

December 22, 2020

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Chairperson
Nunavut Impact Review Board (NIRB)
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Cambridge Bay, NU
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RE: Scientific Research License #04 007 20R-M 2020 Annual Summary Report and 2021 Plans.

Dear NRI, NIRB and interested parties,

With this letter, we report on the river sampling activities of the project entitled, *Connecting Snow Melt to River Discharge in the Kitikmeot Region and Northwest Territories*, permitted under the multiyear NRI licence number: **04 007 20R-M**. This project composes **Aspect 4 (Hydrology)** of a multi-disciplinary cryospheric monitoring network project lead by Dr. Alex Langlois, Université de Sherbrooke, entitled “**Development of a multi-scale cryosphere monitoring network for the Kitikmeot region and Northwest territories using in-situ measurements, modeling and remote sensing**” (CMN-K-NWT), funded by Polar Knowledge Canada.

There are three main objectives to this study: (1) *to investigate the geochemical characteristics of winter snow cover and spring snow melt*; (2) *use observed geochemical values to determine snow melt contributions to spring flow of the Coppermine River and Freshwater Creek*, the major river systems associated with the snow sampling sites; and (3) *use model outputs to predict the impact of future changes in snow cover to freshwater export to the marine system*. This scientific research license permits the collection of river geochemistry samples to address objectives (2) and (3). This report describes the project activities carried out in 2020, and also details our plans for the 2021 field season, under the same license.

2020 Annual Summary:

Unfortunately, travel restrictions to Nunavut due to the covid-19 pandemic made it impossible to carry out snow sampling in the spring of 2020. Furthermore, uncertainty around covid-19 restrictions in Nunavut made it difficult to coordinate with community partners to carry out river sampling during the open water period. Over the last few months we have had the opportunity to work with local partners in Cambridge Bay and Kugluktuk to come up with solutions that would permit river water samples to be collected as proposed in this permit. We anticipate that this portion of the observational program will go ahead in 2021 even if travel to the north continues to be restricted.

2021 Plans:

If travel to Nunavut is permitted in spring of 2021, snow sampling will be carried out around Cambridge Bay as part of the **CMN-K-NWT** study. If travel to Nunavut is not possible, snow sampling will not take place in 2021, however we will work with community partners in Cambridge Bay and Kugluktuk to carry out river water sampling as proposed in this permit. As detailed in the original permit application, river water samples for the determination of geochemical parameters will be collected weekly or bi-weekly in the spring, during the snowmelt and river ice break-up period, then followed by weekly or twice monthly sampling through the summer until freeze up. Samples will be collected from a previously selected site on Freshwater Creek (near Cambridge Bay) or in the Coppermine River (near Kugluktuk). We would like to continue these sampling activities under the same permit for 2021.

Thank you for supporting our project and your commitment to enabling research science within the Kitikmeot. We welcome any comments, suggestions, and/or ideas you may have related to this research and would be happy to answer any questions or concerns at your request. We look forward to continuing to work with you in 2021.

Sincerely,

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On behalf of co-investigator:

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