

CARNARVON BASIN

CURRENT STUDIES

PALEOZOIC STRATIGRAPHY

The Lower Permian Byro Group is over 1300 m thick in the Southern Carnarvon Basin, and is characterized by siltstone–quartz sandstone cyclicity at varying scales. The re-evaluation of this group will focus on correlating available drillholes and wells with the outcrop using micropaleontology, sequence and climatic character, and the limited wireline logs/outcrop gamma.



Upper Wandagee Formation exposed along the Minilya River, showing sandstone–siltstone cyclicity

The Tumblagooda Sandstone in the Southern Carnarvon and northern Perth Basins is currently under review (Allen and Trinajstić, 2017). Work focuses on the trace fossil assemblages and new age constraints for the Tumblagooda Sandstone, which will result in a stratigraphic revision of the Southern Carnarvon Basin.

Tumblagooda Sandstone outcrop near Murchison River

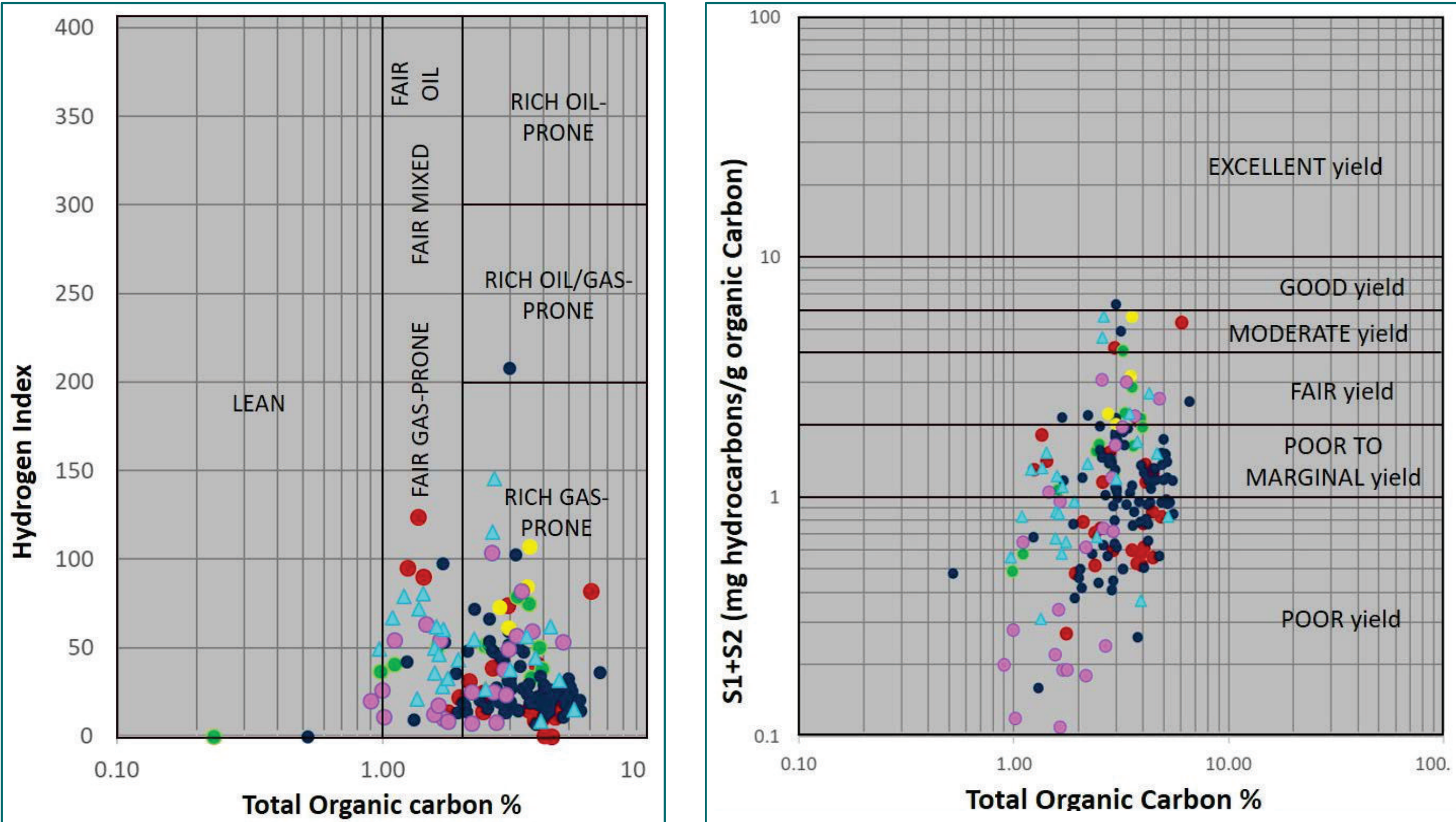


PERMIAN PETROLEUM SOURCE ROCKS

Although Permian rocks of the Carnarvon Basin are known to contain organic-rich mudstones with the potential to yield hydrocarbons, their distribution could not be determined from the previous sampling points. This study involved analysis of previously unsampled wells, drillholes and outcrop. Source-rock quality is determined using Rock-Eval pyrolysis.

