

Fastnet, Celtic Sea

15/03/2012

## Chapter 17 Fastnet, Celtic Sea and St. George's Channel

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This offshore area broadly comprises two ENE-trending Mesozoic and Tertiary grabens. The northern graben comprises the Fastnet, North Celtic Sea and St. George's Channel basins, separated from the South Celtic Sea and Bristol Channel basins by the Pembrokeshire Ridge–Labadie Bank (Fig. 17.1). The graben appear to represent the reactivation of Caledonian structures, e.g. the southern margin of the St. George's Channel Basin was controlled by reactivation of the onshore Bala Fault System (Naylor 2001). The North Celtic Sea Basin locally developed in the hanging wall of a low-angle southerly dipping fault, which may represent the reactivation of the Variscan Front during Mesozoic extension (Gibbs 1987). However, traditionally, the Variscan Front has been taken as a poorly lineated feature extending across southern Ireland, north of the Munster Basin.

Hydrocarbons exploration has revealed intermittent presence of Carboniferous strata of Tournaisian to Westphalian age, although the distribution of these strata is still poorly constrained. The Devonian-Carboniferous South Munster Basin, evident onshore in southern Ireland (Chapter 23), extends at least 50 km south of the coastline (Higgs 1983). The platform developed to the south of the South Munster Basin has been proved within the Fastnet Basin and Goban Spur (Fig. 17.1; Sevastopulo & Wyse Jackson 2001). The presence of limestone within St. George's Channel suggest that this part of the Leinster–Wales–Massif was drowned by Viséan times (Sevastopulo & Wyse Jackson 2001).

### **Tournaisian**

Esso Marathon well 48/30-1 intersected 154 m of reddish brown to grey mudstone with subordinate siltstone and traces of dolostone and anhydrite (Gardiner & Sheridan 1981; Higgs 1983). Miospores characteristic of the VI Zone of Tournaisian age are recorded for a succession interpreted as the equivalent of the Kinsale Formation (Higgs 1983), deposited in the offshore extension of the South Munster Basin (see Chapter 23). City Services well 63/4-1, within the Fastnet Basin, proved tectonised Tournaisian shelf carbonates (Reeves 1978), deposited in a platform area south of the South Munster Basin.

### **Viséan**

Viséan limestone has been reported from the Goban Spur (Sevastopulo & Wyse Jackson 2001). Limestone is also recorded in well 42/17-1 drilled in St. George's Channel (Maddox *et al.* 1995) and shown from seismic data to extend northwards through the Central Irish Sea (Sevastopulo & Wyse Jackson 2001).

### **Namurian**

Pendleian/Arnsbergian miospores of the upper part of the NC and overlying TK Biozones have been recorded from 261 m of mudstone and sparse siltstone in Marathon well 58/3-1 (Higgs 1983). Namurian strata are absent in the Central Irish Sea Basin, proved in well 42/17-1, but also from seismic interpretations (Maddox *et al.* 1995).

**Westphalian**

Well 42/17-1 drilled in St. George's Channel penetrated Westphalian strata resting unconformably upon Viséan limestone (Maddox *et al.* 1995), comparable to the succession in south County Wexford (see Chapter 22). A c. 200 m thick Bolsovian and Asturian barren red measures succession is recorded in Texaco/HGB well 103/2-1 in the St. George's Channel Basin (Fig. 17.1) (Barr *et al.* 1981).

Figure 17.1. Distribution of the main offshore basins between southern Ireland, SW England and west Wales (modified from Naylor 2001). BCB- Bristol Channel Basin; CB- Cockburn Basin; CISB- Central Irish Sea Basin; DB- Donegal Basin; HFB- Haig Fras Basin; NPB- North Porcupine Basin; SGCB- St. George's Channel Basin.