

**Cape Bounty Arctic Hydrological Observatory (CBAWO)  
Melville Island, Nunavut**



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Annual report**

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## **Landscape and water processes at Cape Bounty, Melville Island**

Our work is intended to determine how climate change affects the land and water. Our work involves obtaining water and sediment samples from the streams and lakes at Cape Bounty, and determining how vegetation changes with climate. We also study permafrost and the effects it has on water and land. This study is the longest record of changes in rivers and lakes in Nunavut and will be useful for understanding how water and the land will respond to climate and permafrost change, and the potential effects on wildlife and vegetation. We have been doing this work since 2003 and hope to continue in the future.

In 2019, we sampled the rivers and lakes to measure sediment, water quality and flow. We are monitoring how the land is responding to permafrost disturbance that occurred in 2007, the warmest year on record. We also sampled the lakes for water, sediment and water quality, and collected fish samples with researchers from Environment and Climate Change Canada to measure the mercury in them. We also maintained two cameras that will take pictures of the lake ice every hour to record when ice melts and reforms.

In 2020, we will have a camp from mid-May to early August. Initially, we will collect snow and lake water samples, and take sediment samples from the lakes. When the rivers start to flow, we will sample and measure the discharge, sediment and nutrients. We will start plant measurements in late June to determine growth patterns and gas exchange. Through this time, we will maintain soil water measuring equipment to determine the rate of thaw and water movement in the subsurface. We will also sample the fish and lakes for mercury, and we expect Debbie Iqaluk (or another resident of Resolute) to work at the camp in late July. In August, we will remove instruments from the lake to obtain the data.