study objectives is to assess the current groundwater salinity distribution using noninvasive geophysical techniques.

In late July 2010, electrical resistivity tomography (ERT) surveys were carried out along seven profiles, each 400–800 m in length, in an effort to identify the current extent of saline water intrusion. ERT data were acquired, in both dipole-dipole and Wenner array configurations, using a 72-electrode Syscal Pro resistivity system with electrodes spaced 6–10 m apart. A two-dimensional inversion algorithm (RES2DINV) was used to generate resistivity sections for each profile to depths of approximately 60 to 100 m. Line 1, located along a narrow peninsula-like point of land, revealed relatively low resistivities of 30–60 ohm-m below 35–40 m depth, suggesting the presence of saltwater-freshwater mixing beneath a freshwater lens. Lines oriented perpendicular to the coast, and extending into the wellfield showed no compelling evidence of significant lateral saline intrusion from the coast. However, anomalously low resistivities were found at depths below 25–45 m in the vicinity of the main pumping well (PW1). Preliminary modelling of the effects of steel well casings on nearby measurements of earth resistivity indicates that the anomaly is far too strong to be explained as such an artifact. The low resistivities below the well may instead be indicative of saline water being drawn up from depth by pumping; a process known as upconing.

Preliminary interpretation of electrical resistivity tomography (ERT) surveys investigating seawater intrusion at Richibucto, eastern New Brunswick

E.B. Mott[1], N. Green[2], K.E. Butler[1], and K.T. MacQuarrie[2]

1. Department of Geology, University of New Brunswick, Fredericton, New Brunswick E3B 5A3, Canada <eric.mott@unb.ca>

¶ *2. Department of Civil Engineering, University of New Brunswick, Fredericton, New Brunswick E3B 5A3, Canada*

The coastal community of Richibucto, New Brunswick, situated 65 km north of the city of Moncton, has a municipal wellfield producing from a fractured sandstone aquifer, with wells located approximately 1 km from the coast and within 500 m of a tidally influenced brook. In recent years some wells have experienced elevated levels of groundwater salinity, an issue that was addressed by expanding the wellfield farther inland with the commissioning of a new pumping well in the summer of 2010. In light of this history, the Richibucto area was selected as the focus for a study of how climate change and sea level rise are expected to affect seawater intrusion along New Brunswick's predominantly low-lying eastern coast. One of the

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