

Appendix 16.2 Underwater Noise Modelling Behavioural Disturbance Calculations

Disturbance – Standard Mitigation

Disturbance level	Maximum distance to threshold (m)	Area of disturbance (km ²)
Low	19,000	26.62
High	3,400	7.99

Hearing group	Species	Density	Maximum number of animals predicted to be within the area of threshold exceedance (density x area of exceedance)		Regional Population			National Population		
					Population	% potentially effected		Population	% potentially effected	
						Low disturbance	High disturbance		Low disturbance	High disturbance
Pinnipeds	Grey seal	35	922	277	54,741	1.68%	0.51%	152,000	0.61%	0.18%
	Harbour seal	0.19	5.06	1.52	26,900	0.02%	0.01%	45,800	0.01%	0.003%
Low-frequency cetaceans	Sperm whale	0.06	1.60	0.48	9,599	0.02%	0.00%	13,518	0.01%	0.004%
	Fin whale	0.01	0.13	0.04	820	0.02%	0.00%	18,142	0.001%	0.0002%
Mid-frequency cetaceans	Orca	0.05	1.44	0.43	-	-	-	-	-	-
	Atlantic white-sided dolphin	0.03	0.91	0.27	1,366	0.07%	0.02%	69,293	0.001%	0.0004%
	Bottle-nosed dolphin	0.00	0.11	0.03	151	0.07%	0.02%	195	0.05%	0.02%
	Common dolphin	0.12	3.09	0.93	4,679	0.07%	0.02%	56,556	0.01%	0.002%
	Long-finned pilot whale	0.04	1.14	0.34	1,733	0.07%	0.02%	1,812	0.06%	0.02%
	Minke whale	0.08	2.03	0.61	383	0.53%	0.16%	23,528	0.01%	0.003%
	Risso's dolphin	0.04	1.19	0.36	440	0.27%	0.08%	8,818	0.01%	0.004%
High-frequency cetaceans	White-beaked dolphin	0.02	0.56	0.17	868	0.06%	0.02%	15,895	0.004%	0.001%
	Harbour porpoise	0.23	6.10	1.83	6,147	0.10%	0.03%	227,298	0.003%	0.001%

Disturbance – Standard Mitigation + Bubble Curtain

Disturbance level	Maximum distance to threshold (m)	Area of disturbance (km ²)
Low	4,000	9.11
High	420	0.11

Hearing group	Species	Density	Maximum number of animals predicted to be within the area of threshold exceedance (density x area of exceedance)		Regional Population			National Population		
			Low disturbance	High disturbance	Population	% potentially effected		Population	% potentially effected	
						Low disturbance	High disturbance		Low disturbance	High disturbance
Pinnipeds	Grey seal	35	315	3.81	54,741	0.58%	0.01%	152,000	0.21%	0.003%
	Harbour seal	0.19	1.73	0.02	26,900	0.01%	0.0001%	45,800	0.004%	0.00005%
Low-frequency cetaceans	Sperm whale	0.06	0.55	0.01	9,599	0.01%	0.0001%	13,518	0.004%	0.00005%
	Fin whale	0.01	0.05	0.001	820	0.01%	0.0001%	18,142	0.0003%	0.000003%
Mid-frequency cetaceans	Orca	0.05	0.49	0.01	-	-	-	-	-	-
	Atlantic white-sided dolphin	0.03	0.31	0.004	1,366	0.02%	0.0003%	69,293	0.0004%	0.00001%
	Bottle-nosed dolphin	0.00	0.04	0.0004	151	0.02%	0.0003%	195	0.02%	0.0002%
	Common dolphin	0.12	1.06	0.01	4,679	0.02%	0.0003%	56,556	0.002%	0.00002%
	Long-finned pilot whale	0.04	0.39	0.005	1,733	0.02%	0.0003%	1,812	0.02%	0.0003%
	Minke whale	0.08	0.70	0.01	383	0.18%	0.002%	23,528	0.003%	0.00004%
	Risso's dolphin	0.04	0.41	0.005	440	0.09%	0.001%	8,818	0.005%	0.0001%
High-frequency cetaceans	White-beaked dolphin	0.02	0.19	0.002	868	0.02%	0.0003%	15,895	0.001%	0.00001%
	Harbour porpoise	0.23	2.09	0.03	6,147	0.03%	0.0004%	227,298	0.001%	0.00001%