



## Towards Integrating Ecosystem Function in the Columbia River Treaty

CBRAC Update/Q&As

September 29, 2020

*CRT EF Sub-Committee*

## Ecosystem/Secwepemc Values

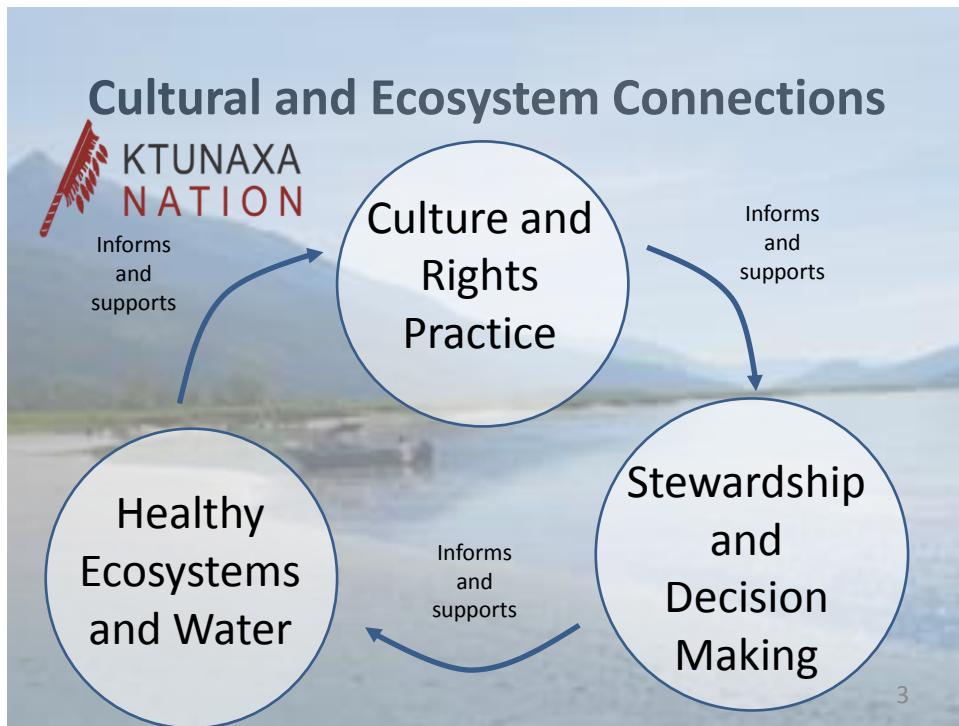


### 1. Respecting Secwepemculucw

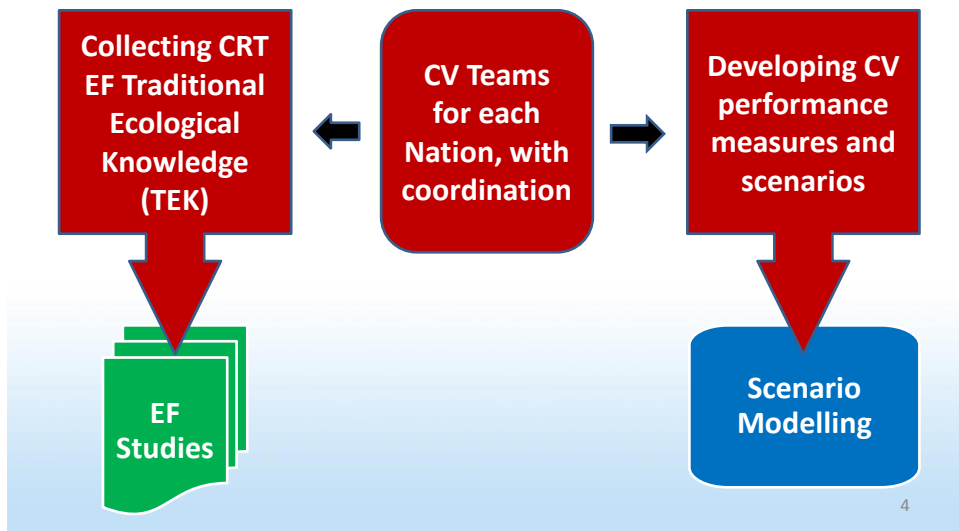
- We are taught to respect our lands (Secwepemculucw).
- CRT has had serious impacts to our traditional lands, resources and our people
- Priority is improving ecosystem health in the Basin

### 2. Neku7 te Setetekwe (One River)

- We must take into consideration the whole Columbia River Basin when we work toward protecting Indigenous cultural resources and sustaining clean water and healthy populations of fish, wildlife and plants.



