the result that their abundance is relatively insensitive to abundance of the latter. Reducing Harbour Seal abundance by a targeted harvest or culling program provides a means of restoring the natural impact of these predators on Steelhead Trout and salmon populations. Reduced Harbour Seal abundance in the Strait of Georgia may have negative effects on transient Orcas that prey on seals, but may provide benefits to endangered resident Orcas that feed on Chinook Salmon that are preyed upon by seals.

Our simulation results and supporting information suggest that a reduction in the Harbour Seal population of ~50% could dramatically improve the recovery potential of Thompson and Chilcotin Steelhead Trout DUs. The time frame over which such a reduction in the Harbour Seal population might occur through natural processes (e.g., through increased predation on seals from an expanding transient Orca population) was not examined in this assessment, but it is undoubtedly much longer than what could be achieved through a targeted reduction effort. Our results also suggest that reducing the abundance of enhanced Pink, Chum, and Sockeye Salmon populations in the North Pacific would also help recover Thompson and Chilcotin DUs. However the likelihood that this could be effected at the necessary international scale is considered to be extremely low. In the absence of management actions or natural processes reducing predation or competition, reducing exploitation is the only remaining option for improving the recovery potential of Thompson and Chilcotin Steelhead Trout populations.

The altered bullets done by unknown DFO staff are inconsistent with this component of the research document, and peer review and input. There is a lack of transparency and credible process that indicates a potential bias associated with the positive affect that could be realized with immediate actions to address interception in federally managed fisheries

Regards

Carmel

Carmel Lowe, Ph.D.
Regional Director Science | Directrice régionale des sciences

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Pacific Biological Station | Station biologique du Pacifique
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Carmel.Lowe@dfo-mpo.gc.ca
Telephone | Téléphone 250-756-7177
Facsimile | Télécopieur 250-729-8360
Government of Canada | Gouvernement du Canada

From: Witt, Andy FLNR:EX
To: Kerr-Upal, Manjit ENV:EX; Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Davies, Trevor FLNR:EX; Ramsay, Mike K FLNR:EX; Davis, Jennifer C FLNR:EX; Travia, David V AGRI:EX; Paquin, Lisa C ENV:EX
Subject: RE: Follow-up to our teleconference on Steelhead SAR
Date: Tuesday, December 11, 2018 13:15:07

All:
See my embedded comments.
Ultimately the altered bullets done by unknown DFO staff are inconsistent with the research document , and peer review and input.
There is a lack of transparency and credible process that indicates a potential bias associated with the positive affect that could be realized with immediate actions to address interception in federally managed fisheries.
To be considered:

- There are steelhead stocks that go through the same pinniped gauntlet that are not seeing the same declines
- There are steelhead stocks that are subject to the same marine productivity that are not seeing the same declines
- There are steelhead stocks that with similar freshwater habitat condition that are not seeing the same declines
- Rainbow stocks in these watersheds are not seeing the same declines
- There is evidence to show there is significant underreporting of steelhead interception in federally managed fisheries

This would seem to indicated that actions to reduce interception are justified, and could result in greater improvements in productivity than indicated by the authors. As a minimum the conclusions of the authors and Trevor are solid.
Cheers

Andy Witt
Coastal and Aquatic Habitat Manager
Fish and Aquatic Habitat Branch
4th Floor, 2975 Jutland Rd
PO Box 9525 STN PROV GOVT
Victoria, B.C.
V8W 9N1
Phone: (778) 974-2414 Cell: (250)213-3849
e-mail: andy.witt@gov.bc.ca

From: Kerr-Upal, Manjit ENV:EX
Sent: Monday, December 10, 2018 5:18 PM
To: Wilson, Greg ENV:EX; Bison, Robert FLNR:EX; Davies, Trevor FLNR:EX
Cc: Davis, Jennifer C FLNR:EX; Witt, Andy FLNR:EX; Travia, David V AGRI:EX; Paquin, Lisa C ENV:EX
Subject: Fwd: Follow-up to our teleconference on Steelhead SAR
I would appreciate you insights into the rationale provided in the email below.
Manjit

Sent from my iPhone

Begin forwarded message:

> **From:** Lowe, Carmel [mailto:Carmel.Lowe@dfo-mpo.gc.ca]
> **Sent:** Monday, December 10, 2018 5:11 PM
> **To:** Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; michael.Turner@gov.bc.ca
> **Cc:** Grout, Jeff; Candy, John; Kennedy, Eddy; Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Maxwell, Marla; MacDougall, Lesley
> **Subject:** Follow-up to our teleconference on Steelhead SAR
> Hello Jennifer and fellow BC colleagues,
> Following up on our conversation this morning I wanted to provide you with two pieces of information related to concerns you raised. The first relates to the general process for development of a CSAS Science Advisory Report (SAR), and the second describes the rationale for the changes to the wording of the two summary bullets that you identified as of highest concern for the province.
>
> 1. The general process regarding the development of a CSAS SAR:
>
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> - Summary bullets, which reflect the key issues, results, uncertainties, conclusions, and recommendations, are drafted during the peer review. Participants are reminded that they will not be wordsmithing during the meeting, but that the goal is to come to consensus on the general INTENT of a bullet. The authors generated the summary bullets were generated following input from the peer review meeting. The bullets that were altered were these. What I heard at the meeting supported the bullets that were drafted at the meeting.
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The altered bullets done by unknown DFO staff are inconsistent with this component of the research document, and peer review and input. There is a lack of transparency and credible process that indicates a potential bias associated with the positive affect that could be realized with immediate actions to address interception in federally managed fisheries

Regards

Carmel

Carmel Lowe, Ph.D.
Regional Director Science | Directrice régionale des sciences
Fisheries and Oceans Canada | Pêches et Océans Canada
Pacific Biological Station | Station biologique du Pacifique
3190 Hammond Bay Rd, Nanaimo, BC, Canada V9T 6N7
Carmel.Lowe@dfo-mpo.gc.ca
Telephone | Téléphone 250-756-7177
Facsimile | Télécopieur 250-729-8360
Government of Canada | Gouvernement du Canada

