## Evolving fluvial systems from the Mabou-Cumberland groups (Namurian-Westphalian A) of western Cape Breton Island, eastern Canada

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The middle megasequence of the Maritimes Basin in western Cape Breton Island consists of an overall coarsening-upward succession of clastic strata assigned to the Hastings Formation, the Pomquet Formation (both of the Mabou Group) and the Port Hood Formation (Cumberland Group). The Port Hood Formation is informally divided into lower and upper 'parts'. In the lower beds, primarily red-coloured mudstones are interbedded with sandstones that progressively thicken upsection; coal seams are essentially absent. Interbedded with the sandstones in the upper beds are thick successions of grey mudstones with numerous coal seams.

Fluvio-lacustrine strata predominate in the Cumberland Group, whereas strata of the Mabou Group are predominantly lacustrine in origin. Previous interpretations of fluvial strata from the uppermost Port Hood Formation suggest deposition by broad meandering rivers on an upper delta plain. Incorporating both vertical and lateral profile analysis of outcropping fluvial sandstones, a more complex and evolving fluvial system can be shown to have existed.

The lowermost Port Hood Formation (and probably better reassigned lithostratigraphically to the Pomquet Formation) exhibits gravelly bedforms infilling channel scours and laminated sand sheets, enclosed by overbank fines. Fluvial style is characterized by poorly confined, shallow channels and suggests flashy discharge in an ephemeral, braided river. The typical lower Port Hood Formation contains numerous in-channel downstream and obliquely-accreting sandbars, dune trains, minor scour-channels and rare overbank deposits. Crevasse-splay, levée, and classic point bar deposits are absent. A lack of desiccation cracks, caliche development, or other evidence of subaerial exposure suggests variable, but perennial discharge in a relatively deep (5-10 m), low-

sinuosity, braided channel system. Higher up the succession, near the boundary with the upper part of the Port Hood Formation, large, distinctly fining-upwards, composite channel macroforms are developed, comparable to large, laterally-accreting point-bars. Together with more variable palaeocurrent data derived from cross-beds, these macroforms suggest a higher sinuosity channel system traversing a wide floodplain had developed.