

ONSHORE CARNARVON BASIN

SEISMIC REPROCESSING

Sparse and poor quality, low-fold 2D seismic makes exploration in the onshore Carnarvon Basin challenging (Fig. 1). ~1700 km of vintage 2D seismic will be reprocessed and made available in 2018 (Fig. 2). Long, regional lines without any previous recent reprocessing will be prioritised.

Also included in this campaign are lines in the underexplored northernmost Perth Basin, which shares a similar Paleozoic stratigraphy with the Southern Carnarvon Basin.

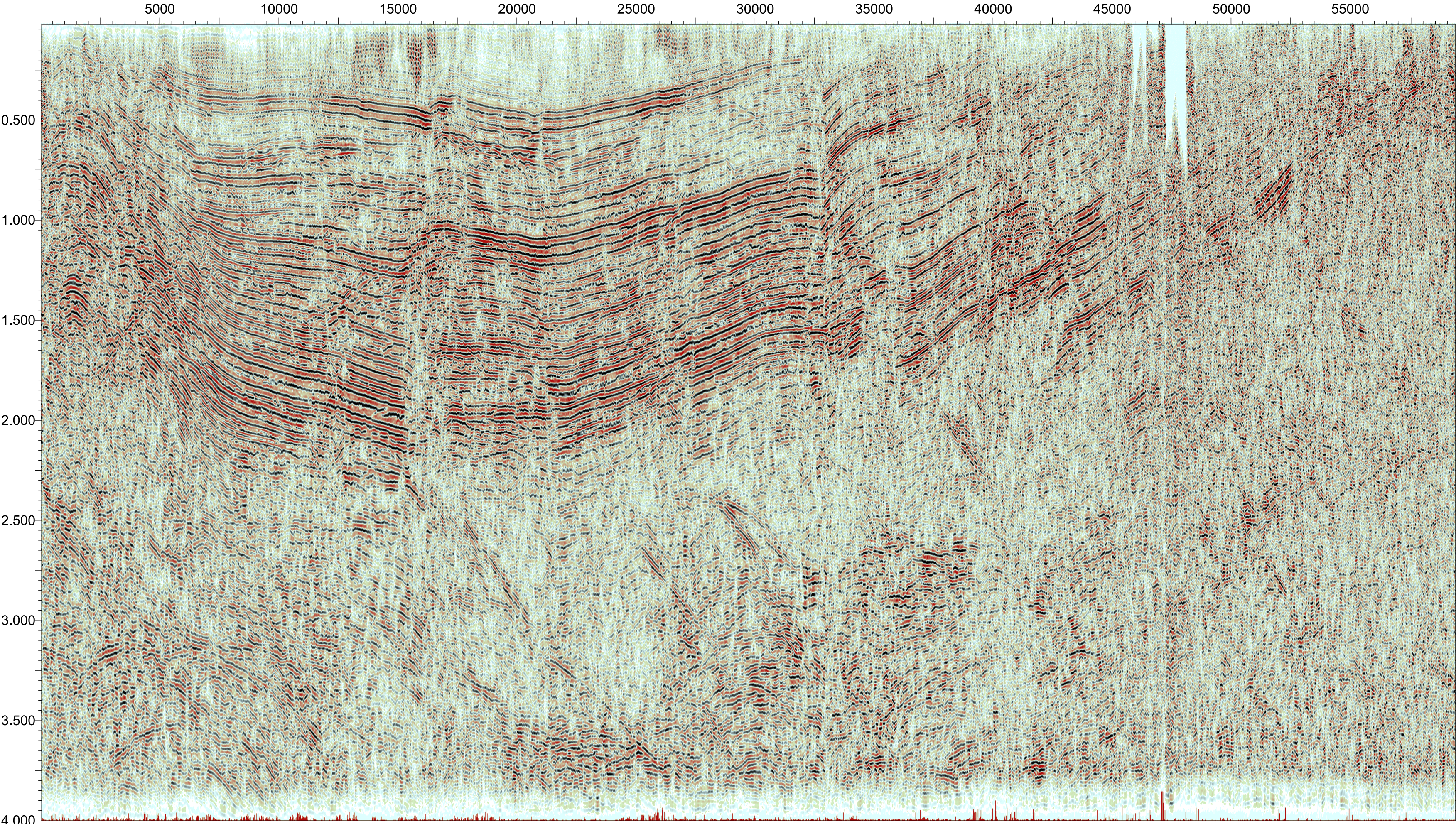


Figure 1. E-W 1982 seismic line through the Merlinleigh Sub-basin. Most seismic in this sub-basin is of 1980s and earlier vintage, and have yet to be reprocessed.

