



To: WEI Technical Working Group members

From: Jayson Kurtz, TWG Coordinator, Ecofish

Date: December 16, 2020

Re: Summary of TWG meeting held Wednesday December 16, 2020, 9:00 am to 10:00 am

Attendees:

- Stephen Dery (UNBC)
- Phillip Krauskopf – FLNRORD
- Dan Sneep (DFO)
- Justice Benckhuysen (RT)
- Rahul Ray (EDI)
- Jayson Kurtz (Ecofish Research Ltd.)
- Jennifer Carter (Ecofish Research Ltd.)
- Nikolaus Gantner – FLNRORD
- Wayne Salewski Nechako Environment and Water Stewardship Society

Meeting Objective:

- Review last meeting and action tracker.
- Interests, Objectives and PMs.
 - flooding
 - erosion
 - river levels
 - recreation

Previous meeting minutes:

- No Substantive comments or concerns.

MT Interests:



Category	Interest	General Location	TWG Comments/Discussion
Erosion	Vanderhoof erosion	River	<ul style="list-style-type: none"> Private property across from Sandy Beach has erosion, also riverside park. Land use exacerbates erosion and makes it very challenging to manage with flows (now highly erodible, even at low flows). Is there an erosion force formula: can we correlate river elevation to erosive power? Generic metric for erosion is challenging very site specific. Factors include soil erodibility, river velocity, rate of stage change: we should confirm w/ geomorph. DoV hired Palmer and Associates to assess rate of erosion and predict future bank locations. Action: Ecofish review and engage NHC or Mike Miles. Want to be aware of implications to RT about responsibility: multiple accountabilities. Collaborate this work with ramping rate assessment.
Erosion	cattle fences and land erosion	River	<ul style="list-style-type: none"> Path forward: BC Cattlemen's Association support for fence and erosion concerns
Erosion	Erosion and sediment from farmers' fields	River	<ul style="list-style-type: none"> Path forward: BC Cattlemen's Association support for fence and erosion concerns. Re sediment delivery to fish habitat, erosion and sediment are natural, fish habitat and river form depend on it. But how has flow manipulation changed natural process? UNBC research looking at sediment tracing. Focus on effects of fish, then investigate sediment source. Other approach is to think about habitat independent on sediment source. How does river redistribute sediment. Path forward: defer to after fish discussion.
Erosion	Tributary erosion and sediment	River	<ul style="list-style-type: none"> erosion and sediment are natural, fish habitat and river form depend on it. But how has flow manipulation changed natural process? UNBC research looking at sediment tracing. Focus on effects of fish, then investigate sediment source. Other approach is to think about habitat independent on sediment source. How does river redistribute sediment. Path forward: defer to after fish discussion.
Erosion	Reservoir erosion	Reservoir	<ul style="list-style-type: none"> path forward via SSWG
Erosion	Miworth erosion	River	<ul style="list-style-type: none"> Miworth erosion: reach out to Regional District

Erosion	Farm property bank erosion	River	
Flooding	Ice flooding in Prince George	River	<ul style="list-style-type: none"> Ice jam planning meeting last week: extensive monitoring program and weekly awareness/planning meetings
Flooding	flooding in Vanderhoof	River	<ul style="list-style-type: none"> Proceed with Sandy Beach overland site, add additional sites (e.g., Riverside Park, across River from Sandy Beach) if NHC suggests other locations are more sensitive to operations Jayson to reach out to DoV re locations of trail flooding and groundwater flooding.
Flooding	Flooding in PG	River	<ul style="list-style-type: none"> PG surface flooding. Justus not aware of issues, confirm with PG (PG initial indicated not an issue needing more). Cottonwood area floods: should we advance thresholds for future floods?
Flooding	Economic development	River	<ul style="list-style-type: none"> communication plan, including advanced risk assessment/planning
Flooding	Fraser Lake flooding	River	<ul style="list-style-type: none"> JMK to follow up w/ Regional District re backwatering threshold. RD previously committed to mapping and proving dataOutlet weir to prevent scour/downcutting of Nautley after less backwatering from lower Nechako post-diversion
Flooding	Groundwater flooding at Vanderhoof	River	<ul style="list-style-type: none"> JMK to follow up w/ Regional District re groundwater flooding.
Low water	reservoir level and docks	Reservoir	<ul style="list-style-type: none"> path forward via SSWG
Low Water	Livestock fences in the River	River	<ul style="list-style-type: none"> re land management: Path forward BC Cattlemen’s Assoc. Can we leverage consumers (e.g., fast food). re fence and water level: follow up w/ Lila to discuss specific concern. Is it about actual water level, or more concern about information, knowing when water is low so they can manage livestock.
Low Water	Access to water	Reservoir	<ul style="list-style-type: none"> Path forward: SSWG
Low Water	drinking water (low water isolating intakes)	Reservoir	<ul style="list-style-type: none"> Path forward: SSWG
Low Water	Livestock fences in the reservoir	Reservoir	<ul style="list-style-type: none"> Path forward: SSWG
Recreation	Boat launches	Reservoir	<ul style="list-style-type: none"> Path forward: SSWG

