

SCEC Road Salt and Salmon Project

Update 2021-10-14

Rationale

Some BC Ministry of Environment staff and Fisheries and Oceans Canada (DFO) biologists have expressed doubts about the extent of road salt contamination and its harm to salmon.

Description

The SCEC Road Salt and Salmon Project is a two-part project (monitor and experiment) to investigate the effects of road salt contamination on salmon and their food source - benthic invertebrates (streambed bugs) - in the BC Lower Mainland.

Monitoring

To answer the question, “Do creeks other than Stoney Creek experience spikes in chloride concentration (as measured by conductivity) as a result of road-salt contamination?”

Monitoring

- Putting conductivity data loggers in several creeks to measure salt content and sampling benthic invertebrates
- High school students taking conductivity grab samples with Water Rangers kits

Experiments

To answer the question, “What effects do the current levels of road-salt contamination have on juvenile salmon and their food – benthic invertebrates?”

Experiments

Zoologists at UBC will duplicate Vladimir Soukhachev's in-stream citizen science study on Chum in the laboratory, adding Coho. SFU toxicologists will do similar studies with benthic invertebrates.

The monitoring will provide data to guide the experimental design of this study.

Progress

Engaged with:

- Pacific Science Enterprise Centre (PSEC - DFO)
- UBC Department of Zoology
- BCIT Faculty of Ecological Restoration
- SFU Department of Biological Sciences
- Professors at University of the Fraser Valley

Progress

- Raised \$23,000 so far for a \$500,000 five-year project
- Applied to Real Estate Fund of BC, NSERC, and PSF
- Received support letters from DFO, UBC, PSF, WWF Canada, and Tsleil-Waututh Nation

Progress

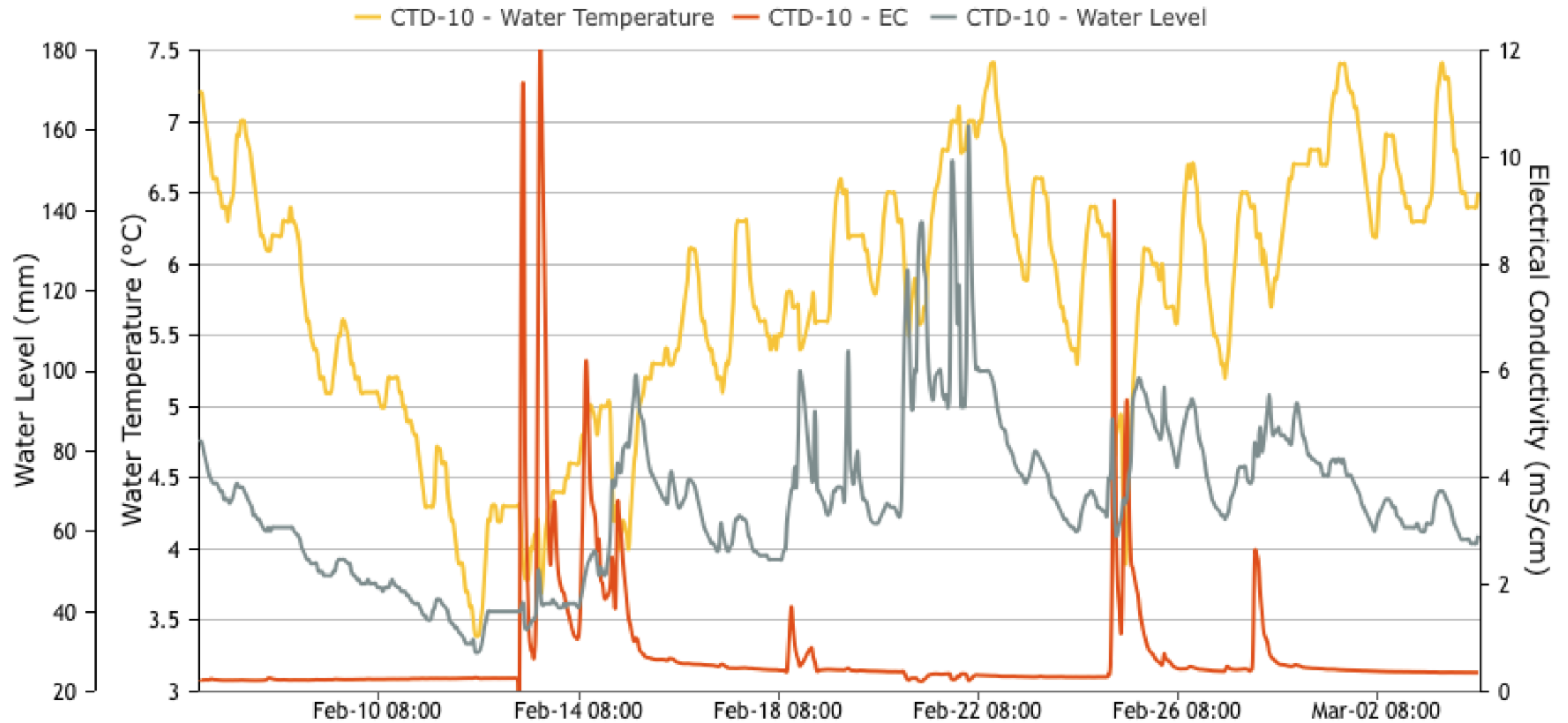
- Purchased 6 conductivity loggers for other creeks to add to the 3 supplied by PSEC
- Purchased 7 Water Rangers monitoring kits
- Working with students in Burnaby Mountain SS Biology Club, Sperling Elementary School, and North Shore Streamkeepers
- Contacted Moscrop SS Science Teacher

