



EIAR Addendum

Appendix 11-C Assessment of disturbance from mitigated pile driving - Full results



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Appendix 11-C: Assessment of disturbance from mitigated pile driving – Full results

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1 Introduction

Marine mammal density estimates change on a daily, monthly, seasonal and annual basis given the fact that they are highly mobile species with large home ranges. Density estimates obtained from different survey methods each have their own set of assumptions and limitations. Thus, it is expected that for a range of surveys conducted within the Irish Sea, there will be a large variety of resulting density estimates. For this reason, several density estimates were presented in the 2024 EIAR quantitative assessment for cetaceans. Since the submission of the 2024 Application, additional density estimates have become available (see full details in **Appendix 11-A Update to Marine Mammal Baseline Characterisation of the EIAR Addendum**).

This EIAR Addendum Appendix presents the quantitative assessment for disturbance from pile driving using both the density estimates presented in the 2024 EIAR assessment, and using new density estimates that have become available since. The purpose of this appendix is to demonstrate that despite the different density estimates available, none result in a significant impact to marine mammals.

All pile driving results presented in this Appendix assume mitigated pile driving (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m) drawing on updated modelling results presented in **Appendix 9-C Underwater Noise Modelling Assessment of the EIAR Addendum**.

2 Harbour porpoise

2.1 Dose-response

Table 1 Number of harbour porpoise predicted to be disturbed per day using the dose-response function and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density (#/km ²)			SE	SW	NE	NW
SCANS III density surface (Lacey et al., 2022)	Grid cell specific	# animals	420	188	225	118
		% MU (62,517)	0.67	0.30	0.36	0.19
SCANS IV block CS-D (Gilles et al., 2023)	0.2803	# animals	534	246	271	141
		% MU (62,517)	0.85	0.39	0.43	0.23
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	668	304	345	180
		% MU (62,517)	1.07	0.49	0.55	0.29
SCANS IV density surface (Gilles et al., 2025)	Grid cell specific	# animals	453	171	241	94
		% MU (62,517)	0.72	0.27	0.39	0.15
CWP site specific DAS (10 km buffer, average across May-Nov 2025)	0.40	# animals	762	352	386	201
		% MU (62,517)	1.22	0.56	0.62	0.32

2.2 EDR

Table 2 Number of harbour porpoise predicted to be disturbed per day using an 11 km EDR and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density (#/km ²)		11 km EDR	
SCANS III density surface (Lacey et al., 2022) average across array area	0.2303	# animals	88
		% MU (62,517)	0.14
SCANS IV block CS-D (Gilles et al., 2023)	0.2803	# animals	107
		% MU (62,517)	0.17
Irish Sea density surface (Evans and Waggitt, 2023) average across array area	0.3566	# animals	136
		% MU (62,517)	0.22
SCANS IV density surface (Gilles <i>et al.</i> , 2025) average across array area	0.1069	# animals	41
		% MU (62,517)	0.07
CWP site specific DAS (10 km buffer, average across May-Nov 2025)	0.40	# animals	152
		% MU (62,517)	0.24%

2.3 Population modelling

2.3.1 Dose response, SE location, Irish Sea density surface (668 disturbed per day)

To determine the magnitude of this impact on a population level, iPCoD modelling was conducted. The modelling assumed 78 WTG piling days between April and October 2031 and that 668 harbour porpoise are disturbed on every piling day (using the dose response at the SE location and the Irish Sea density surface). This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE.

The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population, and at 99.99% of the size of the unimpacted population (Figure 1 and Table 3). This is considered to be a **Negligible** magnitude since the disturbance is expected to be temporary and short term, will occur over less than a year (maximum 78 days WTG piling) and is predicted to impact a very small proportion of the MU population, which is not expected to result in any change to the population trajectory.

