"LOWER COWICHAN FLOOD RISK" HYPOTHESIS – SUMMARY

Also available: 'Sequence of Events' sketch series & 'Mitigation Design' concept sketch (note: not a formal report[1])

The hypothesis[2] is that the architecture of the Lower Cowichan River (the natural and built topography and the ocean bottom of the exit to the sea) in certain conditions unusually leads to the creation of what I've termed "Saltwedge Dykes" (this coined term referring to the hypothesized shape of formation of "salinity differentials"; which is the salinity differences of freshwater and saltwater meeting in a confined space).

The hypothesis is that floodwaters of the 2009 event rebounded/ricocheted against the differing density of the sea; rebounding upstream as a wave pulse that made the flood worse; something on the order of 1/2cm+ of constant rise and rebound over 30+ km[2]. This can be imagined as something like a snowballing mini-tsunami. The Saltwedge Dyke form of wave pulse is not like a tsunami which is generated by ocean bottom deformation punching up a water column; instead it is hypothesized to be constantly re-generated by hard-running, constantly-rising floodwaters running up against a saltwater wall, in the confined space of Cowichan Bay.[3]

I have learned that the phenomenon is not well known and is hardly studied. If occurrence is validated here, it is fair to be concerned that it will replicate and be worse in this era of Atmospheric Rivers and Sea Level Rise. The sketches include a nature-respecting flood defences' concept; an idea to mitigate damage to the subject area.

DEVELOPING MITIGATION

Modeling the problem so as to develop a preparedness solution requires fluid dynamics computational capacity[4] and civil engineers who "think outside the box." My skill is to solve intractable problems,[5] but I am not an engineer and don't have grad degrees; so you'll have to find engineers *who are willing to investigate ideas no matter where they originate*.[6] I have construction engineering contacts in The Netherlands (flood engineering) and Japan (earthquake/tsunami engineering). Please let me know if you'd like those contacts. The Norwegians are also known for putting practical OOB (see Ref.#6) engineering designs into practice and their coastline is like ours.

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[1] This is mind-bender thinking, so it requires an imaginative open mind to consider the steps of the hypothesis sequence + engineering mitigation concept.

[2] Developed in parallel with the hypothesis that a dangerous buried river channel flows beneath Koksilah Industrial Park. Channel presence confirmed by City of Duncan civil engineers: See "Research Director, Pringle Strategy Services": https://www.linkedin.com/in/davehuer/

[3] Perhaps modeling will lead to placement of "*Cowichan River Backflooding Early Warning Altimeter Buoys"* in Genoa Bay and Cowichan Bay?

[4] My data tech startup company's current business plan is to build a fluid dynamics software module in 3-5years, which is too long for you to wait.

[5] Started solving problems at age 5 when I fixed my father's tax arithmetic. Mostly, my skills were hidden until getting the SpeechEasy anti-stuttering device. Polymath who solves to first principles without grad degrees; solving intractable problems for a wide variety of fields. The best experience was helping a disabled boy learn to roll a whitewater kayak by himself after the national slalom team coaches and athletes couldn't figure out it out. I developed a novel branch of neuroscience without medical education and only $15K/3y (WarriorHealth CombatCare). In 2016, I solved the Horne Lake Trail mystery which influences three overlapping land claims. I figured out how to put a price on public real property which changes everything about land economics, real estate development, ESG/Impact investing, and all sorts of other things (*Proximity of Desire*: see LinkedIn profile). Most recently (2022), I published a proposal to create a nature-driven, sustainable fire retarding system for the Village and First Nation community of Lytton (see: front page of creativity blog).

[6] That's hard for many engineers, scientists, and other professions because of the chilling fear of risk of peer attack (it happens). Civil Engineers additionally face severe penalties for errors, so there is little incentive to investigate new ideas and technologies that are outside today's rulebooks and/or originate outside BC and Canada. The larger challenge is that BC is often a last adopter of new methods; and both senior governments have created rules that remove entrepreneurial incentive to develop Out-of-the-Box (OOB) solutions. This has led to a shortage of cultural ability to engage in OOB problem-solving. Also, as a "first principles" problem-solver, I can say from repeat experience that private sector OOB ideas are not welcome—not even practical, immediately-useful OOB tech—if they come from someone without the professional and political certifications that the larger society claims to be proof of competence. The rule of thumb to bring a regulated engineering innovation to market in BC is *decades*. My estimate is that local regulators are 22 years behind the rest of the world (15-years behind "practical OOB" tech adopters, who are 7 years behind transformational-thinking adopters). This is a serious problem; made more difficult in this age of climate change and rapid foreign innovation, when we no longer have the luxury of getting new methods proved elsewhere first.