

# Linking the Quaternary Glacial History with Hydrogeology: A Case Study from the Becancour River Drainage Basin, Southern Quebec

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## Summary

The Becancour River drainage basin is located in Southern Quebec in the St. Lawrence Lowlands. This area is currently the focus of a major aquifer characterization project that links Quaternary geology to hydrogeological parameters. The region overlies two geological provinces, Cambro-Ordovician St. Lawrence platformal rocks and the deformed Appalachian allochthon. A complex Quaternary sequence can reach thicknesses exceeding 100 m in the lower reaches of the drainage basin along the St. Lawrence River where classic stratotypes are found. This Quaternary sequence consists of a succession of three tills interstratified with highly impermeable glaciolacustrine sediments. Localized permeable fluvial granular sediments (mainly sand and gravel) occur along buried valleys. These comprise the famous peat beds bearing Saint-Pierre Sediments. At the surface, the region is for the most part covered by sediments left by the ephemeral postglacial Champlain Sea, as beaches and deltas located between 100 and 200 m asl and fossiliferous silt and clay accumulations in topographic depressions below 100 m. Luminescence dating of the non glacial units and detailed analysis of 3D data using the gOcad software are in progress and will help generate a robust hydrostratigraphical framework to be used in a 3D groundwater flow model.