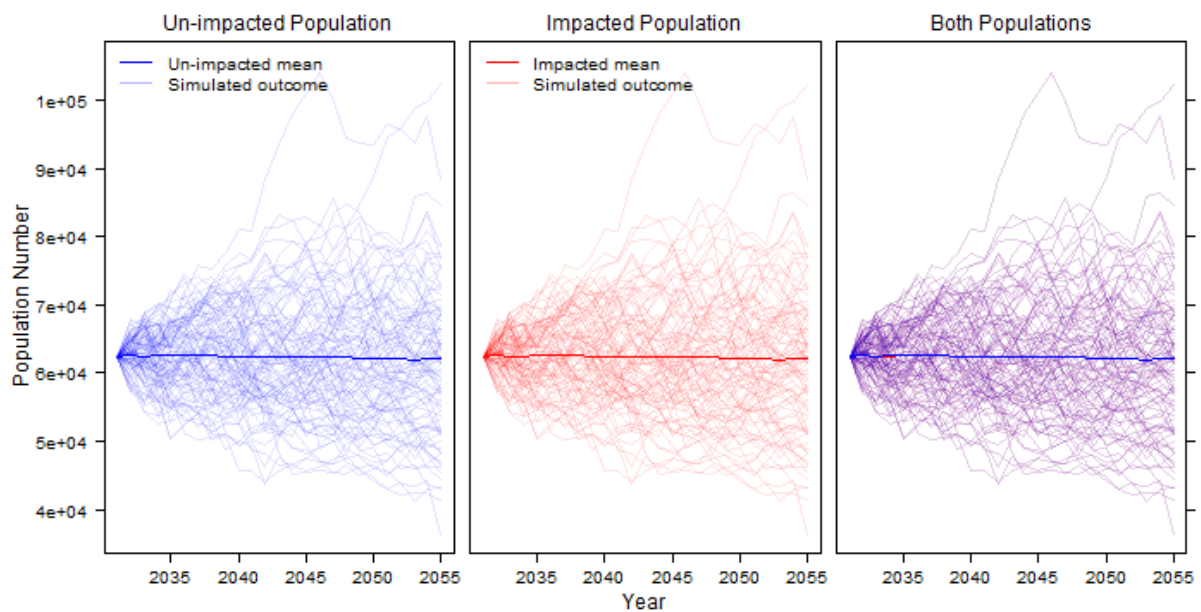


Figure 1 Predicted population trajectories for the un-impacted (baseline) and impacted harbour porpoise iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 668 harbour porpoise per day from mitigated piling (assuming 10 dB reduction at 750 m).

Table 3 Predicted mean population size for the un-impacted (baseline) and impacted harbour porpoise iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 668 harbour porpoise per day from mitigated piling (assuming 10 dB reduction at 750 m).

	Unimpacted population mean size	Impacted population mean size	Impacted population size as a % of the unimpacted population size
Start 2031 (before piling commences)	62,516	62,516	100.00%
End 2031 (after piling ends)	62,571	62,567	99.99%
End 2036 (6 years after piling ends)	62,676	62,668	99.99%
End 2042 (12 years after piling ends)	62,298	62,290	99.99%
End 2048 (18 years after piling ends)	62,231	62,222	99.99%

2.3.2 Dose response, SE location, CWP DAS 10 km buffer (762 disturbed per day)

To determine the magnitude of this impact on a population level, iPCoD modelling was conducted. The modelling assumed 78 WTG piling days between April and October 2031 and that 762 harbour porpoise are disturbed on every piling day (using the dose response at the SE location and the Irish Sea density surface). This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE.

The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the population level, since the impacted population is predicted to continue at a stable trajectory, the

same as the un-impacted population, and at 99.98% of the size of the unimpacted population (Figure 2 and Table 4). This is considered to be a **Negligible** magnitude since the disturbance is expected to be temporary and short term, will occur over less than a year (maximum 78 days WTG piling) and is predicted to impact a very small proportion of the MU population, which is not expected to result in any change to the population trajectory.

