

112763

October 7, 2021

Shannon Phillips, Chair  
Standing Committee on Public Accounts  
Legislative Assembly of Alberta  
5th Floor, 9820 - 107 Street  
Edmonton AB T5K 1E7

Dear Shannon Phillips:

Further to Environment and Parks' August 6, 2021, written responses to the June 22, 2021, session of the Standing Committee on Public Accounts, please find attached the department's response to the question regarding correspondence with the federal Department of Fisheries and Oceans and/or Environment and Climate Change Canada on the westslope cutthroat trout recovery strategy and cumulative effects. The department appreciates the committee's patience while we compiled this information.

If you require further information, please contact Tom Davis, Assistant Deputy Minister, Resource Stewardship, at [REDACTED] or by email at [REDACTED]

Sincerely,

  
Bev Yee  
Deputy Minister

Attachment

cc: Tom Davis  
Assistant Deputy Minister, Resource Stewardship  
Environment and Parks

Darrell Dancause  
Assistant Deputy Minister, Financial Services  
Environment and Parks

Aaron Roth, Committee Clerk  
Legislative Assembly of Alberta

**From:** [Sawatzky, Chantelle](#)  
**To:** [Paul Christensen](#); [Andreas Luek](#); [Andrew Paul](#)  
**Subject:** FW: Invitation to Participate in Westslope Cutthroat Trout Partial Recovery Potential Assessment  
**Date:** October 17, 2019 3:44:36 PM  
**Attachments:** [ToR-RPA-CdR-EPR-eng\\_Westslope Cutthroat Trout RPA.pdf](#)  
[Invitation\\_Westslope Cutthroat Trout RPA.pdf](#)

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Hello Paul, Andreas, and Andrew,  
Please see below and attached. I'm hoping you will be available to participate. Please let me know.  
Thank you,  
Chantelle

Chantelle Sawatzky

A/Section Head, Stock Assessment

Fisheries and Oceans Canada / Pêches et Océans Canada

Central and Arctic Region | Région du Centre et de l'Arctique

Arctic and Aquatic Research Division | Division de la recherche aquatique de l'Arctique

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**From:** Sawatzky, Chantelle

**Sent:** Monday, September 30, 2019 4:25 PM

**To:** 'Paul.Christensen@gov.ab.ca' <Paul.Christensen@gov.ab.ca>; 'Andreas.Luek@gov.ab.ca' <Andreas.Luek@gov.ab.ca>; andrew.paul@gov.ab.ca; Laura MacPherson (laura.macpherson@gov.ab.ca) <laura.macpherson@gov.ab.ca>; Koops, Marten <Marten.Koops@dfo-mpo.gc.ca>; Van Der Lee, Adam <Adam.VanDerLee@dfo-mpo.gc.ca>; Kutz, Robyn <Robyn.Kutz@dfo-mpo.gc.ca>; Rodger, Peter <Peter.Rodger@dfo-mpo.gc.ca>; Zubrycki, Karla <Karla.Zubrycki@dfo-mpo.gc.ca>

**Cc:** Paulic, Joclyn <Joclyn.Paulic@dfo-mpo.gc.ca>; Shead, Justin <Justin.Shead@dfo-mpo.gc.ca>

**Subject:** Invitation to Participate in Westslope Cutthroat Trout Partial Recovery Potential Assessment  
Dear Colleague,

I am inviting you to participate in a DFO regional advisory meeting on Westslope Cutthroat Trout (Designatable Unit 1, Saskatchewan-Nelson River populations). The meeting will take place via teleconference and WebEx on December 17, 2019 from 9:30 am to noon (CST). The purpose of this meeting is to conduct a partial Recovery Potential Assessment (RPA) of Westslope Cutthroat Trout (DU 1). The objective of the meeting is to provide science advice on recovery targets and allowable harm. Information about the meeting is included in the attached letter of invitation and Terms of Reference. The document to be reviewed at the meeting along with teleconference and WebEx instructions will be sent out by 3 December 2019.

I hope you will be able to participate. If you have any questions, please contact me at the number below.

Please confirm your participation by 16 October 2019.

Thank you,

Chantelle Sawatzky

A/Section Head, Stock Assessment

Fisheries and Oceans Canada / Pêches et Océans Canada

Central and Arctic Region | Région du Centre et de l'Arctique



September 30, 2019

Dear Colleague,

Fisheries and Oceans Canada (DFO) is holding a peer review meeting to conduct a partial Recovery Potential Assessment (RPA) of Westslope Cutthroat Trout, Saskatchewan-Nelson River populations (designatable unit [DU] 1). The objective of the meeting is to provide science advice on recovery targets and allowable harm. By way of this letter, I am inviting you to participate in this meeting because of your knowledge and experience relevant to this assessment, not to represent any particular group or organization.

COSEWIC met in November 2016 and recommended that Westslope Cutthroat Trout in DU 1 be designated Threatened. Westslope Cutthroat Trout was previously assessed by COSEWIC in May 2005 and November 2006. A designation of Threatened for Westslope Cutthroat Trout in DU 1 was recommended in both of these assessments. The Saskatchewan-Nelson River populations of Westslope Cutthroat Trout are currently listed as Threatened on Schedule 1 of the *Species at Risk Act* and a proposed Recovery Strategy and Action Plan has been developed.

In light of the November 2016 COSEWIC assessment, DFO Science has been asked to undertake a partial RPA, based on the national RPA guidance. DFO Science developed the RPA framework to provide the information and scientific advice necessary for the Department to meet various requirements of the SARA. The advice in the RPA may be used update the existing recovery strategy and action plan, and to support decision-making with regards to the issuance of permits, agreements and related conditions, as per section 73, 74, 75, 77 and 78 of the SARA.

The meeting will be held by WebEx and teleconference beginning at 9:30 a.m. (CST) and will conclude at 12 p.m. (CST) on December 17, 2019. The terms of reference for the meeting are attached. In advance of the meeting, a document will be distributed which will describe the modelling that was conducted, and propose options for recovery targets and allowable harm. This document will be reviewed at the meeting.

If you agree to participate in the meeting, you will receive a finalized agenda, a copy of the research document, and other pertinent information by December 3, 2019.

If you have any questions concerning the meeting, please contact me at 1-204-983-5286 or [Chantelle.Sawatzky@dfo-mpo.gc.ca](mailto:Chantelle.Sawatzky@dfo-mpo.gc.ca).



This meeting is very important, and I hope you will be among the participants. We look forward to hearing from you.

Please confirm your participation by October 16, 2019.

Regards,



**Chantelle Sawatzky**

Science Advisor for Species at Risk

Central and Arctic Region | Région du Centre et de l'Arctique

Freshwater Institute | Institut des eaux douces

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# Terms of Reference

## **Recovery Potential Assessment – Westslope Cutthroat Trout, *Oncorhynchus clarkii lewisi*, Saskatchewan-Nelson River Populations (DU1)**

### **Regional Peer Review Meeting – Central & Arctic Region**

**December 17, 2019**

**WebEx and Teleconference**

Chairperson: Chantelle Sawatzky

#### **Context**

After the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses an aquatic species as Threatened, Endangered or Extirpated, Fisheries and Oceans Canada (DFO) undertakes a number of actions required to support implementation of the *Species at Risk Act* (SARA). Many of these actions require scientific information on the current status of the wildlife species, threats to its survival and recovery, and the feasibility of recovery. Formulation of this scientific advice has typically been developed through a Recovery Potential Assessment (RPA) that is conducted shortly after the COSEWIC assessment. This timing allows for consideration of peer-reviewed scientific analyses into SARA processes including recovery planning.

COSEWIC met in November 2016 and recommended that Westslope Cutthroat Trout in designatable unit (DU) 1 (Saskatchewan-Nelson River populations) be designated Threatened and in DU2 (Pacific populations), Special Concern. Westslope Cutthroat Trout was previously assessed by COSEWIC in May 2005 and November 2006. The recommended designations for both of these assessments were Threatened and Special Concern for DUs 1 and 2, respectively. A Recovery Potential Assessment was conducted in 2009 and the documents resulting from that meeting are available on the [Canadian Science Advisory Secretariat](#) website. The Saskatchewan-Nelson River populations of Westslope Cutthroat Trout are currently listed as Threatened on Schedule 1 of the SARA and a proposed Recovery Strategy and Action Plan has been developed (Fisheries and Oceans Canada 2019).

In light of the November 2016 assessment by COSEWIC, DFO Science has been asked to undertake a partial RPA, based on the national RPA Guidance. The Species at Risk Program has requested science advice on life history parameters, recovery targets, and allowable harm. The advice in the RPA may be used to update the existing recovery strategy and action plan, and to support decision making with regards to the issuance of permits or agreements, and the formulation of exemptions and related conditions, as per sections 73, 74, 75, 77, 78 and 83(4) of SARA. The advice in the RPA may also be used to prepare for the reporting requirements of SARA s.55. The advice generated via this process will update

and/or consolidate any existing advice regarding Westslope Cutthroat Trout (Saskatchewan-Nelson River populations).

## **Objectives**

- To provide up-to-date information, and associated uncertainties, to address the following elements:

### **Life History Parameters**

**Element 1:** Estimate the current or recent life-history parameters for Westslope Cutthroat Trout.

### **Recovery Targets**

**Element 2:** Propose candidate abundance and distribution target(s) for recovery.

**Element 3:** Project expected population trajectories over a scientifically reasonable time frame (minimum of 10 years), and trajectories over time to the potential recovery target(s), given current Westslope Cutthroat Trout population dynamics parameters.

**Element 4:** Provide advice on the degree to which supply of suitable habitat meets the demands of the species both at present and when the species reaches the potential recovery target(s) identified in element 2.

**Element 5:** Assess the probability that the potential recovery target(s) can be achieved under current rates of population dynamics parameters, and how that probability would vary with different mortality (especially lower) and productivity (especially higher) parameters.

### **Allowable Harm Assessment**

**Element 6:** Evaluate maximum human-induced mortality and habitat destruction that the species can sustain without jeopardizing its survival or recovery.

### **Expected Publications**

- CSAS Science Advisory Report
- CSAS Proceedings
- CSAS Research Document

### **Participants**

- Fisheries and Oceans Canada (Ecosystems and Oceans Science, Ecosystems and Fisheries Management, and Strategic Policy sectors)
- Alberta Environment and Parks

## References

- COSEWIC. 2006. [COSEWIC assessment and update status report on the westslope cutthroat trout \*Oncorhynchus clarkii lewisi\* \(British Columbia population and Alberta population\) in Canada](#). Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 67 p.
- COSEWIC. 2016. [COSEWIC assessment and status report on the Westslope Cutthroat Trout \*Oncorhynchus clarkii lewisi\*, Saskatchewan-Nelson River populations and Pacific populations, in Canada](#). Ottawa. xvi + 83 p.
- Fisheries and Oceans Canada. 2019. [Recovery Strategy and Action Plan for the Alberta populations of Westslope Cutthroat Trout \(\*Oncorhynchus clarkii lewisi\*\) in Canada \[Proposed\]](#). Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. vii + 60 p. + Part 2.

