
**Margin evolution and reservoir distribution – slope
depositional systems along the Scotian margin**

GRANT D. WACH¹, DAVID C. MOSHER²,
D.C. CAMPBELL¹, M.K. GILES¹, AND V.I. BRAKE³
*1. Dalhousie University, Department of Earth Sciences, Halifax,
Nova Scotia B3H 4J4, Canada <grant.wach@dal.ca> ¶ 2. Geological
Survey of Canada - Atlantic, 1 Challenger Dr., Dartmouth, Nova
Scotia B2Y 4A2, Canada ¶ 3. Geological Survey of Canada – Québec,
490, rue de la Couronne, Québec, Quebec G1K 9A9, Canada*

A significant issue in hydrocarbon exploration activities in
deepwater on the Scotian margin is the detection of reservoir

rock. The margin has endured a number of unsuccessful exploration attempts because of insufficient understanding of continental shelf-to-slope and slope geologic processes. The Shubenacadie H-100 and Shelburne G-29 wells were drilled on mounded seismic morphologies, interpreted as depositional fans. In post-drill analysis it is apparent that these structures are erosional remnants resulting from canyons cutting across the slope. The Torbrook C-15 well was drilled into a presumed Tertiary fan; an interpretation based on modern 3D seismic data, and a mass transport deposit was encountered. Existing models of deepwater sedimentation have underestimated the linkages between shelf and slope sedimentation and the role of canyon development during lowstand system tracts resulting in slope bypass of shelf-to-basin sediment transport. In addition, the roles of mass failure and along-slope sediment transport processes in development of passive continental margins have not been sufficiently recognized. The objectives of this study are to understand the complexities of shelf through slope sedimentation patterns using Neogene to Recent analogues. In these younger sections, spatial and temporal resolution is not at issue and geologic events are better age-constrained. Deciphering forcing functions, sediment pathways and depositional processes provide insights into exploration models for passive clastic margins. The consequence of these sedimentary processes is movement of potential reservoir rock to greater depths than previously anticipated and suggests that exploration efforts must move to deeper water where shelf-equivalent rocks are transported and deposited.