



Regional Geology of the Gippsland Basin

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have mixed land-plant and lacustrine signatures that show similarity to lower coastal plain source rocks from the Chimaera Formation (CFSR) in the deepest sections (*T. lilliei* biozone) at Volador-1 and Hermes-1. These samples plot separately from the Central Deep oils that have a terrestrial fingerprint. Blue: Anemone 1A oil and Blackback 2 fluid inclusion oil show most similarity to Anemone Formation source rocks (AFSR) with mixed marine/terrestrial signatures. Green: the geochemical signature of the Volador Formation source rocks (VFSR) deposited in strongly oxic environments and containing terrestrial higher plant remains does not correlate with any oil (after Edwards et al, 2016).

Figure 16 Oil-source correlations for selected wells. The $\delta^{13}\text{C}$ isotope values of the Anemone 1 oil (blue) fall within the range of values exhibited by the marine Anemone Formation source rock extracts (after Edwards et al, 2016).

Figure 17 Oil-source correlations for selected wells. The $\delta^{13}\text{C}$ isotope values of the Angler 1 oil (orange) is most similar to the source rock extract of the Chimaera Formation at 3369 m in Omeo 1 ST1, but is somewhat different to other extracts of this formation in other wells (after Edwards et al, 2016).

Figure 18 Oil-source correlations for selected wells. The $\delta^{13}\text{C}$ isotope values of the Volador Formation source rock extracts (green) show a wide range in values and envelop those of the Chimaera and Anemone formations. The isotopic values of the oils from the Bream and Halibut fields fall in between the range displayed by the Anemone 1 and Anger 1 oils (after Edwards et al, 2016).

Figure 19 Map showing marine reserves, marine parks, multiple use zones and ecological features in the Gippsland Basin.