

2) Eocene-Paleocene - Plates 7a, 7b and 7c

The reflection ties to the Top of Mepunga at Shell Pecten 1-A and Esso Prawn A-1, and to the Demons Bluff at Nerita 1-A, all of which are Upper Eocene. The horizon is correlative across a Basement high into the King Island Sub-Basin. In South Australia, the mapped horizon is Paleocene, and ties to a Knight Group Marker at Geltwood Beach-1. The Eocene-Mepunga and the Paleocene-Knight Group reflections mistie by approximately 100 milliseconds.

The southern edges of Eocene and Paleocene are depositional edges, south of which younger rocks will overlie Upper (or Lower) Cretaceous. North of the depositional edge is a clinoformal slope.

The significance of these mapped horizons is that they are the base of potential seal rocks of the Tertiary. There are fault traps in eastern South Australia, and there is a small anticlinal closure southeast of Prawn, two in the King Island Sub-Basin, and one in the Anglesea Sub-Basin.

3) Base of Tertiary - Plates 8a, 8b and 8c.

This horizon is correlative over the whole map area except in the Anglesea Sub-Basin, where the Top of Boonah (Eocene) has been mapped to illustrate Tertiary structural form. The horizon is thought to be representative of the Pre-Tertiary Unconformity, with the reflection originating from slightly above the Unconformity. West of King Island, where Tertiary rocks onlap Basement, the Basement has been mapped.

Features of significance are as follows:

- i) Area of east-west subsidence roughly striking through Geltwood Beach-1 which marks an Upper Cretaceous-Tertiary hinge line.
- ii) Heavily faulted area on the down side of the hinge line with many potential fault closures.
- iii) A small anticlinal closure at Esso Nautilus A-1.
- iv) Anticlinal closure southeast of Esso Prawn A-1.
- v) Two anticlinal closures in the King Island Sub-Basin, the northern-most of which is underlain by thick pre-Tertiary.

These fault and anticlinal closures are potential hydrocarbon traps for underlying Cretaceous sediments. Unfortunately, Basal Tertiary rocks are probably too permeable to be a seal in much of the Otway Basin.

There are also closures south of Portland and in the Anglesea Sub-Basin that are low enough in relief to be questionable prospects at Base of Tertiary level.

4) Senonian Marker - Plate 9

This horizon is thought to be a time-rock unit near the base of Senonian of Upper Cretaceous, and it is tied to Geltwood Beach-1. It is mappable only on six-fold digitally processed six-fold CDP data within the Gambier Sub-Basin. Its western limit is reflection onlap on to Lower Cretaceous rocks. A zone of increased dip down to the south is outlined approximately by the .800 second contour. This reflects the Upper Cretaceous-Tertiary hinge line. Potential attractive fault closures are mappable on this horizon.

5) Pretty Hills Unconformity - Plate 10

This horizon is tied to Esso Crayfish A-1 and marks a strong angular unconformity under which there are thick sandstones and over which there are non-porous Otway Group rocks. A small anticlinal closure and a