
To: WEI Technical Working Group members
From: Jayson Kurtz and Jennifer Carter
Date: January 19, 2022
Re: Summary of TWG meeting held Wednesday, January 19, 2022, 9:00 am to 12:00 pm

Attendees:

- Rahul Ray (EDI)
- Jayson Kurtz (Ecofish)
- Jennifer Carter (Ecofish)
- Adam Lewis (Ecofish)
- Jon Abell (Ecofish)
- Katie Healey (Ecofish)
- Nikolaus Gantner (FLNRORD)
- Phillip Krauskopf (FLNRORD)
- Duncan McColl (FLNRORD)
- Maria Sotiropoulos (DFO)
- Wayne Salewski (Nechako Environment and Water Stewardship Society)
- Stephen Dery (UNBC)

Meeting Objective: review and discuss Nechako Reservoir productivity and entrainment memos, associated interests, and next steps

Agenda:

- climate change update
- sturgeon update
- issues scoping update and technical memos
- discuss Nechako Reservoir productivity memo
- discuss Nechako Reservoir entrainment memo

Meeting summary:

Climate change update

- continue to work with researchers and have a follow up meeting first week of February

Sturgeon update

- continue to work with recovery initiative and exploring other options including science exchange with other researchers
 - exploring how other jurisdictions have dealt with sturgeon and flow issues (i.e., Columbia WUP)
- NWSRI working on long-term release plan, addressing predation, and breeding
- NWSRI community group is looking at putting gravel on the ice and enhancement opportunities

Issues scoping and PM update

- Ecofish continues to work through and scope issues, and are focusing on key issues that require technical memos
- Ecofish will engage with the TWG on the scoping process once complete
- issues that don't require technical memos will be documented in the scoping report

Technical memos

- Nechako Reservoir wildlife, caribou, and wetland memos will be distributed to the MT for discussion at the MT meeting next Wednesday
- WT and salmon and ramping memo have been distributed to the TWG and will be discussed in subsequent meetings
- Kemano entrainment memo and Nechako River bathymetry/LiDAR memos are in progress
 - Nechako River bathymetry/LiDAR data needs to be evaluated and then it will be brought to the TWG
- substantive comments and edits on memos to be discussed between technical experts and then will be brought forward to the TWG to come to an agreement
 - if differences are not resolved in the TWG it will be identified in the technical memo

Productivity memo

- PoE addressed in memo – change in water levels in reservoir can affect habitat quantity (littoral vs pelagic), does this change productivity?
- other PoEs not addressed include change in water levels affecting littoral productivity, flushing, and thermal stratification and how these could affect productivity
- approach – DEM model to quantify littoral and pelagic habitat based on water level, and used literature to estimate invertebrate and zooplankton production
- results – 1) changing water levels have negligible effect on littoral habitat quantity, which indicates fairly gradual slopes along shoreline in reservoir, 2) pelagic habitat and zooplankton productivity (assuming habitat quantity drives production) increases linearly with increasing water levels
- considerations – 1) should consider habitat and food preferences for fish species of interest, 2) consider how operational water levels relate to results, 3) consider reducing draw down in spring

- uncertainties – 1) no data on invertebrate production in Nechako Reservoir, 2) considers habitat quantity but not suitability (how timing or frequency could impact littoral habitats), 3) other PoEs not considered
- TWG comments:
 - nutrients and predation also affect zooplankton production
 - nutrients would have greater impact on zooplankton production than predation in the Nechako River
 - water level changes within the existing draw down zone not likely to change nutrient input
 - would like to confirm if Tahtsa Narrows would change outcome
 - it is assumed that a larger drawdown would result in a larger reduction in pelagic habitat
 - fish food preferences – Nechako Reservoir is a Kokanee and RT dominant system
 - both species use pelagic habitat, do we want to consider having a PM for pelagic habitat availability?
 - were temporal trends in productivity considered and do we expect changes in productivity with climate change?
 - these were not considered in the work
 - climate change effects generally look at thermal stratification and thermal refugia for fish, which usually occurs in lower latitude areas.
 - other PoEs are on the list to scope
 - need for fieldwork to better understand and model the Nechako Reservoir – key to understand structural function of near shore habitat.
 - Used best comparative benthic productivity data and collecting specific data for Nechako Reservoir may not change results; however, data are outdated.
 - production of reservoir affects everything downstream, need to understand better.

Entrainment memo

- PoE addressed – loss of fish from reservoir, injury to fish during passage, displacement to downstream habitat
- assessment was limited to body of water in close proximity to SLS
- approach - assessment used several species found near spillway, velocities near in front of SLS and applied an BC Hydro's Overview Risk Screening approach to determine entrainment risk
- results - species of concern were Kokanee, N. pikeminnow, and RT, and final risk screening ratings were low
- given decrease in abundance over time it is recommended that fish use of spillway be monitored
- TWG comments:
 - is entrainment dependent on reservoir level? Yes, but it is not the primary driver. Velocity is the primary driver. Velocity is more consistent at SLS but it would be important to understand fish use in the velocity field in front of the intake
 - screening not viewed as a practical mitigation for an issue like this

- BC Hydro often rely on offsetting
 - we do not know the number of fish that are going over the spillway
- level of information presented is sufficient to make decision on next steps and presented easily

Other topics

- court case decision will be discussed at the MT meeting next Wednesday and then will be discussed at the next TWG
- next meeting scheduled February 2, 2022 and will be discussing Kemano entrainment, ramping, and potentially the salmon temperature memos