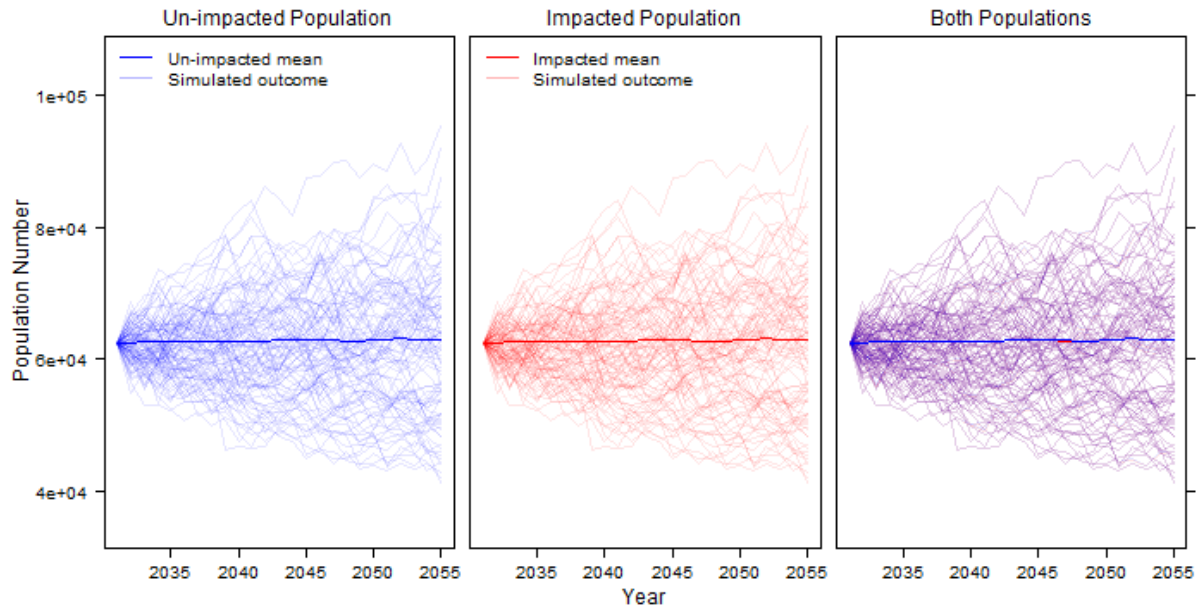


Figure 2 Predicted population trajectories for the un-impacted (baseline) and impacted harbour porpoise iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 762 harbour porpoise per day from mitigated piling (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m).

Table 4 Predicted mean population size for the un-impacted (baseline) and impacted harbour porpoise iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 762 harbour porpoise per day from mitigated piling (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m).

	Unimpacted population mean size	Impacted population mean size	Impacted population size as a % of the unimpacted population size
Start 2031 (before piling commences)	62,516	62,516	100.00%
End 2031 (after piling ends)	62,553	62,548	99.99%
End 2036 (6 years after piling ends)	62,739	62,730	99.99%
End 2042 (12 years after piling ends)	62,945	62,935	99.98%
End 2048 (18 years after piling ends)	62,784	62,773	99.98%

2.4 Summary

Using a variety of different density estimates and disturbance thresholds, the number of harbour porpoise predicted to experience disturbance per piling day ranges between 41 and 762 (0.07% - 1.22% MU). None of these predictions result in a significant impact to the harbour porpoise population.

3 Bottlenose dolphin

3.1 Dose-response

Table 5 Number of bottlenose dolphins predicted to be disturbed per day using the dose-response function and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density (#/km ²)			SE	SW	NE	NW
SCANS III density surface (Lacey et al., 2022)	Grid cell specific	# animals	47	24	24	14
		% MU (1,069)	4.40	2.25	2.25	1.31
SCANS IV block CS-D (Gilles et al., 2023)	0.2352	# animals	448	207	227	118
		% MU (8,326)	5.38	2.49	2.73	1.42
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	7	2	2	1
		% MU (496)	1.41	0.40	0.40	0.20
SCANS IV density surface (Gilles et al., 2025)	Grid cell specific	# animals	237	116	103	60
		% MU (8,225)	2.88	1.41	1.25	0.73
CWP site specific DAS (10 km buffer, average across May-Nov 2025)	0.02	# animals	38	18	19	10
		% MU (8,326)	0.46	0.22	0.23	0.12

3.2 Level B harassment

Table 6 Number of bottlenose dolphins predicted to be disturbed per day using the level B harassment threshold and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density			SE	SW	NE	NW
SCANS III density surface (Lacey et al., 2022)	Grid cell specific	# animals	4	2	1	1
		% MU (1,069)	0.37	0.19	0.09	0.09
SCANS IV block CS-D (Gilles et al., 2023)	0.2352	# animals	34	18	10	10
		% MU (8,326)	0.41	0.22	0.12	0.12
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	<1	<1	<1	<1
		% MU (496)	<0.20	<0.20	<0.20	<0.20
SCANS IV density surface (Gilles et al., 2025)	Grid cell specific	# animals	15	11	5	5
		% MU (8,225)	0.18	0.13	0.06	0.06
CWP site specific DAS (10 km buffer, May-Nov 2025)	0.02	# animals	3	2	1	1
		% MU (8,326)	0.04	0.02	0.01	0.01

