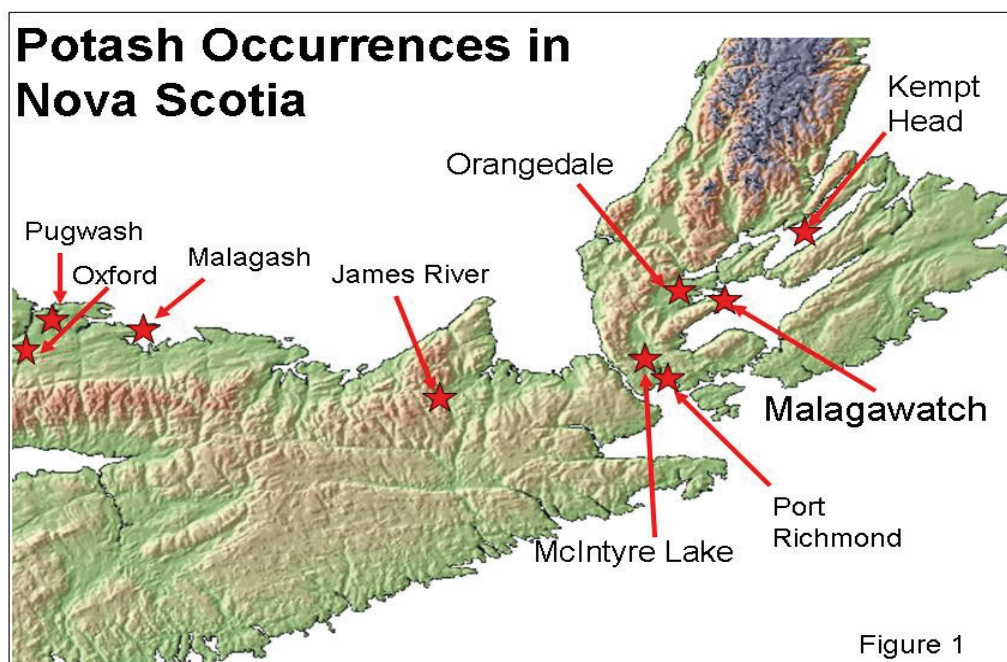


Potash Potential in Nova Scotia: the Mississippian Ocean's Contribution to our Mineral Resources

R. J. Ryan¹

Nova Scotia is situated in the southeastern portion of the Carboniferous Maritimes Basin. During the Mississippian (340 million years ago) most of eastern Canada was covered by a large inland ocean and under arid paleoclimatic conditions. Evaporation of this inland sea resulted in the deposition of a series of evaporitic rocks, in ascending order: carbonate, gypsum/anhydrite, halite and potash. Potassium salts only precipitate when nearly all of the seawater has evaporated and, therefore, represent only a small percentage of the overall evaporitic cycle. Marine rocks within the basin are assigned to the Windsor Group, which is made up of strata deposited by several cycles of marine incursion and evaporation. Incursions of more normal saline seawater into the basin before potash has been deposited can result in an incomplete cycle with an absence of potash. There are numerous occurrences of potash in northern Nova Scotia, including Oxford, Pugwash, Malagash, James River, Port Richmond, McIntyre Lake, Orangedale, Malagawatch and Kempt Head (Fig. 1). The Malagawatch deposit is the best documented of the occurrences, although the Orangedale, McIntyre Lake and Kempt Head deposits also have reasonable documentation. Potash beds in Cape Breton occur in at least two stratigraphic horizons: a lower Windsor Group horizon referred to as "Potash A" and one in the Middle Windsor Group referred to as "Potash B". The salt and potash deposits in Nova Scotia are complexly folded, with structural thickening of the potash layers along fold hinges. The "Potash A" horizon is thick enough to be of economic significance, especially where structural thickening occurs.



¹Manager of Resource Evaluation, Geological Services Division, Nova Scotia Department of Natural Resources