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**From:** [Nicole Pilgrim](#) on behalf of [Sue Cotterill](#)  
**To:** [Rob Simieritsch](#); [Lisa Jackson](#); [Dave Hervieux](#); [Steve Bradbury](#); [Paul MacMahon](#); [Craig Johnson](#); [John Tchir](#); [Dave Hugelschaffer](#); [Jordan Walker](#); [KayeDon Wilcox](#); [Kathy Hendren](#); [Norbert Raffael](#); [Curtis Brock](#); [Adrian Meinke](#); [Benjamin Kissinger](#); [Mike Blackburn](#); [Kenton Neufeld](#); [Paul Christensen](#); [Shane Petry](#); [sab\\_09@hotmail.com](#); [Robin Brand](#); [Jennifer Earle](#); [Andreas Luek](#); [Brian Meagher](#); [Dwayne Latty](#); [jrreilly@ualberta.ca](#); [Stephanie Crowshoe](#); [Ryan Cox](#); [Chris Briggs](#); [Myles Brown](#); [Stephen Spencer](#); [Owen Watkins](#); [Jason Cooper \(AEP\)](#); [Marcel Macullo](#); [Rebecca Baldwin](#); [Wendy Harrison \(AEP\)](#); [David DePape](#); [Craig Copeland](#); [Travis Ripley](#); [Michael Sullivan](#); [Laura MacPherson](#); [David Johns \(AEP\)](#); [Pat Fargey](#); [Nicole Pilgrim](#); [Dave Stepnisky](#); [Dani Walker](#); [Andrew Paul](#); [Peter Giamberardino](#); [Clayton James](#); [Chad Willms](#); [Kerry Robertson](#); [Brad Jones](#); [Mike Hunka](#); [Rod Drummond](#); [Michael Wagner](#); [Brooks Horne](#); [Robert Popowich](#); [Leslie Wensmann](#); [melanie.toyne@dfo-mpo.gc.ca](#); [peter.rodger@dfo-mpo.gc.ca](#); [robyn.kutz@dfo-mpo.gc.ca](#); [zing-ying.ho@dfo-mpo.gc.ca](#); [christine.lacho@dfo-mpo.gc.ca](#); [Elizabeth.patreau@dfo-mpo.gc.ca](#); [Jason.shpeley@dfo-mpo.gc.ca](#); [marek.janowicz@dfo-mpo.gc.ca](#); [Jennifer.thomas@dfo-mpo.gc.ca](#); [diane.casimir@canada.ca](#); [shelley.humphries@canada.ca](#); [mark.taylor@canada.ca](#); [Geoff.skinner@canada.ca](#); [paul.harper@canada.ca](#); [Miranda Sundberg](#)  
**Cc:** [Brandi.Mogge@dfo-mpo.gc.ca](#); [Tara.Schweitzer@dfo-mpo.gc.ca](#); [Pat.Marriott](#); [Dave Park](#); [Derlukewich](#); [Shona](#); [Sara Bumstead](#); [Angela Holzapfel](#); [Calvin McLeod](#); [Brian Joubert](#); [Glen Gache](#); [Stephen Shenfield](#)  
**Subject:** DFO-AEP Aquatic Species at Risk Workshop  
**Attachments:** [AGENDA Aquatic SAR Oct 28-29.docx](#)

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Updated agenda attached

Sue

A joint DFO-AEP workshop is planned for the end of October in Edmonton at the Radisson Hotel South (4440 Gateway Blvd). The workshop will focus on native trout management and conservation but will also touch on other aquatic SAR species (i.e., lake sturgeon, St. Mary sculpin, etc.). Broad attendance is planned for the afternoon of October 28th and the morning of the 29th for information sharing and discussion. A reduced attendance session will follow for those involved in specific workshop objectives. A draft agenda is attached. A block of hotel rooms will be reserved at the Radisson for attendees.

Due to hosting constraints, we are managing attendance and ask that you do not forward this invite on to others. Thank you.

Please confirm your attendance by October 14.

# AGENDA

## DFO-AEP – Aquatic Species at Risk Workshop

October 28 – 29, 2019

Day 1 – October 28	
October 28 AM	Travel to Edmonton
1:00pm – 1:30pm	<b>Welcome and Introductions</b> MC: Rob Simieritsch Melanie Toyne and Sue Cotterill  <b>Opening Remarks</b> Travis Ripley
1:30 – 2:00	<b>Who's who in the Zoo: Roles and Responsibilities Overview</b>  DFO: Melanie Toyne AEP: Sue Cotterill
2:00 – 2:45	<b>Recovery Planning Process Overview</b>  Federal: Peter Rodger Provincial: Pat Fargey
2:45 – 3:15	<b>Break</b>
3:15 – 4:15	<b>Aquatic Species at Risk – Species Overview</b>  -Westslope Cutthroat Trout: Robyn Kutz, Paul Christensen -Bull Trout: Peter Rodger, Adrian Meinke -Athabasca Rainbow Trout: Zing-Ying Ho, Mike Blackburn -Lake Sturgeon: Christine Lacho, Shane Petry -Milk River species: Robyn Kutz, Shane Petry -Other priority species: Robyn Kutz, Pat Fargey
4:15 – 5:00	<b>Critical Habitat Identification and Protection</b>  DFO: Peter Rodger AEP: David Johns and Dani Walker
Dinner (on your own)	

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## Day 2 – October 29

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**8:30 – 8:35**                      **Welcome and overview of the day**  
MC: Melanie Toyne

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**8:35 – 9:55**                      **Programs and Tools Overview**

- READI model: Michael Wagner
- Watercourse Crossings: Mike Hunka
- FISHES Program: Dave DePape
- Crown of the Continent Native Salmonid Model: Rob Simieritsch

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**9:55 – 10:10**                      **Break**

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**10:10 – 10:50**                      **Programs and Tools Overview**

- Joe Model: Andrew Paul
- GIS web mapping: Melanie Toyne

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**10:50 – 11:50**                      **Native Trout Recovery Implementation**

- NTRI Overview and Nature Fund: Rob Simieritsch
- Tactical watershed workplans: Kenton Neufeld
- DFO Implementation efforts: Peter Rodger

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**11:50 – 12:00**                      **Wrap up of plenary session**

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*\*please bring your own hot beverages to the workshop*

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**From:** [Nicole Pilgrim](#) on behalf of [Sue Cotterill](#)  
**To:** [Rob Simieritsch](#); [Lisa Jackson](#); [Dave Hervieux](#); [Steve Bradbury](#); [Craig Johnson](#); [John Tchir](#); [Dave Hugelschaffer](#); [Jordan Walker](#); [KayeDon Wilcox](#); [Adrian Meinke](#); [Benjamin Kissinger](#); [Mike Blackburn](#); [Kenton Neufeld](#); [Paul Christensen](#); [Shane Petry](#); [Robin Brand](#); [Jennifer Earle](#); [Andreas Luek](#); [Brian Meagher](#); [Stephanie Crowshoe](#); [Wendy Harrison \(AEP\)](#); [David DePape](#); [Craig Copeland](#); [sab\\_09@hotmail.com](#); [jrreilly@ualberta.ca](#); [Michael Sullivan](#); [Laura MacPherson](#); [David Johns \(AEP\)](#); [Pat Fargey](#); [Nicole Pilgrim](#); [Dave Stepnisky](#); [Dani Walker](#); [Andrew Paul](#); [Clayton James](#); [Michael Wagner](#); [melanie.toyne@dfo-mpo.gc.ca](#); [peter.rodger@dfo-mpo.gc.ca](#); [robyn.kutz@dfo-mpo.gc.ca](#); [zing-ying.ho@dfo-mpo.gc.ca](#); [christine.lacho@dfo-mpo.gc.ca](#); [Elizabeth.patreau@dfo-mpo.gc.ca](#); [Jason.shpeley@dfo-mpo.gc.ca](#); [marek.janowicz@dfo-mpo.gc.ca](#); [Jennifer.thomas@dfo-mpo.gc.ca](#); [diane.casimir@canada.ca](#); [shelley.humphries@canada.ca](#); [mark.taylor@canada.ca](#); [Geoff.skinner@canada.ca](#); [paul.harper@canada.ca](#)  
**Cc:** [Peter Giamberardino](#); [Brandi.Mogge@dfo-mpo.gc.ca](#); [Tara.Schweitzer@dfo-mpo.gc.ca](#); [Dave Park](#); [Derlukewich, Shona](#); [Sara Bumstead](#)  
**Subject:** DFO-AEP Aquatic Species at Risk Workshop Part 2  
**Attachments:** [AGENDA\\_Aquatic SAR Oct 29-30.docx](#)

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Updated agenda attached.

The second part of the joint DFO-AEP workshop will involve focused sessions and break-out groups to discuss native trout concerns and opportunities. This part of the workshop will take place at the same location as the first part of the workshop (Radisson Hotel South) during the afternoon of October 29th and on the morning of the 30th.

Due to hosting constraints, we are managing attendance and ask that you do not forward this invite on to others. Thank you.

Please confirm your attendance by October 14.

# AGENDA

## DFO-AEP – Aquatic Species at Risk Workshop

October 29 – 30, 2019

Day 2 – October 29

12:00 – 1:00

**Lunch**

1:00 – 2:00

**Species-Specific Targeted Discussion**

- Westslope Cutthroat Trout: Sue Cotterill
- Bull Trout: Melanie Toyne
- Athabasca Rainbow Trout: Steve Bradbury

2:00 – 3:00

**Native Trout Species – Are They Each A Different Kettle of Fish?**

- Reporting back from species-specific discussions
- Discuss similarities and differences between species; issues, threats, application of tools

3:00 – 3:15

**Break**

3:15 – 4:00

**Native Trout Species continued**

- Opportunities/constraints for risk management

Dinner (on your own)

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**Day 3 October 30**

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<b>8:30 – 8:45</b>	<b>Welcome and overview of the day</b> <b>Recap from species discussions</b> MC: Steve Bradbury
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<b>8:45 – 10:15</b>	<b>Concurrent Breakout Sessions</b>  - Riparian critical habitat and protection for Native Trout species: David Johns, Dani Walker, Michael Wagner and Peter Rodger  - Genetics – what is the cut off, management intent for pure, near pure, etc.: Andreas Luek
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<b>10:15 – 10:30</b>	<b>Break</b>
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<b>10:30 – 12:00</b>	<b>Concurrent Breakout Sessions</b>  - Multi-species management, prioritization and tradeoffs: Pat Fargey, Kaydon Wilcox, Craig Johnson and Peter Rodger  - Restoration stocking and range expansion for native trout – recovery options: Kenton Neufeld
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<b>12:00 – 1:00</b>	<b>Lunch</b>
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<b>1:00 – 2:00</b>	<b>Report back from morning sessions</b> <b>Workshop wrap up</b>  <b>Adjourn</b>
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*\*please bring your own hot beverages to the workshop*

**From:** [Sue Cotterill](#)  
**To:** [Melanie Toyne \(melanie.toyne@dfo-mpo.gc.ca\)](mailto:melanie.toyne@dfo-mpo.gc.ca)  
**Subject:** FW: WSCT - 5 year progress report  
**Date:** November 19, 2019 6:11:00 PM  
**Attachments:** [image001.jpg](#)  
[20191108 FINAL DRAFT Report on Progress for WSCT.docx](#)  
[RE recovery strategy components that need AB staff input.msg](#)  
**Importance:** High

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Hi Melanie – would you have a moment on Wednesday to discuss this request and the outcomes of today's meeting to review the native trout recovery workshop meeting? I could be available for a call any time except 9-10 MT time. For a quick backdrop, I have attached correspondence Ernie and I had earlier this year on the 5 year report.