3.3 EDR

Table 7 Number of bottlenose dolphins predicted to be disturbed per day using an 11 km EDR and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density (#/km ²)		11 km EDR	
SCANS III density surface (Lacey et al., 2022) average across array area	0.0358	# animals	14
		% MU (1,069)	1.27
SCANS IV block CS-D (Gilles et al., 2023)	0.2352	# animals	89
		% MU (8,326)	1.07
Irish Sea density surface (Evans and Waggitt, 2023) average across array area	0.0008	# animals	<1
		% MU (496)	<0.20
SCANS IV density surface (Gilles <i>et al.</i> , 2025) average across array area	0.1324	# animals	50
		% MU (8,225)	0.61
CWP site specific DAS (10 km buffer, May-Nov 2025)	0.02	# animals	8
		% MU (8,326)	0.10

3.4 Population modelling

3.4.1 Dose response, SE location, SCANS IV block density (448 disturbed per day)

To determine the magnitude of this impact at a population level, iPCoD modelling was conducted. The modelling assumed 78 WTG piling days between April and October 2031 and that the number of bottlenose dolphins are disturbed on every piling day was 448 (based on the SE modelling using the dose-response function), using an MU size of 8,326 dolphins. This is highly precautionary since a) the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower and b) the porpoise dose-response function will likely overestimate dolphin response.

The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the population level, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population, and at 99.6% of the unimpacted population size (Figure 3 and Table 8). This is considered to be a **Negligible** magnitude since the disturbance is expected to be temporary and short term, will occur over less than a year (maximum 78 days WTG piling) and is predicted to impact a small proportion of the MU population, which is not expected to result in any change to the population trajectory.

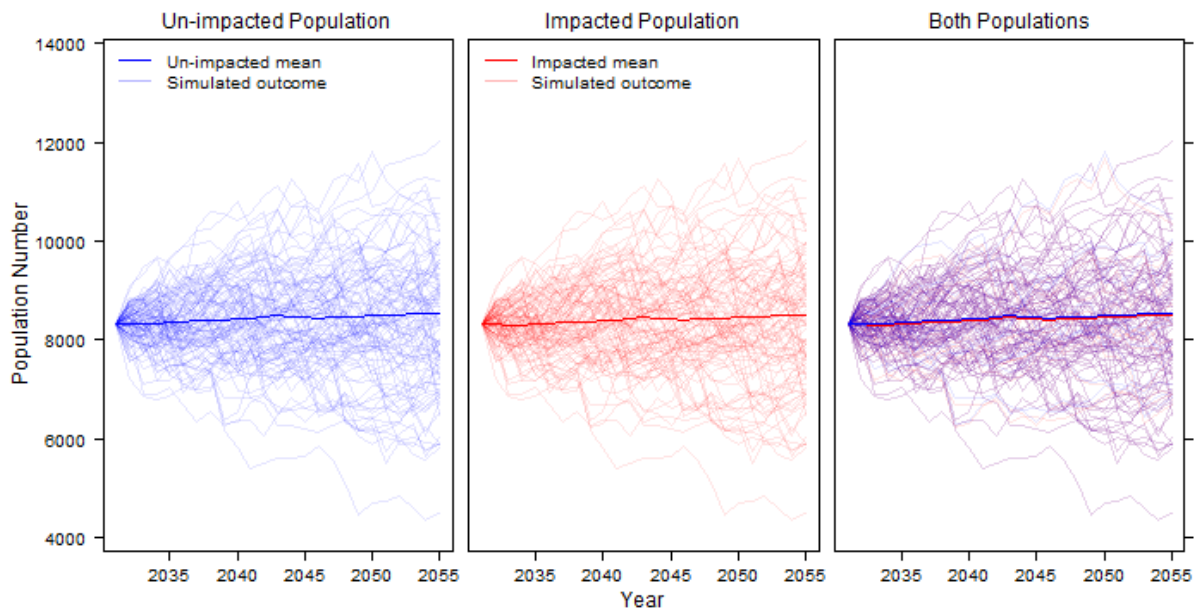


Figure 3 Predicted population trajectories for the un-impacted (baseline) and impacted bottlenose dolphin iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 448 dolphins per day from mitigated piling (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m).

