

December 18, 2019

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Chairperson
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RE: Scientific Research License #04 008 19R-M 2019 Annual Summary Report and 2020 Plans.

Dear NRI, NIRB and interested parties,

With this letter, I report on the river sampling activities of the project entitled, *Monitoring Seasonal Environmental Change in Rivers of the Kitikmeot Region*, permitted under the multiyear NRI licence number: 04 008 19R-M. The goal of this project is to enhance our capacity to directly observe physical and biogeochemical characteristics of rivers across the Kitikmeot through the use of in-situ observational systems (“river moorings”) to collect measurements continuously over the deployment period. These river moorings will provide the first time series observations of river physical and biogeochemical parameters in the Kitikmeot Region, observations that are crucial to understanding and predicting the impacts of terrestrial change on the Kitikmeot marine system. This report describes the project activities carried out in 2019, and also details our plans for the 2020 field season, under the same license.

2019 Annual Summary:

We deployed four river moorings at sites in the Coppermine River, Tree River, and Burnside River over July 8th-11th, 2019, as shown in Figures 1-4. The Coppermine River was accessed directly from the community of Kugluktuk, whereas the other sites were accessed by float plane. Unfortunately inclement weather limited our travel and we did not make it to the Hood River for a deployment. We used locally available aluminium boats, operated by local guides from the Kugluktuk Hunters and Trappers Organization, Plummers Lodge, and Bathurst Inlet Lodge, to deploy river moorings in each river, with two systems deployed in the Burnside River. The river moorings successfully recorded water temperature, conductivity (salinity), water level, as well as dissolved oxygen concentrations from the date of deployment until recovery. The moorings were recovered by aluminum boat on August 26th (Tree), September 2nd (Burnside), and September 10th (Coppermine), 2019.

2020 Plans:

The 2019 deployments were a huge success, providing both an opportunity to test our newly designed mooring systems and also gain new insight on all aspects of the program, including deployment-recovery logistics and mooring design. We look forward to sharing the results of this test and continuing discussions with the communities of Kugluktuk and Bathurst Inlet to fine-tune future deployments. With this in mind, we would like to request for a renewal of our permit to redeploy river moorings in the Coppermine, Burnside, and Tree rivers in 2020. We would also like to ask for a permit amendment to include Freshwater Creek, near Cambridge Bay, as a possible river mooring site for 2020. As detailed in our original permit application, rivers will be accessed early in the season after spring ice break up (after mid-June 2020), with site selection as close to the river mouth as possible, keeping up-stream of the tidal influence. We will work with community members directly to choose mooring deployment locations.

Mooring recovery will take place in late August or early September by small boat, either from the nearest community or using the aluminum skiff from the RV Martin Bergmann.

We appreciate your support and commitment to this investigation of rivers within the Kitikmeot. Any comments, suggestions, and/or ideas you may have related to this research are most welcome. If you have any questions, please contact myself or one of my collaborators and we would be happy to talk with you. We look forward to working with you in 2020.

Sincerely,

Kristina Brown, NSERC Visiting Fellow

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Figure-1 Yellow circles depict river mooring deployments in 2019 near the communities of Kugluktuk and Bathurst Inlet (map made in Google Earth)



Figure-2 Location of 2019 Coppermine River mooring deployment (yellow circle), map made in Google Earth



Figure-3 Location of 2019 Tree River mooring deployment (yellow circle), map made in Google Earth



Figure-4 Locations of 2019 Burnside River mooring deployments (yellow circle), map made in Google Earth