

**Report of 2010 Field Activities and Preliminary Results:
Cape Bounty, Melville Island**



Dr. Scott Lamoureux
Department of Geography
Queen's University, Kingston, ON K7L 3N6
Phone 613-533-6033
Email: scott.lamoureux@queensu.ca

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Field Activities

In the summer of 2010, 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 24 to August 19, 2010. 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.

We hired one person from the hamlet of Resolute to help sample fish in the the Cape Bounty lakes in early July, 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 2010, 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 2011

We plan on continuing to study the lakes and rivers of Cape Bounty in the summer of 2011. There will be five people in a small camp for eight days in early 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. We are planning more trips to Resolute and the school to share our research with the community.

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A photograph of a rugged, volcanic landscape. The foreground and middle ground are filled with dark, jagged, and porous volcanic rocks. A winding stream flows through the rocky terrain, its water appearing a milky, light brown color. In the background, a large, rounded, grassy hill rises under a clear blue sky. Patches of snow are visible on the distant slopes of the hill.

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