

August 12, 2024

To Whom It May Concern:

Re: Sheep Creek Nutrient Addition Program

In light of recent concerns expressed about the effects of BC Hydro's nutrient addition program in Sheep Creek, we would like to provide information about the program and the recent water quality analyses that took place in July, which confirms that the water in Sheep Creek meets and exceeds BC Water Quality Guidelines for drinking water.

BENEFITS OF THE SHEEP CREEK NUTRIENT ADDITION PROGRAM

Many freshwater streams in British Columbia, including Sheep Creek, are naturally poor in available nutrients and have naturally low productivity¹. These streams have typically relied on natural contributions from fish, the surrounding vegetation, and as erosion during freshet to form the building blocks of the food chain. Without natural nutrient contributions, freshwater ecosystems are typically phosphorus-limited and can also be nitrogen-limited, which has an adverse impact on the native fish that live in these streams.

Nutrient addition is a proven method to effectively enhance naturally poor freshwater ecosystems and help native fish populations. Adding nitrogen and phosphorus is a proven and effective method to enhance nutrient-depressed ecosystems by supplementing algal growth. This occurs in a number of freshwater watersheds across the province, including Arrow Lakes Reservoir, Kootenay Lake, Seymour River, Wahleach Reservoir, Alouette Reservoir, and the Seymour, Salmon, and Ash Rivers.

Nutrient addition programs work by adding small quantities of nitrogen and phosphorus to provide better growing conditions for algae. This provides additional food and shelter for insects and other invertebrates, which are then consumed by native fish. The overall outcome of nutrient addition programs is more food and better growing conditions for fish, which helps to ensure a healthy and robust fish population.

PROJECT BACKGROUND

The Sheep Creek nutrient addition program has been running for several years without any incident. The program was originally developed and implemented by the Salmo River Streamkeepers Society (SWSS). The SWSS spent three years studying the effects and benefits of the program before initiating trial nutrient releases in 2004². After several years of successful trials, the project was funded annually through grants from the Fish and Wildlife Compensation Program to enhance Bull Trout populations, which is a species of concern in B.C. The project was transitioned to BC Hydro in 2018 as part of our Fisheries

¹ BC Hydro can provide references from the scientific literature for all similar assertions.

² Please note that this project was on hiatus between 2010 and 2012.

Act Authorization commitment. The project was reviewed by a panel of scientists from Fisheries and Oceans Canada, Ministry of Environment, and local First Nations before it was accepted. The program has shared information with the Salmo community several times over the last 20 years of operations.

WATER QUALITY

The effect of nutrients addition on water quality is a valid concern. In early July of 2024, an independent research laboratory, CARO Lab (www.caro.ca), analyzed water samples from Sheep Creek to determine if they met the Canadian government drinking water quality guidelines. Two samples, with replicates, were analyzed: one upstream of the nutrient addition site, the other 1 km downstream of the site.

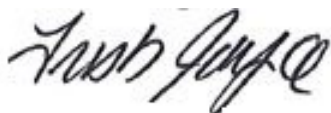
The results of this testing concluded that the water in Sheep Creek **meets all Canadian water quality guidelines for drinking water**. For example, the maximum acceptable concentration (MAC) for nitrates in drinking water is 45 mg/L and 3 mg/L for nitrites³. CARO lab results show that the maximum recorded concentration in Sheep Creek below the nutrient application site was 0.031 mg/L for nitrates in July and < 0.010 mg/L for nitrites. In other words, it was more than 1,400 times lower than the MAC for nitrates and at least 300 times lower for nitrites. For phosphates⁴, the MAC is less than 40 mg/L and was 0.0242 mg/L in Sheep Creek, or more than 1,600 times lower than the MAC. A full copy of the report is available on request.

SUMMARY

The Sheep Creek fertilization program is being implemented to benefit Bull Trout (a species of special concern in B.C.) in the Salmo River watershed. It was reviewed by a panel of scientists prior to implementation, and recent water analyses confirm that Sheep Creek water quality easily meets all Canadian water quality guidelines for drinking water.

I hope that this information is helpful. If you have any questions or concerns about this project, please don't hesitate to reach out to me directly at trish.joyce@bchydro.com.

Sincerely,



Trish Joyce
Water Licence Requirements

³ Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Nitrate and Nitrite: <https://www.canada.ca/en/health-canada/services/publications/healthy-living/guidelines-canadian-drinking-water-quality-guideline-technical-document-nitrate-nitrite.html>.

⁴ There is no guideline for phosphorus or phosphates in the Canadian Water Drinking Quality guidelines: (https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/summary-tables-eng-2024-07.pdf). The 40 mg/L MAC is from the US Environmental Protection Agency.