

Reservoir Potential in the Southern Gaspé Belt, Québec Appalachians

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The Silurian-Devonian Gaspé Belt sequence has been shaped by two tectonic pulses: the Salinic disturbance and the Acadian orogeny. Salinic extensional tectonics, a predominantly Ludlovian-Pragian event, resulted in block faulting and tilting along normal listric faults. Interaction between block faulting and eustatic sea-level fall at the end of Ludlovian-earliest Pridolian time exposed highest parts of the blocks to subaerial erosion and diagenesis, and allowed reefs and reef complexes to settle at margins of the blocks or on erosional remnants. Salinic extensional tectonics may also have provided suitable plumbing system for hydrocarbon migration and charge at various times during the mid-Silurian to Early Devonian time interval, particularly for hydrocarbons that may have been generated in the underlying Cambro-Ordovician shales.

Oil and gas reservoir potential of the southern part of the Gaspé belt has probably been overlooked. Sea-level changes and synsedimentary tectonics affected development of three potential hydrocarbon reservoir horizons: the pre-Salinic Mann/Anse Cascon/Weir sandstones and conglomerates and the La Vieille carbonate sands and coralgall knob reefs, and the syn- to post-Salinic West Point reef complex. The syn-tectonic setting similarity between the Silurian-Lower Devonian shelf area now preserved in the Chaleurs Bay synclinorium and Ristigouche syncline, and the northeastern part of the Gaspé Belt suggests that fault-bounded blocks with associated reefs may well be present south of the Chaleurs Bay synclinorium-Ristigouche syncline area in the sub-surface, that is in the Chaleurs Bay itself and/or northern New Brunswick. In addition, local exposure of the pre-Salinic La Vieille limestones may have create karst porosity.