LOWER PERMIAN STRATIGRAPHY AND SEDIMENTOLOGY

The Lower Permian Byro Group, which is over 1300 m-thick in the Southern Carnarvon Basin, is characterised by siltstone – quartz-sandstone cyclicity at varying scales (Figs 3, 4 and 5). The re-evaluation of the group will focus on correlation of available bores and wells to the outcrop using micropaleontology, sequence and climatic character, and the limited wireline logs/outcrop gamma.

This study will form the stratigraphic framework for an evaluation of the generating potential of the carbonaceous mudstone units, which are up to several hundred metres thick, and that have yielded TOC values of up to 5% from outcrop samples (Fig. 6).



Figure 3. Upper Wandagee Formation, showing sandstone-siltstone cyclicity.

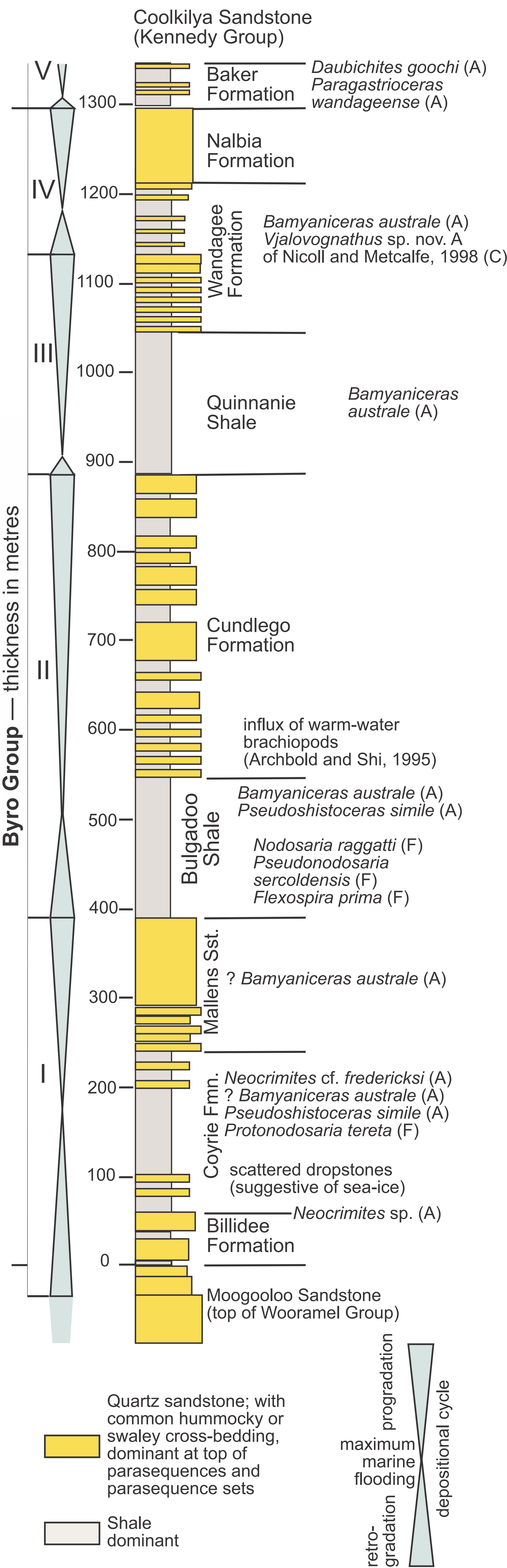


Figure 4. Summary log of the Byro Group. Letters in brackets after species names are A: ammonoid, C: conodont, F: foraminifera

