

Nicola Watershed Community Round Table

Hydrology Forum #2 - Hydrologic Engineer – Potential Engineered options for flooding
Merritt Civic Centre / January 24, 2019 / 6pm – 8:30pm

1. Introduction and forum ground rules – John Anderson
 - Roundtable discussion with our concerns about the Nicola Valley especially after the last 2 years freshet
 - Thank you for support from TNRD Area M director David Laird, Merritt Morning Market, Q101, Nic Beers and the group, Jeremy Cooke for his donation of time, City of Merritt for use of room.

2. Table introductions lead by Round Table leader – participants let the table know who they are and why they had come to the forum

3. **Presentation by Jeremy Cooke**, Hydrologic engineer, and some time to Nic Beer’s discussion on his model.
 - Nicola water use management plan can be a guide
 - Healthy river systems are vital
 - Water system storage pilot project
 - o Ways to manage systems
 - o Balance drought and flood
 - o Dams/dykes not always the answer
 - o Getting nature back o doing what it does best
 - o Gillis lake and Fig lake
 - o Storage areas (dugouts) to hold water with interconnections
 - Nicola Lake – dredging work – 1987 not completed
 - o Need hydraulics for minimum level to get flow through
 - o Consideration to freezing
 - o Reduces risk of water shortages
 - o Adds agricultural land
 - o And more in future years
 - Dykes along Nicola River, see Nic Beers model, showing possible repairs to river banks, adding a water holding area. Good visual models of how the banks look now and what they could be
 - Riparian Rehabilitation
 - o Discussed Mackay-Smith farm and extensive erosion
 - o Repairs were a combination of rocks and trees (willows), more effective than just rocks
 - Maiden Creek (this side of Clinton)
 - o Use of logs, rocks, leaving creek where it is, just anchoring walls, sloped up the sides

Only some of projects dealing with managing waterways focus on a few and pick and choose priorities

Nic Beers

- Model today and model of potential rehab in the same area
- Coldwater bridge when built started to divert river
- More erosion continuous, property loss, trees helping, more high freshets will erode more
- Restore to original channels, lots of debris in river adding to problems
- New model shows potential of a park, river feature, healthier river system
 - o No riparian areas, take a look down from the truck route to see waterway
 - o Slowing the flow down will help have a healthy riparian area

4. Table questions and Answers

Table questions	Jeremy Cooke, Hydrologic engineer, answers
Nicola Lake Dam – will dredging guarantee no flooding in Merritt	Extra storage elsewhere can lower lake to handle flooding
Keyline – old dams	Soil storage
How to manage and sore water	Still being studied, create dugouts to contain water

Benefits of dam completion and why hasn't I been done	Technology is there, matter of funding, ready o go just need financial support
Water quality in make and rivers, more silt, how can we improve	Healthy rivers move sediment; culverts, highways, etc. expands flow, lack of vegetation, repairs to riparian areas, not being allowed to dredge, dykes add to sediment too but not allowed to take it out
Nicola River focus, seems to affect City more	Diking in City and many other areas are bring considered
Where can we store water, most beneficial plan to store water	Nicola lake, up the hill from lake in different directions, Federal govt. has set a budget of two billion
Flood control, culverts	Nicola lake holds a lot, one option was a siphon
Where or how can a city resident who is losing land go for help	Ministry of forest, lands & natural resources. Provincial rep in Kamloops Tim Gyles, locally 378-8400 could direct
Can we restore the oxbows in town	Yes, but homes in and around are a problem

5. Open Mic questions

Open mic questions	Jeremy Cooke, Hydrologic engineer, answers
Public expectations for Nicola lake - 1980 to present	Supposed to be finished but it wasn't, dredging too difficult with technology
Any bodies of water or lakes being considered for more storage	2 possible, moving away from dams to a more natural way of directing waterways
Harvesting techniques to better clear logs	Being addressed elsewhere, not sure of here; land and water planning together to present to Ministries
Does it make sense to build more dams	Better to raise lakes, natural capacity, also dams and other kinds of storage
Will completion of dredging on Nicola Lake help water quality	Flushing during dry periods
Assess funds for rehabilitation	Kootney areas, ARDCorp (Abbotsford) farming and agriculture together; fencing, planting vegetation. Federal funds for infrastructure; private sector funds too. Value for community with a plan o the government, private and different conservation groups et: Grassland Interpretive site.
What natural system can be put in place to slow flow	Getting back to nature, interim fixes, dugouts, uplands. Forest stewardship agreement under review. Ministry compromise logging vs. silviculture. Forests and grasslands best source of storing water. Groundwater best cooling effect, comes from good land management
	Guidelines are from 25 years ago, reviewing these, what is working and what is not

6. Closing and wrap up – John Anderson

- Repair review riparian area, water storage, look at all options

More information about the Nicola Watershed on their site - <https://nwcr.ca>

John thanked Jeremy Cooke for his presentation. And also thanked everyone who came to the forum.

