Johnston, J.W., Thompson, T.A., and Baedke, S.J., 2000, **Strandplain evidence for late Holocene lake level in Tahquamenon Bay, southeastern Lake Superior**, *Geological Society of America 34th Annual Meeting, North-Central Section,* April 6-7, Indianapolis, Indiana, Abstracts with Programs, v. 32, no. 4, p. A-19.

Strandplains of beach ridges have been used to determine late Holocene lake levels in the Great Lakes. The basis for this analysis involves studying the internal architecture of the beach ridges and the age of adjacent wetlands. Basal foreshore elevations from the lakeward margin of each beach ridge indicate the elevation of the lake when each beach ridge formed while the ages of basal peat and organics from the wetlands indicate the timing of beach ridge development. This methodology was used to produce a relative lake-level curve at Tahquamenon Bay, 46 km west of Sault Ste. Marie and 33 km south of Whitefish Point, Michigan. This northward-opening embayment in Lake Superior contains about 80 beach ridges arcing between two bedrock headlands in a 3.7-km-long and 2.6-km-wide strandplain.

The lakeward margin of 71 beach ridges were cored to retrieve foreshore sediments and 22 samples of basal wetland sediments were retrieved from swales between beach ridges along four shore-perpendicular transects during the summer of 1999. Core elevations were determined using a transit and were calibrated to IGLD85 (International Great Lakes Datum 1985) using Point Iroquois gauging-station data. Sediment cores were returned to the lab, split, described, photographed, sampled, and preserved on masonite sheets using latex. Basal foreshore elevations measured from sediment cores and calibrated radiocarbon dates from basal peat/organic wetland samples were used to construct a relative lake-level curve.

The curve shows a gradual lake-level lowering in the older part followed by a relatively rapid and large drop of about 4.5 m and a lake-level rise in the youngest part of the curve. The relatively large drop corresponds to the lake-level fall after the Nipissing II phase and the rise near the most lakeward ridges corresponds to a lake-level response to an isostatically rebounding outlet at Sault Ste. Marie following the separation of Lakes Michigan/Huron and Superior.