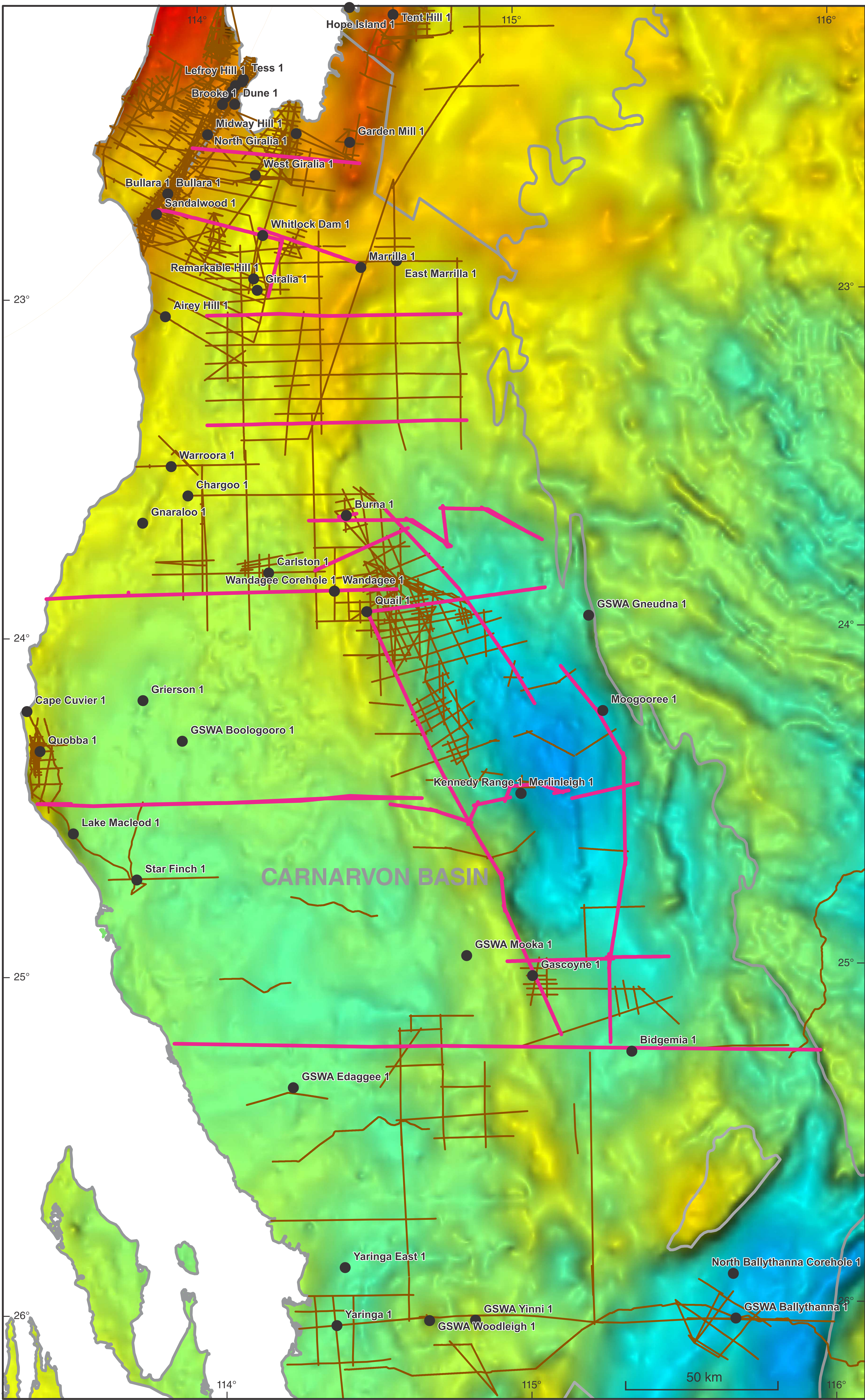


Figure 2. Current 2D seismic coverage (brown), lines to be reprocessed (magenta) and drillholes (black circles) in the onshore Carnarvon Basin. The underlying image is the state gravity anomaly map.

PERMO-TRIASSIC SOURCE ROCK STUDY

Gaps in current Rock-eval geochemical data across the basin exist both spatially (due to sparseness of petroleum wells) and stratigraphically (few samples taken within wells). A new program of infill sampling of existing wells, mineral drillcores and fresh outcrop (e.g. Fig. 6) will provide a more comprehensive pre-competitive dataset that will aid future exploration for both conventional petroleum and shale and tight gas.



