

Another folding event occurred in the Pliocene (presumably), but this was very gentle, although it did set up the present day NW-SE basin geometry which is visible on (or dominates) most horizons mapped.

Trapping Geometries

The predominantly extensional regime has created a rift basin style tectonic province with repetitive NW-SE longitudinal normal faults and tilted fault blocks. The scale of this faulting is bimodal: fault blocks of mostly *M.diversus* age having a width of just a few kilometres are cradled within mega-scale basin-forming Cretaceous half-grabens set up by major basement involved normal faults. The *M.diversus* faulting sets up many opportunities for trapping geometries to develop, but these faults are mostly within the Pelican Trough structural province. These are generally high-side fault closures against NW-SE faults and rely on cross-fault seals for trapping. The dilemma is that we need these faults to act as conduits from deeper mature source rocks, but in a repetitive sequence of sands, coals and shales this is a reasonable expectation. If we assume that a hydrocarbon trap only develops when fortuitously a sandstone lying beneath a good sealing unit is juxtaposed, during fault movements, against another sealing unit and the fault does not leak under these circumstances, then within the deeper section with sandstone juxtaposed against sandstone across or along the fault plane, a tortuous vertical migration route is possible.

In the Bass Basin the only hydrocarbon accumulation which occurs above the *M.diversus* sequence is at Yolla. Sitting at a junction between major structural provinces it is likely that frequent fault movements have allowed oil to leak vertically and be trapped under the Demon's Bluff at that location. A similar setting is not apparent in T/25P, so top EVCM accumulations are not likely. In T/25P therefore the *M.diversus*, Palaeocene and Cretaceous shales must provide efficient top seals to migrating hydrocarbons and cross faults sealing is then required for traps to develop. The Pelican Field accumulation clearly demonstrates that the described geometries exist in T/25P. Unfortunately this field is a little too deep for good reservoir development but many other leads have been identified at higher structural levels that may avoid this problem.