

Assessing the impact of small, Canadian Arctic river flows to the freshwater budget of the Canadian Archipelago

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Project Locations

Seven sites in Nunavut & Northwest Territories:

Site	Province	Region	N Lat	W Lon
Coppermine River	Nunavut	Kitikmeot	67.817	-115.080
Ellice River	Nunavut	Kitikmeot	68.050	-103.993
Back River	Nunavut	Kitikmeot	66.908	-95.294
Kuuujua River	Northwest Territories	Inuvialuit	71.267	-116.819
Cunningham River	Nunavut	North Baffin	74.050	-93.480
Clyde River	Nunavut	North Baffin	70.474	-68.586
Thomsen River	Northwest Territories	Inuvialuit	73.995	-119.724

Project Description

There are two primary goals of this project: (1) determine whether relatively small Canadian Arctic rivers significantly contribute to the total volume of freshwater that drains through Davis Strait and (2) determine if they are chemically distinct from larger North American rivers such as the Mackenzie and Yukon Rivers. To achieve these goals we propose to collect water samples from seven different rivers and their estuaries spanning over Nunavut and the Northwest Territories over a three-year study period (June 2014, August 2015, and August 2016). These sites represent a broad range of geological terrains typical of high latitudes and might impart different chemical compositions to the rivers. Each site will be visited and sampled over a five-day period during the month of June (following the spring floods/melt) or August (after break up of the landfast ice cover) depending on the study year (2014, 2015, or 2016). These samples will be collected either by hand or by peristaltic pumps carried by researchers traveling in inflatable boats equipped with outboard motors. The research team will travel to the different sites via small airplane (Twin Otter aircraft) operated by Kenn Borek Air, Ltd. As part of this project, local workers from the communities of Kugluktuk and Clyde River will be hired to independently collect samples of river water on a weekly basis over the spring and summer seasons. These workers will be fully trained by scientists and will be supplied with all materials necessary to independently collect samples. Guides and wild life monitors will also be hired to support the research team during the main portion of field work. We will also meet with local community leaders to discuss and plan presentations that will be given by the scientists to the general public. These presentations will summarize the purpose of the research project and any available results. The workers involved in sample collection will be invited to speak during these talks. In this sense, community members can monitor the progress of their own contributions to scientific research. A project website will also be created and the public

will be invited to visit this site to learn more about project details, gain direct access to resulting data, and learn about the methods and tools used by the scientists to analyze the data. The results of the study will also be published as a series of research papers in peer-reviewed, scientific journals.