## CRT Cultural Values (CV) Work



## PURPOSE

- Update since Oct. 2019 meeting
- Time for questions and answers as requested



## OUTLINE

- Quick refresher presentation
- Questions
- Update presentation
- Questions



KTUNAXA  
NATION



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## Need Domestic Flexibility in CRT

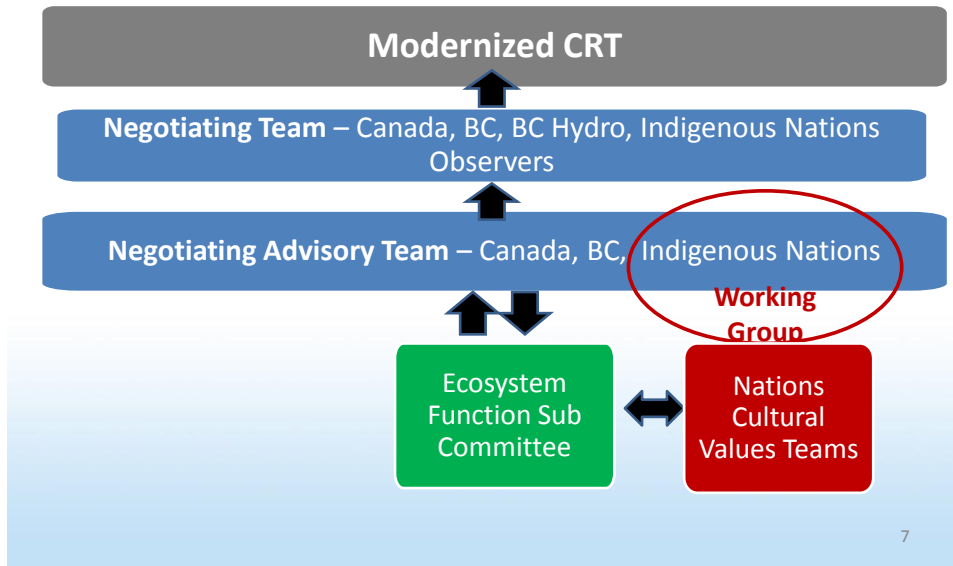
- Much to be learned about integrating EF into hydro operations
- Learning will be through studies, scenario modelling and active adaptive management
- Learning will take time

***Treaty must have domestic flexibility to support integrating EF over time***



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## CRT EF Link to Negotiations



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## CRT EF Sub-Committee

Interest	Organizations	Members
<b>Indigenous Lead</b>	<ul style="list-style-type: none"> <li>➤ Ktunaxa Nation Council</li> <li>➤ Secwepemc Nation Tribal Council/Shuswap Indian Band</li> <li>➤ Syilx/Okanagan Nation Alliance</li> </ul>	Bill Green, Katrina Caley Mark Thomas, Adam Neil, Envis Ltd. Howie Wright, Richard Bussanich, David Derosa
<b>BC</b>	Forests, Lands, Natural Resource Operations and Rural Development	Will Warnock
<b>NGOs</b>	<a href="#">Upper Columbia Basin Environmental Collaborative</a>	Greg Utzig
<b>Canada</b>	Environment Canada and Climate Change	Jenny Ferone
<b>Ex-officio support</b>	LGL Ltd. – Technical advisor Mountain Labyrinths - Facilitator	Virgil Hawkes Cindy Pearce

