

**The Upper Ordovician Lawrence Harbour Formation of the Exploits Subzone:
new perspectives on structure, stratigraphy and geochemistry**

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The Upper Ordovician Lawrence Harbour Formation is a significant lithostratigraphic and biostratigraphic marker horizon found throughout the Exploits Subzone. In the Grand Falls–Windsor–Badger region the Lawrence Harbour Formation grades from graptolitic siliceous black shale to dark grey silty shale and silty shale, from base to top. It is conformably underlain by grey bioturbated chert and conformably overlain by sandstone and siltstone turbidites of the Point Leamington Formation. Extensive structural reworking of these units commonly produces complex regional outcrop patterns. Detailed outcrop-scale structural maps define reverse faults that cross-cut limbs of open to close folds. These structures ap-

pear to have been followed by a later stage of deformation that steepened the thrust faults. Regional penetrative cleavage is observed as axial planar to the early F1-folds.

Geochemical and lithological variation has been defined vertically through the shale transition and appears to be related to increasing grain size from base to top of the shales. The Lawrence Harbour Formation, sampled from Notre Dame Bay to Bay D'Espoir, shows no marked lateral variation in geochemistry. These trends support a coarsening-upward sequence for the shales, and appear to support the model of deposition within a single interconnected basin for the Lawrence Harbour Formation.