

**An investigation of late-glacial lacustrine sediments from western Nova Scotia:
evidence of ice-free conditions during Younger Dryas time**

Ian S. Spooner

Department of Geology/Environmental Science, Acadia University, Wolfville, Nova Scotia B0P 1X0, Canada

An investigation of lacustrine sediments in western Nova Scotia has focused on determining whether glaciers of Younger Dryas (YD) age existed in this region. Sediment records were recovered from seven lakes using the Reasoner percussion coring system. Basal dates and the presence or absence of a YD-equivalent clastic oscillation were used to reconstruct late glacial environments for this region. All sediment cores were stratified and exhibited a sharp contact between a basal diamict (interpreted to be till, LOI 5%) and overlying, post-glacial organic-rich sediment (LOI 30%).

Results from Sand Lake (South Mountain) indicate that the site was deglaciated by 11,550 B.P. The sediment core contained a YD-equivalent silt-rich layer (11,100-10,100 B.P.) characterized by low LOI values and a decrease in sedimentation rates. Image analysis techniques indicate that there is little variability in quartz fragment grain size between

this layer and the bounding organic-rich sediments. This layer is interpreted as having formed during regional cooling when organic sediment production in the lake basin was suppressed. Ramsey Lake (North Mountain) was deglaciated by 11,760 B.P. The lake sediment core contained no sediment variability above the basal diamict boundary, an indication that a discernible suppression of organic production did not occur at this site.

Western Nova Scotia was probably ice free by 11,500 B.P. The YD-equivalent sediment oscillation likely resulted from reduced organic input rather than an increase in clastic sedimentation. Local environmental and geomorphological conditions govern both the formation and the distribution of these sediments within the lake basin. These data suggest that a YD-equivalent ice advance in western Nova Scotia was unlikely.