From:	Witt, Andy FLNR:EX
To:	Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX
Cc:	Travia, David V AGRI:EX; Zimmerman, Ted FLNR:EX; Paquin, Lisa C ENV:EX
Subject:	RE: Next steps on Steelhead
Date:	Monday, December 10, 2018 14:30:03

I think we have a SARSC discussion immediately
I would emphasize that the changes made to the SAR fundamentally changed the recommendations, the authors and BC reps at the CSAS meeting did not hear any input from the peer reviewers to indicate there was this fundamental disagreement, DFO apparently did receive input from unknown reviewers that lead them accept those over the science authors and despite concerns from BC will not make changes.
A

_____
Andy Witt
Coastal and Aquatic Habitat Manager
Fish and Aquatic Habitat Branch
4th Floor, 2975 Jutland Rd
PO Box 9525 STN PROV GOVT
Victoria, B.C.
V8W 9N1
Phone: (778) 974-2414 Cell: (250)213-3849
e-mail: andy.witt@gov.bc.ca
_____

-----Original Message-----
From: Davis, Jennifer C FLNR:EX
Sent: Monday, December 10, 2018 2:25 PM
To: Kerr-Upal, Manjit ENV:EX
Cc: Travia, David V AGRI:EX; Zimmerman, Ted FLNR:EX; Paquin, Lisa C ENV:EX; Witt, Andy FLNR:EX
Subject: Re: Next steps on Steelhead

I may be in transit but will do my best to patch in.

When is the next SARSC mtg? Or could we ask for an emergency one (that includes James Mack)?

J

Sent from my iPhone

> On Dec 10, 2018, at 1:55 PM, Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca> wrote:
>
> Adjusting time to see if others can join …
>
> _____
>
> I wanted to follow up on our discussion with DFO this morning regrading our path forward on this, as I think whatever we do, all three ministries need to be on board.
>
> My quick summary:
>
> * DFO is not changing their SAR, which as it currently stands is not supported by Canada-BC science collaborations.
> * Our ADMs have been briefed that the challenge exists, however the path forward is TBD;
> * Options:

> * Full tools down (I personally don't recommend this option, but it is an option)
> * FLNRO Minster meeting with DFO Minister on this;
> * ENV DM received letter from DFO DM on the listing decision; and/or
> * SARSC member meeting (ADM level governance that includes DFO, Parks, ECCC, FLRNO and ENV) to discuss path forward
> * Something else?
>
>
> Manjit to action immediately: Find out when an immanent decision is set to be made by ECCC (before or after Christmas?)
>
> .....
> --> Join Skype Meeting<https://unite.gov.bc.ca/gov/meet/manjit.kerr-upal/R7H2Q046>
> Trouble Joining? Try Skype Web App<https://unite.gov.bc.ca/gov/meet/manjit.kerr-upal/R7H2Q046?sl=1>
> Join by phone
>
> Local - Victoria: +1 (250) 952-9304,s.15 (BC, Canada) English (United States)
> Local - Vancouver: +1 (604) 398-9304,s.15 (BC, Canada) English (United States)
> Toll-Free: +1 (888) 952-9304,,s.15 (BC, Canada) English (United States)
>
> Find a local number<https://unite.gov.bc.ca/dialin?id=704238>
>
> Conference ID: s.15
> Forgot your dial-in PIN?<https://unite.gov.bc.ca/dialin>
|Help<https://o15.officeredir.microsoft.com/r/rlidLync15?clid=1033&p1=5&p2=2009>
>
> [!OC([1033])!]
> .....
>
> <meeting.ics>

From:	Kenyon, Robyn
To:	Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX
Cc:	Turner, Michael R AGRI:EX; Grout, Jeff; Candy, John; Lowe, Carmel; Kennedy, Eddy
Subject:	RE: Steelhead Emergency Listing - Fed/Prov Executive Committee - AGENDA
Date:	Tuesday, December 11, 2018 10:23:48

Good morning,

Please see our action items from yesterday's call. I will be cancelling the Jan. 7 call due to a scheduling conflict - apologies for the inconvenience.

December 10 Action Items:

- **Action:** Committee members to weigh in by Dec. 21 on proposal to provide Steelhead emergency listing process updates in 2019 via Fed/Prov Exec Cmttee for White Sturgeon (as listing package will have left region Dec. 31)
- **Action Carried Over:** Fed-Prov consultation meeting to be scheduled by DFO in new year focused on lessons learned
- **Action Carried Over:** BC (via Andy Witt) to indicate how long BC requires for CBA review (draft CBA shared Dec. 6)

Thank you,

Robyn

-----Original Appointment-----

From: Kenyon, Robyn

Sent: Monday, June 25, 2018 4:23 PM

To: Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Davis, Jennifer C FLNR:EX; 'Kerr-Upal, Manjit ENV:EX'; Maxwell, Marla; Ted.Zimmerman@gov.bc.ca; david.travia@gov.bc.ca; Witt, Andy FLNR:EX; 'Larry.Neilson@gov.bc.ca' (Larry.Neilson@gov.bc.ca)

Cc: 'Turner, Michael R AGRI:EX'; AGRI IGRS/FPT Events AGRI:EX; Grout, Jeff; Candy, John; Carmel Lowe; Kennedy, Eddy

Subject: Steelhead Emergency Listing - Fed/Prov Executive Committee - AGENDA

When: Monday, December 10, 2018 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: Conference Call: 1-877-413-4781 Conf ID: s.15 (DFO CONF Vancouver-401BurrardSt-14-Fraser CONF MPO)

Please let me know if you are able to attend and if there are any agenda items you would like to put forward.

As requested, the Regional Director of DFO's Science Branch (Carmel Lowe) and Division Head (Eddy Kennedy) will attend to discuss the recovery potential assessment (RPA) and the Canadian Science Advisory Secretariat (CSAS).

