groundwater discharge zone and thus would not contribute to intrusion. However, a prominent saltwater wedge is developed deeper in the sandstone aquifer due to a hydraulic connection under the Northumberland Strait.

Future work will include the generation of a three-dimensional numerical model that will be used to simulate the effects of climate change and increased groundwater pumping on seawater intrusion. On the east coast of New Brunswick, sea levels are predicted to rise by as much as 0.74 ± 0.28 m, mean annual air temperatures are forecast to increase by 3.7°C, while changes in precipitation are expected to be negligible through 2080. Results of such simulations could be used to provide recommendations that will assist the operation of water supply wells in coastal communities.

Preliminary hydrogeological data and numerical modeling for a seawater intrusion study at Richibucto, New Brunswick

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

1. Department of Civil Engineering, University of New Brunswick, P.O. Box 4400, Fredericton, New Brunswick E3B 5A3, Canada <nathan.green@unb.ca> ¶ 2. Department of Geology, University of New Brunswick, P.O. Box 4400, Fredericton, New Brunswick E3B 5A3, Canada

Hydrogeological data collected from the area of Richibucto, New Brunswick, suggests the potential for seawater intrusion. In historic data from local supply wells, strong correlations exist between specific conductance and chloride content, as well as between chloride levels and pumping rates. Recent observations of specific conductance (and thus chloride content) in a monitoring well in a new portion of the pumping field are well correlated with water levels. Fluctuations in specific conductance during pumping suggest chloride concentration changes of about 10 mg/L, although concentrations remain well below the drinking water guideline of 250 mg/L. However, in a monitoring well located closer to the coast, the correlation between pumping and specific conductance is absent. This may indicate complex intrusion paths, perhaps vertically from lower in the aquifer (upconing), rather than horizontal encroachment.

Existing hydrogeological data from the study area have been assembled into a borehole database, and this has facilitated the construction of a preliminary two-dimensional numerical model in SEAWAT. Units included in the variable density groundwater flow model include a peat bog, surficial sediments, and a sandstone aquifer with discontinuous layers of siltstone resulting in semi-confined conditions. Initial simulations of pseudo-steady-state conditions, with no groundwater pumping, indicate that the Richibucto River and harbor would be a

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