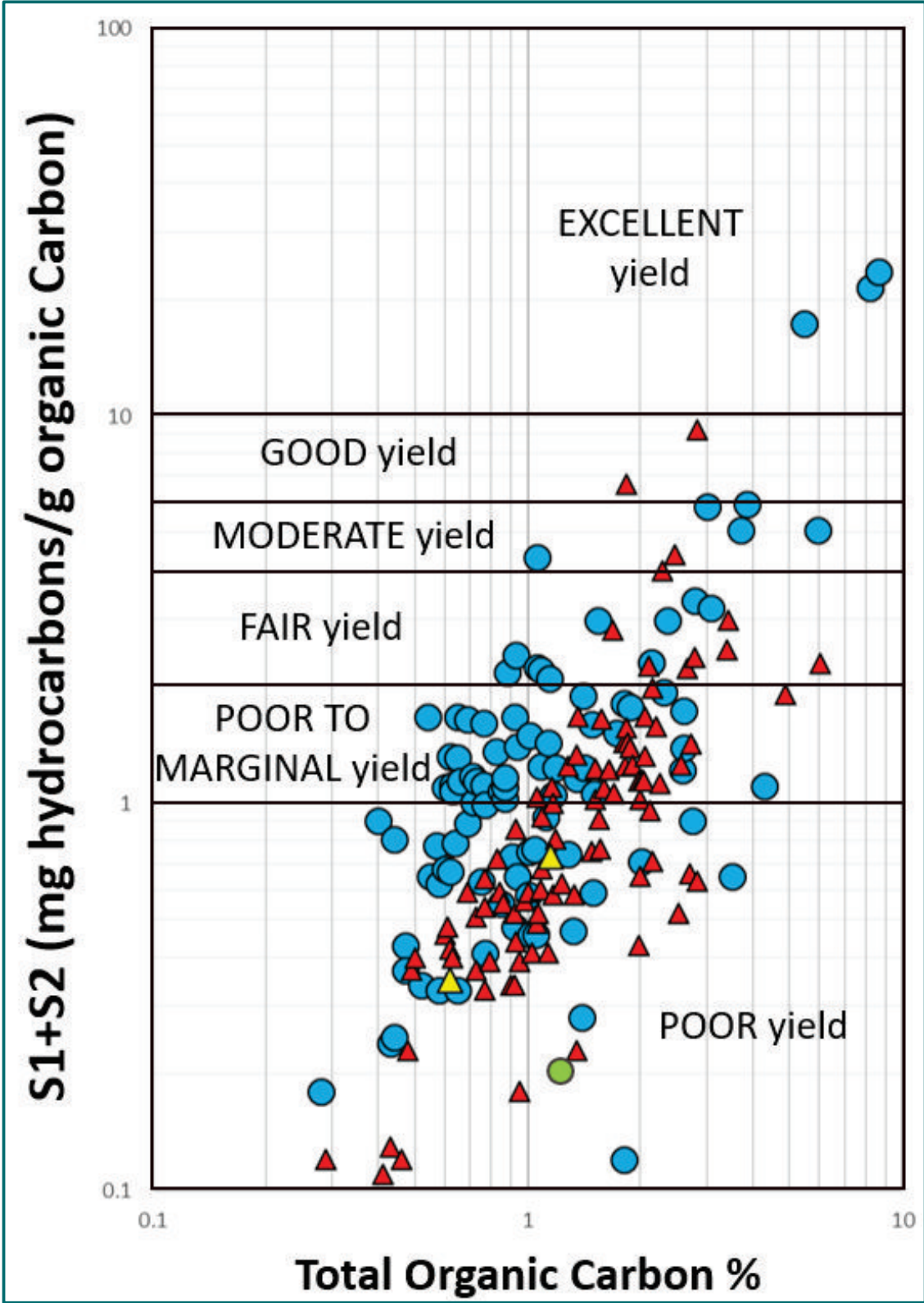
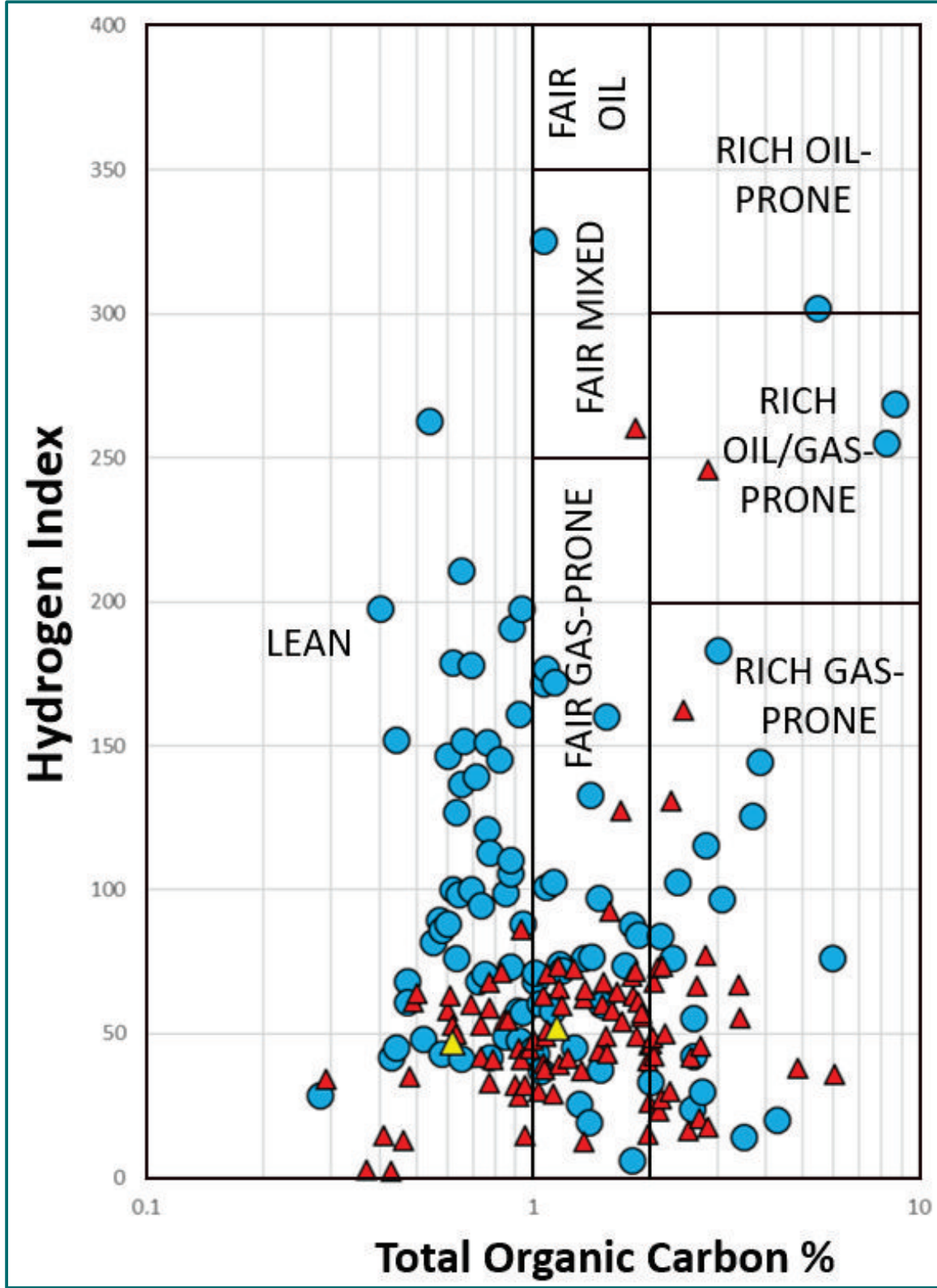
BYRO GROUP SOURCE ROCKS