Draft Agenda for December 10:

1) Review of last meeting's Action Items

2) **Overview of CSAS process**
   - Structure and role of Science Branch w/in department, and structure and role of CSAS
   - Process to develop Science advice, including for Steelhead RPA
   - Status update on Steelhead RPA components, specifically ResDoc finalization

3) **BC's content and process concerns**
   - Provide opportunity for BC to reiterate their concerns regarding content and process
   - Provide feedback on how BC comments were considered in SAR development and finalization

4) **Looking ahead/next steps**
   - Timelines/process to finalize ResDoc

- Emergency Listing Process Next Steps

5) Steelhead Emergency Listing Process Updates in 2019

December 3 Action Items:

- **Action:** Fed-Prov consultation meeting to be scheduled by DFO in new year focused on lessons learned
- **Action:** DFO to track DM to DM letter regarding BC's position on listing
- **Action:** DFO to follow-up on BC request to withdraw RPA SAR
- **Action:** DFO (J. Sidhu) to share draft CBA with BC for review
- **Action:** BC (via Andy Witt) to indicate how long BC requires for CBA review

Thank you,

Robyn Kenyon
A/ Team Lead - Salmon | Chef d'équipe par intérim – saumon
Species at Risk | Espèces en péril
Fisheries Management | Direction des pêches
Department of Fisheries and Oceans | Pêches et Océans Canada
200-401 Burrard Street | 401, rue Burrard, bureau 200
Vancouver, BC | C.-B. V6C 3S4
Phone | téléphone: (604) 666-2074
Robyn.Kenyon@dfo-mpo.gc.ca

From:	Kerr-Upal, Manjit ENV:EX
To:	Travia, David V AGRI:EX; Neilson, Larry AGRI:EX; Davis, Jennifer C FLNR:EX
Cc:	Witt, Andy FLNR:EX; Zimmerman, Ted FLNR:EX; Turner, Michael R AGRI:EX
Subject:	RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
Date:	Wednesday, December 5, 2018 13:26:39
Attachments:	MINSteelhead BN_Dec5.docx

Awesome. Let's all send this forward.

Here in ENV, its going up now.
Manjit

From: Travia, David V AGRI:EX
Sent: December 5, 2018 12:32 PM
To: Kerr-Upal, Manjit ENV:EX ; Neilson, Larry AGRI:EX ; Davis, Jennifer C FLNR:EX
Cc: Witt, Andy FLNR:EX ; Zimmerman, Ted FLNR:EX ; Turner, Michael R AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
Hi Manjit,
Reads well to me – thanks again for the opportunity to review and provide comment. One very minor change tracked in the attached to ensure the exec committee is named consistently for clarity.

From: Kerr-Upal, Manjit ENV:EX
Sent: Wednesday, December 5, 2018 11:58 AM
To: Travia, David V AGRI:EX; Neilson, Larry AGRI:EX; Davis, Jennifer C FLNR:EX
Cc: Witt, Andy FLNR:EX; Zimmerman, Ted FLNR:EX; Turner, Michael R AGRI:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
David
I've taken a crack at addressing your comments. Can you see if this current version works?

- I did not change mentions of COSEWIC (and DFO's) concerns re: freshwater habitat (in addition to bycatch) as that aspect was not changed in the SAR report. The report changed only references to bycatch. I included mention of freshwater habitat quality for completeness sake, in the background. Was there somewhere in particular you thought I should include this later in the note?
- I adjusted the last two paragraphs, to try and respond to your comments (continuity with next steps portion and tone). Let me know.

I'd like to move this up… supportive?
Thanks!
Manjit

From: Travia, David V AGRI:EX
Sent: December 5, 2018 10:48 AM
To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>
Cc: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee
Hi Manjit,
Please find some comments/suggestions in the attached. Thanks for the opportunity to review.

Best,
David

David Travia, MPA
Director | Intergovernmental Relations, Trade and BC Seafood Secretariat
Corporate Governance, Policy and Legislation Branch | Ministry of Agriculture
Ph: 778 974-3764

From: Kerr-Upal, Manjit ENV:EX
Sent: Wednesday, December 5, 2018 10:18 AM
To: Travia, David V AGRI:EX; Neilson, Larry AGRI:EX
Cc: Davis, Jennifer C FLNR:EX; Witt, Andy FLNR:EX; Zimmerman, Ted FLNR:EX
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

David/Michael
I'm just wondering on your thoughts on this note. I'd like to put it forward ASAP, but wanted to know if you had any comments first?
Thanks!
Manjit

From: Kerr-Upal, Manjit ENV:EX
Sent: December 4, 2018 4:20 PM
To: Travia, David V AGRI:EX <David.Travia@gov.bc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>
Cc: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>; Wilson, Greg ENV:EX <Greg.Wilson@gov.bc.ca>
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Here is the DRAFT IN. I have had it reviewed by FLNRO Branch, Region and ENV.
AGR content and comments welcome.
Possible to respond tomorrow am as I'd like to move this up. It essentially brings our ADMs up to speed on current status.
Manjit

From: Travia, David V AGRI:EX
Sent: December 4, 2018 11:39 AM
To: Kerr-Upal, Manjit ENV:EX <Manjit.Kerr-Upal@gov.bc.ca>; Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca>
Cc: Davis, Jennifer C FLNR:EX <Jennifer.C.Davis@gov.bc.ca>; Dale, Alec R ENV:EX <Alec.Dale@gov.bc.ca>; Witt, Andy FLNR:EX <Andy.Witt@gov.bc.ca>; Turner, Michael R AGRI:EX <Michael.R.Turner@gov.bc.ca>; Zimmerman, Ted FLNR:EX <Ted.Zimmerman@gov.bc.ca>
Subject: RE: Steelhead Emergency Listing - Fed/Prov Executive Committee

Thanks Manjit,
It would be great to have an IN to bring all the ADMs up to speed on this. As we've seen recently with the work going on between our agencies on Indigenous Reconciliation, aquaculture in the Broughton, and wild salmon, it is always helpful to have all the NRS ADMs engaged. Looking forward to the IN.
David

From: Kerr-Upal, Manjit ENV:EX
Sent: Monday, December 3, 2018 7:42 PM

To: Neilson, Larry AGRI:EX
Cc: Travia, David V AGRI:EX; Davis, Jennifer C FLNR:EX; Dale, Alec R ENV:EX; Witt, Andy FLNR:EX; Turner, Michael R AGRI:EX; Zimmerman, Ted FLNR:EX
Subject: Re: Steelhead Emergency Listing - Fed/Prov Executive Committee