Figure 5. A 4 m section of Bulgadoo Shale exposed along the Minilya River

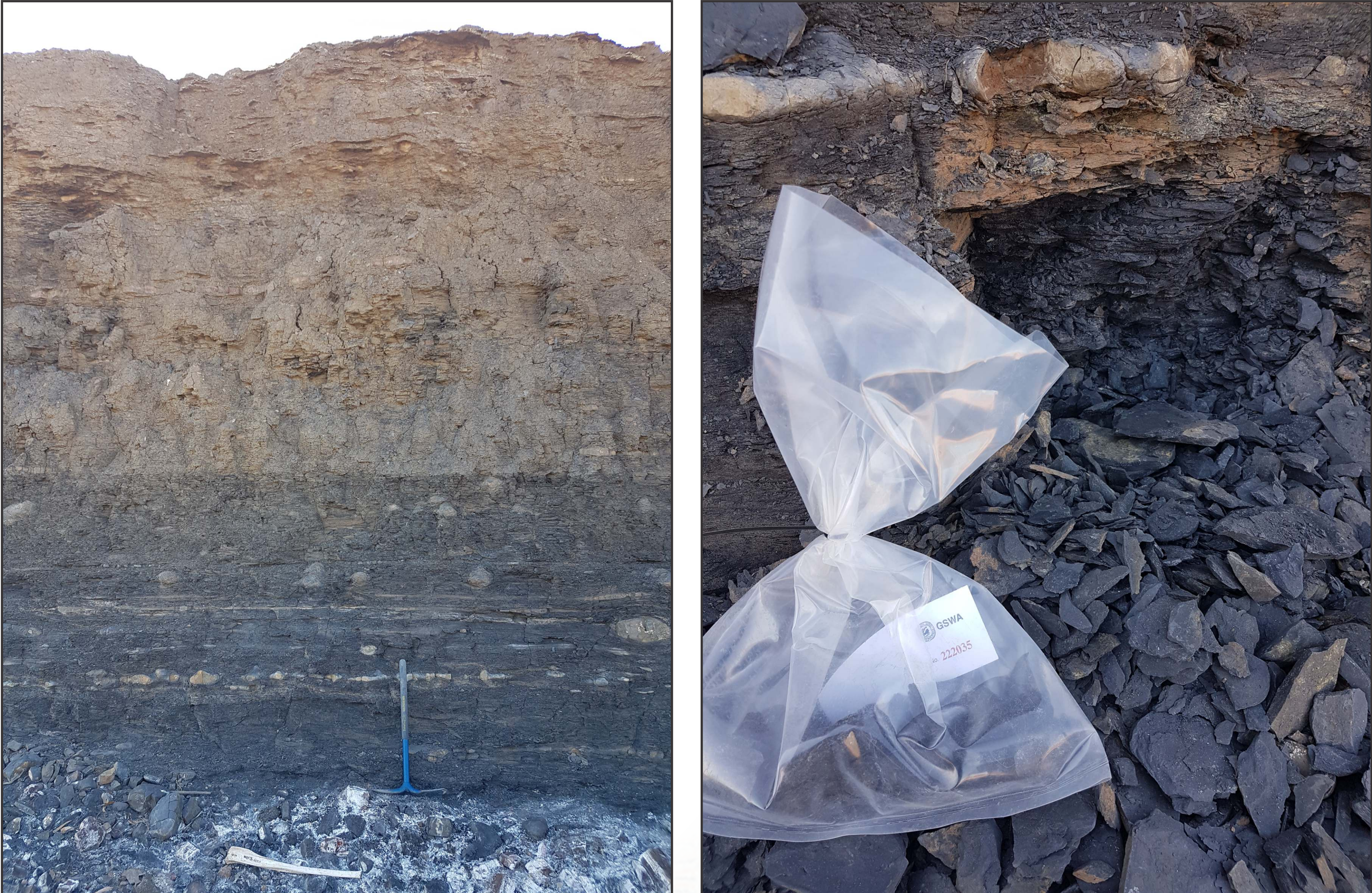


Figure 6. Fresh outcrop of Lower Permian black shale at base of cliff recently cut further into by the Minilya River. Heavy flooding can reveal new outcrop, yielding un-oxidised or less oxidised samples that are more reliable for organic geochemistry.

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