Thanks

Sue

**Sue Cotterill**

Director, Species at Risk, Non-Game and Wildlife Disease Policy  
Fish and Wildlife Policy Branch  
Policy and Planning Division  
Alberta Environment and Parks  
780-422-9535

---

**From:** Craig Johnson <[Craig.Johnson@gov.ab.ca](mailto:Craig.Johnson@gov.ab.ca)>  
**Sent:** Tuesday, November 19, 2019 10:42 AM  
**To:** Sue Cotterill <[Sue.Cotterill@gov.ab.ca](mailto:Sue.Cotterill@gov.ab.ca)>  
**Cc:** Rob Simieritsch <[Rob.Simieritsch@gov.ab.ca](mailto:Rob.Simieritsch@gov.ab.ca)>; Paul Christensen <[Paul.Christensen@gov.ab.ca](mailto:Paul.Christensen@gov.ab.ca)>  
**Subject:** FW: WSCT - 5 year progress report  
**Importance:** High

Hi Sue,

Paul received this request from DFO to review the progress report on WSCT. As the lead for SAR discussions with DFO, I wasn't sure if you were in this loop and wanted to make sure that you were. Do you and your team want to take the lead on this?

Liz is contacting Paul directly and we can either continue with that approach or I'll leave it to you to contact Liz directly. Let me know how you'd like to proceed.

Thanks...let me know if you need anything.

Craig

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**From:** Paul Christensen <[Paul.Christensen@gov.ab.ca](mailto:Paul.Christensen@gov.ab.ca)>  
**Sent:** Friday, November 08, 2019 11:22 AM  
**To:** Craig Johnson <[Craig.Johnson@gov.ab.ca](mailto:Craig.Johnson@gov.ab.ca)>  
**Cc:** Andreas Luek <[Andreas.Luek@gov.ab.ca](mailto:Andreas.Luek@gov.ab.ca)>  
**Subject:** FW: WSCT - 5 year progress report  
**Importance:** High

Hi Craig,

I was sent this by DFO with a request to review. Thoughts on next steps?

Paul

**Paul Christensen**

Senior Fisheries Biologist, Bow District  
South Saskatchewan Region

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**From:** Sue Cotterill <[Sue.Cotterill@gov.ab.ca](mailto:Sue.Cotterill@gov.ab.ca)>  
**Sent:** Thursday, June 27, 2019 4:12 PM  
**To:** Watson, Ernest <[Ernest.Watson@dfp-mpo.gc.ca](mailto:Ernest.Watson@dfp-mpo.gc.ca)>  
**Subject:** recovery strategy components that need AB staff input

Hi Ernie – as discussed, could you please send a list of the components of the bull and Athabasca recovery strategies that you would like provincial input into or review of, and what your anticipated timelines are for needing that input?

I will send you our proposed Gantt chart next week that describes what needs to be done (ie., the components/timelines) to prepare a single, multi-spp recovery plan for the 3 trout. As an fyi - attached was the one that we put together when we were working with Craig J last winter to help with his workplanning discussions with his team.

And a bit of good news...I just received approval to go ahead with the recruitment!

Sue

**Sue Cotterill**

Director, Species at Risk, Non-Game and Wildlife Disease Policy  
Fish and Wildlife Policy Branch  
Policy and Planning Division  
Alberta Environment and Parks  
780-422-9535

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## Evelyn Wright

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**From:** Sue Cotterill  
**Sent:** Wednesday, August 14, 2019 11:17 AM  
**To:** Watson, Ernest  
**Cc:** Pat Fargey; David Johns (AEP); Dave Hugelschaffer  
**Subject:** RE: recovery strategy components that need AB staff input

Tracking:	Recipient	Delivery
	Watson, Ernest	
	Pat Fargey	Delivered: 8/14/2019 11:17 AM
	David Johns (AEP)	Delivered: 8/14/2019 11:17 AM
	Dave Hugelschaffer	Delivered: 8/14/2019 11:17 AM

Hi Ernie – good to talk with you this morning. I can confirm that Upper Athabasca Region management has confirmed that they are supportive of your team reaching out to Mike B regarding ecologically significant habitat. If they can keep David and Pat in the loop on those conversations, that would be wonderful as this should also help inform aspects of provincial recovery planning.

Pat is aiming to discuss several outstanding issues on key elements of the bull trout plan this month that our provincial bull trout lead has identified. We would prefer to get you the next version of the plan the first week in September after that discussion. Please advise if this is acceptable.

I will be discussing the other two items (review of draft CH ID and draft RSs) with the regional managers at the meeting on Monday.

And, my team will coordinate a review of the 5 year WSCT progress report whenever you have the next version ready – SSR is aware it will be coming.

Let me know if I missed anything or if you have any questions.

thanks  
Sue

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**From:** Sue Cotterill  
**Sent:** Friday, July 19, 2019 5:23 PM  
**To:** 'Watson, Ernest' <[Ernest.Watson@dfo-mpo.gc.ca](mailto:Ernest.Watson@dfo-mpo.gc.ca)>  
**Subject:** RE: recovery strategy components that need AB staff input

Hi Ernie – sorry that I missed this and your call while I was out of office the past couple of days and a big thank you to you and Peter for identifying the key areas that input is required on. I will get in touch with the regions asap next week to share and discuss.

Hope you are having a good break from the office  
Sue

---

**From:** Watson, Ernest <[Ernest.Watson@dfo-mpo.gc.ca](mailto:Ernest.Watson@dfo-mpo.gc.ca)>  
**Sent:** Thursday, July 18, 2019 3:51 PM

**To:** Sue Cotterill <[Sue.Cotterill@gov.ab.ca](mailto:Sue.Cotterill@gov.ab.ca)>

**Subject:** RE: recovery strategy components that need AB staff input

Sue, here are a best guesses regarding the timelines and information needs for Native Trout recovery planning:

#### **Bull Trout and Athabasca Rainbow Trout**

As you know, we must publish both strategies within a year of listing. We will be incorporating as much of the draft provincial BT and existing expiring ART plans as possible. We will not be adopting ART plan, but incorporating by reference only.

After speaking with headquarters, we hope to streamline our approvals process as much as possible, but must have a draft plans completed as soon as possible, and will follow similar timelines.

#### As soon as possible:

- Require engagement between DFO (SAR and Science) and Mike Blackburn (AEP) to discuss underlying assumptions and criteria for provincially identified **ART** 'Ecologically Significant Habitat' (1-2 hour teleconference; 2 calls maximum)
- Completed Draft Provincial Bull Trout Recovery Plan incorporating comments received from stakeholder advisory committee.

#### September/October

- Require review and comment on draft Candidate Critical Habitat Identification upon completion of mapping based provincial approach and data (Policy and Operations)

#### December

- Review and comment on the two draft SARA Recovery Strategies.

#### **Westslope Cutthroat Trout**

We are behind on our 5-yr progress report. It was developed with input from Paul Christianson, but it may benefit from additional review.

#### End of August

- Review of WSCT 5-yr progress report (Policy and Operations) **Can you send the draft to us?**

#### **Multi-species Recovery Plan**

As discussed, DFO is and has been supportive of a multi-species / ecosystem approach to SAR recovery and action planning. We are therefore supportive of a multispecies (WSCT, BT and ART) provincial recovery plan, provided it meets our requirements with respect to adoption as a federal plan, and is developed in a timely manner. I urge you to include us in any discussions going forward with respect to format and timing.

We look forward to continuing our collaboration on the recovery of Alberta Species at Risk!

Thanks! Ernie.

**Ernest Watson**

Team Leader, Species At Risk Program  
Fisheries and Oceans Canada / Government of Canada  
[ernest.watson@dfo-mpo.gc.ca](mailto:ernest.watson@dfo-mpo.gc.ca) / Tel: 204-983-0611

Biologiste principal des espèces en péril, Programme des espèces en péril  
Pêches et Océans Canada / Gouvernement du Canada  
[ernest.watson@dfo-mpo.gc.ca](mailto:ernest.watson@dfo-mpo.gc.ca) / Tél. : 204-983-0611

**From:** [Sawatzky, Chantelle](#)  
**To:** [Andrew Paul](#); [Andreas Luek](#); [Laura MacPherson](#); [Paul Christensen](#); [Gyles, Collin](#); [Patreau, Elizabeth](#); [Kutz, Robyn](#); [Rodger, Peter](#); [Koops, Marten](#); [Van Der Lee, Adam](#)  
**Cc:** [Paulic, Joclyn](#); [Shead, Justin](#)  
**Subject:** Westslope Cutthroat Trout Recovery Potential Assessment - Agenda, WebEx/Teleconference Information, and Research Document to be Reviewed  
**Date:** December 3, 2019 12:46:30 PM  
**Attachments:** [ToR-RPA-CdR-EPR-eng\\_Westslope Cutthroat Trout RPA.pdf](#)  
[Doc 02 - Westslope Cutthroat Trout RPA - draft 02 - 19-12-02.docx](#)  
[Invitation\\_Westslope Cutthroat Trout RPA.pdf](#)  
[Webex\\_Meeting.ics](#)  
[Agenda\\_Westslope Cutthroat Trout DU1 RPA.doc](#)

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Hello everyone,

Please find attached the agenda for the Westslope Cutthroat Trout Recovery Potential Assessment meeting scheduled for December 17, 2019 from 9:30-12:00 (CST). The Research Document that will be reviewed at the meeting is also attached. **Please be sure to review this document prior to the meeting.**

The WebEx/Teleconference information is as follows:

Meeting number (access code): 553 983

058

Meeting password: WSCTRPA

Tuesday, December 17, 2019

9:30 am | (UTC-06:00) Central Time (US & Canada) | 3 hrs

[Join meeting](#)

#### Join by phone

1-877-413-4782 Call-in toll-free number (Canada)

1-613-960-7511 Call-in number (Canada)

333 396 9 Attendee access code

Please let me know if you have any questions or concerns.

Thank you,

Chantelle

Chantelle Sawatzky

Fisheries and Oceans Canada / Pêches et Océans Canada

Central and Arctic Region | Région du Centre et de l'Arctique

Arctic and Aquatic Research Division | Division de la recherche aquatique de l'Arctique

501 University Crescent Winnipeg, MB R3T 2N6 | 501, croissant University Winnipeg, MB R3T 2N6

[Chantelle.Sawatzky@dfo-mpo.gc.ca](mailto:Chantelle.Sawatzky@dfo-mpo.gc.ca)

Telephone | Téléphone (204) 983-5286

Facsimile | Télécopieur (204) 984-2403

# Terms of Reference

## **Recovery Potential Assessment – Westslope Cutthroat Trout, *Oncorhynchus clarkii lewisi*, Saskatchewan-Nelson River Populations (DU1)**

### **Regional Peer Review Meeting – Central & Arctic Region**

**December 17, 2019**

**WebEx and Teleconference**

Chairperson: Chantelle Sawatzky

#### **Context**

After the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses an aquatic species as Threatened, Endangered or Extirpated, Fisheries and Oceans Canada (DFO) undertakes a number of actions required to support implementation of the *Species at Risk Act* (SARA). Many of these actions require scientific information on the current status of the wildlife species, threats to its survival and recovery, and the feasibility of recovery. Formulation of this scientific advice has typically been developed through a Recovery Potential Assessment (RPA) that is conducted shortly after the COSEWIC assessment. This timing allows for consideration of peer-reviewed scientific analyses into SARA processes including recovery planning.