You are correct Larry.
I have drafted a IN for ADMs on the science situation. I was waiting for this am before finalizing it
Let's talk tomorrow... happy to share as I think Flnro chain has been briefed, here at env it's a verbal briefing to adm only ... this IN was to go up tomorrow
Manjit
Sent from my iPhone

On Dec 3, 2018, at 11:07 AM, Neilson, Larry AGRI:EX <Larry.Neilson@gov.bc.ca> wrote:

> Quick question folks...I recall that Alec Dale will coordinate the DM to DM letter correct? As per usual for a SARA list. We really will need a full government of BC view on this. Perhaps an NRS ADM Briefing note?
> Cheers, Larry
> -----Original Appointment-----
> **From:** Kenyon, Robyn [mailto:Robyn.Kenyon@dfo-mpo.gc.ca]
> **Sent:** Friday, July 13, 2018 3:50 PM
> **To:** Kenyon, Robyn; Nener, Jennifer; Webb, Cheryl; Leslie, Karen; Davis, Jennifer C FLNR:EX; Kerr-Upal, Manjit ENV:EX; Maxwell, Marla; Zimmerman, Ted FLNR:EX; Travia, David V AGRI:EX; Witt, Andy FLNR:EX; Neilson, Larry AGRI:EX; Grout, Jeff
> **Cc:** Turner, Michael R AGRI:EX; AGRI IGRS/FPT Events AGRI:EX; Sidhu, Jas; Mahaux, Patrick
> **Subject:** Steelhead Emergency Listing - Fed/Prov Executive Committee
> **When:** Monday, December 3, 2018 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
> **Where:** Conference Call: 1-877-413-4781 Conf ID:s.15 (Tentative: DFO CONF Vancouver-401BurrardSt-14-Fraser CONF MPO)
> Please let me know if you are able to attend and if there are any agenda items you would like to put forward.
>
> **Draft Agenda for December 3:**
>
> 1. Review of last meeting's Action Items
> 2. Update on Process and Timeline
> - Recovery Potential Assessment
> - DM-DM Letter: BC Position on Listing
> 3. Consultations
> - Feedback to date
> 4. Standing Items (updates if available)
> - DFO Sustainable Fisheries Resource Advisory Council
> - BC Wild Salmon Advisory Council
> 5. Meeting Schedule
>
> **October 29 Action Items:**
>
> - **Action Carried Over:** BC (via Andy Witt) to identify staff to participate in consultations and provide names to DFO (Robyn Kenyon / Peter Hall) by Oct. 4
> - **Action:** Update on CBA at next meeting
> - **Action:** Meeting schedule to be decided on for remaining meetings
> - **Action:** BC to identify concerns with RPA to CSAS
>
> Thank you,

Robyn Kenyon
A/ Team Lead - Salmon | Chef d'équipe par intérim – saumon
Species at Risk | Espèces en péril
Fisheries Management | Direction des pêches
Department of Fisheries and Oceans | Pêches et Océans Canada
200-401 Burrard Street | 401, rue Burrard, bureau 200
Vancouver, BC | C.-B. V6C 3S4
Phone | téléphone: (604) 666-2074
Robyn.Kenyon@dfo-mpo.gc.ca

From: Mack, James AGRI:EX
To: Travia, David V AGRI:EX
Cc: Neilson, Larry AGRI:EX; Turner, Michael R AGRI:EX; Romanin, Kevin AGRI:EX
Subject: Re: Update on Steelhead
Date: Monday, December 10, 2018 15:18:26

I think a discussion would be a good idea.

Thanks for the update

Sent from my iPhone

On Dec 10, 2018, at 5:56 PM, Travia, David V AGRI:EX <David.Travia@gov.bc.ca> wrote:

> James:
> The information below and attached is FYI to apprise you of some issues around steelhead. The attached BN highlights disagreements between BC science staff (FLNR & ENV) and DFO in what was included in a final Science Advice Document (SAR), that has now been made public.
>
> <!--[if !supportLists]-->● <!--[endif]-->The SAR is part of a broader Recovery Potential Assessment (RPA) being led by DFO.
>
> <!--[if !supportLists]-->● <!--[endif]-->The RPA follows the usual process outlined by the Canadian Science Advisory Secretariat (CSAS), which results in 3 deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:
>
> <!--[if !supportLists]-->1. <!--[endif]-->**Science Advice Document (SAR)**: this is a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants.
>
> <!--[if !supportLists]-->2. <!--[endif]-->**Research Document:** this document is authored by experts and is submitted for the peer-review process. This document is not yet public.
>
> <!--[if !supportLists]-->3. <!--[endif]-->**Proceedings**: this document is developed by the CSAS Secretariat and provides a public record of the format, discussion, and decisions made in the peer-review meeting. The Proceedings are not yet publicly available.
>
> <!--[if !supportLists]-->● <!--[endif]-->The ENV and FLNR concerns center on the content of the final published SAR being different from what they had provided.
>
> - This issue was discussed on a call today that included DFO Science staff (DG Carmel Lowe and others).
> - It became clear on the call that FLNR and ENV may not have completely understood the RPA process when going into it. Specifically, that BC science staff were just a single contributor in a multi-stakeholder forum that considers diverse perspectives from academia, First Nations, NGOs, Industry, etc. Instead, ENV and FLNR appear to see the process as bilateral.
> - FLNR and ENV have officially requested DFO remove the public document and

have continued to highlight issues of trust between DFO and BC science staff. They also noted that they may stand down from the process.

- DFO Science have committed to ensuring the views of ENV and FLNR scientists will be represented in the Proceedings document. They have clarified that the Province is free to differ from the views of DFO, as presented in the SAR, and brief up accordingly.

s.16

- ENV is considering bringing you, Jennifer and Tom together to discuss.

David Travia, MPA
Director | Intergovernmental Relations, Trade and BC Seafood Secretariat
Corporate Governance, Policy and Legislation Branch | Ministry of Agriculture
Ph: 778 974-3764

SUMMARY

• This Recovery Potential Assessment (RPA) focuses on the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. Both of these DUs were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.

