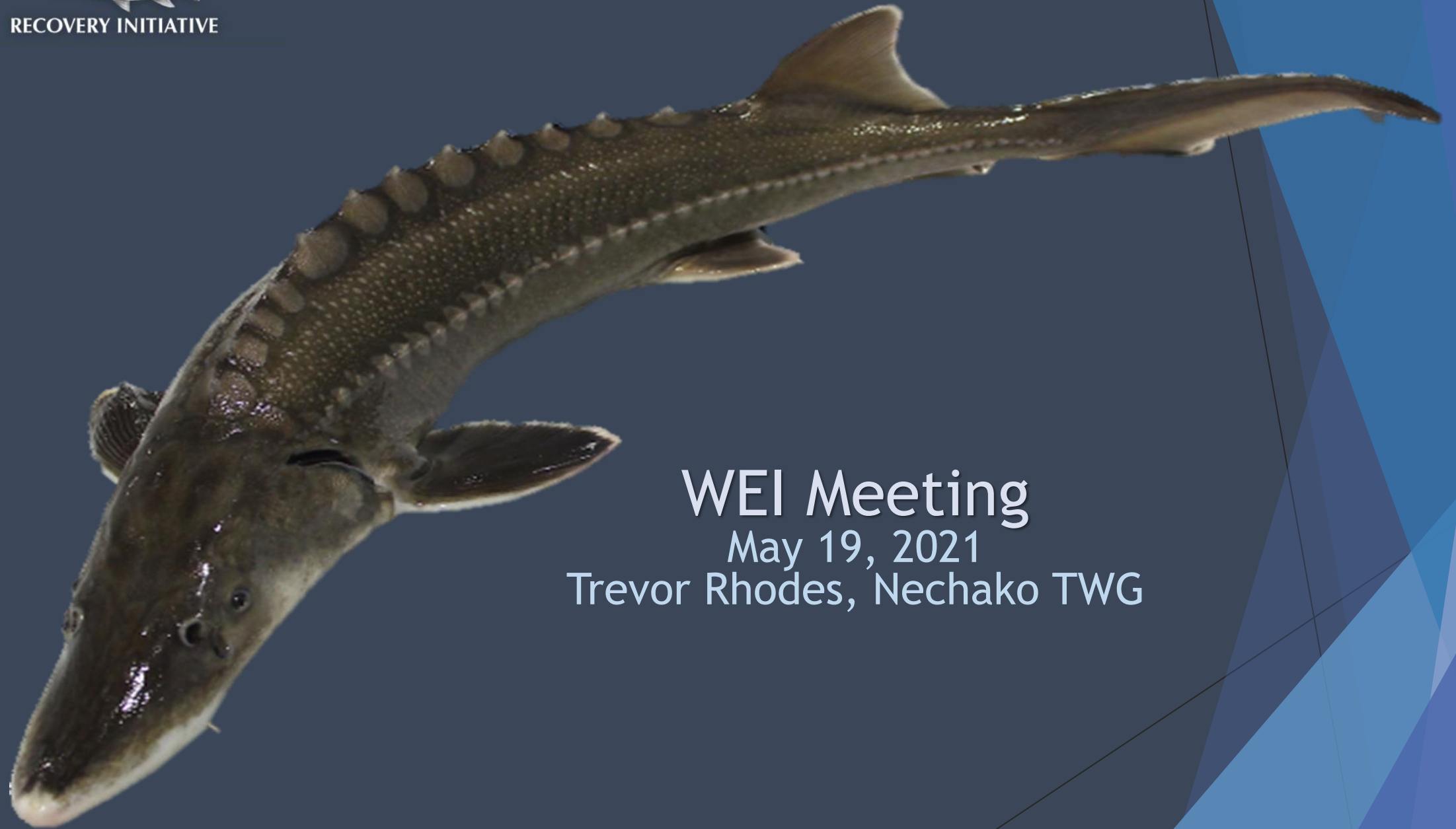


NECHAKO WHITE STURGEON



RECOVERY INITIATIVE



# WEI Meeting

May 19, 2021

Trevor Rhodes, Nechako TWG



## Outline:

- ▶ TWG Goals and Objectives
- ▶ What have we learned?
- ▶ What work are we doing in 2021?
- ▶ What are the gaps?
- ▶ Collaboration with WEI