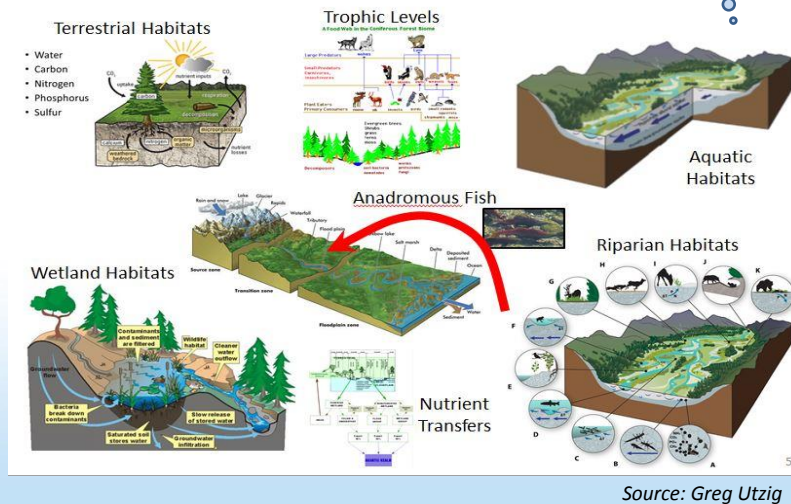
*Joined since Oct. 2019*

*Joined in Sept. 2020*

# What are Ecosystems? What is Ecosystem Function?

It's complicated!!

## Ecosystem Function Examples

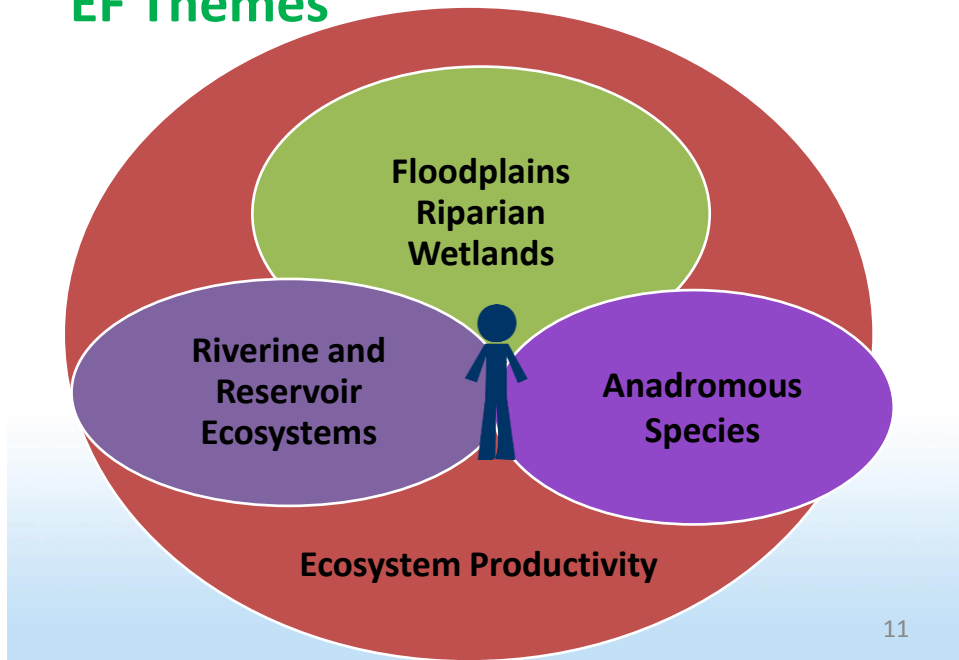


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## General EF Goals

- **Improved ecosystem function** to support Indigenous cultures (including responsibility, access and uses) and Basin resident values
- **Flexibility in reservoir operations** to facilitate active adaptive management
- Reservoir operations that **balance** achievement of the range of ecosystem function objectives

## EF Themes



## Draft Goals/Objectives

- From Preliminary Synthesis draft
- External review
- Community input last fall
- To be refined



## Questions?



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## UPDATE

- Feedback from community meetings
- Scenario modelling
- General studies
- Ecosystem specific studies
- Next steps



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## Community Meeting Feedback

- 12 meetings – 351 participants
- Appreciation for Indigenous leadership
- Continuing high support for including EF in the CRT
- 82% describe EF work as ‘going in the right’ direction
- Importance of including all reservoirs and incorporating climate change
- More focus on hearing from ‘locals’