The Byro Group contains rich gas-prone source rocks, but samples from outcrop and new drillholes prove that these source intervals are either very thin or have only localized distributions.



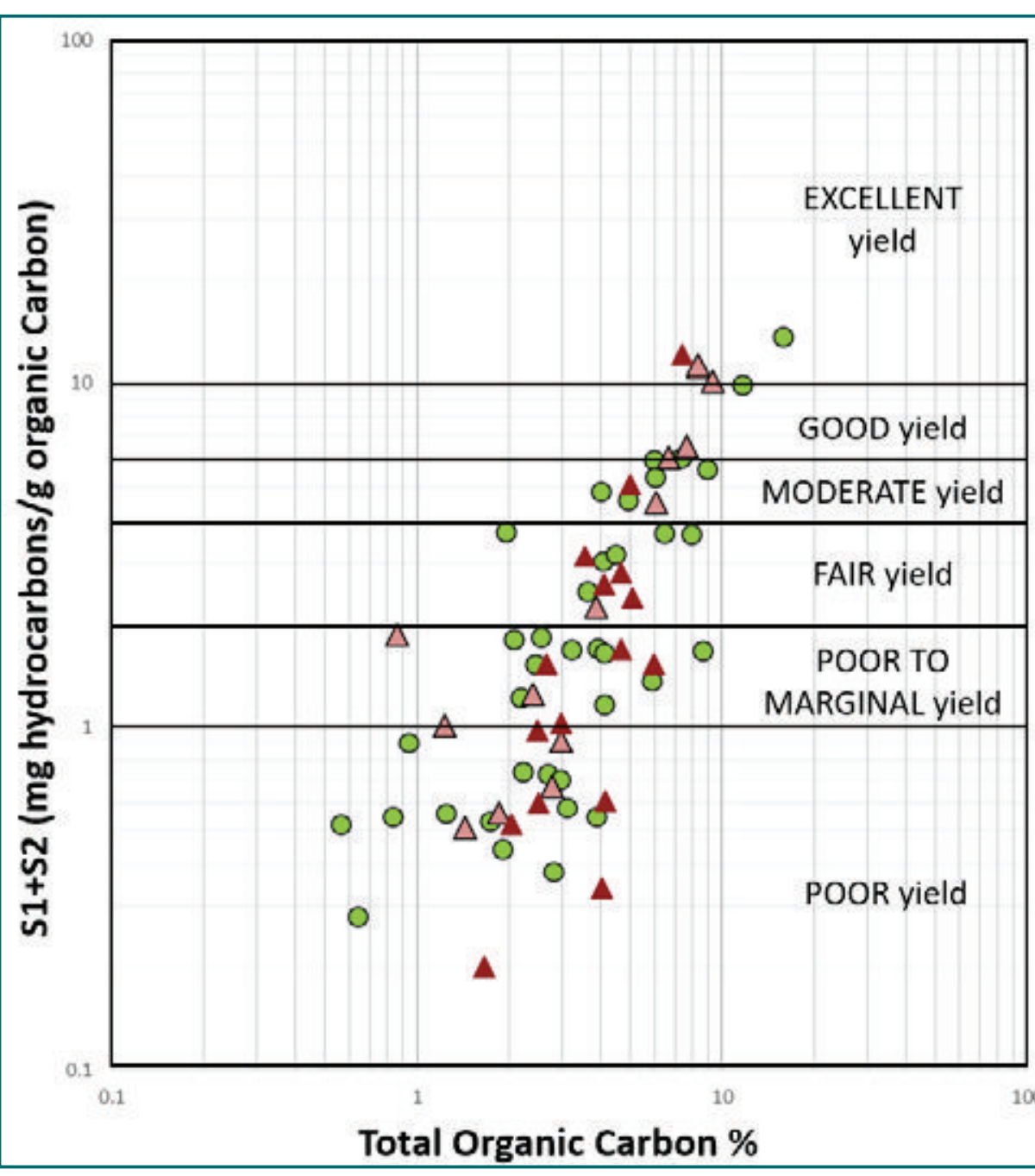
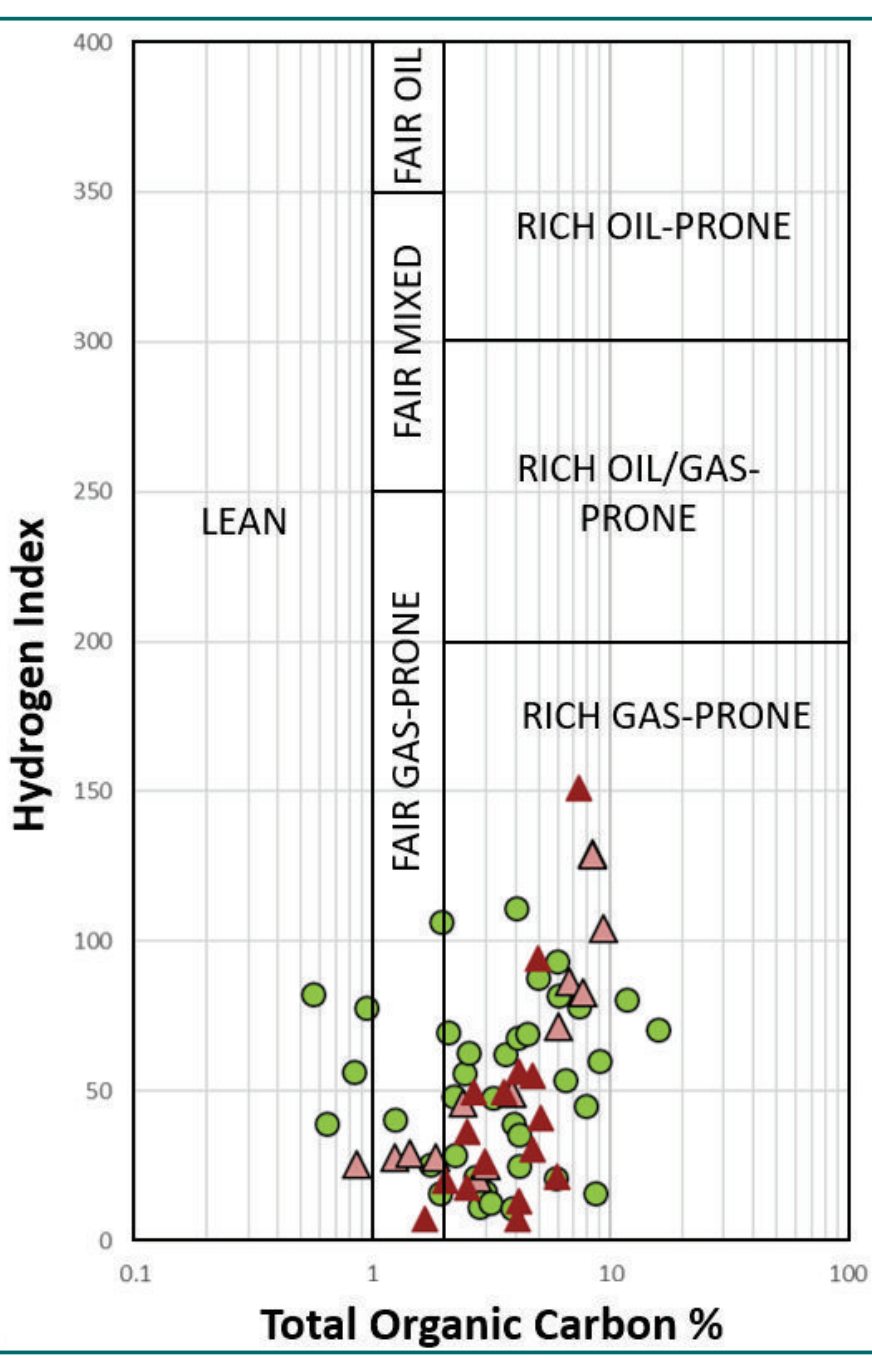
KENNEDY GROUP SOURCE ROCKS

The Kennedy Group is the only Permian rock unit with the potential to generate significant quantities of oil, but the oil-generating intervals are thin and have patchy distributions, and are restricted to the offshore portion of the basin.