Progress

- Installed a Zentra real-time conductivity, temperature, and depth logger (CTD) in Stoney Creek Trib 3A
- Installed a Solinst CTD logger in Guichon Creek (on BCIT campus)
- Installed a Zentra real-time CTD logger at the Cariboo Dam on the Brunette River

Progress

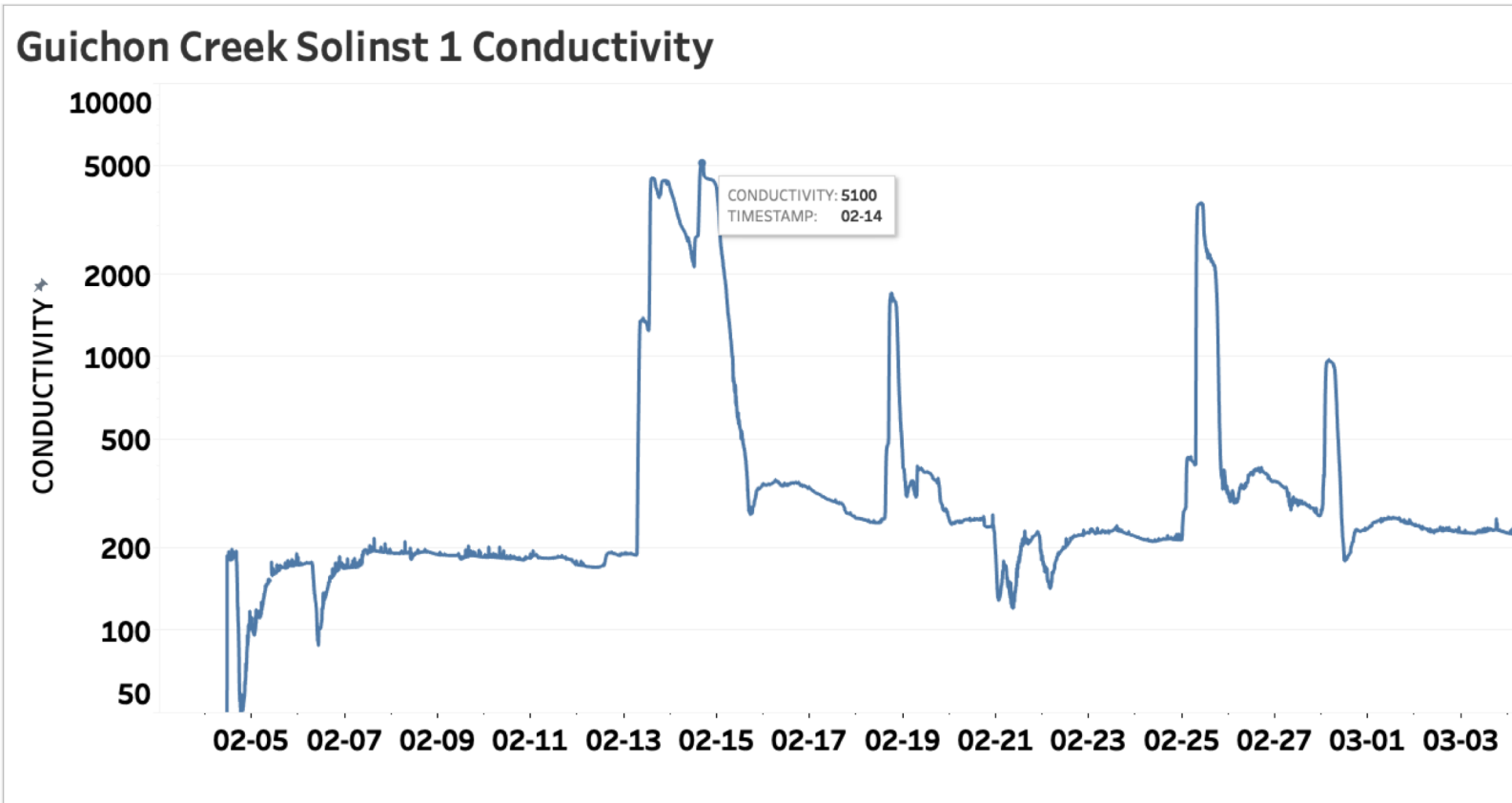
- Installed a Zentra real-time CTD in Eagle Creek
- Installed a Solinst CTD logger in Wagg Creek, North Vancouver
- Installed a Solinst CTD logger in Silver Creek
- Installed a HOBO CT logger in Stoney Creek
- Have permits from City of Burnaby Parks for other Burnaby locations