COSEWIC met in November 2016 and recommended that Westslope Cutthroat Trout in designatable unit (DU) 1 (Saskatchewan-Nelson River populations) be designated Threatened and in DU2 (Pacific populations), Special Concern. Westslope Cutthroat Trout was previously assessed by COSEWIC in May 2005 and November 2006. The recommended designations for both of these assessments were Threatened and Special Concern for DUs 1 and 2, respectively. A Recovery Potential Assessment was conducted in 2009 and the documents resulting from that meeting are available on the [Canadian Science Advisory Secretariat](#) website. The Saskatchewan-Nelson River populations of Westslope Cutthroat Trout are currently listed as Threatened on Schedule 1 of the SARA and a proposed Recovery Strategy and Action Plan has been developed (Fisheries and Oceans Canada 2019).

In light of the November 2016 assessment by COSEWIC, DFO Science has been asked to undertake a partial RPA, based on the national RPA Guidance. The Species at Risk Program has requested science advice on life history parameters, recovery targets, and allowable harm. The advice in the RPA may be used to update the existing recovery strategy and action plan, and to support decision making with regards to the issuance of permits or agreements, and the formulation of exemptions and related conditions, as per sections 73, 74, 75, 77, 78 and 83(4) of SARA. The advice in the RPA may also be used to prepare for the reporting requirements of SARA s.55. The advice generated via this process will update

and/or consolidate any existing advice regarding Westslope Cutthroat Trout (Saskatchewan-Nelson River populations).

## **Objectives**

- To provide up-to-date information, and associated uncertainties, to address the following elements:

### **Life History Parameters**

**Element 1:** Estimate the current or recent life-history parameters for Westslope Cutthroat Trout.

### **Recovery Targets**

**Element 2:** Propose candidate abundance and distribution target(s) for recovery.

**Element 3:** Project expected population trajectories over a scientifically reasonable time frame (minimum of 10 years), and trajectories over time to the potential recovery target(s), given current Westslope Cutthroat Trout population dynamics parameters.

**Element 4:** Provide advice on the degree to which supply of suitable habitat meets the demands of the species both at present and when the species reaches the potential recovery target(s) identified in element 2.

**Element 5:** Assess the probability that the potential recovery target(s) can be achieved under current rates of population dynamics parameters, and how that probability would vary with different mortality (especially lower) and productivity (especially higher) parameters.

### **Allowable Harm Assessment**

**Element 6:** Evaluate maximum human-induced mortality and habitat destruction that the species can sustain without jeopardizing its survival or recovery.

### **Expected Publications**

- CSAS Science Advisory Report
- CSAS Proceedings
- CSAS Research Document

### **Participants**

- Fisheries and Oceans Canada (Ecosystems and Oceans Science, Ecosystems and Fisheries Management, and Strategic Policy sectors)
- Alberta Environment and Parks

## References

- COSEWIC. 2006. [COSEWIC assessment and update status report on the westslope cutthroat trout \*Oncorhynchus clarkii lewisi\* \(British Columbia population and Alberta population\) in Canada](#). Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 67 p.
- COSEWIC. 2016. [COSEWIC assessment and status report on the Westslope Cutthroat Trout \*Oncorhynchus clarkii lewisi\*, Saskatchewan-Nelson River populations and Pacific populations, in Canada](#). Ottawa. xvi + 83 p.
- Fisheries and Oceans Canada. 2019. [Recovery Strategy and Action Plan for the Alberta populations of Westslope Cutthroat Trout \(\*Oncorhynchus clarkii lewisi\*\) in Canada \[Proposed\]](#). Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. vii + 60 p. + Part 2.

Arctic and Aquatic Research Division | Division de la recherche aquatique de l'Arctique  
501 University Crescent Winnipeg, MB R3T 2N6 | 501, croissant University Winnipeg, MB R3T 2N6  
[Chantelle.Sawatzky@dfo-mpo.gc.ca](mailto:Chantelle.Sawatzky@dfo-mpo.gc.ca)  
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Government of Canada | Gouvernement du Canada

**Partial Recovery Potential Assessment – Westslope Cutthroat Trout  
(DU 1)  
Regional Peer Review Meeting – Central and Arctic Region**

**Location: WebEx/Teleconference**

**Date: December 17, 2019**

**Chair: Chantelle Sawatzky**

	<b>Presenter</b>
9:30 Welcome and Introductions	Chantelle Sawatzky
9:35 Purpose of Meeting	Chantelle Sawatzky
9:45 Recovery Potential Modelling	Adam van der Lee
10:15 Recovery Targets	Adam van der Lee
10:45 Allowable Harm	Adam van der Lee
11:45 Review Terms of Reference and Next Step	Chantelle Sawatzky
12:00 End of Meeting	





September 30, 2019

Dear Colleague,

Fisheries and Oceans Canada (DFO) is holding a peer review meeting to conduct a partial Recovery Potential Assessment (RPA) of Westslope Cutthroat Trout, Saskatchewan-Nelson River populations (designatable unit [DU] 1). The objective of the meeting is to provide science advice on recovery targets and allowable harm. By way of this letter, I am inviting you to participate in this meeting because of your knowledge and experience relevant to this assessment, not to represent any particular group or organization.

COSEWIC met in November 2016 and recommended that Westslope Cutthroat Trout in DU 1 be designated Threatened. Westslope Cutthroat Trout was previously assessed by COSEWIC in May 2005 and November 2006. A designation of Threatened for Westslope Cutthroat Trout in DU 1 was recommended in both of these assessments. The Saskatchewan-Nelson River populations of Westslope Cutthroat Trout are currently listed as Threatened on Schedule 1 of the *Species at Risk Act* and a proposed Recovery Strategy and Action Plan has been developed.

In light of the November 2016 COSEWIC assessment, DFO Science has been asked to undertake a partial RPA, based on the national RPA guidance. DFO Science developed the RPA framework to provide the information and scientific advice necessary for the Department to meet various requirements of the SARA. The advice in the RPA may be used update the existing recovery strategy and action plan, and to support decision-making with regards to the issuance of permits, agreements and related conditions, as per section 73, 74, 75, 77 and 78 of the SARA.

The meeting will be held by WebEx and teleconference beginning at 9:30 a.m. (CST) and will conclude at 12 p.m. (CST) on December 17, 2019. The terms of reference for the meeting are attached. In advance of the meeting, a document will be distributed which will describe the modelling that was conducted, and propose options for recovery targets and allowable harm. This document will be reviewed at the meeting.

If you agree to participate in the meeting, you will receive a finalized agenda, a copy of the research document, and other pertinent information by December 3, 2019.

If you have any questions concerning the meeting, please contact me at 1-204-983-5286 or [Chantelle.Sawatzky@dfo-mpo.gc.ca](mailto:Chantelle.Sawatzky@dfo-mpo.gc.ca).



This meeting is very important, and I hope you will be among the participants. We look forward to hearing from you.

Please confirm your participation by October 16, 2019.

Regards,



**Chantelle Sawatzky**

Science Advisor for Species at Risk

Central and Arctic Region | Région du Centre et de l'Arctique

Freshwater Institute | Institut des eaux douces

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**From:** [Nicole Pilgrim](#)  
**To:** [Sue Cotterill](#); [Dani Walker](#); [Rob Simieritsch](#); [Craig Johnson](#); [Steve Bradbury](#); [KayeDon Wilcox](#); [Dave Stepnisky](#); [Andreas Luek](#); [Kenton Neufeld](#); [Melanie Toyne \(melanie.toyne@dfo-mpo.gc.ca\)](#); [Rodger, Peter](#)  
**Subject:** RE: October DFO-AEP Aquatic Species at Risk Workshop - Follow-up Action  
**Date:** December 13, 2019 11:08:56 AM  
**Attachments:** [image001.png](#)  
[DFO-AEP SAR Workshop Summary Notes.docx](#)  
[Critical Habitat - what we heard - AEP-DFO SAR Workshop Oct 2019.docx](#)

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I haven't received any feedback and wanted to check-in before sending the attachments out to the rest of the attendees.

Nicole Pilgrim, M.Sc., P.Biol.

Aquatic Species at Risk Coordinator

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**From:** Nicole Pilgrim

**Sent:** December 10, 2019 3:31 PM

**To:** Sue Cotterill <[Sue.Cotterill@gov.ab.ca](mailto:Sue.Cotterill@gov.ab.ca)>; Dani Walker <[dani.walker@gov.ab.ca](mailto:dani.walker@gov.ab.ca)>; Rob Simieritsch <[Rob.Simieritsch@gov.ab.ca](mailto:Rob.Simieritsch@gov.ab.ca)>; Craig Johnson <[Craig.Johnson@gov.ab.ca](mailto:Craig.Johnson@gov.ab.ca)>; Steve Bradbury <[steve.bradbury@gov.ab.ca](mailto:steve.bradbury@gov.ab.ca)>; KayeDon Wilcox <[KayeDon.Wilcox@gov.ab.ca](mailto:KayeDon.Wilcox@gov.ab.ca)>; Dave Stepnisky <[Dave.Stepnisky@gov.ab.ca](mailto:Dave.Stepnisky@gov.ab.ca)>; Andreas Luek <[Andreas.Luek@gov.ab.ca](mailto:Andreas.Luek@gov.ab.ca)>; Kenton Neufeld <[Kenton.Neufeld@gov.ab.ca](mailto:Kenton.Neufeld@gov.ab.ca)>; Mike Blackburn <[Mike.Blackburn@gov.ab.ca](mailto:Mike.Blackburn@gov.ab.ca)>; Adrian Meinke <[Adrian.Meinke@gov.ab.ca](mailto:Adrian.Meinke@gov.ab.ca)>; Melanie Toyne ([melanie.toyne@dfo-mpo.gc.ca](mailto:melanie.toyne@dfo-mpo.gc.ca)) <[melanie.toyne@dfo-mpo.gc.ca](mailto:melanie.toyne@dfo-mpo.gc.ca)>; Rodger, Peter <[Peter.Rodger@dfo-mpo.gc.ca](mailto:Peter.Rodger@dfo-mpo.gc.ca)>

**Subject:** RE: October DFO-AEP Aquatic Species at Risk Workshop - Follow-up Action

Thank you to everyone that provided summary notes from their sessions. I have compiled the summaries (attached) for your review. The 'Are they Each a Different Kettle of Fish' was compiled using the flip chart notes so any other thoughts or takeaways are appreciated.

Please provide comments by **Thursday December 12 at noon**. I will send out the summary notes to the rest of the attendees in the afternoon.