(Next regular NWCRT meeting February 4th, 2019- 1pm, FLNRO offices, Topic Nicola Pilot Project)

The following are questions/notes from each table that may or may not have been answered above.

AND

Two questions for forum to answer:

- a) **Did this forum meet your expectations?**
- b) **Do you feel another forum would be helpful; and would you attend?**
(Answers are included below from table notes)

Table 4

- Slowing water down
- Permitting process
- Where or how does a (urban) resident who is losing land go for help! (Jackie Taggart, TNRD Kamloops)
- How to access funds for rehabilitation? ARDCorp; Environment; Federal funds, Ministry, **Department Of Fisheries;**
- What will new mayor and roundtable be able to do
- Never give up
- Golder & Associates study
- Discussed bike path
- Future storage – Gillis Lake & Fig Lake
- Impacts of clear-cut on flooding
- Natural systems – Forest Stewardship Agreement
- Healthy soils
- Forestry guidelines 25 yrs old, self governance

a) **Yes**

b) **Yes; yes. Maybe invite: prov Jackie Taggart; fed mp Dan Albas; TNRD area M David Laird; City of Merritt 1st re plans for his year; where to get money**

Table 2

Questions:

- 1). What are the options to slowly release the spring freshet?
- 2). What approvals are needed to perform in-stream and bank stability work?
- 3). Could a community work project plant trees and shrubs along riparian areas?
- 4). Will completing the Nicola Dam dredging prevent flooding?
- 5). Are we flood ready? How will mitigation efforts be implemented?

Other points of interest from the Forum

- the Nicola Valley already has a Water Use Plan, so we are ahead of other communities. It is a good framework to follow
- would like to see public and private sector partnerships
- stabilize shorelines of lakes and streams with vegetation
- river systems are resilient but they need human help
- Gillis Lake and Fig Lake are good possibilities for upland storage
- another effective method is constructing a series of dugouts linked together
- Nicola Dam is 400 meters short of completed dredging
- dykes are sometimes a necessity but large rocks are needed to anchor trees and supplement with willows and cottonwood saplings
- the clay banks in Merritt are continuing to erode. If water breaches its banks, the walking trail will be gone and homes will be at risk
- original land survey (1912) set property boundaries to the water's edge with no set back on residential and industrial lands

- beavers are not the greater engineers but they are hard working
- the Coldwater drainage needs upland storage to sustain August flows
- the greater storage of water is the soil beneath forests and range lands. This stored water is also much colder than surface water
- high water was traditionally the long weekend in May. It is now the first of May
- meandering waterways and ox bowls slow water flows and absorbers energy
- timber harvesting techniques can be used to reduce sudden flows
- Forest Stewardship Agreements are currently under review in the province
- Douglas Lake Cattle Company has control of several dams on their private land, mostly in the Nicola highlands
- the city of Merritt need to reduce its water consumption, especially as development increases
- dams are one of several tools used for flood control
- don't give up. Keep fighting the good fight

- Do beavers build on cool spots?
- Any way to use "cool spots" that fish hang" in riparian burms
- Scour pool caused by tree roots
- How do we create more scour or shaded pools?
- Could be restore the oxbow just west of Voght?
- How much energy should we undertow the upland
- Benefits of starting to take care of the uplands where the "water" i.e. Snowpack starts melting
- Spike in water flow getting higher or how can we level it out earlier
- How do we get the River fest out of the river where the spawning beds are?
- We've discussed dams, but what natural systems could we put in place to slow down peak flow?

a) Yes.

**b) Yes; yes probably; next time solutions, better A V, plan to move ahead and get all groups work together
Need to have a panel with all representatives (city, TNRD, fish, forestry, corporate)
The "dam study" needs to be dug out before another forum
Review the WUMP and take it further
Before the next forum, progress has to be demonstrated**

Table 5

- Why did they stop dredging 400 meters from the dam?
Difficult to dredge with the technology
Changed now
Disturbing fish habitat?
 - Why is there no an equal focus on the Nicola River as well as the Coldwater since this river had a huge flooding problem over the past years?
 - How do we get all govt groups, sectors, fisheries, city, TNRD, etc coordinated under one umbrella to come to a consensus? Funding? Provincial, Federal, Local
- Guichon Creek

a) Good concrete focus on our area. Plan the slides ahead of time so we didn't have technical problems.

