

Nechako

Water Engagement Initiative

Nechako Watershed Roundtable
Spring Technical Meeting: Progress & Potential
June 3, 2025

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Ecofish Research Ltd.



Outline

- Overview of the Water Engagement Initiative
 - The problem
 - About WEI and who is participating
 - Interests, issues, and technical work
 - Structured Decision Making
- Phase 1 outcomes
 - Flow regime
 - Data gap studies
 - Physical works
- Looking forward

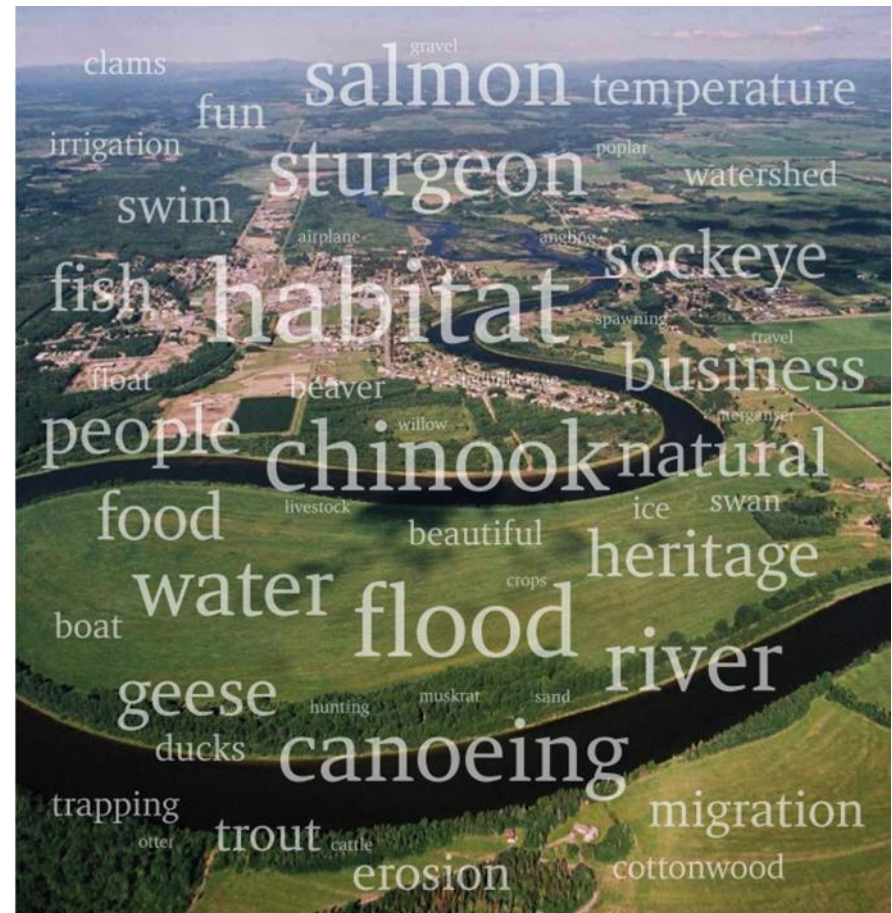


Nechako River Flow Management



What is Water Engagement Initiative?

- Multi-stakeholder
- Consensus-based assessment and planning
- Understanding cultural, social, environmental, & business interests
- Better solutions for flow regulation of the Nechako River & Reservoir.



Participants

- Broad range of participants from
 - First Nations
 - Federal, provincial and municipal government
 - Academia
 - Special interest groups
 - The public
 - Rio Tinto



Process

- Built on the principles and approaches outlined in the *BC Water Use Plan Guidelines*
- Participants lead direction, structured process to help them get there
- Process is led by the Main Table supported by an independent facilitator, Process Team, SouthSide Working Group, and Technical Working Group
- Consensus-based



Issues Scoping



Interest

Pathway

Outcome

Communication & Process

Communication
Working Group

New/Improved
Communication

Social, Economic, &
Environmental Receptors

Fish & Wildlife
Human Health
Culture & Heritage
Flooding & Erosion
Recreation
Rio Tinto Operations

Technical
Working Group

Flow Changes
Physical Works
Monitoring
Adaptive
Management

Reservoir-specific

South-Side
Working
Group

Physical Works

Related Initiatives
(not directly influenced
by Rio Tinto)