Thanks,

**Nicole Pilgrim, M.Sc., P.Biol.**

Aquatic Species at Risk Coordinator, Alberta Environment and Parks  
Fish and Wildlife Stewardship Branch  
Government of Alberta

Alberta-2018



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**From:** Sue Cotterill <[Sue.Cotterill@gov.ab.ca](mailto:Sue.Cotterill@gov.ab.ca)>

**Sent:** November 20, 2019 2:47 PM

**To:** Dani Walker <[dani.walker@gov.ab.ca](mailto:dani.walker@gov.ab.ca)>; Rob Simieritsch <[Rob.Simieritsch@gov.ab.ca](mailto:Rob.Simieritsch@gov.ab.ca)>; Craig Johnson <[Craig.Johnson@gov.ab.ca](mailto:Craig.Johnson@gov.ab.ca)>; Steve Bradbury <[steve.bradbury@gov.ab.ca](mailto:steve.bradbury@gov.ab.ca)>; KayeDon Wilcox <[KayeDon.Wilcox@gov.ab.ca](mailto:KayeDon.Wilcox@gov.ab.ca)>; Dave Stepnisky <[Dave.Stepnisky@gov.ab.ca](mailto:Dave.Stepnisky@gov.ab.ca)>; Andreas Luek <[Andreas.Luek@gov.ab.ca](mailto:Andreas.Luek@gov.ab.ca)>; Kenton Neufeld <[Kenton.Neufeld@gov.ab.ca](mailto:Kenton.Neufeld@gov.ab.ca)>; Mike Blackburn <[Mike.Blackburn@gov.ab.ca](mailto:Mike.Blackburn@gov.ab.ca)>; Adrian Meinke <[Adrian.Meinke@gov.ab.ca](mailto:Adrian.Meinke@gov.ab.ca)>; Nicole Pilgrim <[Nicole.Pilgrim@gov.ab.ca](mailto:Nicole.Pilgrim@gov.ab.ca)>; Melanie Toyne ([melanie.toyne@dfo-mpo.gc.ca](mailto:melanie.toyne@dfo-mpo.gc.ca)) <[melanie.toyne@dfo-mpo.gc.ca](mailto:melanie.toyne@dfo-mpo.gc.ca)>; Rodger, Peter <[Peter.Rodger@dfo-mpo.gc.ca](mailto:Peter.Rodger@dfo-mpo.gc.ca)>

**Subject:** October DFO-AEP Aquatic Species at Risk Workshop - Follow-up Action

Hi all – I wanted to follow-up on yesterday's planning committee meeting to conduct a review of the

DFO-AEP Aquatic SAR workshop. To close the loop with attendees, the committee agreed (recognizing that not all of you were able to attend yesterday's meeting) that it would be valuable to pull together summaries and next steps/action items for each of the breakout sessions to document the workshop and send these out to participants. This will also help us with follow-through and accountability.

So for those who lead or co-lead a breakout session, can you please send write-ups to Nicole and me by the week of **December 6**. These will be collated and sent to attendees the next week (week of Dec 9).

**Dave S, Melanie, Steve:** *Species-Specific Discussions* – as facilitators, are there any key points or takeaways from your respective sessions that you can provide

**Peter and Craig:** *Are They Each a Different Kettle of Fish* – can you provide a summary of discussion points and any take aways/next steps from this session

**Dani/David:** *Riparian Critical Habitat* – have already provided summary document and steps towards next discussions. **Peter** if you have any observations/take aways please forward.

**Andreas:** *Genetics* – please provide a summary and any next steps

**Kenton:** *Restoration Stocking* – please provide a summary and any next steps

**Kayedon and Craig:** *Multi-Species Approach* - can you provide summary points and next steps or take aways. **Peter** if you have any observations/take aways please forward.

Thank you all and thank you again for doing so much heavy lifting on the planning, coordinating and delivery of the workshop.

Sue

**Sue Cotterill**

Director, Species at Risk, Non-Game and Wildlife Disease Policy

Fish and Wildlife Policy Branch

Policy and Planning Division

Alberta Environment and Parks

780-422-9535

# Critical Habitat Session

## What we heard

AEP-DFO Species at Risk Workshop – October 28-30, 2019

### Context

Alberta Environment and Parks (AEP) and Fisheries and Oceans Canada (DFO) staff met in Edmonton on October 28-30, 2019 to discuss recovery of native trout on Alberta's east slopes. As part of this meeting, breakout sessions were held, one of which was an hour and half on the designation of riparian critical habitat for these species.

### Process

Using a facilitated process, the riparian critical habitat session explored participants' perspectives on DFO's proposed 30 metre riparian habitat critical habitat definition for Westslope Cutthroat Trout and its applicability for native trout in general. Advice on implementation considerations was also solicited. The process included:

- Quick initial audience feedback on two questions using an online tool, and a poster exercise.
- Two short presentations given by AEP and DFO, respectively.
- Participants were broken into three breakout groups, which tackled two focus questions.
- A brief report back to the larger group.

### Online poll

Attendees were asked to use their smart phones to contribute three words anonymously to an on-screen poll to build a real time, on-screen, representation of their perspectives on the proposed 30 metre riparian critical habitat proposal (Figure 1).



Figure 1. Polling outcome (word cloud) of participant input to online Mentiimeter ([www.mentiimeter.com](http://www.mentiimeter.com)) poll for three word to describe how they felt about DFO's proposed 30 metre riparian critical habitat designation for Westslope Cutthroat Trout.

### Poster Exercise

Concurrent with the online poll, attendees were invited to place a green coloured dot on a large poster to represent what they felt was an appropriate riparian critical habitat setback for native trout.



### Presentations

#### AEP

AEP shared information on the approach taken to assess current science and develop advice to support DFO's riparian critical habitat designation for Westslope Cutthroat Trout. AB formed a habitat technical sub-committee with the following goals:

- Provide information for federal recovery planning and critical habitat identification
- Describe terrestrial habitat and species' needs
- Develop a range of options for defining riparian critical habitat

- Undertake an initial scan of pros and cons for implementation

As part of the process, the AB technical team undertook a literature review to identify terrestrial features, functions and attributes necessary to maintain critical habitat for Westslope Cutthroat Trout (Figure 2), including the influence of setbacks, buffers and contributions to protection for:

- Stream temperature
- Nutrient load
- Sediment
- Surface / groundwater flow
- Stream size

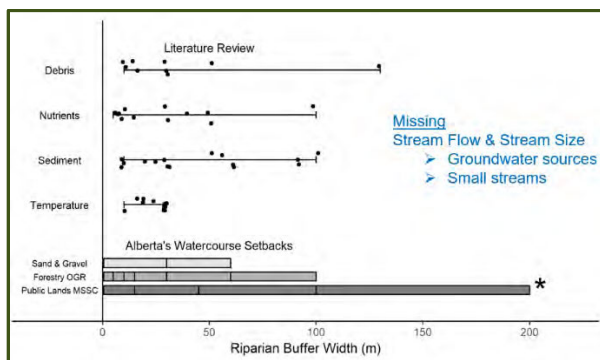


Figure 2. Summary of reviewed literature (black dots) on the contributions of riparian buffers to watercourses and streams and categorized into functions and attributes necessary for Westslope Cutthroat Trout.

Conclusions included: riparian areas within 30 metres provided for nutrients, terrestrial inputs and structure (i.e., woody debris); protection of groundwater and sedimentation from high risk could extend beyond 50 metres; and, overall, 30 metres protects the majority of features with outer bounds from 50 metres to 100 metres providing protection from sedimentation and groundwater inputs.

Four suggested options were provided to DFO with an initial scan of implementation pros and cons:

- 100 metres fixed width
- Variable width (use current provincial standards)
- Biophysical bounding box
- Blended: biophysical bounding box with minimum hard buffer at 30 metres

## DFO

DFO shared information on how they considered AEP's advice on riparian critical habitat designation for Westslope Cutthroat Trout. DFO considered:

- Terrestrial habitat and species' needs as defined by features, functions and attributes information.
- DFO standard methodology for defining critical habitat.
- The proposed range of options for defining riparian critical habitat.
- The initial scan of pros and cons for implementation.

As part of their decision-making, DFO also considered the approaches taken in other national jurisdictions, and determined that 30 metres appeared to be used consistently.

DFO provided additional context on their regulatory approach. Emphasis was placed on how features, functions, and attributes inform federal species at risk habitat decision-making. In particular, it was noted that although there may be a 30 metre critical habitat zone; however, if features, functions, and attributes are harmed from activities occurring outside the zone, then regulatory procedures associated with critical habitat would still apply.

## Breakouts

Attendees were separated into three groups and asked to focus on two questions:

- What are the challenges and opportunities that may exist by having a provincial 30 metre riparian critical habitat zone?
- Looking ahead, what are all the things that need to be considered to implement protection for riparian critical habitat?

Breakout facilitators were asked to have the groups discuss these questions, record insights on post-it notes, group them into themes, and then to vote on the most important ideas using stickers.





Bull Trout – Public Domain Image – US F&W Service

## Report Back

### Proposed 30-metre riparian critical habitat setback:

#### Opportunities:

- Implementation considerations are simpler than other options (e.g. bounding box, blended).
- A 30 metre zone is a positive step forward.
- Opportunity to build something thoughtful and nimble in terms of regulatory burden, clarity in process, and measureable success measures.

#### Challenges:

- Implementation – there is considerable complexity associated with:
  - the system (rules) scale
  - the site scale
  - alignment with provincial processes to ensure effective protection.

#### Take-Aways:

- Needs more focussed conversation – are we choosing the lowest common denominator?
- In the context of JOE model hypotheses, 30 metres may not cover the threats identified as most likely to have population-level effects (i.e., sedimentation).
- There is much nuance around features, functions and attributes. This needs to be clear in the regulatory and policy context, otherwise 30 metres will simply be 30 metres

### Implementation:

- Clarity on features, functions and attributes needed
  - How are effects assessed?
  - How does that affect rule implementation?
- Consider implementation from a systems perspective (e.g., effective rules, implementation, implementation outcomes, adjust the rules). Detailed advice related to this included:
  - need training – internal and external,
  - consider certification for professionals,
  - leverage site successes into process / guidance successes (e.g., BMP improvements)
  - integrate enforcement and compliance into approvals and on-the-ground success measures (e.g., gather trend through time compliance data)
  - resources – what is needed to build an effective process
- 30 metres gets us to a starting point that is implementable
- Communications: plans need to be developed to roll this out in a consistent manner with clear roles and responsibilities to all sectors and regulators.
- Need to assess where 30 metres might lower the bar for implementation
- Complex – what does this mean for land and water use regulators? How do we have conversations with partner agencies to ensure alignment?
- Need to measure success at a rule scale as well as at a site / permit scale and fish sustainability scale.
- Process - need careful consideration of implementation processes in the context of resourcing, particularly in the context of subject matter expert (SME) resourcing required. Considerable concern reflected that the process would rely on SME input for review and advice to regulators.

## Poster Exercise Revisit

Attendees were invited to revisit the large poster and place a second coloured dot (red) to represent their post-conversation thoughts on an appropriate riparian critical habitat setback for native trout (Figure x).

Appendix 1 provides a summary of more detailed information gleaned from the breakout groups.

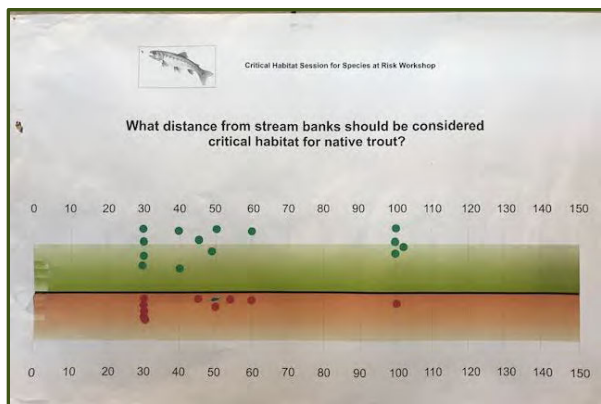


Figure x. Polling outcome of participant perspective on Fisheries and Oceans Canada proposed 30 metre riparian critical habitat designation. Green dots represent perspectives at the beginning of the session, red dots at the end of the session.