**Real time logger at Trib 3A
showing conductivity spikes during cold weather in February**

Progress

The conductivity logger in Guichon Creek on B.C.I.T. campus shows a similar response to the snowfall.



Some interested streamkeeper groups:

1. Alouette River Management Society (*)
2. Beecher Creek Streamkeepers
3. Burrard Inlet Marine Enhancement Society (*)
4. Cariboo Heights Forest Preservation Society (*)
5. Cougar Creek, Surrey
6. Eagle Creek, Burnaby
7. Hoy-Scott Watershed Society, Coquitlam (*)
8. Hyde Creek Watershed Society (*)
9. Jerry Rogers Creek Streamkeepers (*)
10. Kanaka Education & Env. Partnership Society (KEEPS), Maple Ridge
11. Langara College – Still Creek
12. Little Campbell River Watershed Society

(*) These groups are signing up with the UBC NSERC Alliance grant application

More interested streamkeeper groups:

13. Mossom Creek Hatchery (*)
14. Peach Creek, Chilliwack (*)
15. Serpentine Enhancement Society
16. Seymour Salmonid Society (*)
17. Silver Creek, Burnaby (*)
18. Spanish Banks Creek, Wet Point Grey, Vancouver
19. Still Creek, East Vancouver (*)
20. Stoney Creek Environment Committee (*)
21. Wagg Creek, North Vancouver Streamkeepers (*)
22. West Vancouver Streamkeepers
23. Yorkson Watershed Enhancement Society, Langley (*)