• The estimated number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 for the Thompson DU and 77 for the Chilcotin DU. The estimated decline of Steelhead Trout spawners over the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.

• Given the shortened timelines required for an emergency assessment, the advice in this RPA only addresses a subset of the elements required in a full RPA. Outstanding elements will be addressed in the future as the Species at Risk Act processes continue.

• Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition. General categories of threats and limiting factors were agreed to, however the rationale and scoring for level of impact, causal certainty, and threat risk had greater uncertainty and will require further input and evaluation.

• Recommended Distribution Target is to retain the present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial sub-areas within the spawning and juvenile rearing areas of the Thompson DU, including the main stem are recommended and two spatial subdivisions are recommended within the Chilcotin DU. These distribution targets are consistent with current level of occupancy in freshwater habitats, and are believed to be sufficient to avoiding contraction of freshwater range.

• Recommended Abundance Recovery Target for Thompson Steelhead Trout DU is 938 spawners. This value, which also meets the distribution target, is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year.

• Recommended Abundance Recovery Target for Chilcotin Steelhead Trout DU is 562–744 spawners, using a length-standardized requirement of 1.8–2.4 spawners/km. This also meets the distribution target for the Chilcotin DU.

• Model simulations suggest increases in future abundances of both DUs are conditional on improvements in natural productivity. Exploitation rate (fishing mortality) reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. However, eliminating exploitation alone will not result in population recovery.

• Uncertainties regarding the exploitation rate estimates, unaccounted for fixed rate terminal harvest, and variations in escapement were identified as having the potential to affect the estimated productivity of each population.

Comment [BRF1]: The order diminishes the importance of the important factors. The research document says that the scientifically supported and important factors are basically three: (1) predation by pinnipeds, (2) competition in offshore marine habitats in the context of the condition of those habitats, (3) fishing.

Comment [BRF2]: This should not be a summary point. These factors, while they exist, are very unlikely to change the basic conclusions. Otherwise, we would have not proceeded with the analysis.

• For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates.

• For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds 39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.

• Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.

Comment [BRF3]: These two points replace a single point drafted by us the authors of the Research Document. That point was as follows:

• . Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.

The big difference here is that the SAR authors switched the focus from Probability of Growth (meaning population growth) to Probability of Recovery. A focus on the latter is not scientifically defensible because assumptions about future productivity based on observations of past productivity are scientifically baseless beyond a 3-5 year future time frame, and all timeframes to recovery exceed 3-5 year and typically require many decades under most scenarios examined. We say this in the Research Document.

We therefore crafted our summary point with a focus on Probability of Growth (population growth) for two reasons. Stemming further decline from the already extremely low numbers is consistent with the apparent urgency of an Emergency RPA. Second, focusing on Probability of Population Growth rather than Probability of Recovery is better science advice because the former is not conditional on the rather arbitrary and so-call "Recovery Targets". A minimum of 100 spawners per freshwater spatial area is a very arbitrary assumption. It is more a choice of simple magnitude to simply try and conserve freshwater habitat occupancy and not much more. Related, these DU's are capable of producing many thousands o ...

Comment [BRF4]: This statement is the vague statement that I think caught our immediate attention. The use of the word "and" creates confusion. It can't be both.

Comment [BRF5]: This sentence diminishes the importance of fishing as a short and medium term conservation lever. Fishing can be controlled immediately whereas "mitigating habitat destruction" and "restoring damaged habitat" cannot be controlled immediately. Also note that this will be misleading for most people because "habitat" implies freshwater habitat. Most people don't think about marine habitat when they say habitat.

Fisheries and Oceans Canada
Pêches et Océans Canada

Deputy Minister
Sous-ministre

DEC 0 7 2018

Mr. Mark Zacharias
Deputy Minister of Environment
Ministry of Environment and Climate Change Strategy
PO Box 9339 Stn Prov Govt
Victoria, BC
V8W 9M1

Ms. Bobbi Plecas
Deputy Minister of Climate Change
Ministry of Environment and Climate Change Strategy
PO Box 9339 Stn Prov Govt
Victoria, BC
V8W 9M1

Dear Mr. Zacharias and Ms. Plecas:

I am writing to you to seek the position of your government with respect to potentially listing two aquatic species on Schedule I of the *Species at Risk Act* (SARA).

These species were assessed on an emergency basis by the Committee on the Status of Endangered Wildlife in Canada and found to be at risk:

- Steelhead Trout (Thompson River) as endangered (2018); and
- Steelhead Trout (Chilcotin River) as endangered (2018).

Following an emergency assessment, the Minister of Environment and Climate Change must form an opinion on whether imminent threat to survival exists. If the Minister is of the opinion there is an imminent threat to one or both populations of Steelhead Trout, she must recommend to Governor in Council (GiC) that the population(s) be listed on an emergency basis. Following such a recommendation, GiC would make a listing decision based on information provided by the Minister, and may consider additional information, such as socio-economic impacts and the results of consultations.

In the event that imminent threat exists, I am requesting that you provide a government-wide position on listing for each Steelhead population by January 18, 2019 to ensure that British Columbia's views can be taken into account by GiC in making a decision on whether or not these species should be added to Schedule I of SARA.

Canada

.../2

Detailed information on these species and the listing process under SARA can be found on the Species at Risk Public Registry (*http://www.sararegistry.gc.ca/*). As well, please contact Rebecca Reid, Regional Director General (Pacific Region) at the following address if you wish to obtain further information: Rebecca Reid, Regional Director General, Fisheries and Oceans Canada, 401 Burrard Street, Suite 200, Vancouver, British Columbia, V6C 3S4, Telephone: 604-666-6098.

Thank you for the Province of British Columbia's continued cooperation as we implement SARA. I look forward to hearing from you on this matter.

