

**Report of 2009 Field Activities and Preliminary Results:
Cape Bounty, Melville Island**



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Field Activities

In the summer of 2009, we studied two small watersheds and lakes on Melville Island (74° 55' N, 109° 35' W). We study how changes to the climate will affect things like river flow, vegetation, snow cover, permafrost, lake temperature and ice thickness, and the health of charr. We record streamflow, weather conditions, plant communities, and lake temperature. We also obtain sediment cores from the lakes to see how the landscape has changed in the past.

We were at the sites from May 22 to August 3, 2009. There were between five and 11 people in our camp. We have been studying this site since 2003. This provides us with an extremely valuable, long, and continuous record of how the Arctic landscape is responding to climate and weather changes.

Community activities

Our principal investigator and several graduate students visited Qarmartalik school in Resolute in May. They described our research and its importance to Inuit communities, answered questions, and did science-related activities with the students.

We hired one person from the hamlet of Resolute to help measure snow thickness and density. Another person was hired to catch charr in the Cape Bounty lakes, which will help determine whether mercury accumulates within the fish.

We also maintain a web site about Cape Bounty (<http://geog.queensu.ca/cbawo/>).

Preliminary results

Extremely warm air temperatures in 2007 caused a lot of melting of permafrost, ground ice, and snow banks. In 2009, the landscape was still responding to this warmth, and this will likely continue for many more years. We are also beginning to study many aspects of the landscape in much more detail. For example, we may be able to use satellite images to determine how much snow falls over the winter, and when it melts in the summer. We are also doing a much better job of measuring nutrients and streamflow in very small areas.

Proposed activities for 2010

We plan on continuing to study the lakes and rivers of Cape Bounty in the summer of 2010. There will be four to ten people in the camp, and we will be there from late May to late August. Like all previous years, all activities will be conducted on foot. We will be brought to and from the site by twin otter and helicopter. No permanent structures exist at the site, and none will be constructed. We expect to hire a community member to work with the charr again and plan more trips to the school to share our research with the children.