Table 8 Predicted mean population size for the un-impacted (baseline) and impacted bottlenose dolphins iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 448 dolphins per day from mitigated piling (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m).

	Unimpacted population mean size	Impacted population mean size	Impacted population size as a % of the unimpacted population size
Start 2031 (before piling commences)	8,322	8,322	100.00%
End 2031 (after piling ends)	8,321	8,312	99.89%
End 2036 (6 years after piling ends)	8,381	8,348	99.61%
End 2042 (12 years after piling ends)	8,491	8,458	99.61%
End 2048 (18 years after piling ends)	8,475	8,443	99.62%

3.5 Summary

Using a variety of different density estimates and disturbance thresholds, the number of bottlenose dolphins predicted to experience disturbance per piling day ranges between <1 and 448 (0.00% - 5.38% MU). None of these predictions result in a significant impact to the bottlenose dolphin population.

4 Common dolphin

4.1 Dose-response

Table 9 Number of common dolphins predicted to be disturbed per day using the dose-response function and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density			SE	SW	NE	NW
SCANS III density surface (Lacey et al., 2022)	Grid cell specific	# animals	66	35	28	16
		% MU (102,656)	0.06	0.03	0.03	0.02
SCANS IV block CS-D (Gilles et al., 2023)	0.0272	# animals	52	24	26	14
		% MU (102,656)	0.05	0.02	0.03	0.01
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	55	17	18	5
		% MU (102,656)	0.05	0.02	0.02	0.00
SCANS IV density surface (Gilles et al., 2025)	Grid cell specific	# animals	76	38	32	20
		% MU (102,656)	0.07	0.04	0.03	0.02
CWP site specific (2020- 2022)	0.281	# animals	535	247	271	141
		% MU (102,656)	0.52	0.24	0.26	0.14
CWP site specific DAS (10 km buffer, average across May-Nov 2025)	0.003	# animals	57	26	29	15
		% MU (102,656)	0.06	0.03	0.03	0.01

4.2 Level B harassment

Table 10 Number of common dolphins predicted to be disturbed per day using the level B harassment threshold and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density (#/km ²)			SE	SW	NE	NW
SCANS III density surface (Lacey et al., 2022)	Grid cell specific	# animals	6	3	2	2
		% MU (102,656)	0.01	0.00	0.00	0.00
SCANS IV block CS-D (Gilles et al., 2023)	0.0272	# animals	4	2	1	1
		% MU (102,656)	0.00	0.00	0.00	0.00
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	<1	<1	<1	<1
		% MU (102,656)	0.00	0.00	0.00	0.00
SCANS IV density surface (Gilles et al., 2025)	Grid cell specific	# animals	7	4	2	2
		% MU (102,656)	0.01	0.00	0.00	0.00
CWP site specific (2020- 2022)	0.281	# animals	40	21	12	12
		% MU (102,656)	0.04	0.02	0.01	0.01
CWP site specific DAS (10 km buffer, average across	0.003	# animals	4	2	1	1
		% MU (102,656)	0.00	0.00	0.00	0.00

Density (#/km ²)		SE	SW	NE	NW
May-Nov 2025)					

4.3 EDR

Table 11 Number of common dolphins predicted to be disturbed per day using an 11 km EDR and a variety of density estimates (assuming a limit on underwater noise of 169 dB L_{E,p,ss,05} at 750m)

Density (#/km ²)			11 km EDR
SCANS III density surface (Lacey et al., 2022) average across array area	0.0436	# animals	17
		% MU (102,656)	0.02
SCANS IV block CS-D (Gilles et al., 2023)	0.0272	# animals	10
		% MU (102,656)	0.01
Irish Sea density surface (Evans and Waggitt, 2023) average across array area	0.0003	# animals	<1
		% MU (102,656)	0.00
CWP Project site specific surveys	0.2810	# animals	107
		% MU (102,656)	0.10
SCANS IV density surface (Gilles <i>et al.</i> , 2025) average across array area	0.050	# animals	19
		% MU (102,656)	0.02
CWP site specific DAS (10 km buffer, average across May-Nov 2025)	0.003	# animals	1
		% MU (102,656)	0.00

4.4 Population modelling

Not conducted for common dolphins as iPCoD is not parameterised for this species.