Non-WEI
Processes
(land use planning,
climate change)

Inform WEI
Adapt RT
operations



**Social, Economic, &
Environmental Receptors**



Themes

Fish & Wildlife



Salmon
Sturgeon
River fish
Reservoir fish
Caribou
Beavers
Waterfowl & Shore-nesting
Birds
Osprey & Cormorants
Wildlife Habitat

Human Health



Water Quality
Methyl Mercury



**Social, Economic, &
Environmental Receptors**



Themes

Culture & Heritage



Indigenous Gravesites

Flooding & Erosion



Municipal flooding
Private property flooding
Backwatering
Bank erosion
Sediment transport



**Social, Economic, &
Environmental Receptors**



Themes

Recreation & Navigation



Boat launches & docks
Dead trees
Submerged hazards
Float planes & canoes
Hiking trails
Beaches

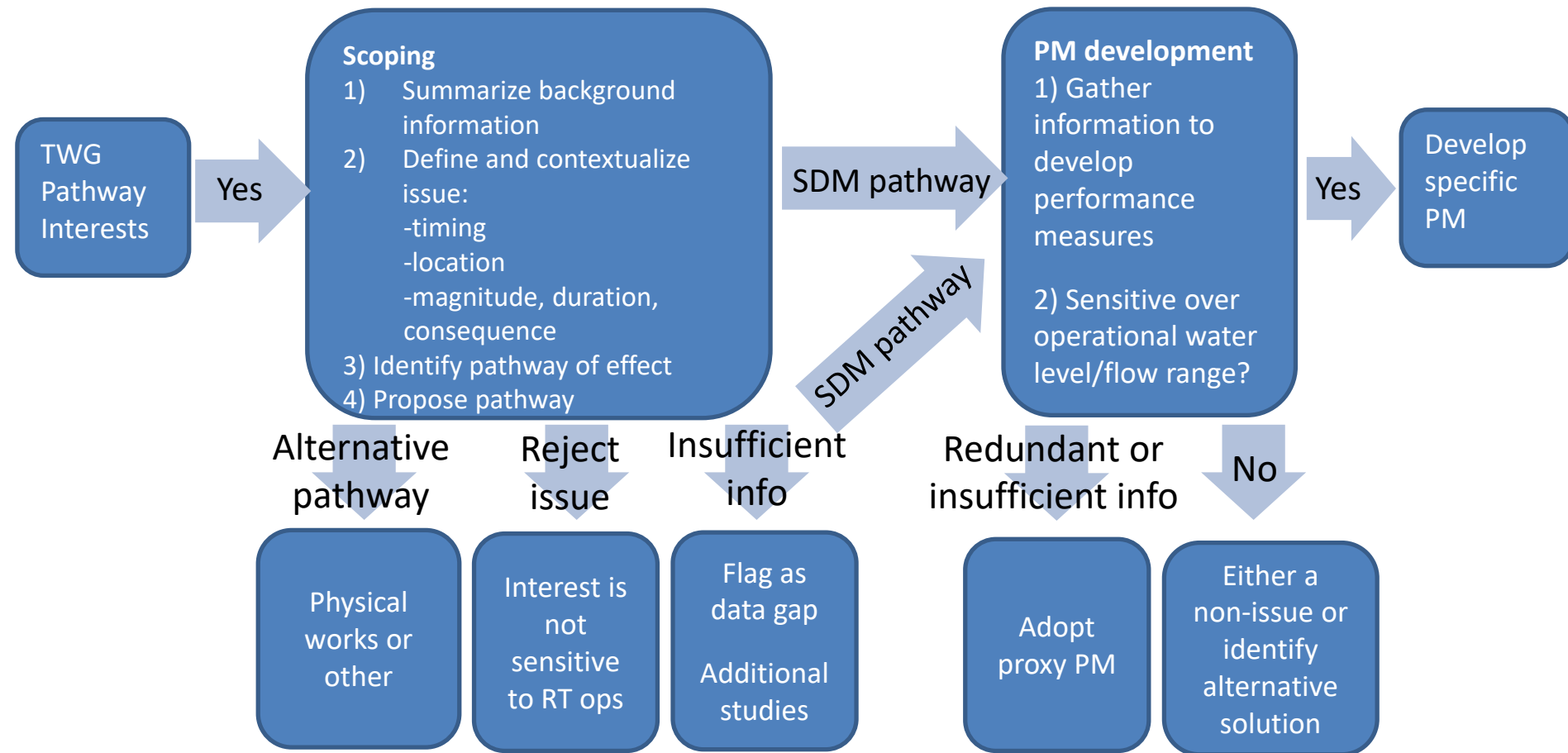
Rio Tinto Operations



Aluminum production
Operational Flexibility
Revenue



Issues Scoping



Issues Summary & Technical Memos