## Appendix 1:

Table 1. Proposed 30-metre setback and implementation considerations breakout sessions. Note: Implementation priority votes are reflected in **red**.

	Opportunities	Challenges	Implementation
<b>Group 1</b>  Facilitator – David Johns	<ul style="list-style-type: none"> <li>• Easy to regulate</li> <li>• Easy to communicate to the public</li> <li>• Easily understood</li> <li>• 30 m an improvement from 0 m</li> <li>• People understand that the activities they do next to a watercourse affects the species</li> </ul>	<ul style="list-style-type: none"> <li>• Not clear how the impact on features, functions and attributes is assessed (e.g., blasting at a coal mine that affects groundwater discharge)</li> <li>• Enforcement</li> <li>• Requires greater technical understanding and requirement for SMEs to review and interpret than if there was a wider setback</li> <li>• 30 m is not 100 m</li> <li>• Internal resourcing</li> <li>• Perception likely to be that there is no need to worry outside the 30 metre zone</li> <li>• 30 metres would not apply to all project types – more complex</li> <li>• Does not inhibit poaching</li> </ul>	<ul style="list-style-type: none"> <li>• Consider pre-application requirements for high risk activities (<i>Public Lands Act, Water Act, Environmental Enhancement and Protection Act</i>)</li> <li>• <b>Potential to require considerable SME staff resources for application review and on-the-ground enforcement***</b></li> <li>• <b>More boots on the ground required to verify compliance and signal regulatory vigilance to proponents***</b></li> <li>• <b>Consider an increased requirement for professional assessment of features, functions and attributes by proponent****</b></li> <li>• Develop information on what would constitute destruction (e.g., thresholds for effects on features, functions and attributes)</li> </ul>
<b>Group 2</b>  Facilitator – Michael Wagner	<ul style="list-style-type: none"> <li>• 30 metres gets us to something implementable and defensible</li> </ul>	<ul style="list-style-type: none"> <li>• Riparian critical habitat only addresses some threats; but, not all</li> <li>• Implementation into existing riparian policy / protection could be challenging - Need to assess where this would lower the bar for protection</li> <li>• There is the potential for effects to groundwater beyond 30 metres – need additional protections to address this (features, functions and attributes implementation clarity)</li> </ul>	<p><b>Note: this group did not vote, rather summarized their top three:</b></p> <ul style="list-style-type: none"> <li>• <b>Social / economic / political - what does this mean for different land uses, we need to get ahead of this as regulators, and communications will be important</b></li> <li>• <b>Policy integration / alignment between federal, provincial, and activity specific processes</b></li> <li>• <b>Consider defensibility by activity – space and time may be critical factors in assessing risk to features, functions and attributes</b></li> </ul>
<b>Group 3</b>  Facilitator – Dani Walker	<ul style="list-style-type: none"> <li>• Additional headwater protection for forestry</li> <li>• Communicate successful examples of buffer systems</li> <li>• Praise proponents when they show success (above and beyond – not the bare minimum)</li> </ul>	<ul style="list-style-type: none"> <li>• Historical attitudes of proponents, internal regulators and stakeholders</li> <li>• Cows and water</li> <li>• Sediment</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Process that puts the emphasis on SME input is not sustainable</b></li> <li>• Onus on proponent to derive features, functions and attributes information may not be efficient</li> <li>• Need to monitor the rule set as well as the sites</li> </ul>

	Opportunities	Challenges	Implementation
	<ul style="list-style-type: none"> <li>• Communicate positive and successful projects</li> </ul>	<ul style="list-style-type: none"> <li>• Changing entrenched regulatory process and belief</li> <li>• Social-economic cost-benefit analyses of protection</li> <li>• Clarity in definition of features, functions and attributes</li> <li>• 30 metres does not address all threats identified</li> <li>• May be aiming for the lowest common denominator</li> <li>• 30 metres doesn't cover the hypothesized primary drivers coming out of the Joe models (cumulative effects).</li> <li>• Implementation unclear</li> </ul>	<ul style="list-style-type: none"> <li>• Need stronger, clearer success measures</li> <li>• Consider erosion and sediment control certification for all workers</li> <li>• Address poor training</li> <li>• Address poor implementation</li> <li>• Actually implement policy and legislation</li> <li>• Sedimentation must be addressed</li> <li>• Consider the system context (rules→implement→outcomes)</li> <li>• Connect the dots on success measures – compliance vs response in fish populations</li> </ul>

## Parking Lot:

- Have we ever linked a development to a change in features, functions and attributes?
- Alberta's Water Allocation Policy provides increased protection to smaller streams.
- Will we standardize assessment for features, functions and attributes?
- For further information on "Terrestrial Components of Westslope Cutthroat Trout Critical Habitat in Alberta", please contact David Johns at [David.W.Johns@gov.ab.ca](mailto:David.W.Johns@gov.ab.ca)

# DFO-AEP Aquatic Species at Risk Workshop

October 29-30, 2019

*Species-specific targeted discussion*

## **Westslope Cutthroat Trout**

### Issues/Threats

- Hybridization
- Sedimentation
- Competition and predators
- Disease
- Poaching
- Incidental angling mortality
- Water quality
- Instream flows/water quantity
- Lack of regulation/enforcement
- Habitat loss/industrial development
- Fragmentation including OHV use
- Limited species range
- Water temperature/climate change
- Understanding thresholds for species

### Challenges

- Resourcing i.e staff
- Changing priorities (GoA and federal)
- Political will/support
- Communication
- Social license

### Opportunities

- Join conversations (linking expertise)
- Communication

### Tools

- Common understood recovery benchmarks (i.e., thresholds)
- Thresholds for specific threats
- Genetic delineation tool
- Genetics for recovery (i.e, restoration stocking)
- Capitalizing on citizen science
- Collaboration and integration on modeling

### Recovery Actions

- Collaboration
- Creation of regulatory standards
- Collaboration on land use, habitat in watershed (mis-alignment between agencies)
- Recovery action to create regulatory rules for angling
- Create effective stakeholder engagement/buy in

Disease assessments considered in recovery planning  
Connecting threats to root cause (what is causing sedimentation/habitat loss)

### **Bull Trout**

#### Issues

Large distribution  
Fragmentation  
Incidental angling mortality  
Landscape level development

#### Challenges

Multiple life histories  
Late maturity  
Easily targeted/multiple capture events

#### Threats

Habitat loss/degradation  
Competition  
Exploitation  
Hybridization?

### **Athabasca Rainbow Trout**

#### Threats

Sedimentation (roads and other point sources)  
Fragmentation (roads)  
Non-native species (competition and genetic introgression)  
Angling mortality

#### Issues

Climate change (water temperature)

#### Challenges

2-person ARTR team

#### DNA

- DNA collection has been haphazard (opportunistic) to date
- DNA is not necessarily needed to define Critical Habitat:
  - a. What level of purity is diagnostic of introgression
  - b. What level of purity if required for restoration stocking (95 or 99%)
- The Genetic Task Team should assist with future direction on:
  - a. Three species differences/similarities in approach and rationalization

*Native Trout Species-Are they each a different kettle of fish?*

Missing	Westslope Cutthroat Trout	Athabasca Rainbow Trout	Bull Trout
Local engagement	✓		✓
Knowledge gaps			✓
Local adaptation/genetic info			✓
Money and resources			✓
Public support	✓		
Angling closures			✓
Political support	✓		✓
Climate change info		✓	
Regulatory data systems		✓	
Disease risk assessment	✓		
Benchmark thresholds	✓		
Collaborative monitoring	✓		

Impediments	Westslope Cutthroat Trout	Athabasca Rainbow Trout	Bull Trout
Lost in the weeds		✓	✓
Public opinion and lack of trust	✓	✓	✓
Inconsistent funding	✓	✓	✓
Inconsistent political direction	✓	✓	✓
Lack of enforcement		✓	✓
Legislation and regulations		✓	✓
Data sharing and transparency		✓	✓
Communication (GoA, public, federal)	✓		
Social license barriers	✓		

Tools	Westslope Cutthroat Trout	Athabasca Rainbow Trout	Bull Trout
Models		✓	✓
Genetics	✓	✓	✓
Stocking		✓	✓
Watershed temperature		✓	✓
Education		✓	✓
Streamlining regulatory review	✓	✓	
Compliance as a liability to industry (behaviour response)		✓	
Collaboration	✓		
Angling regulations	✓		
Citizen science	✓		



	Westslope Cutthroat Trout	Athabasca Rainbow Trout	Bull Trout
<b>Issues</b>			
Large distribution			✓
Fragmentation	✓	✓	✓
Angling mortality	✓	✓	✓
Landscape level development			✓
<b>Challenges</b>			
Life history			✓
Late maturing			✓
Easily targeted (multiple capture events)			✓
Angler effort		✓	
Support from regulators		✓	
Low profile, limited bios working on it		✓	
Cost to implement is expensive		✓	
Outreach		✓	
Dollars and staff		✓	
Implementation of angling closures		✓	
<b>Threats</b>			
Habitat loss/degradation	✓	✓	✓
Competition	✓		✓
Exploitation			✓
Hybridization	✓	✓	
Inaction		✓	
Whirling disease	✓	✓	
Water quality and quantity	✓		

*Riparian Critical Habitat*

See attached

## Genetics

Extended notes from the flip-board during genetics discussion:

### 1) Standardized Approaches to assess genetic needs

- a. All species using SNP analysis now, but using the most up-to-date analysis in the future (likely Rad-capture/RAPTURE, a refined SNP method with significantly more loci analyzed)
- b. Agree on consistent minimum sample size (integrated into survey study designs?)
- c. Inventory analysis for all three species is needed: How many samples from where are stored where? Are they catalogued? How are they preserved? Were they previously analyzed?
- d. For BLTR and ARTR, how much would the development of a SNP chip cost (required before this type of analysis can be used repeatedly)?
- e. What are appropriate reference population for each species?
- f. What labs to use for analysis of all three species. Multiple external labs vs. one internal genetics lab (preferred option)
  - i. Is there a potential for SAR specific laboratory (Federal and/or provincial?)
  - ii. There is a significant need for analysis consistency over time and between species. Lab consistency/ QAQC between labs would be additional challenge
  - iii. What actions do we need to address now, to get lab consistency?
  - iv. A lab in Canada would be most helpful (samples across borders difficult)

### 2) Where does money to fund genetics work come from? What is the money needed for?

- a. Explore federal, provincial and independent funding sources
- b. Continued sample analysis for WSCT where gaps or relevant questions exist to make management decisions
- c. Develop new analysis tools for the other species to align methodologies (SNP chip development)
- d. Invest in the establishment of a lab. Might be a good idea to get into contact with the ne DFO eDNA lab in Winnipeg, to understand a. their capacity and b. how to approach the establishment of something like this. Apparently, older micro-sat methodologies are readily available through DFO, but new SNP chips are not.
- e. Hire or contract subject matter experts to help with interpretation and analysis of the accumulated data