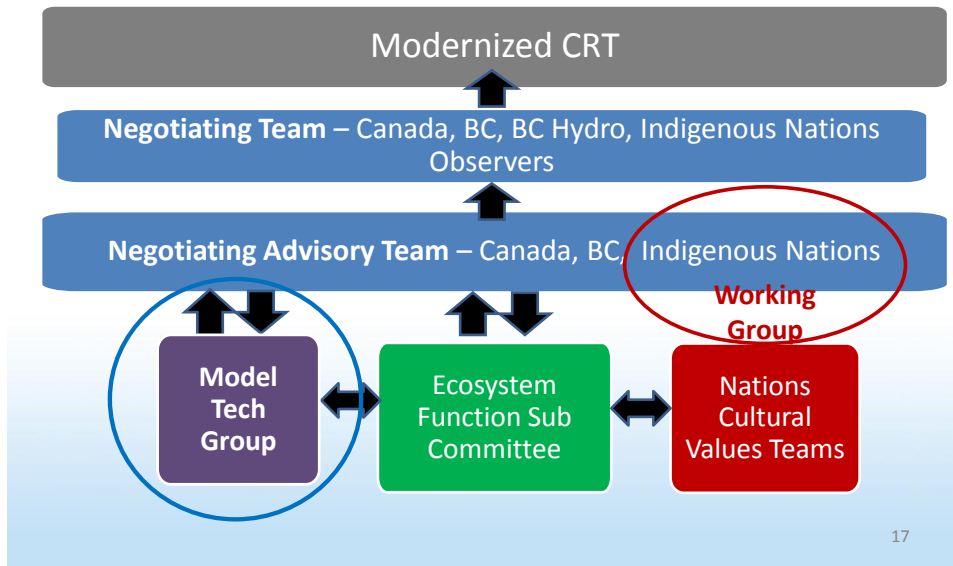


## Scenario Modelling Terms

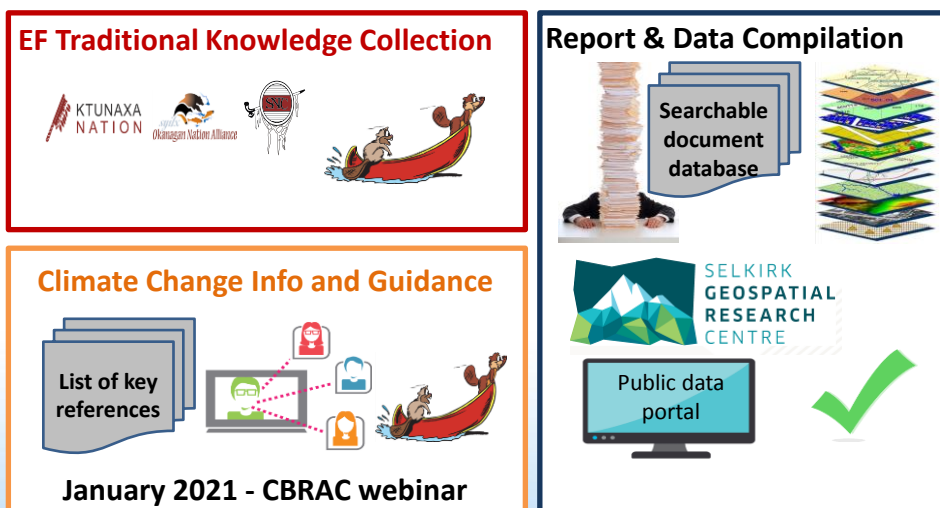
Term	Example
<b>Goals/objectives</b> – Define desired outcomes compared to baselines (pre-dam and 2012+ operations)	Increase area of floodplains, wetlands and riparian habitats
<b>Performance measures</b> – Units that describe the desired outcomes; used to evaluate alternative scenarios	Hectares of these habitats compared to the area of these habitats with a) current reservoir levels and b) pre-dam flows
<b>Scenarios</b> – Computer modelling of alternative potential operational river flows and reservoir levels	Scenario 1 – Less fluctuation in Arrow reservoir levels Scenario 2 – Maximum power generation ETC.



## Scenario Modelling Group



## General Studies



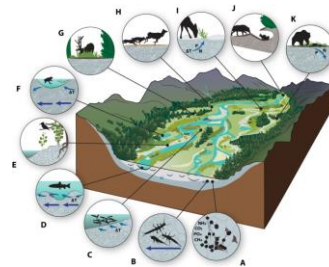
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## EF PM Studies



