
**Withdrawal of Windsor evaporites and the stratigraphy
of the Maritimes Basin**

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The Lower Windsor Group in the central Maritimes Basin of New Brunswick and Nova Scotia, and the equivalent Codroy Group of Newfoundland, contain thick evaporites that are poorly preserved at the surface due to dissolution, but which show dramatic variations in thickness where preserved in the subsurface. Structures in both the surface and subsurface show that salt mobilization occurred during the evolution of the basin. In the Cumberland subbasin of Nova Scotia, seismic profiles show that evaporite withdrawal occurred at different times in different parts of the basin. Basin geometries recording differential subsidence suggest that at least 2.5 km of Lower Windsor evaporites were initially present. In parts of the subbasin, localized evaporite-withdrawal basins are imaged that correspond in their stratigraphic position to the Middle Windsor Limekiln Brook Formation, suggesting that evaporite flow began very soon after deposition of the Lower Windsor evaporites.

Major lateral thickness and facies variations also occur in the Middle and Upper Windsor stratigraphy, and in the overlying Viséan-Serpukhovian Mabou Group. Major omissions in the Windsor-Mabou stratigraphy have previously been interpreted as products of a major, post-depositional movement on a subhorizontal extensional detachment. Comparison with evaporite successions on passive margins suggests an alternative model. In this model, locations where the Lower Windsor Group is absent represent evaporite welds, where evaporites were withdrawn early, allowing deposition of thick Middle Windsor to Mabou successions in a series of minibasins. Simultaneous flooding of these minibasins during sea-level high-stands led to the deposition of comparable successions across multiple minibasins. In contrast, locations where Middle Windsor to Mabou Group strata are condensed or absent represent areas of salt inflation and diapirism, in which limited accommodation space was available for the deposition of Middle Windsor to Mabou Group sedimentary rocks.

This model leads to specific testable predictions for the stratigraphy and facies of Windsor and Mabou rocks in areas of evaporite flow, which merit further investigation.