### 3) Action item from the workshop

- a. Establish a current genetic sample inventory

- i. What samples are available per species
  - ii. Where are these samples stored
  - iii. How are samples preserved
  - iv. Develop central, catalogued storage for samples
  - v. Include status of sample analysis into database
- b. Develop task team (in combination with Recovery Stocking Team; Kenton and Andreas are leading this at the moment)
  - i. Who? AEP, DFO, Parks Canada
  - ii. Priorities?
  - iii. Resources?
  - iv. First step: develop a Task Team mandate letter (Kenton and Andreas) ,get approval from AEP management, review by all parties, then invitation letters and formation of team (Timeline → Mid December for mandate letter)
  - v. ONE task team for all three species AND recovery stocking. Ideally, get one person each from DFO, PC and AEP per species as the core team, that develops priorities and work to reach out to larger groups and experts for input and support
- c. First tasks fro the Task Team:
  - i. Define questions to be answered by genetic analysis.
    - 1. Purity of the species
    - 2. Relatedness (among populations)
    - 3. Extent of populations/define what makes a population
    - 4. Identify sources for recovery stock



### *Restoration Stocking*

- 1) Overview of Restoration Stocking as a recovery tool – Kenton Neufeld
- 2) Breakout group discussion on challenges and solutions to implementing restoration stocking projects
  - a. Westslope Cutthroat Trout
    - i. Challenges
      1. Money
      2. Staffing
      3. Internal support
      4. Disease risks
      5. Identifying meaningful risk
      6. Hatchery space and long-term housing of brood stock
      7. Unanswered genetic questions
    - ii. Solutions
      1. Disease risks: No stocking fish of fish into high-susceptibility areas or where whirling disease is currently present
      2. Money: DFO funding partnerships (offset projects, Nature Legacy Fund, complimentary measures)
  - b. Bull Trout
    - i. Challenges
      1. Fall spawner which complicates spawning and survival in fish culture system and the use of remote stream incubation.
      2. Identifying appropriate source stocks
      3. Lack of genetic information
      4. Disease risks
      5. Money
      6. Larger area of recipient habitat needed than Westslope Cutthroat Trout
      7. Unanswered genetics questions
      8. Source stock identification
    - ii. Solutions
      1. Use of incubation tubes for overwinter instream incubation and hatching
      2. Collaborate with fish culture to build hatchery capacity and knowledge for bull trout culture.
      3. Random selection of brood stock and minimize time spent in hatchery.
      4. Disease: quarantine and split disease testing if sample size is low. Move eggs.
      5. Use mobile quarantine fish culture facility
      6. Desktop and field feasibility studies for restoration stocking projects
- 3) Discussion of potential 2020/21 activities
  - a. Conduct feasibility assessments for Bull Trout/Westslope Cutthroat Trout/Athabasca Rainbow Trout range expansion projects. Use Galloway framework for Bull Trout.
    - i. Fall Creek (Bull Trout) – adult transfer and incubation tubes?

- ii. Scalp and Bighorn Creeks (Bull Trout) – may be hybrid issues, need genetic testing done
  - iii. Bighorn River (Bull Trout)
  - iv. Others?
- b. Analyze genetic samples already collected to identify appropriate source stocks
- c. Determine hatchery capacity for developing brood stock
- d. Investigate different methods for capturing donor fish for RSI (fish trap vs. efishing)
- e. Conduct year 2 of range expansion stocking for Westslope Cutthroat Trout in Slacker Creek
  - i. Use bios and staff from other areas and organizations in late June to help with collection of donor fish
- f. Create and finalize SOPs for:
  - i. Disease risk assessment
  - ii. Feasibility assessment for Westslope Cutthroat Trout and Athabasca Rainbow Trout restoration stocking projects (can use Galloway paper for bull trout)
- 4) Discussion of Restoration Stocking Technical Advisory Team
  - a. Consensus that this is needed
  - b. Could likely be combined with the genetics task team for increased efficiency
  - c. Potentially 6 members: 1 DFO, 1 Parks Canada, 1 AEP Fish Culture, 3 AEP Fisheries Management
  - d. List of interested parties: Peter Rodger, Robyn Kutz, Clayton James, Brian Meagher, Andreas Luek, Jennifer Earle, Kenton Neufeld, Benjamin Kissinger, Mike Blackburn, Shelley Humphries.
  - e. Next steps:
    - i. Create technical team mandate and charter and obtain manager approval
    - ii. Identify members from each organization
    - iii. Identify and assign tasks within and outside the technical team to further restoration stocking (and genetics?) projects

### *Multi-species Approach*

Completed a quick fire survey on who we see as the intended audience of a multi-species plan/approach. Top responses – with top takeaways were:

- Native trout populations (or ‘the fish’) – takeaway was “get to the business of recovery actions that result in demonstrable benefits to native trout as whole – less talk more action”
- Albertans’ – takeaway was “Albertans (and perhaps more specifically anglers) assume a multi-species approach is being taken. Don’t inundate us with different species plans, multiple engagements on what seems to be the same topics, or get into complexities related to genetic differences. An approach that addresses all threats (not just angling) will be more successful”; I think that most Albertans don’t know what we are doing or why, let alone that we are working on multiple plans. The Average Albertan probably doesn’t know what all the hype is about native trout – what does it matter? A key outcome for me was that for the average Albertan, we need to work on educating why native trout are important. This will help or improve understanding about why we are moving carefully, slowly (in the opinions of others), and why a native Athabasca RNTR or WSCT is important...most anglers frankly don’t care, and often these are the most vocal. We should likely focus more efforts on education.
- Regulators’ – takeaway was “provide regulatory certainty and consistency; come with a clear approach and predictable rule set that is approved and supported. If that is in the form a multi-species ‘plan’ then great, as we don’t want different meetings, and different rule sets for each species”; To be consistent and efficient, then we need a common approach for cold-water fish; industry and regulators won’t likely adopt different “good ideas” to meet objectives...

### Other takeaways

- Most / all of our ‘clients’ are likely not interested in the nuances and particulars of one plan or multiple plans, etc – but the expectation is that our plans/recommendations/requirements are coordinated before engaging
- Within GOA a multi-species plan and/or east slopes policy empowers regulators
- Clear, predictable rule sets (that aren’t conflicting) along with identifiable thresholds and targets is beneficial.
- Work should be scalable. Need to better understand and work within our client’s planning schedule.
- We can’t wait for individual species plans completion to begin incorporating multi-species approaches
- We don’t want to miss opportunities to partner now
- Communication amongst us is the most important part of multi-species approach
- Tools (e.g. READI tool, Joe model) need to become tools that can be in the hands of clients for planning purposes
- Need demonstrable actions!
- Education for Albertans, regulators, etc.
- Information needs to be available to Albertans
- Conclusion – a multi-species approach for native trout is advantageous, and expected from our stakeholders (this isn’t a surprise), however, this can be delivered in such a way that primarily requires internal coordination/communication across AEP and DFO staff/programs. Building a multi-species strategy and/or East Slopes Policy for the purposes of empowering regulators or addressing provincial/federal legislative needs would not be an onerous task (2-4 page

document?) and shouldn't pre-empt actions underway that reflect a multi-species approach. Alberta is proposing to update the Fish Conservation and Management Strategy which could capture this approach as well.

**From:** [Andreas Luek](#)  
**To:** [Van Der Lee, Adam](#)  
**Cc:** [Laura MacPherson](#); [Andrew Paul](#)  
**Subject:** RE: Presentation and modelling code  
**Date:** December 17, 2019 11:55:00 AM  
**Attachments:** [question 12\\_17\\_2019.docx](#)

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Yes, Adam, thanks for the presentation. A well done document and model. Attached is a quick screen grab pull from our genetic delineation project for all the streams used in the Janovics paper. It turns out that the majority are hybridized streams, even to my surprise, and given where they are, I would assume, that they were hybridized to the same level already in 2002, except , that the technology and focus of the study at that point did not include genetic testing to this level. I am not sure how this would affect the parameterization considerations for your model. My gut feeling is, that it does not matter much, but it should be mentioned and discussed, as the paper is one of your main resources.

Cheers

[Andreas](#)

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**From:** Andrew Paul <Andrew.Paul@gov.ab.ca>  
**Sent:** December 17, 2019 10:42 AM  
**To:** Van Der Lee, Adam <Adam.VanDerLee@dfo-mpo.gc.ca>  
**Cc:** Andreas Luek <Andreas.Luek@gov.ab.ca>; Laura MacPherson <laura.macpherson@gov.ab.ca>  
**Subject:** Presentation and modelling code

Adam

Thanks for the presentation and report. Great work.

Would you mind sending us today's presentation and the modelling code? We'll only use the presentation internally and preface it as draft. Regarding the code, we will keep you posted as to how we're using the model. Ideally we'd like to keep you involved but understand your time is limited.

