
**A synthesis of Carboniferous stratigraphy –
Cape Breton Island, Nova Scotia, with new data
from southwestern Cape Breton Island**

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Recent geological mapping at 1:50,000 scale in southwestern Cape Breton Island documents a Carboniferous succession extending from the latest Devonian (Fisset Brook Formation) to the youngest Namurian (upper Port Hood Formation). New subdivisions of the Horton Group have been mapped successfully, with lateral extent documented as far westerly as the Antigonish Highland block. The overlying Windsor Group is represented by very saline facies which extend in the subsurface upwards into the overlying Mabou Group. The latter, conformable with the Windsor Group, comprises a lower grey-shale interval, overlain by fine-grained redbeds. The Mabou Group is overlain unconformably by the lower part of the Port Hood Formation characterized by thick, multi-storied sandstone channel bodies interbedded with fine-grained redbeds. The upper part of the Port Hood Formation is represented by coal measures comprising grey mudrock interbedded with sandstone, with minor red siltstone and shale.

The preserved Carboniferous succession in southwestern Cape Breton Island is quite comparable with that of western Cape Breton Island although some differences in detail are apparent in Horton Group subdivisions. Comparing the succession of southwestern Cape Breton Island with that of the Loch Lomond half-graben and the Sydney Basin to the east and northeast reveals significant differences in the rock record. In the latter areas, Westphalian coal measures are well-represented, laterally extensive (Sydney) and historically of considerable economic importance. In the Sydney Basin, however, these coal measures lie unconformably on strata of the Mabou Group and the Port Hood Formation is apparently missing from the record. In the Loch Lomond setting, strata

equivalent to the Port Hood Formation are well-represented, passing upwards into Westphalian coal measures correlative with those of the Sydney Basin.

The presence of Port Hood Formation strata in western and southwestern Cape Breton Island, as well as in the Loch Lomond half-graben, attests to its former broad distribution, and suggests that it may have been deposited in the Sydney Basin as well, albeit subsequently removed beneath the unconformity at the base of the Westphalian coal measures. The Westphalian coal measures can be extended by inference through southwestern Cape Breton Island in a reconstructed stratigraphic succession, thereby connecting the Sydney Basin, the Loch Lomond half-graben, and western Cape Breton Island. Major differences in regional stratigraphic architecture reflect mainly differing preservation of the rock record. Those rock units which are preserved in each of the areas considered here, are quite comparable in lithofacies and in biofacies (biostratigraphic age) and attest to the regional scale of the depositional systems which characterize the southern portions of the Maritimes Basin.