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Project Title: Collaborative Research: Changes in Lake Dynamics on the Arctic Coastal Plain of North America Over the Past Half-Century

NSF Grant: ARC-0713813

Classification: Hydrology

Dataset Title: Water temperature and bathymetric depth soundings for lakes near Barrow

Lake Water Temperature data file: *Hinkel_2008_LakeWaterTemperature.xls*

Water temperature measurements were collected hourly in June and July 2008 from five (5) lakes near Barrow, Alaska. Onset Water Temperature Pro v2 loggers were used. Loggers were attached to a cable which had an anchor (sandbag) and float. A total of 3-4 loggers were attached to each cable, the number depending on water depth. One logger was always near the float and one near the sandbag to obtain the upper and lower measurements in the water column. Replicate measurements were obtained, with one thermistor string on the north side of the lake, and one on the south side. Rafting lake ice broke all of the cables after several weeks.

The Excel file contains several sheets. The first sheet provides Metadata on the lake name, the latitude and longitude (decimal degrees, WGS 1984 datum) of each thermistor string (north or south), the logger number, and notes on retrieval. Column headings are:

Met Data Page: Lake_Site, LatDD, LogDD, 2008_Name, LocalName, Logger#, Retrieval in August

Subsequent pages contain the hourly temperature measurements for each lake. Time is along the rows. Columns have the date, time (local with GMT correction), logger number and depth below surface (cm) with temperature measurements in (C). Temperature measurements for multiple loggers are listed; columns highlight in blue refer to the northern logger string; those in yellow refer to the southern logger string for that lake. Many loggers were lost or destroyed.

Lake Bathymetric Soundings: files *Hinkel_L100.xls* (also *103, 104, 106, 107*).

These files contain bathymetric depth readings from the same five lakes as above. Deployed on a Zodiac inflatable boat and outboard motor, a Lowrance/Eagle SeaCharter502cDF iGPS Sonar Unit obtained high frequency water depth soundings in August 2008. The output was processed through vendor provided software called SonarViewer version 1.2.2. The three file columns are longitude, latitude and water depth. Latitude and longitude are reported in decimal degrees using WGS 1984 datum. Depth is in meters. Individual trip segments were integrated into one large file, which was converted to a shapefile for mapping in ArcMap. These sonar tracks are plotted on satellite imagery for all five lakes and included as a power point presentation called *Hinkel_2008_SonarMaps.ppt*