

To: WEI Technical Working Group members

From: Jayson Kurtz, TWG Coordinator, Ecofish

Date: November 18, 2020

Re: Summary of TWG meeting held Wednesday November 18, 2020, 9:00 am to 11:00 am

Attendees:

- Stephen Dery (UNBC)
- Wayne Salewski (Nechako Environment and Water Stewardship Society)
- Phillip Krauskopf (FLNRORD)
- Ian Spendlow (FLNRORD Omineca Region fisheries biologist, guest attendee)
- Dan Sneep (DFO)
- Andrea Byrne (City of PG)
- Justice Benckhuysen (RT)
- Alec Mercier (Water Resource Engineer Rio Tinto)
- Rahul Ray (EDI)
- Jayson Kurtz (Ecofish)
- Jennifer Carter (Ecofish)

Meeting Agenda/

Meeting objective is to brainstorm interests regarding water quality, erosion, and ecological implications of higher water in the late summer through winter period. Some interests raised by MT to date include:

Category	Interest	Potential Issue/pathway of effect	General Location
Erosion	bank erosion along Skins Lake, Cheslatta Lake, Cheslatta River and Murray Lake	Fluctuating water levels result in erosion. Need to consider magnitude and rate of flow changes and specifically STMP.	Murray-Cheslatta-Skins
Erosion	Reservoir erosion	Bank erosion along reservoir is resulting in land loss and changing beaches	Reservoir
Erosion	cattle fences and land erosion	erosion leaves gaps between fences and land; hanging fences, washed out fences,	river

		lost land	
Erosion	Erosion and sediment from farmers' fields	Land management (e.g., farming) contributes sediment delivery to the Nechako River, potential confounding fish habitat impacts (including sturgeon).	River
Erosion	Farm property bank erosion	Bank erosion near is resulting in property loss and contributing sediment to Nechako River	River
Erosion	Tributary erosion and sediment	sediment contribution from tributaries unknown but suspected to be considerable.	River
Erosion	Vanderhoof erosion	Bank erosion near Vanderhoof is resulting in property loss and contributing sediment to Nechako River	River
Water Quality	Access to clean water	need to refine	reservoir
Water Quality	Methyl mercury	Methyl mercury can result from flooding organic debris	Reservoir

Brief introduction to meeting

- Ince last meeting Jayson had two meetings, one with province and one with Skeena region fisheries to introduce TWG process. As a result, Ian Spendlow (FLNRO) attended today’s meeting. Jayson will provide a summary of his meetings but key messages are as follows:

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Review of previous meeting summary

- TWG decided to not go through discussion of last meeting. Instead, participants can provide email comments between meetings and raise specific comments/questions at the beginning of each meeting.
- Ian S. stepping as representative fisheries biologist to provide information about water quality
 - Skeena fisheries biologists do not have much information or data but can provide a general perspective and knowledge of reservoir
 - The reservoir is not high on their priority list. They are more interested in Cheslatta. However, they were concerned to hear about declining Kokanee
 - They will get back to us with specific interests and information within the next few weeks

Action item: Jayson to distribute meeting minutes from meetings with provincial and regional fisheries

Erosion

- Concerns about erosion from fluctuating reservoir levels, erosion of farm land on the Nechako River, and affects of erosion on ecosystem health. Rather than address each interest individually, we are going to take a holistic approach to understand erosion, effects of erosion and how this relates to RT operations.
 - Concerns specific to the south side of the reservoir are being address by the South Side Working Group. General Main Table concerns around erosion should be put on hold until the South Side Working Group work through the issues and provide their conclusions.
- Many of the issues about erosion of farm land on the Nechako River are likely a result of land use. Generally speaking no government has enforced rules around land clearing or maintaining riparian zones. However, in terms of the process, we want to understand what if any contribution is attributable to RT operations and if there is a component we need to include in our decision making process. For example, what is the ramping impact on erosion? Would changing ramping rate actually change erosion? If we find RT operations is a small cause of erosion we don't need to continue.
 - Specific things we can assess:
 - We have air photos and could do desktop study to look at erosion and land use issues over time.
 - We could look at studies to understand causes of erosion and when it occurs (i.e., at what flows or environmental conditions cause more erosion)
 - District of Vanderhoof looked at where bank of river side park was historically, where it is today, and where is will end up
 - Research on sediment fingerprinting is ongoing at UNBC and some publications have come out – Stephan will send
 - Studies have been able to identify whether sediments have come from forested land, agricultural land, etc. Now studies are looking at identifying exact locations of source sediment
 - Could help identify where sediment is coming from and whether it's an operational concern or not
 - Some work is focused on the Nechako but information likely won't be available for this process as it is recent. Would be available in the future
- A lot of research has been done to assess effects of erosion on river ecology but no synthesis has been put together. A synthesis needs to be defined to identify specific questions. Some questions are as follows:
 - Erosion out of tributaries – is it happening more, is it affecting salmon stocks?
 - How does erosion affect muscle beds? Understanding historic and current distributions
 - How does erosion affect didymo, how do nutrients change with changes in flow?

- How does the dam affect erosion and deposition and how we can improve conditions through changes in operations?
- Erosion and effects of flow on species, effects on sediment and when it happens, effects on biology. Understand effects on sturgeon may help us understand effects on other species
 - We should go back to sturgeon recovery group to determine how we address this question

Action item: Loop back with cattlemen association to talk about specific locations and actions for operational changes (performance measure/thresholds)

Action Item: literature review on erosion to understand causes attributing to erosion (i.e., land use, RT operations, environmental conditions) – Jayson and Justus to scope

Action Item: scope out approach to evaluate sediment budget and effects on species and habitat (reach out to sturgeon initiative for input)

Action Item: Stephan to summarize thesis on sediment fingerprinting project and research questions

Water Quality

- The two main water quality issues are access to clean water and methylmercury in the reservoir. A two step approach should be taken to assess access to clean water 1) gather all WQ data and determine gaps and 2) understand how RT operations affect WQ, what operational changes can be made to remedy issues. We should determine the timeframe that methylmercury would be a concern in the reservoir. If we identify methylmercury as a concern, determine if it has been sampled and if not we should sample.
 - How could operations affect WQ (i.e., would flow scenarios exasperate problem?)
 - Justus, one linkage he is aware of is high spring flow and farm land fertilizer, pesticides, herbicides, etc.
 - Methylmercury in reservoir from submerged wood. Degenerates over time, need to establish this timeframe.

Action Item: determine the linkage between water quality and operations. What operational changes can be made?

Action Item: evaluate WQ data collected to determine what's being collected and what may need to be collected to look at methylmercury and WQ parameters that could be affected by RT operations (BOD, TGP, nutrients, fertilizers, ect.)

Misc. Discussion:

- Other concerns addressed were how our process will fit within the static contracts already established and whether FN could prevent this process from moving forward. With regards to the former, this

process will make recommendations to RT within an adaptive management framework outside previous contracts in place. With regards to the latter, this concern should be brought forward to the Main Table but our hope is that at the end of the day we can all come to an agreement that we are going to accomplish something positive.

- The TWG will meet once more on December 16th prior to the Christmas break. Some meetings in the new year won't address new issues but will bring in results from previous action items.