Yours sincerely,

Catherine Blewett

cc: SARA.XPAC@dfo-mpo.gc.ca
Rebecca Reid, Regional Director General, Pacific Region, Fisheries and Oceans Canada
Philippe Morel, Assistant Deputy Minister, Aquatic Ecosystems, Fisheries and Oceans Canada
Alec Dale, Executive Director, Ecosystems Branch, Ministry of Environment and Climate Change Strategy

.../3

MINISTRY OF FORESTS, LANDS, NATURAL RESOURCE OPERATIONS AND RURAL DEVELOPMENT
INFORMATION NOTE

Date:
File: [arc/orcs #]
CLIFF: [cliff #]

PREPARED FOR: **Tom Ethier, ADM, Forests, Lands, Natural Resource Operations and Rural Development**

Jennifer McGuire, ADM, Ministry of Environment and Climate Change Strategy

Paul Rasmussen, ADM, Forests, Lands, Natural Resource Operations and Rural Development

James Mack , ADM, Agriculture

ISSUE: Federal Decision on SARA listing for Interior Fraser Steelhead is currently not using Federal-Provincial consensus-science.

BACKGROUND:

- In February 2018 the Committee on the Status of Endangered Wildlife In Canada (COSEWIC) concluded, as part of an Emergency Assessment, that Interior Fraser Steelhead (IFS) were assessed as Endangered and at imminent risk of extinction. COSEWIC noted that while there are several contributing factors the major controllable factor is, *"the high levels of fisheries bycatch mortality are of particular concern in the context of persistently poor ocean survival."*
- The population has declined from over 8,000 spawners to only 277.
- An emergency listing process under the Species At Risk Act (SARA) is underway, led by the Department of Fisheries and Oceans (DFO) and set to conclude Dec 2018 or Jan 2019.
- DFO has diverged from the expected process. The science advice is provided to the federal Minister of Environment and Climate Change in the form of a Science Advice Report (SAR). This report is essentially a summary of the Research Document. DFO has published a SAR, which differs from the summary wording in the final, peer reviewed Research Document endorsed by the Provincial and Federal science teams. Through two seemingly small editorial changes, the new summary conclusions minimize the by-catch issue and support status-quo commercial harvesting.
- It is critical to BC that the Federal decision is informed by best-available science, as concluded by the joint science team through their transparent process. Minimizing the issue of by-catch mortality will result in management actions that do not fully address this impact, thereby increasing the threat of IFS extinction. As the Province is responsible for the management of IFS, BC will ultimately be held responsible for lack of IFS recovery.
- Results of a Federal decision to list under SARA will have far-reaching, significant economic implications for the Province and Indigenous peoples, including impacts to the lower Fraser River Port, commercial fisheries and First Nations' fisheries. The Province prefers all parties take management actions without requiring a SARA listing.
- Given the extremely low numbers, immediate action by all parties is necessary.

- First Nations in the Thompson and Chilcotin areas are voluntarily forgoing their constitutional right to fish, including salmon allocations they are provided through DFO.
- The Province continues to implement additional protective measures, including regulatory closures on all Provincial fisheries during the IFS run-time, and watershed restoration activities which impact timber-supply.
- The commercial gill-net and seine-net sector for the Fraser River area met with Minister Donaldson to discuss additional protective measures they could voluntarily implement.
- The Province has requested DFO take additional measures to reduce IFS mortality in salmon fisheries, such as increasing the closures from 4 weeks to a minimum of 6 (science indicates 10 to 12 weeks may be required). DFO has not accepted these recommendations because their science teams provide them with different advice than the BC science team.

s.13

Appendices: E-mail from BC outlining concerns and requesting use of consensus wording.

Contact:	**Alternate Contact:**	**Prepared by:**
ADM:	*Name:*	*Name:*
Div:	*Div//Branch:*	*Region/Branch:*
Phone:	*Phone:*	*Phone:*

Reviewed by	Initials	Date
DM		
Associate DM		
DMO		
ADM		
PRGM Dir./Mgr.		

Appendix 1: Request sent to DFO on Friday, December 7th. On behalf of the BC team from FLNRORD Director Jennifer Davis.

Request: After much internal discussion, I respectfully ask that the current public document is taken down, and the wording is replaced with the original science-team summary bullets.

Why? This keeps the science piece solid as something both jurisdictions will stand up for. We can have other debates on what is the best plan of management action. I realize that DFO documents are in productions and have timelines, but our responsibility is to provide solutions for our governments. I strongly believe that proceeding with differences of opinion on the science summary will lead to longer-delays later in the timeline.

Process. Both jurisdictions have all put extreme effort into changing the process this time, and achieved what some thought was impossible – **consensus among the two science teams!** To publish a summary that differs from the consensus bullets, undermines all that work, relationship progress, and effort from our scientists to start finding solutions through some tough conversations.

What is the crux of the concern? The new summary report is inconsistent with the joint science team's determination regarding how immediate action to reduce mortality (including in the commercial fisheries) provides the best chance of recovery. With two years of lowest-ever returns, what we have been doing isn't working. The team advised that while we need to assess options for long term recovery, by nature of having an emergency process, we need to immediately take actions to stem any further declines to the extremely low numbers in order to have a chance to recover.

Background:
I needed a simple comparison table to understand why there was such a strong response. For transparency, I have included it here (it may contain errors). Two background bullets were pulled, which we don't care about. Changes are highlighted in yellow. Key changes are highlighted in green.

Science Document Consensus Wording (document not publicly released yet)	DFO's Wording in the Public Document
This Recovery Potential Assessment (RPA) focuses on two Designatable Units (DU) of Steelhead Trout, the Chilcotin River and Thompson River populations, both of which were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.	This Recovery Potential Assessment (RPA) focuses on the Chilcotin and Thompson River Designatable Units (DU) of Steelhead Trout. Both of these DUs were assessed as Endangered by COSEWIC in an emergency assessment in January 2018.
This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.	~~This RPA focuses on the Steelhead anadromous life-history type, not the freshwater resident Rainbow Trout.~~
Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.	~~Juvenile Steelhead Trout typically spend 2-4 years in freshwater before undergoing a smoltification process which allows them to live in the ocean. Smolts migrate to sea in the spring and typically spend two or three years in the ocean before returning to spawn.~~
Given the shortened timelines required for an emergency assessment, this advice will only address a subset of the usual elements required in an RPA. Any outstanding elements will be addressed in the future as the *Species at Risk Act* process continues.	Given the shortened timelines required for an emergency assessment, the advice in this RPA only addresses a subset of the elements required in a full RPA. Outstanding elements will be addressed in the future as the Species at Risk Act processes continue.
The number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 and 77 for the Thompson and Chilcotin Rivers, respectively. The estimated decline of Steelhead Trout	The estimated number of mature fish that returned to fresh water from the sea in the fall of 2017 and spawned in the spring of 2018 was 150 for the Thompson DU and 77 for the Chilcotin DU. The estimated decline of Steelhead Trout spawners over