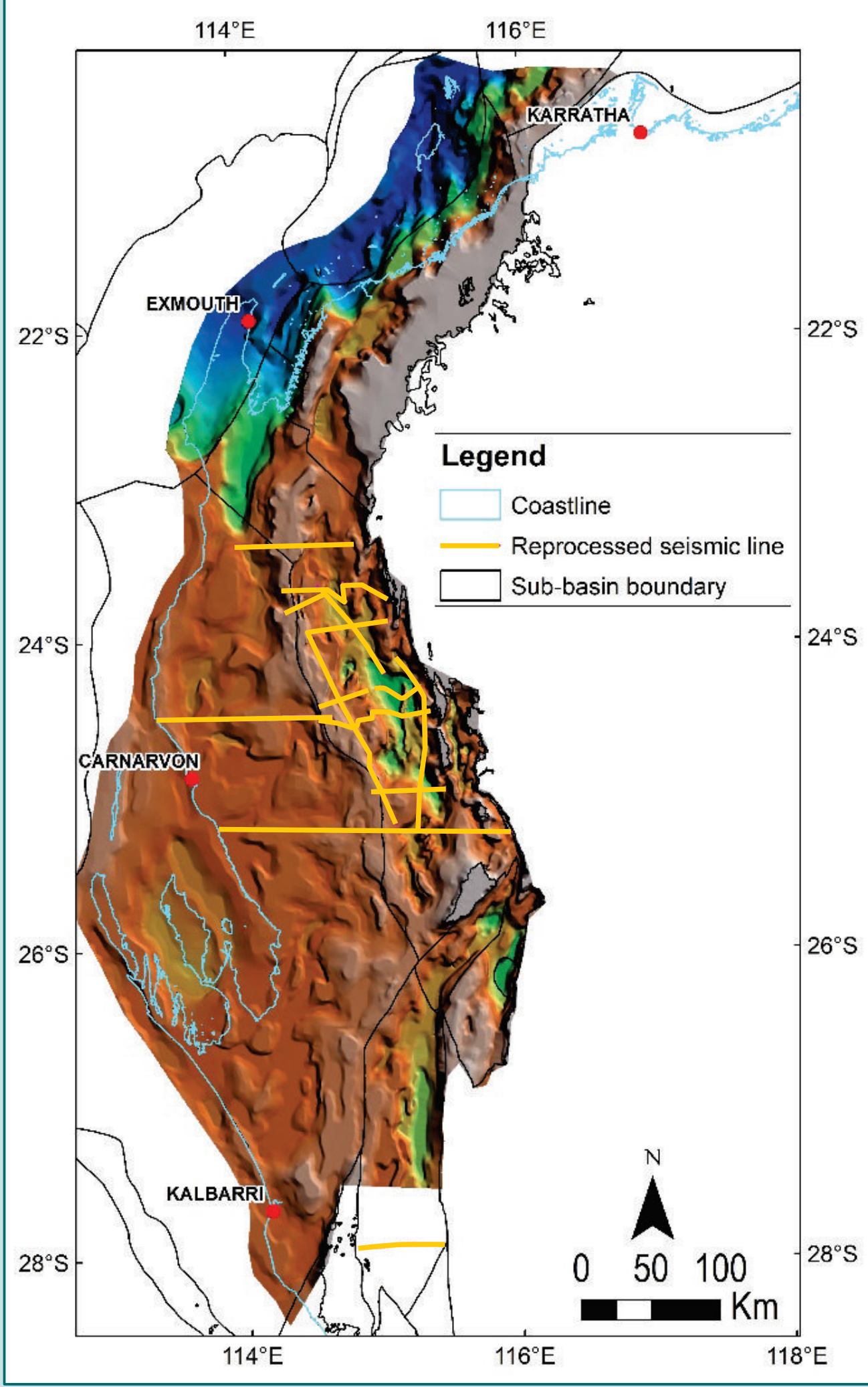
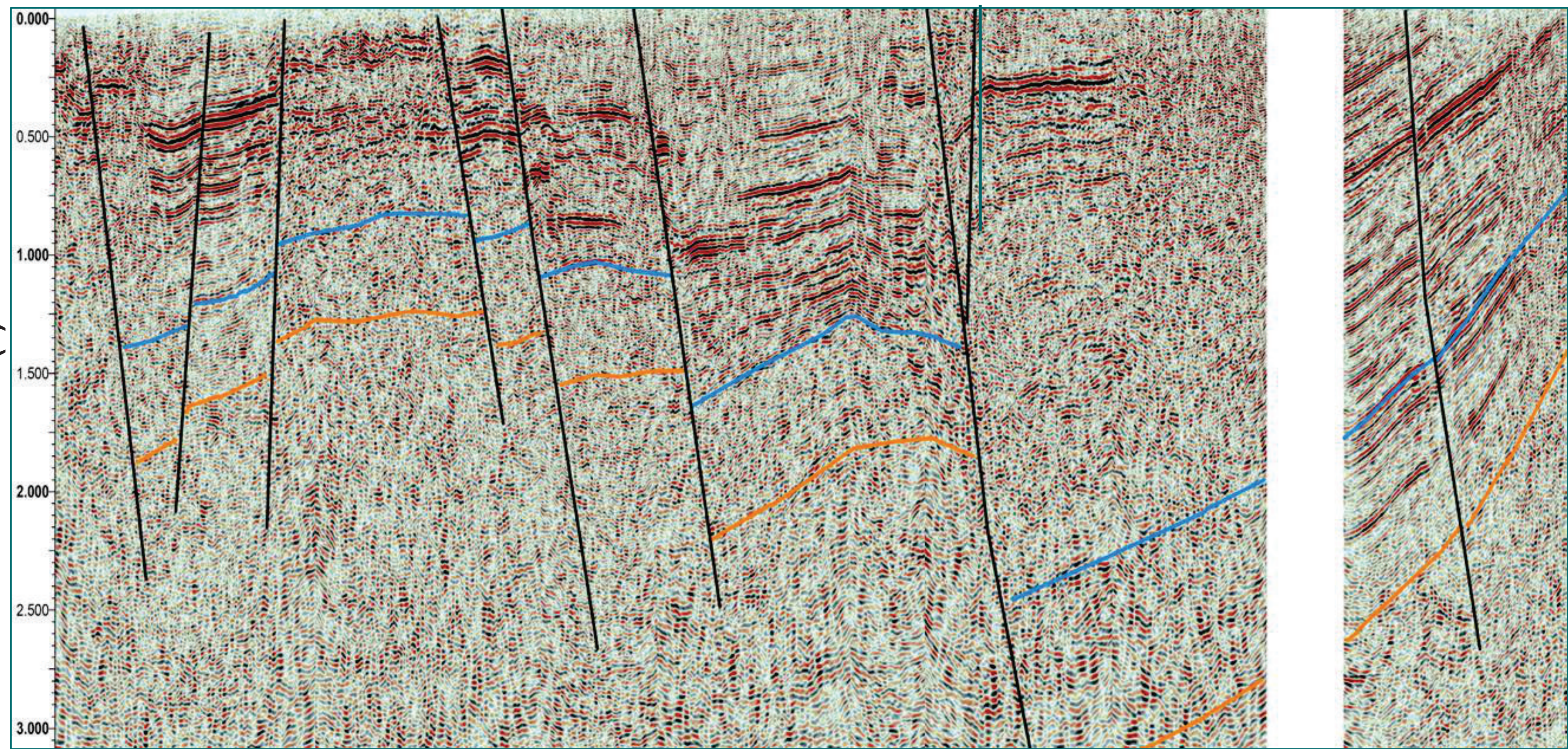
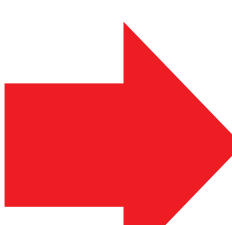
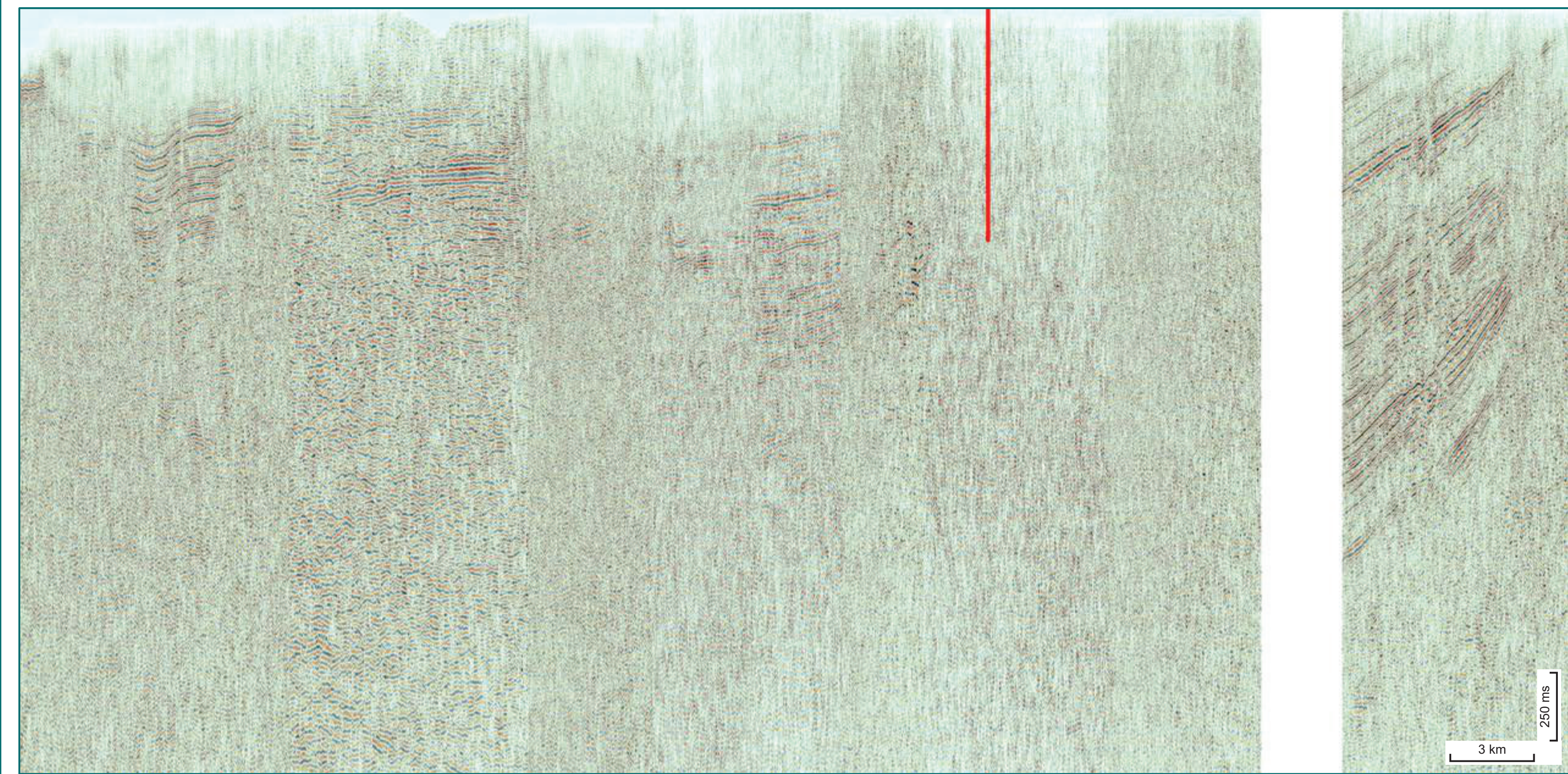
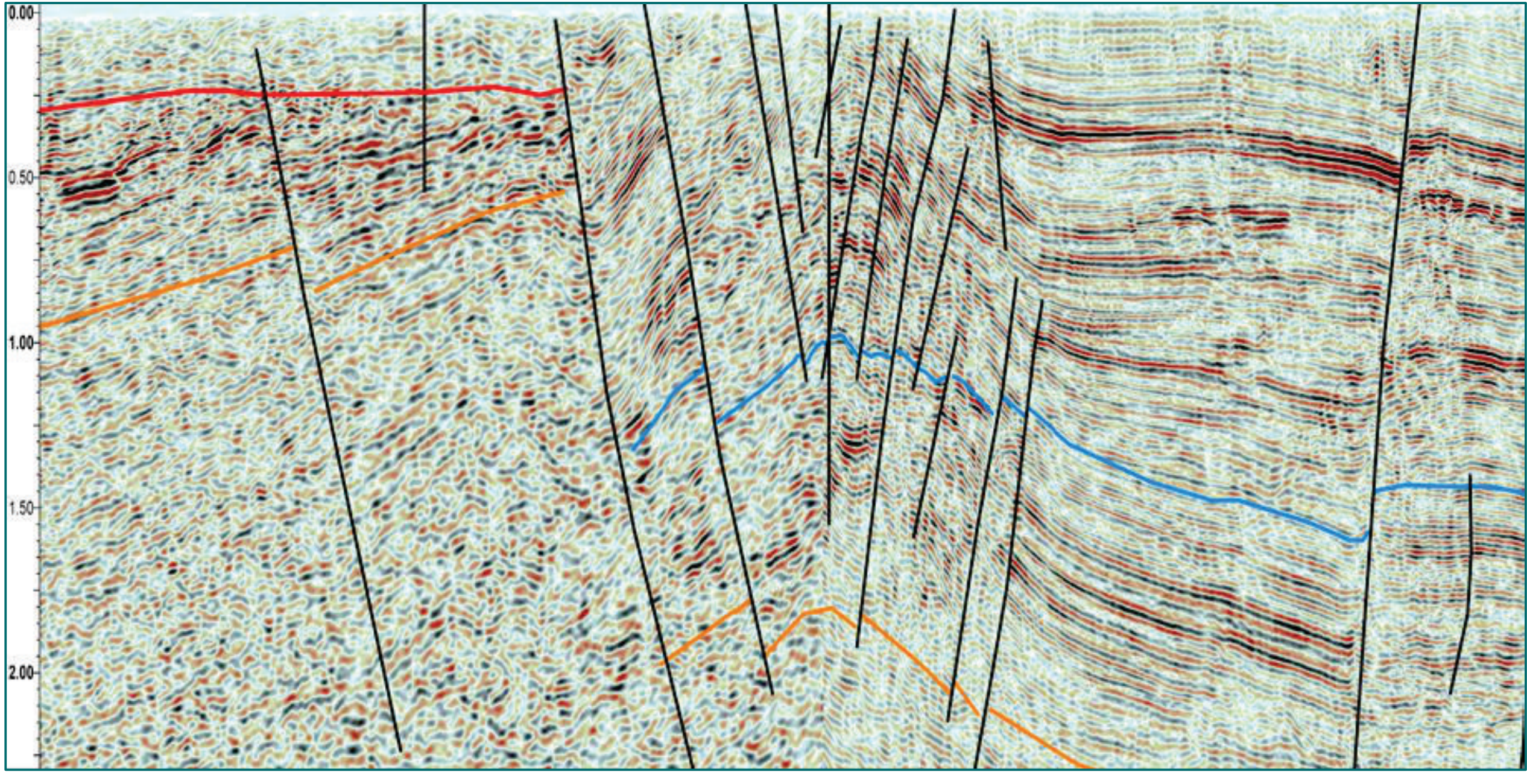
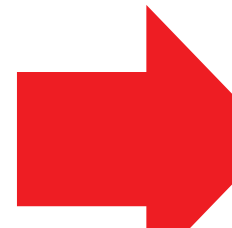
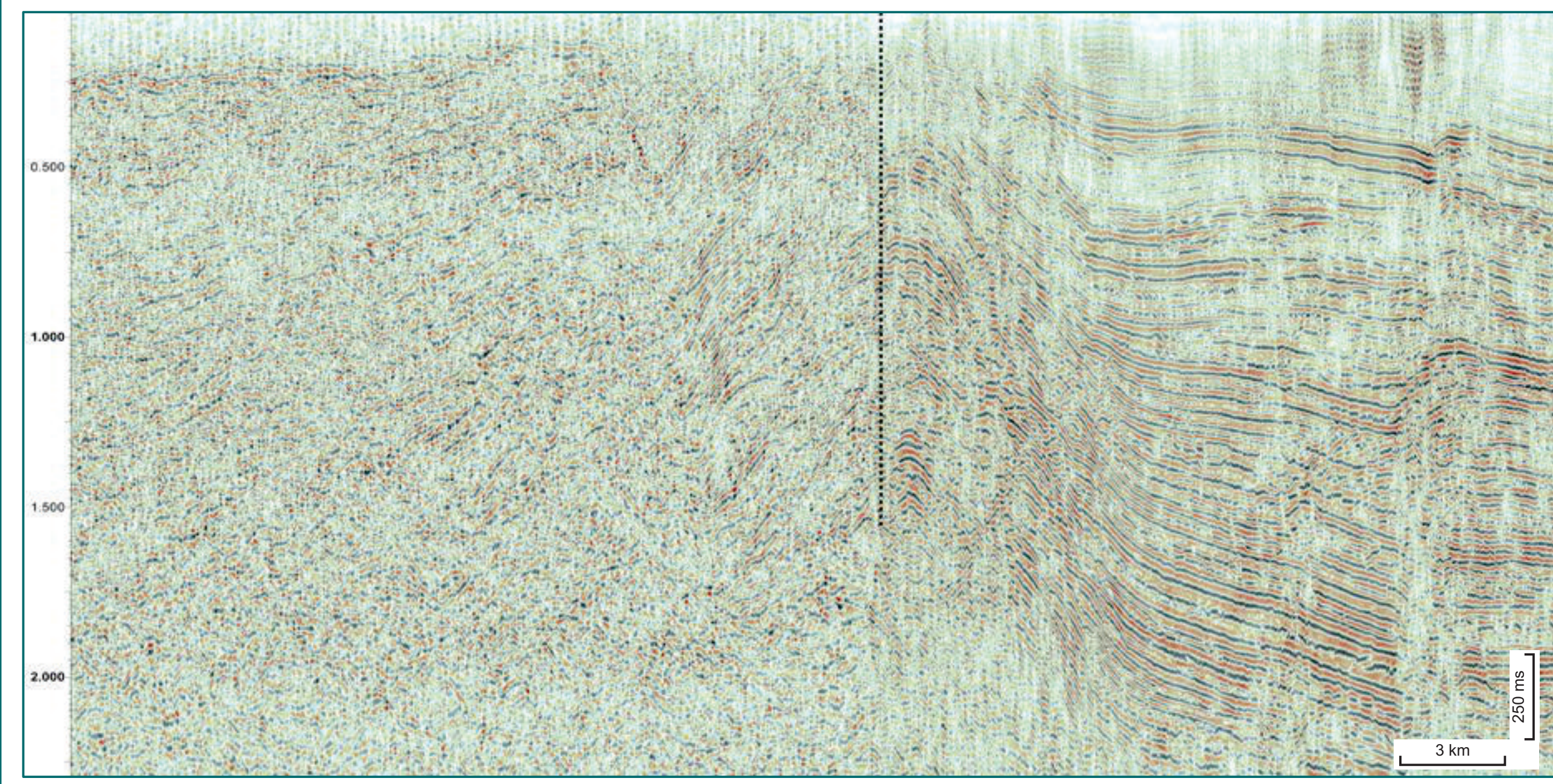
WOORAMEL GROUP SOURCE ROCKS

The Wooramel Group contains excellent gas-generating mudstones, and this study suggests that good quality is maintained over a larger area of the basin than previously thought.



Southern Carnarvon Basin seismic reprocessing

About 1400 km of vintage 2D seismic lines were reprocessed by Ion Geoscience in 2018, greatly improving the quality and interpretability of profiles. Faults are better imaged, and the trap configuration (or lack thereof) of key petroleum wells can be better assessed to help determine why they failed to find hydrocarbons. This project was funded by EIS.



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EXPLORATION
INCENTIVE
SCHEME



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Geological Survey of
Western Australia



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