Annual Report:
Climate change effects of a changing cryoshpere on Northern lakes

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Climate change is projected to cause significant change to arctic aquatic ecosystems. Changes in the thickness and composition of arctic lake ice covers will produce second order impacts on lake biological productivity and ecology. The most important effects are likely to result from changes in temperature (ice growth) and precipitation (ice cover composition). While a number of models have been developed to model these changes, their validation has been stalled by lack of relevant field data. Relevant field data has been gathered annually since 2009.

In 2011, multi-point lake ice thickness and composition surveys were completed at the following locations (local contractor/agency and date completed listed after the location): Resolute Lake, Resolute, Cornwallis Island (Mr. Murray Balsom; June 1); Colour Lake, Expedition Fjord, Axel Heiberg Island (Mr. Miles Ecclestone, Trent University /McGill Subarctic Research Station, May 6); Lake Hazen, Ellesmere Island, (Parks Canada, June 13); Lower Dumbell Lake, Alert, Ellesmere Island (Meteorological Service of Canada, May 16). Data collected includes depth of: snow, white ice, black ice, total ice and hydrostatic water level. The data is currently housed in an archive of historical ice thickness information at Environment Canada's Water & Climate Impacts Research Centre at the University of Victoria.

In 2012, the objective is to repeat surveys at the above noted lakes with the assistance of local contractors or agencies. One additional location has been added: Greiner Lake, Cambridge Bay. Contact with the Hamlet of Cambridge Bay has been established to identify individuals capable of completing the ice thickness survey The proposed completion dates for the surveys at the 5 lakes is between May 8 and June 30, 2012. Specific dates will be determined based on contractor/agency availability.