

Structural trends from seismic reflection data in St. Georges Bay, Nova Scotia

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Apparent and true strikes and dips were interpreted from high resolution single channel seismic reflection data in St. Georges Bay. These data were used in conjunction with bedding attitude and structural data from coastal outcrops of Upper Devonian-Upper Carboniferous rocks to make a formline contour map.

The formline map is characterised by northeast striking faults separated by synclinal troughs. Sub-parallel, northeast-trending anticlinal and synclinal fold axes have been mapped in the south-central part of the bay. Additional folds are also present on the western side of the bay offshore from Lakevale. Flexures are seen in the limbs of some of these folds. Directly north of Cape Jack, in the southeastern part of the bay, a number of short wavelength anticlinal and synclinal folds occur, the axes of which are approximately north-south. Some synclinal structures underlie depressions in the eroded bedrock surface. The depressions are filled with significant

thicknesses of surficial sediments. Some anticlinal folds are coincident with both bedrock and seabed topographic highs.

Industry seismic reflection data in the area indicates that the northeasterly striking faults extend across the bay and are probably intruded by salt. Along the southern margin of the bay, the Carboniferous strata are cut by north to northwest striking faults. Additional faults may be interpreted where narrow deep depressions occur in the eroded Carboniferous bedrock surface.

In the northern part of the bay, multi-channel high resolution and industry seismic data indicate that the Hollow Fault extends northeasterly along the Cape Breton Island coast only to the vicinity of Mabou Inlet. A major fault has been mapped on the shore line west of Mabou Inlet with the same trend as the offshore structure (P.S. Giles, personal communication). This fault may represent the onshore continuation of the Hollow Fault, or a splay of that major fault system.