- Ecofish tasked by TWG to review/compile information for select complex interests/issues
- Summary and technical memos:
 - Naturalized Hydrograph
 - Wetlands
 - Wildlife
 - Caribou
 - Reservoir Productivity
 - Flow Ramping/Fish Stranding
 - Salmon Water Temperature
 - Kemano and SLS Entrainment



Issues Summary & Technical Memos

- Other memos for SSWG:
 - Reservoir Erosion
 - Water Intakes and Pumps
 - Turbidity Filtration
 - Reservoir Water Quality
 - Reservoir Tour
- Other Studies
 - LIDAR/Bathymetry
 - Ice Jams

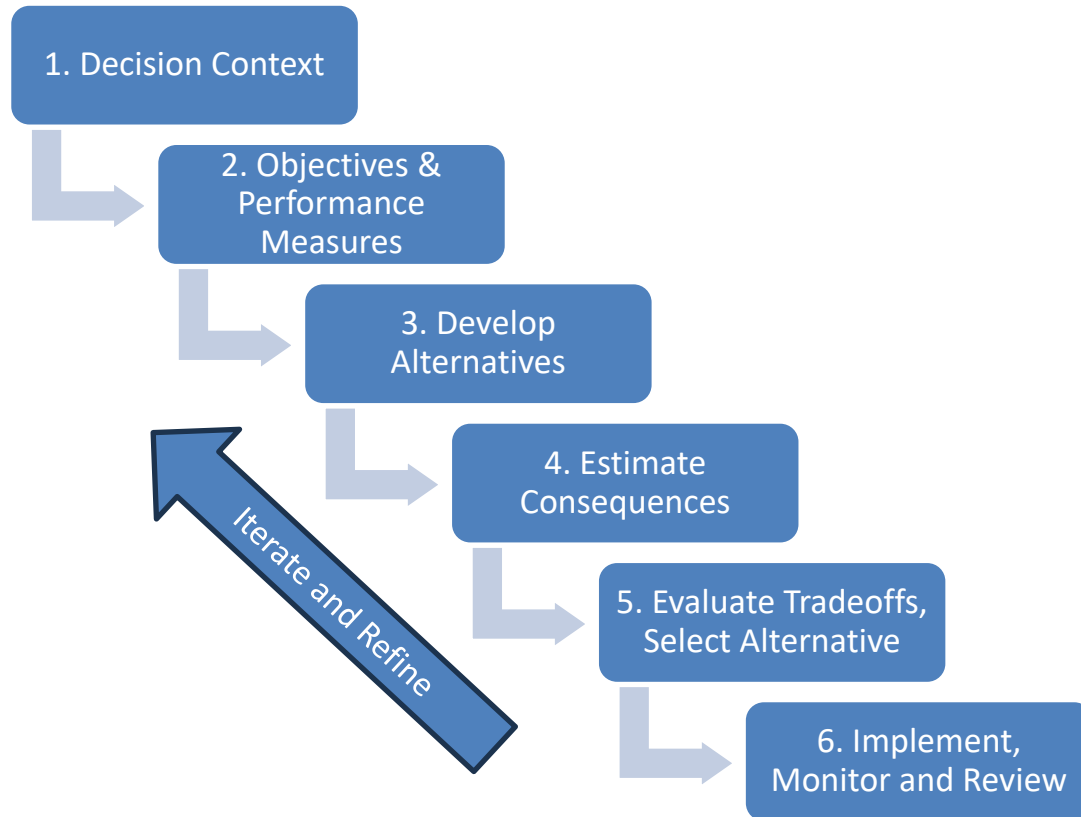


Other Technical Activities

- Climate Change
 - Collaborating with active research on CC
 - UNBC, ETS, UBC, PCIC
 - Nechako-specific climate change model
 - CC being built into RT reservoir model and river model
 - Includes temperature and precipitation
 - Anticipated spring 2022
- Sturgeon
 - Collaborating with NWSRI
 - Information exchange