4.5 Summary

Using a variety of different density estimates and disturbance thresholds, the number of common dolphins predicted to experience disturbance per piling day ranges between <1 and 535 (0.00% - 0.52% MU). None of these predictions are expected to result in a significant impact to the common dolphin population.

5 Risso's dolphin

5.1 Dose-response

Table 12 Number of Risso's dolphins predicted to be disturbed per day using the dose-response function and a variety of density estimates (assuming a limit on underwater noise of 169 dB L_{E,p,ss,05} at 750m)

Density (#/km ²)		SE	SW	NE	NW	
SCANS IV block CS-D (Gilles et al., 2023)	0.0022	# animals	4	2	2	1
		% MU (12,262)	0.03	0.02	0.02	0.01
ObSERVE2 Density	0.027	# animals	51	24	26	14

Density (#/km ²)			SE	SW	NE	NW
(Giralt Paradell <i>et al.</i> , 2024)		% MU (12,262)	0.42	0.20	0.21	0.11
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	21	8	11	5
		% MU (12,262)	0.17	0.07	0.09	0.04

5.2 Level B harassment

Table 13 Number of Risso's dolphins predicted to be disturbed per day using the level B harassment threshold and a variety of density estimates (assuming a limit on underwater noise of 169 dB L_{E,p,ss,05} at 750m)

Density (#/km ²)			SE	SW	NE	NW
SCANS IV block CS-D (Gilles <i>et al.</i> , 2023)	0.0022	# animals	<1	<1	<1	<1
		% MU (12,262)	0.00	0.00	0.00	0.00
ObSERVE2 Density (Giralt Paradell <i>et al.</i> , 2024)	0.027	# animals	4	2	1	1
		% MU (12,262)	0.03	0.02	0.01	0.01
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	2	<1	1	1
		% MU (12,262)	0.02	0.00	0.01	0.01

5.3 EDR

Table 14 Number of Risso's dolphins predicted to be disturbed per day using an 11 km EDR and a variety of density estimates (assuming a limit on underwater noise of 169 dB L_{E,p,ss,05} at 750m)

Density (#/km ²)			11 km EDR
SCANS IV block CS-D (Gilles <i>et al.</i> , 2023)	0.0022	# animals	1
		% MU (12,262)	0.01
ObSERVE2 Density (Giralt Paradell <i>et al.</i> , 2024)	0.027	# animals	10
		% MU (12,262)	0.08
Irish Sea density surface (Evans and Waggitt, 2023) average across array area	0.0098	# animals	4
		% MU (12,262)	0.03

5.4 Population modelling

Not conducted for Risso's dolphins as iPCoD is not parameterised for this species.

5.5 Summary

Using a variety of different density estimates and disturbance thresholds, the number of Risso's dolphins predicted to experience disturbance per piling day ranges between <1 and 51 (0.00% - 0.42% MU). None of these predictions are expected to result in a significant impact to the Risso's dolphin population.

6 Minke whale

6.1 Dose-response

Table 15 Number of minke whales predicted to be disturbed per day using the dose-response function and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density (#/km ²)			SE	SW	NE	NW
SCANS III density surface (Lacey et al., 2022)	Grid cell specific	# animals	28	13	16	9
		% MU (20,118)	0.14	0.06	0.08	0.04
SCANS IV block CS-D (Gilles et al., 2023)	0.0137	# animals	26	12	13	7
		% MU (20,118)	0.13	0.06	0.06	0.03
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	31	11	17	7
		% MU (20,118)	0.15	0.05	0.08	0.03
SCANS IV density surface (Gilles et al., 2025)	Grid cell specific	# animals	19	7	11	5
		% MU (20,118)	0.09	0.03	0.05	0.02
ObSERVE2 Density (Giralt Paradell et al., 2024)	0.018	# animals	34	16	17	9
		% MU (20,118)	0.17	0.08	0.08	0.04
CWP site specific DAS (10 km buffer, average across May-Nov 2025)	0.015	# animals	29	13	14	8
		% MU (20,118)	0.14	0.06	0.07	0.04

6.2 Level B harassment

Table 16 Number of minke whales predicted to be disturbed per day using the level B harassment threshold and a variety of density estimates (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m)