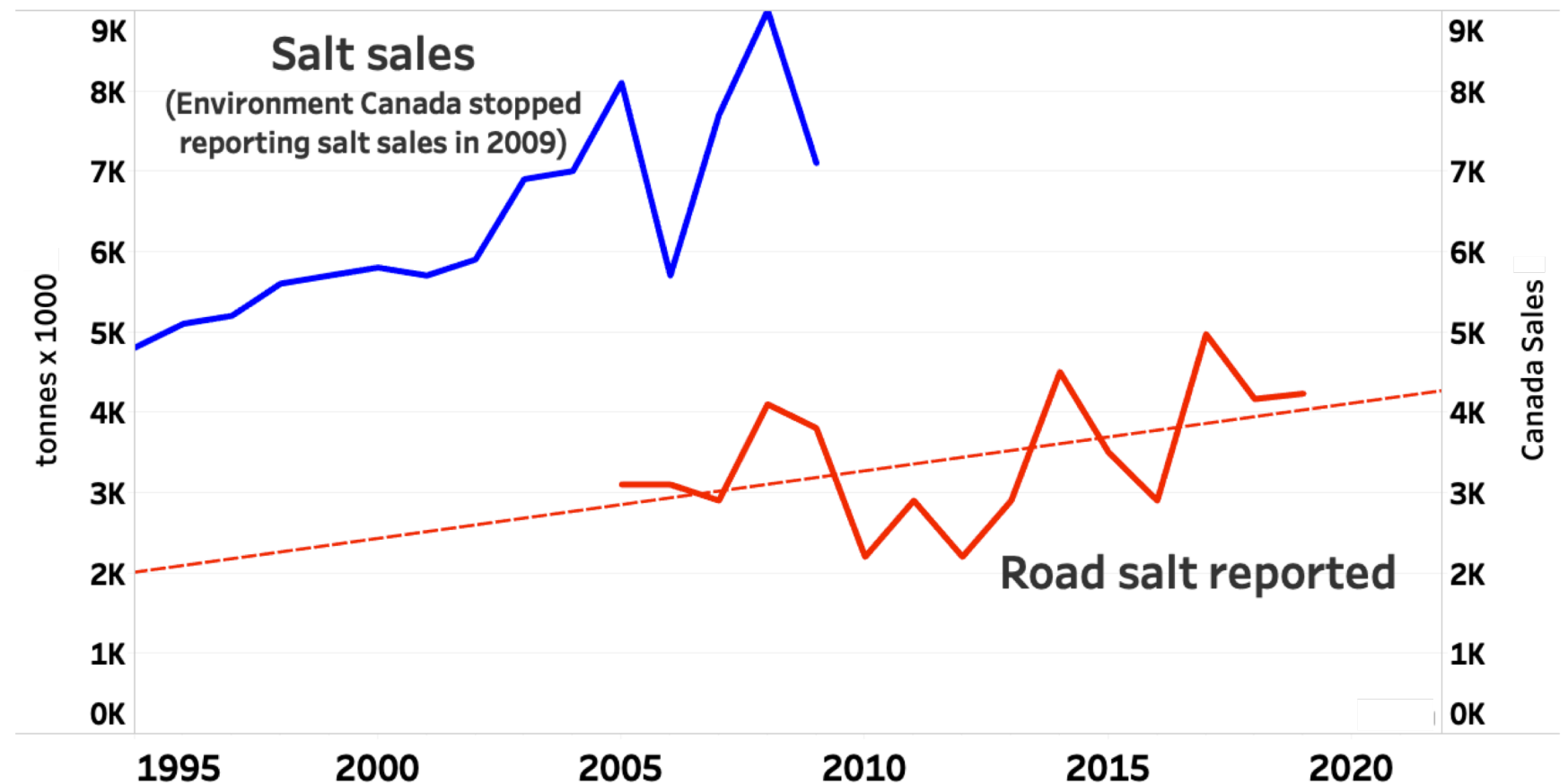
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A Canada-wide issue

We are also advocating for more regulation on road salt use.

Reported road salt use in Canada

has increased 45% since the voluntary Code of Practice was released in 2004



Next steps

- Work with PSEC – DFO on the public database for holding logger and grab sample conductivity data
- Help install loggers in other creeks
- Deliver Water Ranger monitoring training sessions
- See a recent EPA session on salinization:
<https://www.youtube.com/watch?v=GcsmBKain88>

Background information: Outline of recent US EPA Workshop



Outline

- I. Intro
- II. Past research: fixing problems
- III. What is freshwater salinization syndrome?
- IV. What are chemical cocktails?
- V. National and global patterns
- VI. Impacts of freshwater salinization
- VII. How to monitor salinization?
- VIII. How to manage salinization?
- IX. Future research
- X. Questions



View this workshop:
<https://www.youtube.com/watch?v=GcsmBKain88>

Next steps

- Raise \$59,750 additional funds for 2022 to:
 - Purchase 10 CDT loggers accessories and supplies @ \$2500
 - Purchase 20 Water Ranger kits for schools - @ \$175
 - \$30,000 per year for a Post-doctoral Fellow from UBC to design the education materials
 - Printing and and other costs