



## Theme 1, Project 1.3b

### Lakes in the Far North of Ontario: Regional Comparisons and Contrasts.

#### **Josef MacLeod, MSc Student**

Laurentian University  
[josef.macleod@gmail.com](mailto:josef.macleod@gmail.com)

#### **Project Supervisors**

Dr. John Gunn, Laurentian University  
Dr. Bill Keller, Laurentian University



#### **Abstract**

With anticipated mining development in the “Ring of Fire” area, and ongoing climate change, current limnological data are needed for the far north of Ontario. To address this need, water chemistry and crustacean zooplankton surveys of northern lakes were conducted to examine regional differences between the Precambrian Shield and Hudson Bay Lowlands, focusing on the RoF area, which straddles the boundary between these Physiographic Regions. Lakes of the RoF area displayed highly variable chemistry, a product of the extensive peatland landscape with its mix of bog and fen watersheds. This peat cover appears to decouple, to varying degrees, the lakes from the influences of bedrock and surficial geology. Shield lakes in the western portion of our study area had ion concentrations (Ca, Mg) markedly higher than previously studied Shield lakes south of 50°N, likely due to the abundance of lacustrine and glacial end-moraine deposits throughout western Ontario north of 50°N. The zooplankton species collected during this survey were generally similar to those reported for lakes further south on the Canadian Shield. Zooplankton assemblages were strongly influenced by lake depth, with higher species richness in the deeper Shield lakes than in the shallower Lowlands lakes which offered less niche space.

**Keywords:** lakes, Hudson Bay Lowlands, Canadian Shield, chemistry, zooplankton

#### **Geographic Location**

“Ring of Fire” area of northwestern Ontario (95 x 45 km study area)  
A broad survey across the far north of Ontario above 50° N (740 x 420 km study area)

#### **How does your project link to Canadian aquatic ecosystem services?**

This study provides current information on the chemistry and zooplankton communities of lakes in the far north of Ontario. This baseline knowledge will allow future assessments of change to these ecosystems and their food-webs, and permit evaluations of the implications of changes for ecosystem services.