

MAERL

Gear and feature/subfeature combination:		Towed (demersal) and maerl	
Matrix risk category - RED		Explanation for categorisation: Although it is accepted by the scientific community that maerl is very sensitive to the impacts of towed demersal gear, the empirical evidence describing the impacts of demersal trawls (as oppose to dredges) is limited. However, the action of a dredge in the light of the type of sensitivity of maerl indicates that identifying similar consequences from the action of demersal trawls is appropriate. It is on this basis that a red category is identified for towed demersal trawls.	
		<p>Impacts Maerl is very sensitive to abrasion or crushing, smothering, increase in suspended sediment, and physical disturbance, which can prevent light reaching the living maerl and therefore prevent photosynthesis (Birkett, Maggs and Dring 1998). As such, although empirical evidence describing the specific impacts of demersal trawls is limited (Bordehore et al 2003 and Barbera et al 2001), this sensitivity, together with the extensive evidence describing the impacts of bivalve dredging (which are comparative to heavy demersal gears, see below), is sufficient to conclude that maerl beds are vulnerable to physical damage from demersal trawl gear. Recovery may take as long as 10 - 25 years (OSPAR 2010).</p>	
Evidence Birkett, Maggs and Dring (1998), Bordehore et al (2003), Barbera et al (2001) and OSPAR (2010).			
Evidence on the effects of otter trawls comes from the Mediterranean.			
Directly relevant peer reviewed literature	Directly relevant grey literature	Inference from studies on comparable habitats, gears or geographical areas.	Expert judgement
x	x	x	
<p>Confidence High There is peer reviewed, highly relevant scientific information to directly support the conclusion.</p>			

Gear and feature/subfeature combination:		Dredge (towed) including suction dredging and maerl	
Matrix risk category - RED		Explanation for categorisation: There is strong empirical evidence from the UK supporting the conclusions.	
Impacts Maërl beds are built by coralline seaweeds, mainly <i>Lithothamnion coralloides</i> and <i>Phymatolithon calcareum</i> in British waters. Maërl is crushed and buried (up to 8cm) with one pass of a scallop dredge (Hall-Spencer and Moore 2000), whilst the impacts from smothering have been also experimentally demonstrated (Wilson et al 2004). Associated species, including file shell <i>Limaria hians</i> 'nests' within the dredge track were destroyed and after 5 months 70% of maërl was dead and there was no evidence of recovery 4 years later (Hall-Spencer and Moore 2000). Experimental hydraulic dredging reduced (dead) maërl cover from 83% to 16% (Hauton et al 2003).			
Evidence Hall-Spencer and Moore (2000), Wilson et al (2004), and Hauton et al (2003). Evidence is from empirical work in the UK.			
Directly relevant peer reviewed literature	Directly relevant grey literature	Inference from studies on comparable habitats, gears or geographical areas.	Expert judgement
x			
Confidence High There is peer reviewed, highly relevant scientific information to directly support the conclusion.			

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