Recreation	Recreation (e.g., canoeing)	Reservoir	<ul style="list-style-type: none"> • Path forward: SSWG
Recreation	reservoir beaches	Reservoir	<ul style="list-style-type: none"> • Path forward: SSWG
Recreation	access to trails and River	River	<ul style="list-style-type: none"> • trail flooding and access. Discuss w/ DoV (trail owners). Nature trail across from Sandy Beach. Some trail impacts as well: trails form dyke that interferes with water flow, potentially strands fish.
Recreation	Accessibility of the River	River	<ul style="list-style-type: none"> • trail flooding and access. Discuss w/ DoV (trail owners). Nature trail across from Sandy Beach. Some trail impacts as well: trails form dyke that interferes with water flow, potentially strands fish.

Other Discussion

Sidebar: Ice jam in Vanderhoof, water level up 2', warming trend, no new frazil, now stabilizing, expect to break up next several days. Downstream of town, 2 km long. No flooding concerns.

Sidebar: discussion on Burns Lake/Nautley R outlet weir. Historical rock weir. Burns Lake IB expressed interest to rebuild (concrete) to support KO spawning downstream of lake, fry migrate upstream to rear.

Nikolaus: no standardized assessment methods except for hydroacoustics. Spotty info on wild stocks, Better info on stocking. Aerial counts in Williston. Wild KO not a priority – emphasis on stocked fishery.

Mussel sidebar: 2 species, one preference for riverine habitat, one for lake/offchannel/oxbow habitat. Sturgeon team has observed massive, accumulation on shoreline, presumably consumed by muskrats (Diamond Island and Fort Fraser bridge). Have observed mussel beds on riverbed as well. Wayne reports large mussel beds 30 years ago, on rocky streambeds – now sandy/silt and no mussels. Other beds still present nearby. Concerns that muskrats previously drowned in dens.

Side-bar: Process and examples about developing PMs, modeling, and calculating performance values. Dan Jayson and Rahul will work together to bring examples to TWG, who can then champion with MT. Cheakamus is good starting place: developed PMs, impact hypothesis, impact performance reports etc.

Next meeting Jan 14 (**Thursday**) on wildlife and Cheslatta. Following meeting Jan 28 on river fish and salmon (including temperature management).

Flooding

- Vanderhoof
- Prince George
- Planning meetings regarding ice jam flooding in PG are taking place. Lyle Larson is working on understanding history of ice jams and when/where they occur. The District of PG has an extensive monitoring program using a staged approach – increased efforts with decrease in temperatures. They are having ice jam awareness meetings that will occur throughout the winter. We are awaiting feedback from the district regarding requested information on ice jam flooding.
- City of PG is less concerned about surface flooding and Justus is not aware of issues. However, it is currently a concern as cottonwood area floods and high flows lead to erosion. Erosion during high flow is currently being monitored. Also, we will want to consider how changes in the hydrograph could pose a concern in the future (i.e., is there a threshold, what are they?). We will reach out to the regional district for more information.

- Flooding and economic development is a communication issue. This is being addressed by looking at communicating more thoroughly about risk and vulnerabilities in advance when there is a high probability of flooding. RT is working on communicating this all the time (probability of flow and flow ranges) so people can make informed decisions.
- We have a good understanding of at what levels flooding occurs and should understand flooding of Fraser Lake. A rock weir went in the 50s to prevent down cutting but there is no data on how much has been down cut in the lake or River channel. It would be good to understand what water level in Nechako does backwatering of lake occur. There are Data to review. Justus will send summary of physical works on Fraser Lake. Jayson will follow up w/ Regional District re backwatering threshold. RD previously committed to mapping and proving data. Outlet weir to prevent scour/downcutting of Nautley after less backwatering from lower Nechako post-diversion.