spawners over the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.	the last three generations has been 79% (over 15 years) for the Thompson DU, and 81% (over 18 years) for the Chilcotin DU.
Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition.	Threats and limiting factors identified to be most relevant to the survival and recovery of Steelhead Trout include changes in the marine environment, fishing mortality, degradation of freshwater and marine habitats, predation and competition. General categories of threats and limiting factors were agreed to, however the rationale and scoring for level of impact, causal certainty, and threat risk had greater uncertainty and will require further input and evaluation.
The recommended distribution target is to retain the present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial subdivisions within the spawning and juvenile rearing areas of the Thompson DU are recommended and two spatial subdivisions are recommended within the Chilcotin DU.	Recommended Distribution Target is to retain the present level of occupancy in freshwater habitats, thereby avoiding contraction of freshwater range. Five spatial sub-areas within the spawning and juvenile rearing areas of the Thompson DU, including the main stem are recommended and two spatial subdivisions are recommended within the Chilcotin DU. These distribution targets are consistent with current level of occupancy in freshwater habitats, and are believed to be sufficient to avoiding contraction of freshwater range.
The recommended abundance recovery target for the Thompson Steelhead Trout DU is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year, which is 938 spawners.	Recommended Abundance Recovery Target for Thompson Steelhead Trout DU is 938 spawners. This value, which also meets the distribution target, is the total escapement to the DU that results in a 95% probability that a minimum of 100 spawners returns to each of its five sub-areas in the same year.
Using a length-standardized requirement of 1.8-2.4 spawners/km, the recommended abundance recovery target for the Chilcotin DU is 562-744 spawners.	Recommended Abundance Recovery Target for Chilcotin Steelhead Trout DU is 562–744 spawners, using a length-standardized requirement of 1.8–2.4 spawners/km. This also meets the distribution target for the Chilcotin DU.
Simulations suggest increases in future abundances of both DU's are conditional on improvements in natural productivity. Exploitation rate reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.	Model simulations suggest increases in future abundances of both DUs are conditional on improvements in natural productivity. Exploitation rate (fishing mortality) reduction has the potential to lessen rates of decline if the most recent productivities observed continue in the future. ~~If productivities improve slightly to the recent 5 or 10 year levels, simulations suggest exploitation has strong potential for imparting positive future abundance trajectories.~~ However, eliminating exploitation alone will not result in population recovery. Uncertainties regarding the exploitation rate estimates, unaccounted for fixed rate terminal harvest, and variations in escapement were identified as having the potential to affect the estimated productivity of each population. For the Thompson DU, simulations estimate that if productivity levels from the most recent year persist (recruits/spawner), recovery is not expected regardless of exploitation rate. If productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 47% for all exploitation rates. However, if the 1-year time period productivity doubles, recovery probability estimates are 12% or less under all exploitation rates. For the Chilcotin DU, simulations estimate that recovery probability is zero at all exploitation rates if productivity levels from the most recent year persist, but recovery probability exceeds

	39% at all exploitation rates if productivity increases to 5-year mean level. If the 5- and 10- year mean productivities double (10 and 5-year time periods), the estimated recovery probability exceeds 74% at all exploitation rates.
Given the very low numbers and decreasing trends in escapement for both the Thompson and Chilcotin river Steelhead populations, any harm will inhibit or delay potential recovery. The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.	Given the declining and very low abundances of both the Thompson and Chilcotin Steelhead DUs, any harm will inhibit or delay potential recovery ~~The lowest possible allowable harm should be permitted at this time, habitat destruction prevented or mitigated and exploitation be reduced below current levels of exploitation wherever possible.~~ and potentially result in further declines in abundance. Allowable harm should not be permitted to exceed current levels and should be reduced to the maximum extent possible. Preventing and mitigating habitat destruction, restoring damaged habitat, and reducing exploitation rates, to the extent possible, are immediate actions that will increase the likelihood that allowable harm will not exceed current levels and promote recovery if productivity increases.

Table 1. Recovery statistics from the simulation model showing predicted mean change in the generationally-average abundance over the simulation period across trials (Mean Growth), the probability of positive population growth over the simulation (Probability of Growth), the probability of exceeding the recovery objective (938 for Thompson, 562 for Chilcotin), and the number of years required to meet the recovery objective assuming mean growth. Results are shown across the 3 productivity scenarios (based on last 10, 5, and 1 year of available estimates), without and with a doubling in the log of productivity (log Productivity Multiplier = 1 or 2, respectively), and over a range of exploitation rates.

a) Thompson

Years for Productivity Sample	log Productivity Multiplier	Exploitation Rate	Mean Growth	Probability of Growth	Probability of Recovering	Years to Recovery
10	1	0.00	155	0.81	0.17	NA
10	1	0.05	87	0.70	0.08	NA
10	1	0.10	12	0.49	0.03	NA
10	1	0.15	-67	0.31	0.01	NA
10	1	0.20	-144	0.17	0.01	NA
10	1	0.25	-227	0.08	0.00	NA
10	2	0.00	1,030	1.00	0.99	5
10	2	0.05	934	1.00	0.99	5
10	2	0.10	884	1.00	0.98	5
10	2	0.15	808	1.00	0.98	6
10	2	0.20	703	0.99	0.95	6
10	2	0.25	626	0.99	0.92	7
5	1	0.00	-30	0.41	0.02	NA
5	1	0.05	-101	0.27	0.01	NA
5	1	0.10	-167	0.14	0.01	NA
5	1	0.15	-235	0.08	0.00	NA
5	1	0.20	-305	0.03	0.00	NA
5	1	0.25	-370	0.01	0.00	NA
5	2	0.00	654	0.98	0.89	6
5	2	0.05	582	0.97	0.86	7
5	2	0.10	526	0.96	0.81	9
5	2	0.15	446	0.93	0.72	10
5	2	0.20	353	0.89	0.62	13
5	2	0.25	252	0.83	0.47	NA
1	1	0.00	-420	0.04	0.01	NA
1	1	0.05	-452	0.04	0.01	NA
1	1	0.10	-499	0.02	0.00	NA
1	1	0.15	-526	0.01	0.01	NA
1	1	0.20	-559	0.01	0.00	NA
1	1	0.25	-583	0.00	0.00	NA
1	2	0.00	-235	0.25	0.12	NA
1	2	0.05	-297	0.19	0.08	NA
1	2	0.10	-320	0.18	0.08	NA
1	2	0.15	-381	0.13	0.06	NA
1	2	0.20	-413	0.12	0.04	NA
1	2	0.25	-441	0.10	0.04	NA

