

**Sedimentation, Tectonics and Carboniferous Basin Evolution Adjacent to the Cobequid Highlands Massif, Northern Nova Scotia**

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The Cumberland Basin and the northern part of the Minas Basin constitute part of the Maritimes Basin, the erosional remnant of a large Carboniferous Basin which covered much of Atlantic Canada. The Maritimes Basin is interpreted as a series of interrelated basins (horsts and basins?) which at various times underwent differing rates of subsidence and uplift. The Carboniferous strata adjacent to the Cobequid Highlands Massif comprise three packages which are interpreted to reflect major tectonic events with possible paleo-climatic influences. The three sedimentary allocycles are: (1) the Upper Devonian to Lower Namurian, Fountain Lake Group and Lower Canso Group; (2) the Upper Namurian to Westphalian A, Upper Canso Group and Riversdale Group; and (3) the Westphalian B to Lower Permian, Cumberland and Pictou groups. Each of the allocycles record an initial rapid basin subsidence and/or highland uplift, followed by a decelerating subsidence rate. The initial rapid

subsidence (and/or uplift) resulted in deposition of conglomerates at the basin margins which are succeeded by a transition to fluvial, lacustrine, and in one case a marine basin-fill. The later episodes of the basin infilling are recorded by laterally extensive blanket-like units which overstep the basin margins onto the basement rocks. The allocycles are interpreted as alternating periods of (1) strike-slip related subsidence in tilted fault wedge basins (subbasins) and (2) regional flexural subsidence occurring throughout the basin. This three cycle sequence does not appear to be consistent with a single pull-apart and subsequent thermal subsidence model proposed by various workers for the Maritimes Basin. Carboniferous-age wrenching along the suture zone between the Meguma Terrane and the Avalon Terrane was probably the driving force which resulted in the development of the allocycles within the adjacent basins.