Paleoclimates of the Foxe Basin and surrounding regions

Researcher's Name and Affiliation:

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Project Location:

Foxe Basin (65°-70°N; 71°-85°W) 2008-2011
Foxe Peninsula, Cape Dorset (August 2008)

Timeframe:

Fieldwork activities will be completed during the summer months of July and August 2008-2011.

Project Description:

The purpose of our research is to collect information on past climates from a series of lakes in the Foxe Basin region. Using biological and physical data extracted from lake sediment records, we will explore the potential responses of northern lakes and their watersheds to past climate changes, in order to predict future impacts of climate change on these freshwater ecosystems.

Our research team will be transported to and from Cape Dorset by regular flights from Iqaluit. A helicopter will be chartered to explore the study area and to reach the appropriate study sites. For on-the-ground exploration of potential study sites in the immediate vicinity of Cape Dorset, transportation will be provided by ATVs, hired from the community.

No structure will be erected, and the impacts of our lake sediment sampling on the environment will be minimal. The sediment and water samples represent a very small amount of material relative to the entire lake ecosystem. The echosounder used has no harmful effects on aquatic organisms. All our equipments are made of resistant and inert materials that neither decompose in water nor pollute the water.

No fuels nor any hazardous materials will be used in the field. Our logistic bases will be within local communities, so that we do not have to camp in the field. Activities in the field will be conducted so as to minimize any disturbance of the environment. Any wastes (plastic bags, papers) will be collected and transported to appropriate places designated for the disposal of wastes.

Methodology:

Using a small inflatable boat with paddles, we will use a simple echosounder to explore the depth characteristics of each selected lake. Lake sediments will be retrieved from the bottom of the basin using simple coring devices (tubes 6.5 to 9.0 cm in diameter) that penetrate sediments by their own weight. At each lake, we will take small water samples (ca. 1 liter) from the water

column and remove small amounts of lake mud for analysis of fossil microscopic plant and animal remains in the laboratory. As routinely done, we will be making contacts with and inform local authorities about our research activities to ensure that we have the full permission to take samples from the lakes within the study area.

Data:

These data will be archived as part of Laval University Arctic research program to increase our knowledge of climate impacts in Arctic regions. All samples will be extensively analysed in our laboratory facilities.

Reporting:

Results will be published in science journals and presented worldwide during international symposia and workshops. The resulting database will be made available to the Nunavut Research Institute and the local communities within the study region.