variable probability conditioned on fishing

variable probability conditioned on fishing

no probability of growth

b) Chilcotin

Years for Productivity Sample	log Productivity Multiplier	Exploitation Rate	Mean Growth	Probability of Growth	Probability of Recovering	Years to Recovery
10	1	0.00	160	0.88	0.53	NA
10	1	0.05	95	0.77	0.17	NA
10	1	0.10	37	0.58	0.09	NA
10	1	0.15	-24	0.39	0.02	NA
10	1	0.20	-78	0.21	0.01	NA
10	1	0.25	-136	0.06	0.00	NA
10	2	0.00	929	1.00	0.94	6
10	2	0.05	851	1.00	0.92	6
10	2	0.10	810	0.99	0.91	7
10	2	0.15	742	1.00	0.88	8
10	2	0.20	657	0.98	0.83	8
10	2	0.25	565	0.96	0.74	9
5	1	0.00	526	1.00	0.97	13
5	1	0.05	464	1.00	0.95	14
5	1	0.10	402	1.00	0.89	17
5	1	0.15	341	1.00	0.79	20
5	1	0.20	260	0.97	0.62	27
5	1	0.25	183	0.93	0.39	NA
5	2	0.00	1,599	1.00	0.99	4
5	2	0.05	1,544	1.00	0.99	4
5	2	0.10	1,487	1.00	0.99	4
5	2	0.15	1,409	1.00	0.99	4
5	2	0.20	1,355	1.00	0.99	5
5	2	0.25	1,274	1.00	0.99	5
1	1	0.00	-322	0.00	0.00	NA
1	1	0.05	-330	0.00	0.00	NA
1	1	0.10	-336	0.00	0.00	NA
1	1	0.15	-341	0.00	0.00	NA
1	1	0.20	-344	0.00	0.00	NA
1	1	0.25	-347	0.00	0.00	NA
1	2	0.00	-258	0.00	0.00	NA
1	2	0.05	-278	0.00	0.00	NA
1	2	0.10	-296	0.00	0.00	NA
1	2	0.15	-310	0.00	0.00	NA
1	2	0.20	-322	0.00	0.00	NA
1	2	0.25	-331	0.00	0.00	NA

variable probability of growth conditioned on fishing

high prob of growth

no probability of growth

Scenario for Mitigation of Threats and Alternatives to Activities

Increases in Steelhead Trout productivity (i.e., recruits/spawner), or reductions in exploitation can contribute to or reduce rates of future decline in some scenarios. However, eliminating exploitation alone will likely not result in population recovery. The mitigation measures below are considered preliminary and require significant further investigation and discussion to determine their effectiveness and feasibility.

1. Limit fishing mortality on adult Thompson and Chilcotin Steelhead Trout in fisheries where Steelhead Trout bycatch occurs, by limiting mixed species fishing opportunity to times and places when Steelhead Trout is not present, or to highly-monitored fisheries where the release mortality rate of Steelhead Trout is very low.

From:	Travia, David V AGRI:EX
To:	Mack, James AGRI:EX
Cc:	Neilson, Larry AGRI:EX; Turner, Michael R AGRI:EX; Romanin, Kevin AGRI:EX
Subject:	Update on Steelhead
Date:	Monday, December 10, 2018 14:56:19
Attachments:	MINSteelhead BN.docx

James:

The information below and attached is FYI to apprise you of some issues around steelhead. The attached BN highlights disagreements between BC science staff (FLNR & ENV) and DFO in what was included in a final Science Advice Document (SAR), that has now been made public.

- The SAR is part of a broader Recovery Potential Assessment (RPA) being led by DFO.
- The RPA follows the usual process outlined by the Canadian Science Advisory Secretariat (CSAS), which results in 3 deliverables - the SAR, the Research Document, and the Proceedings. These are described as follows:
    1. **Science Advice Document (SAR)**: this is a DFO-authored document that is developed through consensus by CSAS peer-review meeting participants.
    2. **Research Document:** this document is authored by experts and is submitted for the peer-review process. This document is not yet public.
    3. **Proceedings**: this document is developed by the CSAS Secretariat and provides a public record of the format, discussion, and decisions made in the peer-review meeting. The Proceedings are not yet publicly available.
- The ENV and FLNR concerns center on the content of the final published SAR being different from what they had provided.
- This issue was discussed on a call today that included DFO Science staff (DG Carmel Lowe and others).
- It became clear on the call that FLNR and ENV may not have completely understood the RPA process when going into it. Specifically, that BC science staff were just a single contributor in a multi-stakeholder forum that considers diverse perspectives from academia, First Nations, NGOs, Industry, etc. Instead, ENV and FLNR appear to see the process as bilateral.
- FLNR and ENV have officially requested DFO remove the public document and have continued to highlight issues of trust between DFO and BC science staff. They also noted that they may stand down from the process.
- DFO Science have committed to ensuring the views of ENV and FLNR scientists will be represented in the Proceedings document. They have clarified that the Province is free to differ from the views of DFO, as presented in the SAR, and brief up accordingly.

s.16

- ENV is considering bringing you, Jennifer and Tom together to discuss.

David Travia, MPA
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