



**Legend**

- Beatrice Offshore Wind Farm Site
- MORL Site - Eastern Development Zone
- MORL Site - Western Development Zone
- ✕ Pile Positions

**Area of Permanent Physical Injury / Death**

- 220 dB<sub>(re. 1 μPa²/s)</sub> - Unweighted (Inset Only)

**Area of Permanent Threshold Shift (PTS)**

- 198 dB re. 1 μPa²/s - Fleeing (Inset Only)
- 198 dB re. 1 μPa²/s - Stationary

**Area of Behavioural Effect**

- 50 dB<sub>(re. 1 μPa²/s)</sub>
- 55 dB<sub>(re. 1 μPa²/s)</sub>
- 60 dB<sub>(re. 1 μPa²/s)</sub>
- 65 dB<sub>(re. 1 μPa²/s)</sub>
- 70 dB<sub>(re. 1 μPa²/s)</sub>
- 75 dB<sub>(re. 1 μPa²/s)</sub>
- 80 dB<sub>(re. 1 μPa²/s)</sub>
- 85 dB<sub>(re. 1 μPa²/s)</sub>
- 90 dB<sub>(re. 1 μPa²/s)</sub>
- 100 dB<sub>(re. 1 μPa²/s)</sub>
- 110 dB<sub>(re. 1 μPa²/s)</sub> (Inset Only)
- 120 dB<sub>(re. 1 μPa²/s)</sub> (Inset Only)
- 130 dB<sub>(re. 1 μPa²/s)</sub> (Inset Only)

**Bottlenose Dolphin Presence**

**Probability per 4 x 4 km Square**

- 0
- <0.10
- 0.10 - 0.20
- 0.20 - 0.30
- 0.30 - 0.40
- 0.40 - 0.50
- 0.50 - 0.60
- 0.60 - 0.70
- 0.70 - 0.80

Data Source: Cheney et al 2011  
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0 10 20 40 km 0 3.75 7.5 15 nm

**UK Offshore Development**

**Figure 12.11**  
**BOWL and MORL Cumulative Piling Scenario for Bottlenose Dolphin**

Drawn: SC	Checked: LHu	Approved: VR
Date: 26/01/2012	Scale: 1:1,000,000 @ A3	
Drawing Number: BEA-MAP-EWF-BOWL-194	Revision: 01	
Datum: WGS84	Projection: UTM30N	

**Scenario Description:**  
 Hammer Size = 2300 kJ (A,B), 1800 kJ (M1-M6)  
 Pile Size = 2.4 m (A,B), 3 m (M1-M6)  
 No. of Simultaneous Pile Driving Events = 8 (2(A,B) +6(M1-M6))