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Hon. George Heyman
BC Minister of Environment & Climate Change Strategy
Sent by e-mail to env.minister@gov.bc.ca

12 October 2022

Re: Water quality concerns and algal bloom in the Salmon Arm of Shuswap Lake

Dear Minister Heyman,

I am writing on behalf of the Shuswap Watershed Council (SWC) to express our deep concern about deteriorating water quality in the Salmon Arm of Shuswap Lake, and to ask for your ministry's leadership in restoring and protecting this incredible waterway.

The Salmon Arm of Shuswap Lake – including Salmon Arm Bay, Tappen Bay, and downstream toward Herald and Canoe (see map, attached) – was impacted by a large algal bloom throughout August and into September. In some of the affected areas, the lake water has been compared to “pea soup”, being thick and green with algae (see photo, attached). Interior Health put a Cautionary Advisory in place for the affected areas of the lake, recommending residents and visitors not swim in the lake where algae are present. The algal bloom significantly impaired residents' and visitors' enjoyment of the lake and recreational use this summer.

To make the matter worse, this isn't the first large bloom that the Salmon Arm of Shuswap Lake has experienced. A similarly wide-spread, long-lasting bloom occurred in August-September 2020. For two large algal blooms to occur in three years is unprecedented, and we are very concerned about the health of the lake, impacts to fish and wildlife, safety of drinking water, and effects on our tourism economy. The species of algae identified in the 2020 and the 2022 blooms have the potential to produce cyanotoxins, and so we are also gravely concerned about the possibility of an algal bloom becoming toxic. This could result in illness to people, pets, or livestock – it could even cause a fatality.

There are a few factors that contribute to the formation of an algal bloom: sunlight, calm weather, a stable water column, and a supply of nutrients. It is well-known that phosphorus, in particular, is a determining factor in harmful algal blooms in North America. [A research project commissioned by the SWC and led by UBC-Okanagan](#) demonstrated that the highest proportion of phosphorus in Shuswap Lake is coming from agricultural lands via the Salmon River; the research also demonstrated that phosphorus-loading into Shuswap and Mara Lakes has been steadily increasing since the 1980s.

Nutrient management is critical to protecting water quality and preventing future algal blooms. For our part, we are invested in education and incentives to help protect Shuswap water quality. The SWC administers a [grant program](#) that provides financial assistance to farms to improve nutrient management. Additionally, the SWC has just published a [Phosphorus Action Plan](#) for the Shuswap



watershed. The plan is an informational, educational document that provides guidance to everyone in the Shuswap about actions they can take to minimize their 'phosphorus footprint'.

Your Ministry plays a lead role in protecting environmental water quality through regular water quality monitoring, setting water quality objectives, and investigating causes of pollution and water quality degradation. In addition, your Ministry has the jurisdictional responsibility for ensuring environmentally protective agricultural practices through implementing and ensuring compliance with the *Agricultural Environmental Management Code of Practice*. With these in mind, we have the following comments and questions for you:

- Draft Water Quality Objectives (WQOs) for Shuswap Lake were published recently by your Ministry in partnership with Pespesellkwe te Secwepemc. The document states that the objectives are developed to “promote the full protection and improvement of water quality” of Shuswap Lake, and that “phosphorus and nitrogen concentrations are the primary water quality concern”. These WQOs are now being finalized by staff, and we eagerly await the publication. How will the Ministry measure and report on the attainment of these objectives? How will the Ministry respond if/when water quality does not meet the objectives?
- Ministry staff are also working on a report about water quality in the Salmon River (a large tributary to Shuswap Lake at Salmon Arm Bay, as previously mentioned). The report summarizes declining water quality in the river, including poorer (i.e., higher) results for phosphorus concentrations¹. These results are consistent with our concerns about the Salmon River contributing to algal blooms. What will the Ministry do to address the report’s findings, and work toward restoring water quality in the Salmon River? Will the results prompt new monitoring programs focusing on nutrient-loading into the Salmon River and Shuswap Lake? Will the results prompt an investigation of the sources of phosphorus?
- The Ministry released the *Agricultural Environmental Management Code of Practice* in early 2018. How has the Ministry promoted the Code of Practice and its requirements with the agriculture sector? How is the Ministry measuring awareness of and compliance with it?

We are very appreciative of the work your staff are doing on the above-mentioned initiatives, including monitoring, setting water quality objectives, and analysing water quality data. It is clear that the Salmon River is contributing a nutrient-load to Shuswap Lake substantial enough to produce wide-spread, long-lasting, potentially toxic and potentially economy-crippling algal blooms. Furthermore, water samples are not consistently meeting WQOs set by your Ministry. Therefore, we are now asking your Ministry to act quickly to investigate and correct the water quality problems in the Salmon River and Salmon Arm of Shuswap Lake, and restore Shuswap Lake to a healthy state.

Thank you for your consideration of these requests.

Jay Simpson
Chair, Shuswap Watershed Council
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¹ The report, authored by Chalifour et al. (February 2022) was not finalized at the time of writing this letter.



Attachments:

- [ShuswapLakeAlgaeBloom_Aug2022_key.pdf](#). Map of approximate algal bloom-impacted area in the Salmon Arm of Shuswap Lake.
- [IMG_3131.jpg](#). Photo of a water sample collected by Linda Franklin, resident of Sunnybrae, on August 22nd 2022 showing the severity of the algal bloom (shared with permission).

CC:

- Hon. Josie Osborne, Minister of Land, Water & Resource Stewardship
- Shuswap MLA: Greg Kylo
- Columbia Shuswap Regional District Chair: Kevin Flynn
- Shuswap Mayors: Alan Harrison (Salmon Arm), Terry Rysz (Sicamous), Rod Crowe (Chase)
- Provincial Critic for Environment and Climate Change: Renee Merrifield



About the Shuswap Watershed Council

The Shuswap Watershed Council (SWC) was established in 2014 as a watershed-based partnership of several organizations with an interest in or responsibility for protecting water quality. There are up to 22 members that represent three regional districts, two municipalities, the Secwepemc Nation, three provincial government agencies, and Shuswap communities. The SWC is a collaborative, non-regulatory group that focuses on strategic initiatives to protect, maintain, and enhance water quality and promote safe recreation in the Shuswap. The SWC works alongside organizations that have regulatory roles in managing the Shuswap watershed, complementing their work and carefully avoiding duplication.