## TWG Goals:

- ▶ Long-term - return Nechako sturgeon to self sustaining population
- ▶ Short-term - develop conservation aquaculture and breeding program to address immediate population decline

Added Goal: Ensure minimal impact to other sturgeon populations





## TWG Objectives:

- ▶ Restoration of habitat and ecosystem function
- ▶ Scientific studies to support recovery
- ▶ Promote education and awareness
- ▶ Collaboration and engagement with governments (First Nations, DFO) and stakeholders
- ▶ Hatchery Releases



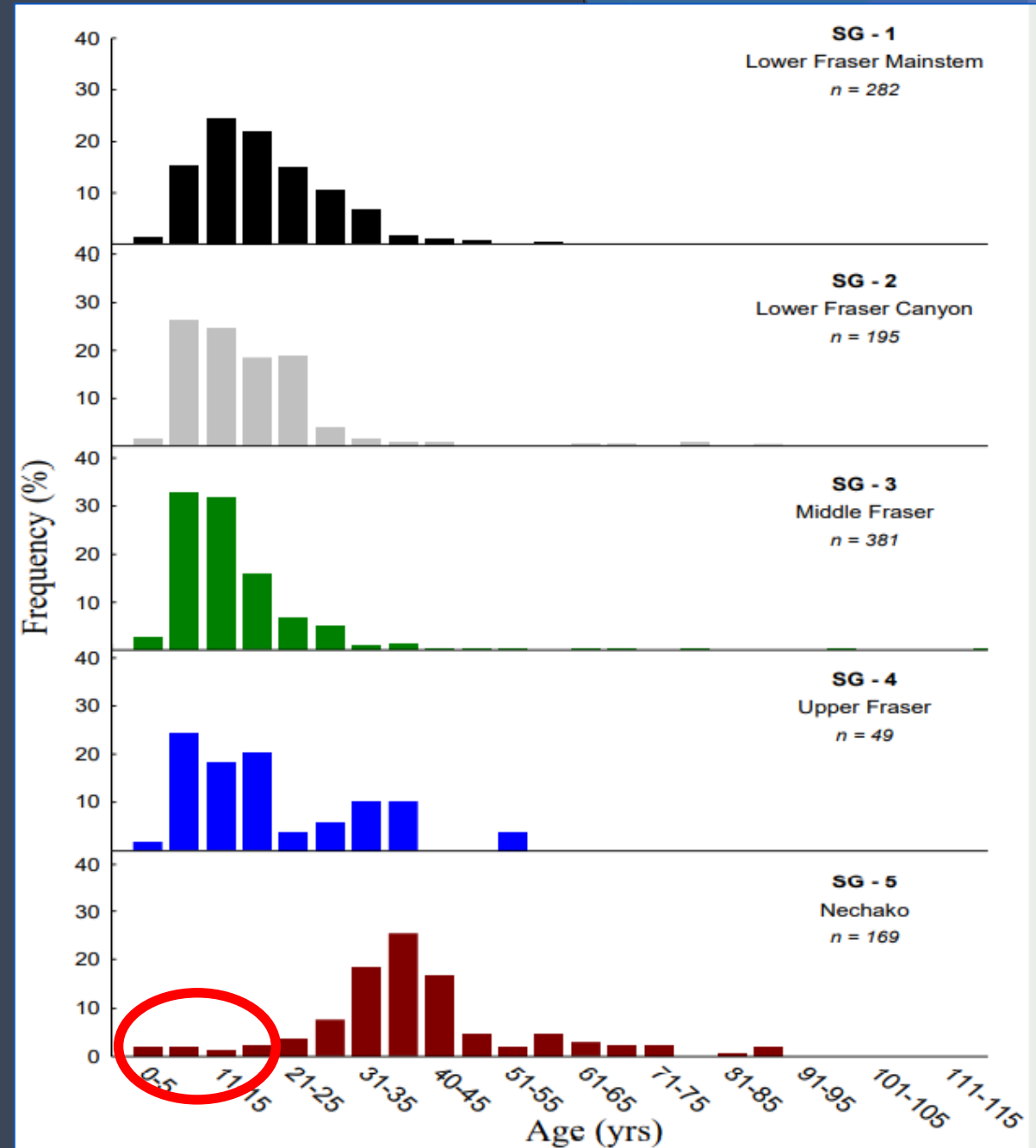