Structured Decision Making



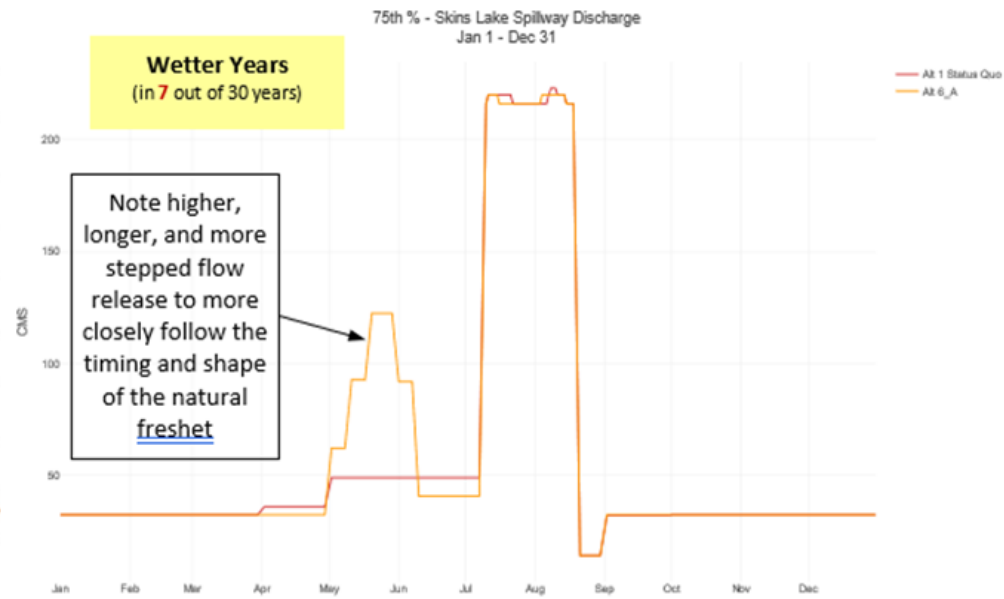
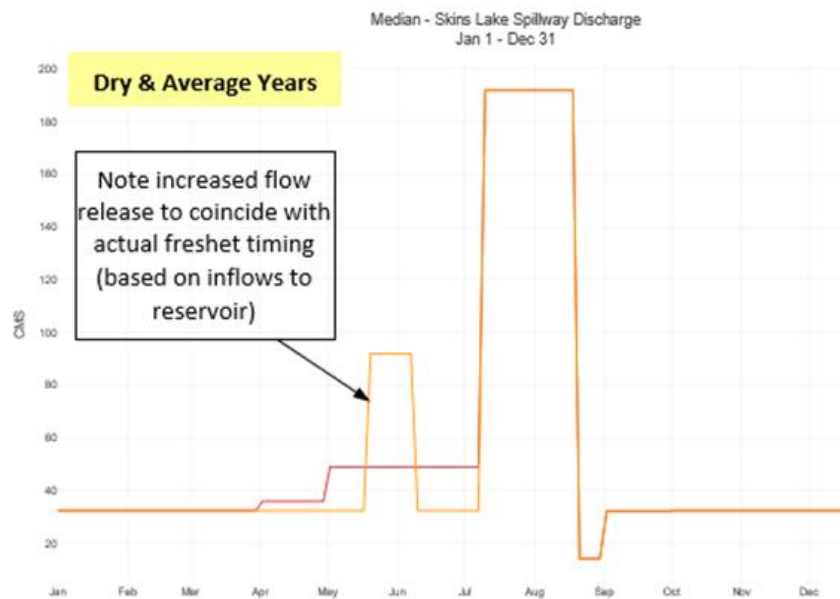
Phase 1 Outcomes

- **After 5 years, there was consensus on a flow alternative!**
- Phase 1 report finalized (November 2024)
 - Describes WEI process
 - Summarizes issues, PMs, structured decision making.
 - Documents flow alternative decision: Alt 6a
 - Includes non-flow alternative components: data gap studies and physical works
 - Describes monitoring and triggers for updates
 - Outlines transition to hybrid Phase 2/3 approach