Density (#/km ²)			SE	SW	NE	NW
SCANS III density surface (Lacey et al., 2022)	Grid cell specific	# animals	2	1	1	1
		% MU (20,118)	0.01	0.00	0.00	0.00
SCANS IV block CS-D (Gilles et al., 2023)	0.0137	# animals	2	1	1	1
		% MU (20,118)	0.01	0.00	0.00	0.00
Irish Sea density surface (Evans and Waggitt, 2023)	Grid cell specific	# animals	1	<1	1	1
		% MU (20,118)	0.00	0.00	0.00	0.00
SCANS IV density surface (Gilles et al., 2025)	Grid cell specific	# animals	1	<1	<1	<1
		% MU (20,118)	0.00	0.00	0.00	0.00
ObSERVE2 Density (Giralt Paradell et al., 2024)	0.018	# animals	3	1	1	1
		% MU (20,118)	0.01	0.00	0.00	0.00
CWP site specific DAS (10 km buffer, average across	0.015	# animals	2	1	1	1
		% MU (20,118)	0.01	0.00	0.00	0.00

Density (#/km ²)			SE	SW	NE	NW
May-Nov 2025)						

6.3 EDR

Table 17 Number of minke whales predicted to be disturbed per day using an 11 km EDR and a variety of density estimates (assuming a limit on underwater noise of 169 dB L_{E,p,ss,05} at 750m)

Density (#/km ²)			11 km EDR
SCANS III density surface (Lacey et al., 2022) average across array area	0.0178	# animals	7
		% MU (20,118)	0.03
SCANS IV block CS-D (Gilles et al., 2023)	0.0137	# animals	5
		% MU (20,118)	0.03
Irish Sea density surface (Evans and Waggitt, 2023) average across array area	0.0068	# animals	3
		% MU (20,118)	0.01
SCANS IV density surface (Gilles <i>et al.</i> , 2025) average across array area	0.0054	# animals	2
		% MU (20,118)	0.01
ObSERVE2 Density (Giralt Paradell <i>et al.</i> , 2024)	0.018	# animals	7
		% MU (20,118)	0.03
CWP site specific DAS (10 km buffer, average across May-Nov 2025)	0.015	# animals	6
		% MU (20,118)	0.03

6.4 Population modelling

6.4.1 Dose response, SE location, ObSERVE2 density

To determine the magnitude of this impact on a population level iPCoD modelling was conducted. The modelling assumed 78 WTG piling days between April and October 2031 and that 34 minke whales are disturbed on every piling day (based on the SE modelling). This is highly precautionary since the modelling shows that the number of animals impacted at other modelling locations (west locations) is significantly lower, and in practice the majority of piling events will be in the shallower areas to the west and north rather than the spatially limited deeper area in the SE.

The iPCoD results show that the level of disturbance is not sufficient to result in any changes at the population level under either scenario, since the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population (Figure 4, and Table 18). This is considered to be a **Negligible** magnitude since the disturbance is expected to be temporary and short term, will occur over less than a year (maximum 78 days WTG piling) and is predicted to impact a very small proportion of the MU population, which is not expected to result in any change to the population trajectory.



Figure 4 Predicted population trajectories for the un-impacted (baseline) and impacted minke whale iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 34 whales per day from mitigated piling (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m).

Table 18 Predicted mean population size for the un-impacted (baseline) and impacted minke whale iPCoD simulation. Impacted population modelled with 78 days piling in 2031, impacting 34 whales per day from mitigated piling (assuming a limit on underwater noise of 169 dB $L_{E,p,ss,05}$ at 750m).

	Unimpacted population mean size	Impacted population mean size	Impacted population size as a % of the unimpacted population size
Start 2031 (before piling commences)	20,120	20,120	100%
End 2031 (after piling ends)	20,150	20,150	100%
End 2036 (6 years after piling ends)	19,991	19,991	100%
End 2042 (12 years after piling ends)	19,891	19,891	100%
End 2048 (18 years after piling ends)	19,955	19,955	100%

6.5 Summary

Using a variety of different density estimates and disturbance thresholds, the number of minke whales predicted to experience disturbance per piling day ranges between <1 and 34 (0.00% - 0.17% MU). None of these predictions result in a significant impact to the minke whale population.

7 Conclusion

Despite using a variety of different density estimates for each cetacean species, obtained from various surveys conducted in the Irish Sea, none resulted in a significant impact to marine mammal populations as a result of pile driving at CWP.



8 References

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