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Hydrocarbon Possibilities in Late Triassic-Early Jurassic Early Synrift Successions, Offshore Nova Scotia, Canada

Late Triassic-Early Jurassic synrift basins of eastern North America record initial sedimentation in response to Atlantean rifting, being formed via extensional reactivation of transpressional Variscan tectonic elements. Well studied onshore basins are dominated by fluvial/playa/lacustrine continental successions and contain all components for active hydrocarbon systems. However, offshore basins are poorly understood, though are suspected to have equal or greater potential to contain hydrocarbon accumulations and contribute to overlying successions. Comparison of the onshore and offshore basins provides insight to the latter's prospectivity.

Synrift basins offshore Nova Scotia are found in platformal, extensional and attenuated transitional crustal settings. Location thus has a profound influence on sediment thickness, facies, structural development and thermal history.

The Fundy and Orpheus Basins, paired along the major transtensional Glooscap Fault System, contain in excess of 10km of continental and continental-marine successions respectively. Seismic, outcrop and well data in the Fundy Basin define probable lacustrine successions, fluvial and eolian reservoirs and numerous structural traps. In the Orpheus Basin, suspected fluvio-lacustrine strata are onlapped by known restricted marine clastic-carbonate-salt successions. Limited well and seismic data, and salt features, preclude accurate structure and facies definition.

Small platformal basins (e.g. Mohican and Naskapi) contain thin continental redbed sequences. Highly faulted linked basins along the continental margin hinge-zone are deeply buried and poorly defined. They are of varying thickness and size containing possible mixed continental-marine facies. Basins on attenuated transitional crust in deep water were the loci for restricted marine sedimentation and salt deposits, and probably contributed hydrocarbons to shallower traps.