**Ecosystem Productivity** – changes in primary productivity from modified flows and reservoir levels

- terrestrial
- riverine
- reservoir



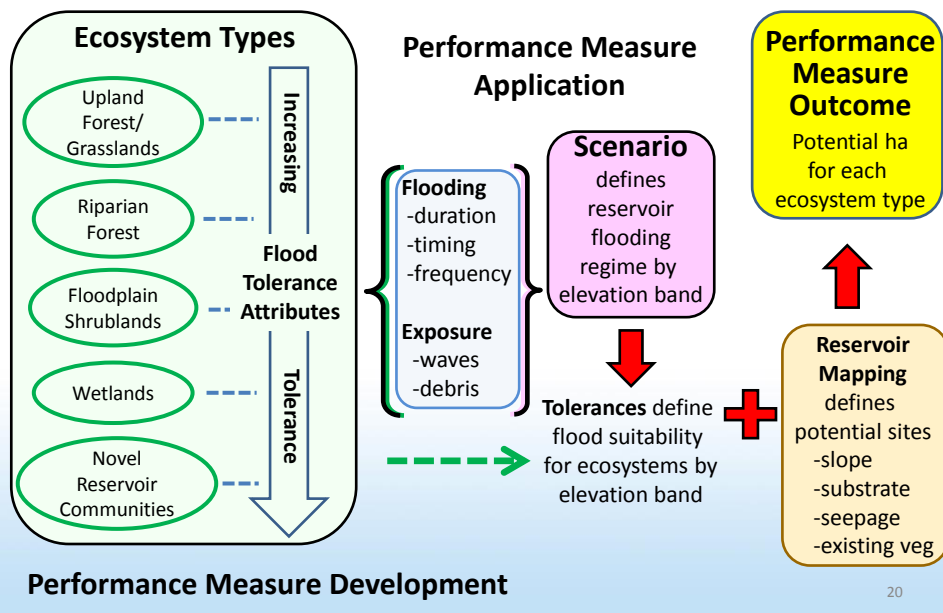
## Floodplain/Riparian /Wetlands

- Hydroperiod – additional hectares of revegetation from modified seasonal reservoir level fluctuations



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## Floodplain/Riparian/Wetlands



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## EF PM Studies



### Riverine and reservoir ecosystems

- Functional flow – flows that meet biological needs
- Mainstem/side-channel/low gradient tributary habitats – for fish species
- Tributary access for fish
- Fish stranding



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## EF PM Studies



### Anadromous Species

- Anadromous salmon performance metrics for juveniles and adults from spawning to the ocean and back
- Okanagan focus with capacity to include river from Okanagan River/Columbia confluence to Arrow dam



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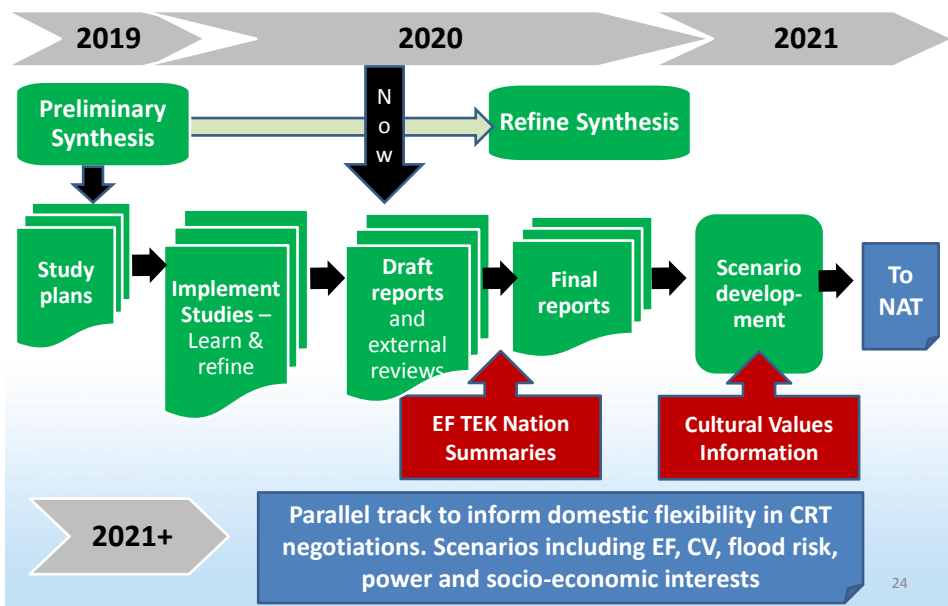
## EF Scenario Development

- Explore scenarios (flows and reservoir levels) that balance achievement of EF goals
- Then explore scenarios that balance achievement of EF and cultural values goals



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## Progress



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# Questions?

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