

Bass Basin stratigraphy

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The stratigraphy of the Bass Basin is known from the 19 wells* that were drilled between 1965 and 1982. The succession (Table 1.), consisting of thick Early Cretaceous to Eocene non-marine and Eocene to Pliocene marine sediments, rests unconformably on basement of presumed Palaeozoic age. Only two wells (Bass 2 and 3), drilled on basement highs, encountered basement rocks, which are generally assumed to consist of low-grade metasediments, granite, and Late Palaeozoic glaciogenic sediments similar to those found in northern Tasmania and southern Victoria.

The oldest sediments in the basin are referred to the Early Cretaceous Otway Group and have been intersected in 2 wells. They consist of lithic sandstone, siltstone, minor volcanics, rare conglomerate and thin coal seams. The Otway Group is overlain unconformably by up to 7 km of Late Cretaceous to Eocene non-marine sediments referred to the Eastern View Coal Measures.

The lower, pre-Maastrichtian (Tricolpites longus) part of the sequence has been intersected only in the Durroon well, where it consists of grey to dark brown, non-calcareous shale, siltstone, and fine sandstone.

The Maastrichtian and Tertiary portion of the Eastern View Coal Measures consists of silty shale with thin fine-grained sandstone and rare coal in the lower part. These sediments typically pass up into a coal-rich sequence that is in turn overlain by a sand-rich sequence.

A thin, but extensive restricted marine shale and siltstone sequence of the upper Eocene Demon's Bluff Formation overlies the Eastern View Coal Measures and is in turn conformably overlain by the marine Oligocene-Pliocene Torquay Group. The Torquay Group consists of marl, calcarenite, calcareous shale, and minor volcanics.

Intrusive and extrusive igneous rocks occur throughout the Bass Basin sequence, and probably range in age from Cretaceous to Miocene.

Understanding of the stratigraphy and geological development of the Bass Basin is limited by the small number of wells and their relatively shallow level of penetration. To gain a better understanding of the stratigraphy of the basin, a seismic stratigraphic analysis of some BMR dip lines has been carried out. Four seismic sequences have been identified (Table 1) and each sequence subdivided into seismic facies, which have been given a palaeoenvironmental interpretation.

* Two further wells - Squid-1, Tasmanian Devil-1 - have been drilled in 1984.