# What have we learned?

## 2 Bottlenecks for recovery

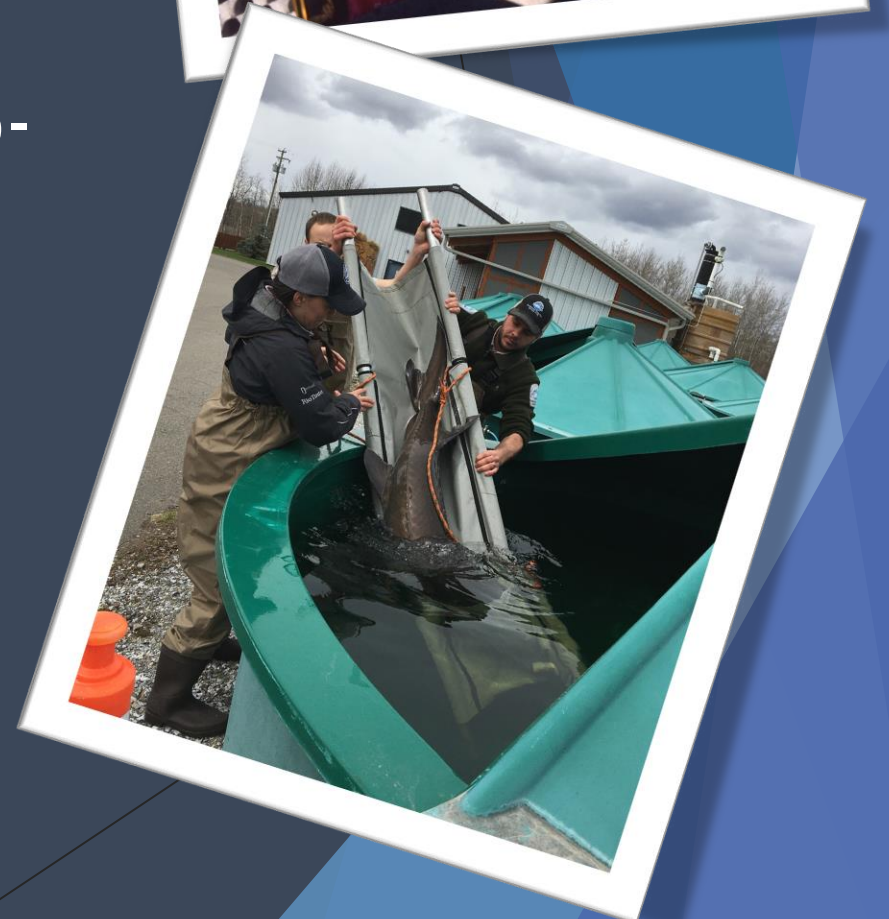
1. Recruitment
2. Juvenile survival





## Hatchery Releases:

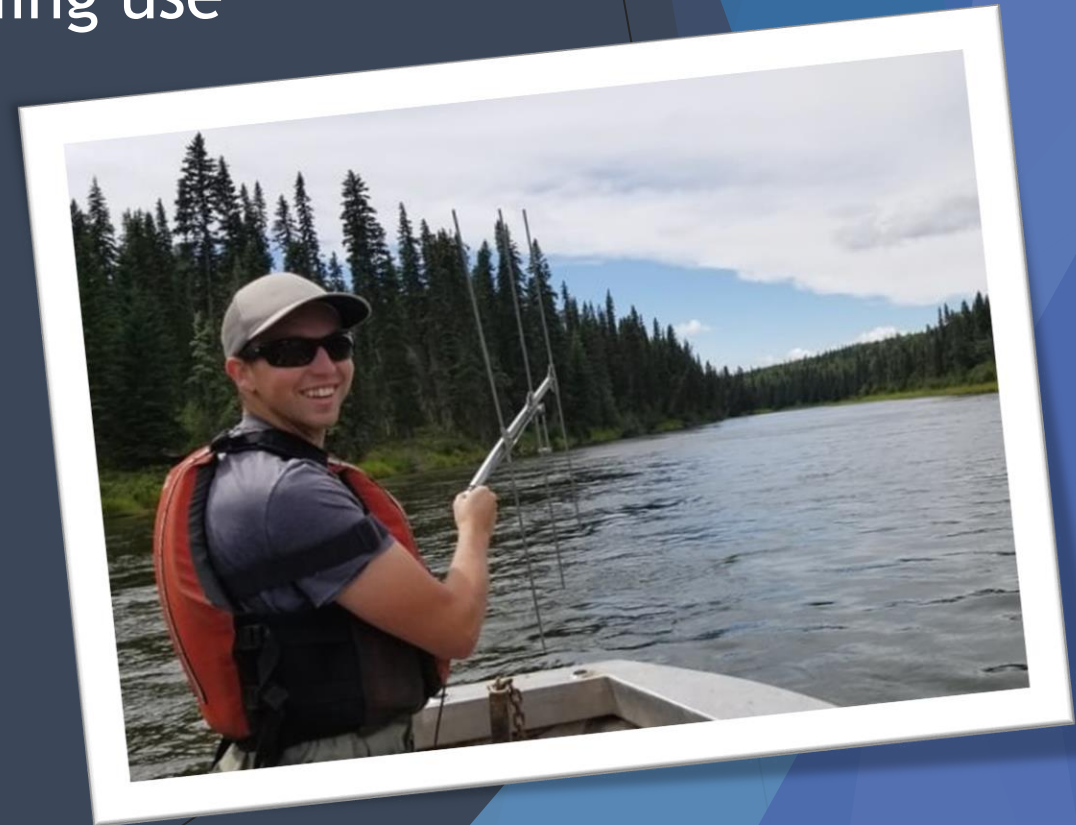
- ▶ 2015-2018 cohorts (~30,000 1 yr old ~40 cm) captured in Upper Fraser and Mid Fraser 300 km downstream of release site
- ▶ Stocking 200 juvenile sturgeon at 2 yr old/5-year eq (>70 cm)
  - appears to improve survival
  - better at avoiding predation impacts
  - broader use of habitat and distribution
  - Stay within Nechako
- ▶ Modeling suggests survival too low





## Movement:

- ▶ Telemetry shows low rates exchange between Nechako, Mid Fraser and Upper Fraser units
- ▶ Providing important information on spawning use
- ▶ Providing information of juvenile survival, abundance, habitat use and overall distribution within watershed
- ▶ Indicates larger fish size (>70 cm) tend to remain in Nechako R. = mitigated downstream impacts







## Predation:

- ▶ 1170 pit tags recovered 2016-2020
- ▶ 59 latrines identified
- ▶ Otter predation as high as 10% for released fish
- ▶ Up to 70 cm
- ▶ Not just after release