Good to have the expertise with a wide focus. We learned a lot about what is going on in our area.

**b) Reports on progress in the valley. Have someone from Forestry to update what changes are occurring.
Impact of forest fires on the infrastructure & mudslides in area. All would return next.**

Table 1

1. To reaffirm against straightening rivers and for slowing them down – "naturally"
2. Nicola Dam – dredging – ask Jeremy about doing that
3. How deep to take it down and the benefit for flooding
Please clarify – big culvert in the middle? & should there be more licenses once this is done
Not for flood control?
4. Can the water be contoured on flat land through the Golf Course to mitigate some of that flooding & to try to collect groundwater
5. Much of Merritt flood due to some ground water?

6. Can there be ponds etc. built above the lake to mitigate the Nicola flooding (Key line system) similar to 4
7. Are there other areas being studied for further storage
8. Does Coldwater deal with flooding better than the Nicola
(65-70 attendees)

- a) **Yes. Good info sharing, in general positive. What went well – learning about. Like more detail for each “river” dweller can do.**
- b) **Yes. Topic – info re Guichon and Stumbles. What is the new normal? Thursdays end Feb is good.**

Table 6

- Better water storage in the high country
- Finishing Nicola Lake Dam
- Water storage at Mammett Lake
 1. With all the benefits listed i.e. food production, water storage for drought, increased water storage – why is the finishing of the Nicola Dam not a priority and how do you justify
 2. In an age of tearing out dams does it make sense to be building more.
 3. How possible is it to create water storage higher up
 4. With improved water levels in the Coldwater River would this not improve the City of Merritt’s aquifers and therefore help with flows in town.
- a) **Slide show great but need to be able to see it better! Need more actions!! Jeremy is very knowledgeable and presents well. Government representation needed.**
- b) **Yes but would like more action. MLA represented. Other members of government to attend. More Forestry representation on logging and silviculture practices. Future logging practices.**

Table

Need to set up slide show earlier to critique for full affect

1. How to intercept higher elevation water and store on private land and public land
 2. What is MOF doing to modify harvesting practices to cypselae water and runoff?
 3. Is there a danger of the Nicola Lake dam breaching when the inflows into Nicola lake is drastically more than the outflows of the dam is capable of i.e. 100+ in 60 out
- a) **& b) next forum no more dam questions. More on upper storage. More of an action plan (locally). More specifics on what can be done. Prioritize the projects that need to be done. Heard about forum thru paper, radio, word of mouth.**

Table 7

- Coldwater pilot?
- Small dams & holding
- 1. What would improve water quality in the Nicola valley? – the lake and the river all connected
- 2. With the completion of dredging of Nicola dam – explain how water quality would be improved
- 3. \$ & technology? For completing the dam at Nicola Lake
 - Storage on Gillis lake, how much capacity
 - Ponds – size, capacity – cost
 - Dugouts, look at riparian area
 - Would planting more tree/vegetation and rocks etc. help along the Nicola River?
 - Patrick Farmer info re – contact person & dept.
 - How efficient are the govt. depts.. you deal with
- a) **What went well – learning, general info, catch basin. What could be better- policy**
- b) **What would you like future forum to be – siltation; preservation of. Presentation on land use planning, water quality and lake dredging Nicola Lake.**

Table 9

1. Do we need more discussion that is urban centric vs. rural centric?
2. Seems like the townsfolk get tired of hearing about how agriculture is saving their ass and the rural people get tired hearing about how urban people have built on the flood plain and are upset. How do we get an appreciation for each other?
3. How is key line dugout/ditch system different than the ditches that were built over 100 years ago?
4. How much river course change is "typical"?
5. Beavers – how do they work within a water system? They remove trees – wouldn't that destabilize banks?

a) Yes, very good presentation

b) Yes. What about a forum on soil and soil moisture/water holding capacity? And one on irrigation?

Miscellaneous

- Long list of benefits
 - Acres of farm
 - Climate change concerns
 - Result flood & drought
 - What is completing not a priority
 - Is not solution to flood and drought to hold back water in watersheds

 - Can more be done with the surplus water that has accumulated and remained in Stump Lake?
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Respectfully submitted, Audrey Campbell
(From notes recorded and table concerns & questions)