Rio Tinto
WEI Main Table meeting #16
TWG Update

Wednesday, February 10, 2021

TWG Update

- *Objective is to support Main Table by developing draft objectives, Performance Measures (PMs), and flow alternatives.*
- *Bi-weekly meetings (3 since last Main Table meeting).*
- *Generally on track for 6 month timeframe (April).*
- *Brainstorming nearing completion (some fish and wildlife issues remain), technical work proceeding, flow alternatives to follow.*

TWG Update

- *List of Interests*
  - *General (healthy river, natural hydrograph, climate change, information sharing).*
  - *Heritage and culture (inundation or erosion of heritage sites, gravesites).*
  - *Flooding, erosion, and low water (ice jams, property damage, land loss, effects on landowner and public infrastructure, sediment generation).*
  - *Recreation (navigation, boat ramps, canoeing, hiking trails).*

TWG Update

- *List of Interests*
  - *Wildlife (caribou, osprey, waterfowl, beavers, amphibians, wetlands).*
  - *Fish (sturgeon, salmon, resident species, habitat availability and quality, tributary access, water temperature, water quality, entrainment, stranding).*
  - *Rio Tinto Operations (operational flexibility, cost, power supply certainty, risk management).*

TWG Update

- *Technical work*
  - *Subject matter experts*
  - *Review and summarize existing information*
  - *Confirm effect: mechanism, scale, timing, location etc.*
  - *Identify uncertainty*
  - *Recommend PMs*

TWG Update

- *Technical work*
  - *Natural Hydrograph*
    - *Rebuilding Nechako River hydrograph as if all flows since 1952 went down the Nechako River (no diversion through Kemano).*

TWG Update

- *Technical work*
  - *Reservoir Erosion and Large Woody Debris accumulation*
    - *How does LWD and other factors affect erosion?*
    - *What Best Management Practices can reduce erosion and restore sites?*
  - *River Erosion*
    - *What factors affect erosion? How much does flow (velocity and rate of change) contribute?*
    - *What Best Management Practices can reduce erosion and restore sites?*

TWG Update

- *Technical work*
  - *Wetlands*
    - *Are wetlands affected by changes in reservoir level?*
    - *Identify wetlands adjacent to the reservoir.*
    - *Professional opinion on the types of effects.*
  - *Wildlife*
    - *What species are potentially affected by changes in reservoir elevation or river flow?*

TWG Update

- *Technical work*
  - *Reservoir limnology*
    - *Productivity (water quality, nutrients, temperature) can be a limiting factor for fish.*
    - *How does operations effect reservoir productivity and water quality?*
    - *What are the limiting factors of productivity (e.g., flushing out highly productive water from reservoir, wildfires)?*
    - *Do operations affect reservoir temperature (e.g., disrupt thermocline)?*
    - *What are key factors driving reservoir water quality (e.g., soil chemistry, land use practices).*

TWG Update

- *Technical work*
  - *Fish Entrainment.*
    - *How likely are fish being swept downstream through Skins Lake Spillway?*
    - *Applying the BC Hydro risk screening approach.*
  - *Flow Ramping Rates.*
    - *Changes in water level can strand fish and cause erosion.*
    - *How quickly does water level change?*
    - *Calculate ramping rates and compare to provincial standard rates to determine risk to fish.*
    - *Give a professional opinion about how ramping events would attenuate downstream.*

TWG Update

- *Technical work*
  - *Salmon temperature tolerance.*
    - *How does river temperature affect salmon?*
    - *What temperature thresholds are important?*
  - *Other topics tbd*
    - *Fish habitat?*

TWG Update

- *Technical work*
  - *Other technical work underway, including summaries/assessments to support list of interests:*
    - *Floatplane access*
    - *Flooding*
    - *Ice jam*
    - *Water quality*
    - *Bull trout habitat*
    - *Fish access to spawning tributaries*
    - *Water intakes*
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TWG Update

- *Technical work*
  - *Dead standing trees*
    - *Specific study (1997) assessing impacts of underwater logging*
    - *Case studies*
    - *Leaving trees and vegetation in place can provide many benefits:*
      - *Erosion*
      - *Productivity*
      - *Aquatic ecology and food chain*
      - *Fish habitat*
    - *Removing trees can reduce these benefits*

TWG Update

- *Technical work*
  - *Dead standing trees*
    - *Little baseline information exists specific to the Nechako Reservoir:*
      - *Catalogue treed areas, including areas previously logged.*
      - *Establish baseline inventory of fish and invertebrates.*
      - *Quantify angler effort and catch.*
    - *If removing trees:*
      - *Start small*
      - *Assess effects*
      - *Focus on aphotic zone (below sunlight depth)*
      - *Avoid areas where erosion can be exacerbates (streams, drawdown zone)*
      - *Leave stumps and debris in euphotic zone (where sunlight reaches)*

TWG Update

- *Review/recommendation*
  - *Objective is to support Main Table by developing draft objectives, PMs, and flow alternatives.*
  - *Confirm Issues*
  - *Define PMs*
  - *Develop alternative flow scenarios*
    - *Issue-specific, hybrid, general*
  - *Deliverables:*
    - *Revised list of issues w/ technical rationale*
    - *Shortlist of objectives and PMs*
    - *Range of flow scenarios, including Eaton & water release*
    - *Trade-off "results" table*