Action item: Jayson to follow up with PG regional district regarding backwatering threshold for Fraser Lake and with City of PG re surface flooding

Action item: Jayson to follow up with DOV re groundwater flooding

Erosion

- Three categories: erosion itself, sediment transport issues (effects on fish habitat), farm and livestock fencing erosion issues.
- Erosion is complicated by land use planning (BC land settlement practices encouraged clearing 80% of land). Land use exacerbates erosion and makes it very challenging to manage with flows (now highly erodible, even at low flows). Propose to layout pathway of effect: where the issue is, what causes it, pathway to resolve issue. A site-specific approach should be taken. Sites we know are of concern are Riverside park and private property across from Sandy beach. Need to determine if there is an erosion force formula: can we easily correlate River elevation to erosive power? DoV hired Palmer and Associates to assess rate of erosion and predict future bank locations. Generic metric for erosion is challenging, very site specific. Should we use DoV? Factors: erodibility, velocity, rate of change: should we explore w/ geomorph. Want to be aware of implications to RT about responsibility: multiple accountabilities. We will need to reach out to NHC or Mike Miles for information. Further, once we understand ramping rates we will need to tie in erosion.
- With regards to farm erosion and livestock fencing, Jayson has reached out to Cattlemen association to develop best practices, still awaiting response. Need their support to address issues.
- We have decided to pause on sediment transport effects until we discuss fish issues in detail. Erosion and sediment are natural, fish habitat and River form depend on it but how has flow manipulation changed natural process? Once we understand whether sediment transport is having effects on fish habitat we can discuss sediment transport (source of sediment). Specific information known to date:
 - There are localized impacts
 - UNBC study monitoring sediments throughout watershed
 - Studies on muscles in northern BC from UNBC

- 2 species, one has preference for River bed habitat and one has preference on lake and slow moving backwater
- Sturgeon team has observed massive, accumulation of muscle shells on shoreline, presumably consumed by muskrats (Diamond Island and Fort Fraser bridge). Have observed mussel beds on Riverbed as well. Wayne reports large mussel beds 30 years ago, on rocky streambeds – now sandy/silt and no mussels. Other beds still present nearby. Concerns that muskrats previously drowned in dens.
- Sediment from tributaries are significant – similarly, determine effects on fish and then address sources
- Reservoir erosion – SSWG dealing with issue, mapping sites, we already have path forward on this

Action Item: Jayson to discuss internally with geomorph specialist re erosion pathways and NHC or Mike Miles to discuss information on erosion

Action Item: Jayson to reach out to regional district re Miworth erosion

Low Water

- Issues around low water and livestock fences are primarily land use issues. However, communication could be improved by communicating expected water levels so livestock could be managed. Need to reach out to Cattlemen association for support and determine how we can support other initiatives to tackle these issues. Elected ministry is supposed to have land use mandate in the next 3 months. Need to follow up with Lila to discuss specific concern re fences and water level.
- Issues on low water and boat launches, docks are being addressed by the SSWG

Action Item: Jayson to reach out to Lila re water level and fencing issues

Recreation

- Recreational issues on boat launches, docks, beaches are being addressed by the SSWG
- Access for float planes – reached out to float plane owners and will have information for subsequent meetings
- Access to trails and rives, accessibility to River issues – need to discuss with District of Vanderhoof. How trails are constructed needs to be addressed – trails forming dykes and preventing overland flow, potentially strands fish.

Action Item: Jayson to reach out to DOV regarding trail issues

Kokanee

- No standardized assessment methods except for hydroacoustics. Spotty info on wild stocks, Better info on stocking. Aerial counts in Williston. Wild KO not a priority – emphasis on stocked fishery.

Next Meetings

- Rahul, Dan, and Jayson to discuss bringing forward information and examples of WUP processes to develop and calculate PMs to TWG over the next month
- Next meeting on Thursday Jan 14th we will discuss wildlife and Cheslatta issues.
- Following meeting on January 28th we will discuss River fish and salmon (including temperature management).
- Ron Ptlo meny and Province specialist (Erica Jenkins) should be involved. Nikolaus to reach out to Erica Jenkins.