

Stratal Architecture of the Conglomeratic Falher C Shoreline – Observations from Outcrop on Bullmoose Mountain, Northeastern British Columbia

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The Falher C stratigraphic unit of the Falher Member, of the Spirit River Formation, in northeastern British Columbia, is a product of deposition by wave and storm processes along a graveliferous, wave-dominated strandplain. In the outcrop, on Bullmoose Mountain, two distinct parasequences are observed in the Falher C, which form a mappable shoreline trend in the subsurface. The southernmost trend (C1) consists of a highstand sandy shoreface facies, and marks the onset of the Prograding Shoreface Facies Association (PSFA). To the south of the C1 trend, coal, shale and interbedded sandstone make up the Coastal Plain Facies Association (CPFA). The C1 parasequence is followed to the north by a regressive systems tract stratal sequence (RST; C2 sequence) conglomeratic shoreface. Internal erosional surfaces within C2 are source diastems (SD's) that amalgamate along the basal surface to form a regressive surface of erosion (RSE). The source diastems vary across the outcrop in size and orientation. The geometry and paleogeographic interpretation of the outcrop facies suggest shoreface sandstone and conglomerate were deposited episodically by waves and longshore currents during phases of coastal progradation. The orientation of the shoreface deposits is interpreted to shift with channel avulsion during a falling relative sea level. Gravel is introduced to the C2 sequence as bedload from narrow, deeply incised channels during a falling relative sea level. Conglomerate with the highest porosity and permeability occurs along the southern edge of the C2 sequence, adjacent to coevally deposited channels.