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Murray Gingras¹, Barton Blakney¹, John-Paul Zonneveld² (1) University of New Brunswick, Fredericton, NB
(2) University of Calgary, Calgary, AB

Lower Cretaceous Incised Valley Complexes, Northern British Columbia, Canada

The Gething Formation in northeast British Columbia is a variably thick, heterolithic succession of continental and marginal-marine facies. This unit was deposited on the south Flank of the Keg River Highlands in the northern Western Canada Foreland Basin (~ 58°N, 120°W). Although Gething sandstone bodies are exploration targets further south, it is not considered an exploration target in the study area: due largely to its complex and laterally discontinuous nature. However, in the studied interval several of the lithofacies possess good reservoir properties, and the overlying Wilrich Shale provides a potential stratigraphic seal and source rock. Thus, an understanding of the overall paleogeography of the Gething in the study area is required.

New subsurface research in the area of Ring and Kahntah River gas fields shows that the Gething is represented by three sinuous incised valleys that debouch southward into a large structural basin. In their northernmost (upstream) reaches, the incised valleys are dominated by unbioturbated, high-angle cross-bedded and current-ripple laminated upper-fine-grained sandstones, rich in organic detritus (primarily coal flakes). These are interpreted as fluvial channel and bayhead delta deposits.

The continental lithofacies grade southwards into bioturbated, low- and high-angle cross-bedded, lower to upper-fine-grained sandstones with thin, bioturbated siltstone and mudstone intervals. Rhythmic bedding, mud flasers, and sedimentary couplets, and the trace fossils *Planolites*, *Skolithos*, *Cylindrichnus*, *Arenicolites*, *Teichichnus*, and *fugichnia* are common. These strata are interpreted to represent brackish-water tidal channels. South of this, the Gething is dominated by interstratified, sporadically bioturbated sand, silt and mud, sedimentologically similar to the aforementioned brackish channel deposits, but with a more diverse ichnofauna (the previous assemblage as well as *Thalassinoides*, rare *Helminthopsis* and *Phycosiphon*). These deposits are ascribed to tidal channels in the larger, more marine bay.