# What work are we doing in 2021?

## Strategic Planning

- ▶ Habitat Restoration Plan
- ▶ Long-term Hatchery Release Plan
  - Numbers, size, genetics, timing, location
  - Criteria, thresholds, repatriation
  - FFSBC agreement (year 8 of 10)
- ▶ Survival Plan
  - Predators
  - Habitat manipulation
  - Release location
  - Release size





## What work are we doing in 2021?

### Habitat

- ▶ Habitat manipulation (substrate restoration)
- ▶ Multi-year egg planting and survival experiments
- ▶ Adding gravel patches and looking at infill dynamics (time, how quality a & conditions change
- ▶ Additional measurement devices at bridge/just downstream
- ▶ Winter habitat use - how changes with discharge, models (CSTC)
- ▶ Large scale spawning monitoring - retrospective data set analysis...correlation with temp, discharge, moon cycles/light etc.





## What work are we doing in 2021?

- ▶ Continued telemetry
  - Spawn and juvenile monitoring (movement, habitat use & distribution)
  - predation
- ▶ Stock assessment- abundance and density
- ▶ Risk assessment of hatchery fish in Fraser (genetic, ecology)

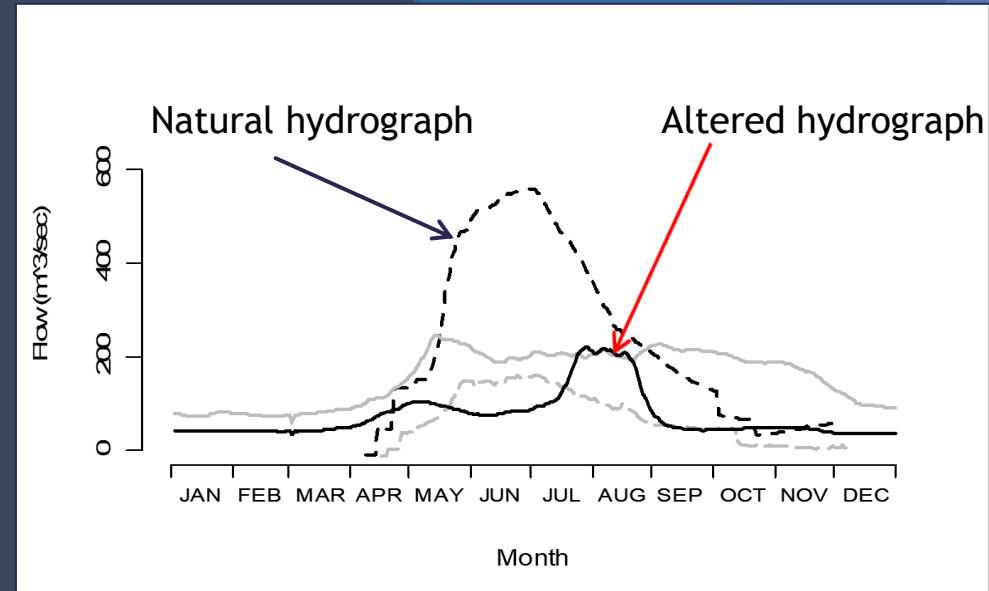






## What are the gaps?

- ▶ Habitat productive capacity (by life stage)
- ▶ Habitat & use vs. discharge/flow correlations (also other factors)
- ▶ Role of hatchery releases in Fraser R. for recovery goal
- ▶ Bioenergetics (food budget), significance of salmon declines
- ▶ Risk of hatchery releases to Fraser R. population, genetics
- ▶ Key survival factors and mitigations
- ▶ New gaps (plans, new information)





## Collaboration with WEI:

- ▶ Information exchange
- ▶ Support for project funding and capacity
- ▶ Linkage with salmon recovery initiatives
- ▶ Future adaptive management?





## Acknowledgements

- ▶ Nechako White Sturgeon Recovery Initiative & TWG
- ▶ MOE, FLNRORD, DFO, FFSBC, RTA, UBC, NHC
- ▶ NEEF, CSTC, HCTF
- ▶ District of Vanderhoof