Cheers,

Andy

**Andrew J. Paul Ph.D.**

Provincial Environmental Flow Specialist

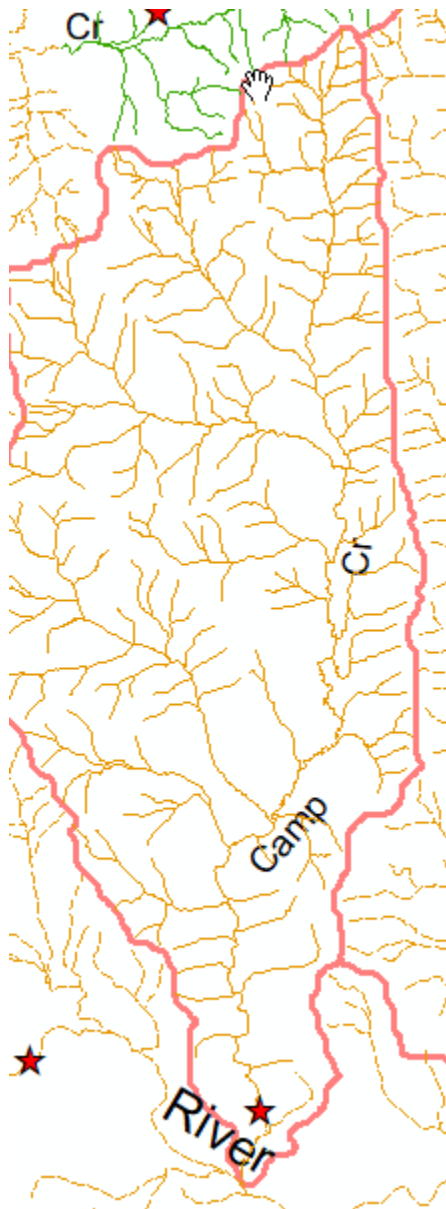
Fish and Wildlife

Alberta Environment and Parks

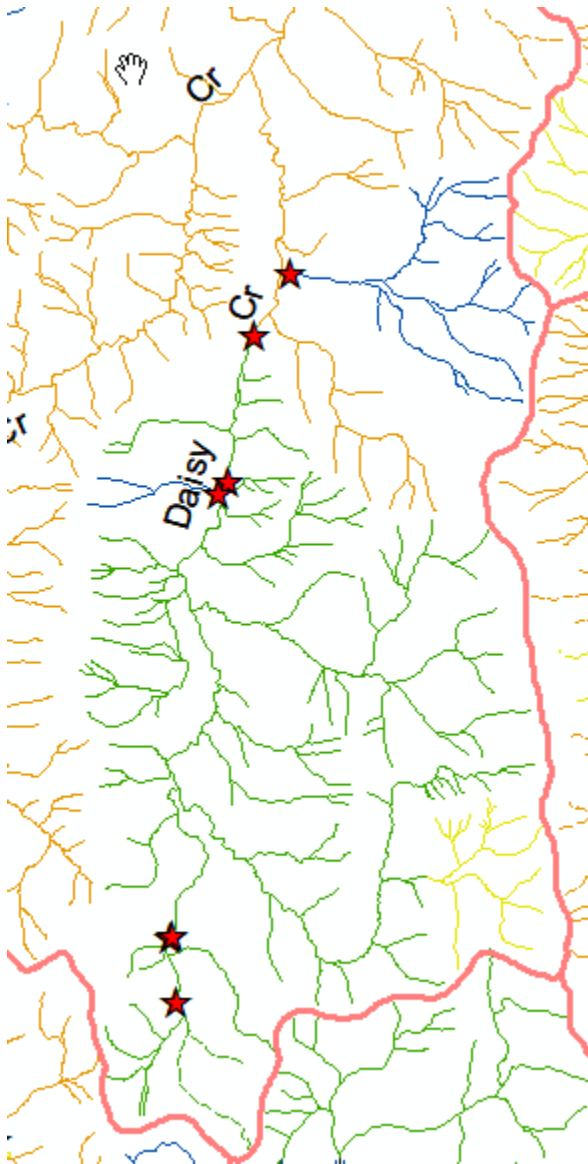
403.851.2200

<http://aep.alberta.ca/fish-wildlife/environmental-flows/default.aspx>

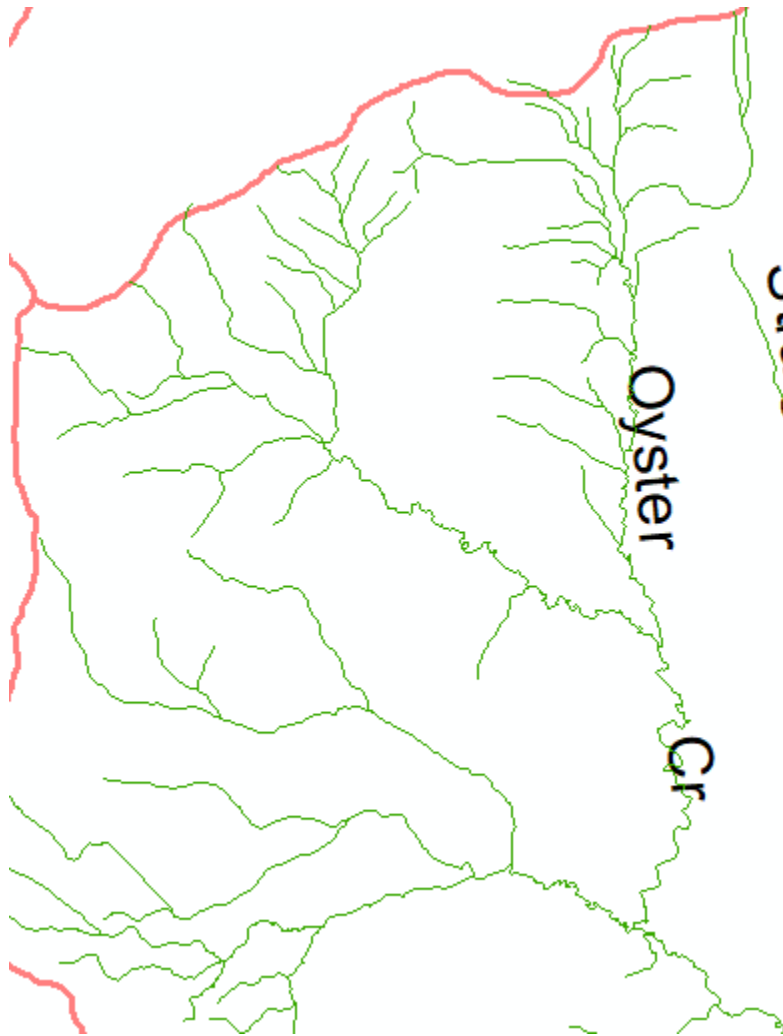
Camp Creek = all hybridized



Daisy Creek = mostly pure



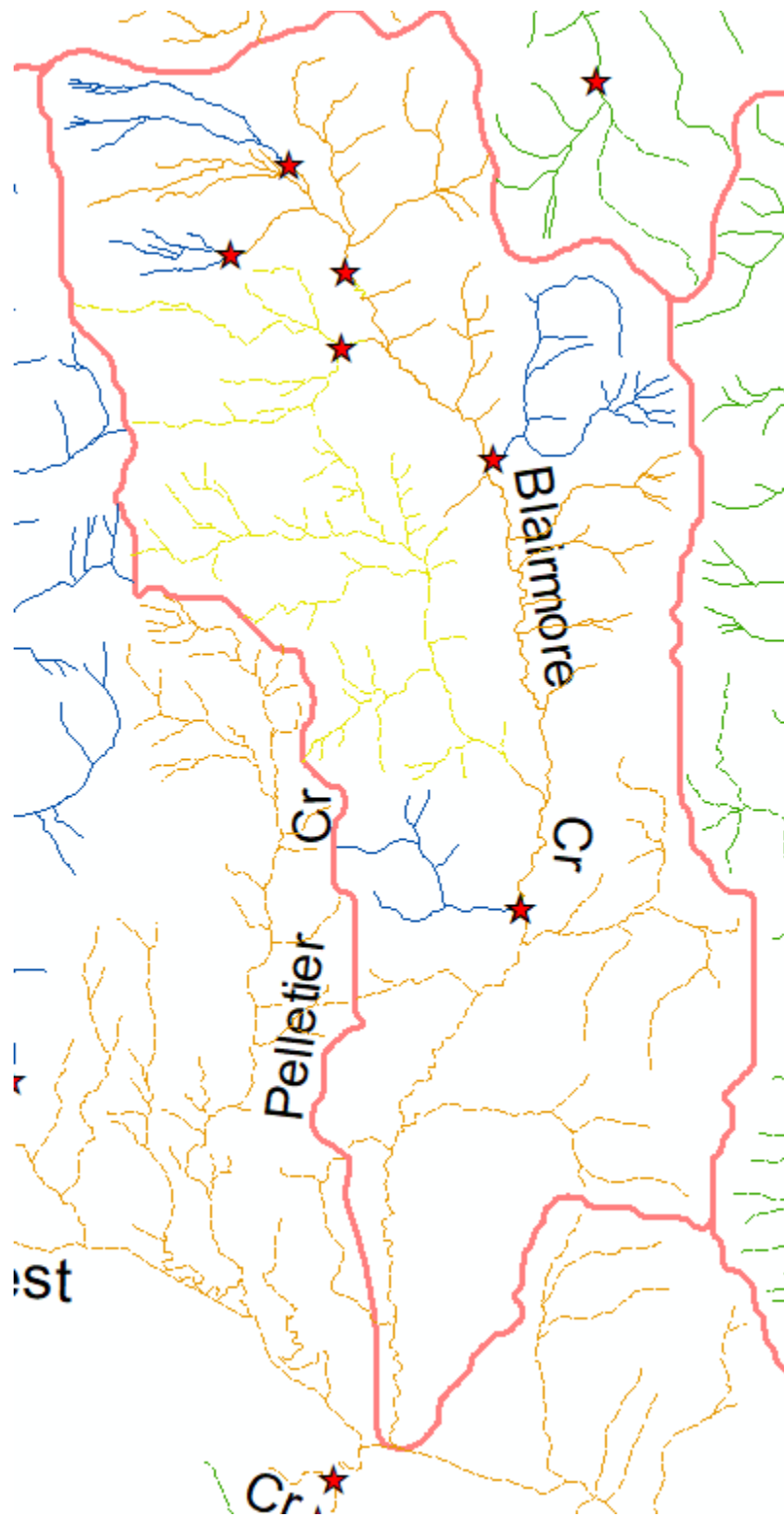
Oyster Creek = Pure



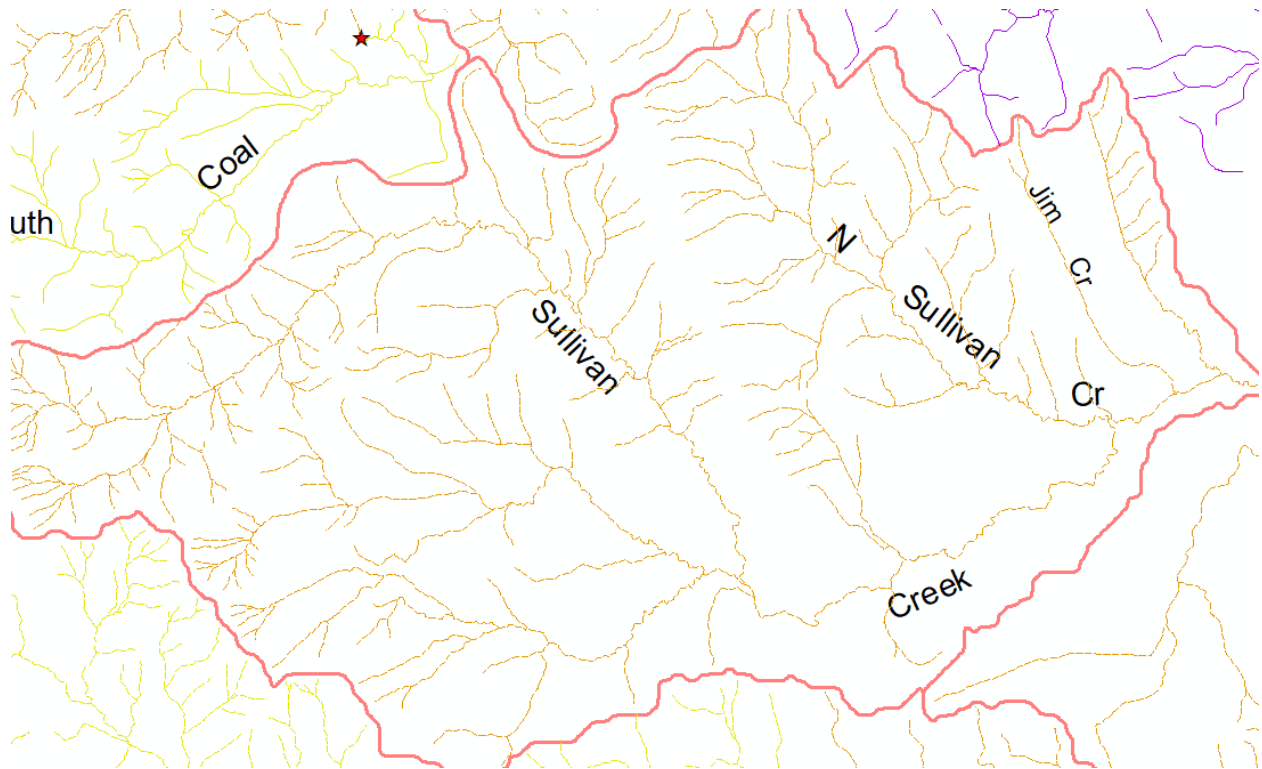
Classification: Protected A



Blairmore Creek = mostly hybrid, some near pure



Sullivan Creek = hybrid



Ware Creek = hybrid