Preferred Flow Alternative: 6a

- Re-shape spring flows (different wet and dry)



Non-Flow Components

- Physical works:
 - Habitat or other physical improvements to provide benefits in lieu of, or addition to, flow changes
- Data gaps:
 - Targeted studies to refine existing PMs &/or develop new PMs
 - Research to address uncertainties regarding the current state of ecological components



Physical Works

POP #	Relevant Issue(s)/Topics(s)	Proposed Project	Location
1	Caribou movements	Large woody debris removal on calving islands	Nechako Reservoir
2	Caribou island land links	Dredge land bridges between known caribou calving islands	Nechako Reservoir
3a	Osprey nesting habitat	At-risk nesting site relocation	Nechako Reservoir
3b	Osprey nesting habitat	At-risk nesting sites tree removal	Nechako Reservoir
7a	Chinook & resident fish rearing & overwintering habitat	Mainstem instream woody debris structures	Nechako River
7e	River fish habitat	Mainstem instream woody debris structures	Cheslatta watershed
12a	Chinook & resident fish rearing & overwintering habitat	Side channel trenching	Nechako River
12b	Chinook & resident fish rearing & overwintering habitat	Side channel instream woody debris structures	Nechako River
12c	Chinook & resident fish rearing & overwintering habitat	Side channel excavation	Nechako River
13	Open water flooding	Flood protection	Nechako River



Physical Works Update: Osprey

- Snag removal in 2024
- Awaiting permits for at-risk nest removal



Physical Works Update: Caribou

- Shoreline LWD removal planned for fall 2025 by Cheslatta Carrier First Nation
- Supported by Rio Tinto, BC government, and HCTF



Data Gap Studies

POP #	Relevant Issue(s)/Topics(s)	Proposed Study Approach/Topic(s)	Location
1	Fish & fish habitat	Abundance & demographics (mainstem & off-channel habitats)	Nechako River
2a	Fish & fish habitat	Abundance & demographics (e.g., littoral & pelagic surveys)	Nechako Reservoir
2b	Fish spawning & migration	Migration & spawning surveys	Nechako Reservoir
3	Lake bathymetry	Depth measurements & bathymetric modelling	Cheslatta watershed
4	Reed canary grass	Literature review; abundance & distribution field assessments	Nechako River
5	River productivity	Temperature profiles; water quality, macrophyte, plankton, & macroinvertebrate sampling	Nechako River
6	Reservoir limnology / productivity	Temperature profiles; water quality, macrophyte, plankton, & macroinvertebrate sampling	Nechako Reservoir
7	Reservoir bathymetry	Depth measurements & bathymetric modelling	Nechako Reservoir
8	Reservoir hydrology	Basin water level monitoring	Nechako Reservoir



Data Gap Studies

POP #	Relevant Issue(s)/Topics(s)	Proposed Study Approach/Topic(s)	Location
9	Limnology / productivity	Temperature profiles; water quality, macrophyte, plankton, & macroinvertebrate sampling	Cheslatta watershed
10	Fish & fish habitat	Abundance & demographics (e.g., littoral & pelagic surveys); spawner & migration surveys	Cheslatta watershed
11	Hydrology	Lake water level & river discharge monitoring	Cheslatta watershed
12	Salmon & resident fish water temperature	Literature review (complete); research workshops; laboratory & in situ research	Nechako River
13	Freshwater mussels	Abundance & distribution field survey	Nechako River
14	White Sturgeon	Communication w/ NWSRI	Nechako River
15	Archeological sites	Shoreline baseline survey; ramping rate trials; shoreline & gravesite follow-up surveys	Cheslatta watershed
16	Ice processes	Ice regime; ice thickness & overwinter habitat; & ice scour assessments	Nechako River
17	Fish stranding	Document at-risk habitat and assess fish isolated in pools, entangled in reed grass, or stranded on beaches	Nechako River



Looking Forward

- Implementation:
 - Flow regime
 - Data gap studies
 - Physical works
 - Monitoring
- Planning:
 - Phase 2/3
 - Infrastructure upgrades



Questions

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