

Fluvial style and its influence on coal deposition in the Carboniferous Sydney Basin of Nova Scotia

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The abundance, thickness and quality of coals in fluvial deposits is strongly influenced by the nature of the river channel and floodplain systems. In the Morien Group (Westphalian C, D age) of the Sydney Basin, three fluvial facies assemblages have been recognized. The pebbly sandstone assemblage is characterized by trough cross-bedded sandstone, thin pebble-conglomerate units, and a paucity of mudrocks; *in situ* coal is absent but carbonized logs and thin coal lenses are common. The assemblage represents a moderately high energy

braidplain. The sandstone assemblage contains sandstones (trough cross-bedded with some rippled and horizontally stratified units), thin granule-conglomerates, and about 10% mudrocks; thin coal seams are uncommon, coal logs and lenses are abundant. The assemblage represents a distal braidplain. The third assemblage, about 50% mudrocks alternating with fining-upward sandstone sequences, contains trough cross-bedded and rippled sandstones with large-scale lateral accretion sets. Significant coal seams are present, and erect trunks

are common within thin coarsening-upward units. The assemblage represents a meandering alluvial system, with *in situ* vegetation on levees and floodplains. The alternating assemblage was initiated earlier in the eastern part of the basin than in the west, but developed fewer, thinner coal seams at that time.

Paleocurrent studies indicate consis-

tent northeastward transport through space and time. There is little indication of basement influence at present basin margins, implying that the basin formerly extended further to the southwest. A basement high along the Boisdale Anticline apparently influenced paleodrainage in the southern Boularderie Island area.