Code: UKCAL-CWF-CON-EIA-RPT-00008-1025

Volume 8 Additional Information

Appendix 25: Marine Mammals iPCoD Results (Caledonia South)

Caledonia Offshore Wind Farm Ltd

5th Floor Atria One, 144 Morrison Street, Edinburgh, EH3 8EX

OW
OCEAN WINDS

Volume 8 Appendix 25: Marine Mammals iPCoD Results (Caledonia South)

Code	UKCAL-CWF-CON-EIA-RPT-00008-1025
Revision	Issued
Date	30 September 2025

Table of Contents

List of Figures

List of Tables

Acronyms and Abbreviations

CES	Coastal East Scotland
CGNS	Celtic and Greater North Sea
CIA	Cumulative Impact Assessment
EDR	Effective Deterrence Range
EIA	Environment Impact Assessment
EIAR	Environment Impact Assessment Report
ES	East Scotland
GNS	Greater North Sea
iPCoD	Interim Population Consequences of Disturbance Model
MF	Moray Firth
MU	Management Unit
NC&O	North Coast and Orkney
NS	North Sea
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PTS	Permanent Threshold Shift
SCANS	Small Cetaceans in European Atlantic waters and the North Sea
SCOS	Special Committee on Seals
SMU	Seal Management Unit
WTG	Wind Turbine Generator

1 Introduction

1.1.1.1 This appendix provides a full set of results for the re-assessment of the disturbance and potential for population level effects to harbour porpoise, bottlenose dolphin, minke whale and harbour seal as a result of the underwater noise during piling at the Caledonia South Site (i.e., Array Area of Caledonia South). This includes results for Caledonia South alone (bottlenose dolphin only), and cumulatively with other projects.

1.1.1.2 The methodology used for the re-assessment is presented in Volume 8, Appendix 22: Marine Mammals Clarifications and Piling Re-Assessment Methodology. Detailed information about the iPCoD model used, including precaution and model limitations is presented in Volume 7D, Appendix 7-1: Marine Mammals Population Modelling iPCoD.

2 Caledonia South Alone

2.1 Time Points

2.1.1.1 For the Caledonia South installation scenario, discussed in detail in Volume 8, Appendix 22: Marine Mammals Clarifications and Piling Re-Assessment Methodology, selected time points have been used to present the results on bottlenose dolphin Coastal East Scotland (CES) Management Unit (MU) population trajectory (modelled as increasing and stable). These time points have been selected to try and represent as best as possible, a level of periodicity on population estimates following piling. The time points selected for the presentation of results are provided in Table 2-1.

Table 2-1: Time points selected for the presentation of iPCoD modelling results.

Time Points Selected (Indicative Year)	Time Point Description
Start 2028	Before piling starts at Caledonia South
End 2028	The end of first year of piling at Caledonia South
2029	The end of second year of piling at Caledonia South
2030	The end of third (final) year of piling at Caledonia South
2031	1-year after piling ends
2036	6-years after piling ends
2042	12-years after piling ends
2048	18-years after piling ends

2.2 Bottlenose Dolphin

2.2.1.1 As detailed in Volume 8, Appendix 22: Marine Mammals Clarifications and Piling Re-Assessment Methodology, three disturbance methods were used in the iPCoD modelling for bottlenose dolphins for Caledonia South alone. The number of dolphins disturbed for each threshold is presented in Table 2-2.

Table 2-2: Numbers of bottlenose dolphins affected taken forward to iPCoD.

Parameter	Dose-response	Deterrence Function	26km EDR
Number of animals disturbed	48 jackets 43 anchors	6 for both jackets and anchors	2 for both jackets and anchors

Dose-response

2.2.1.2 The numbers of animals disturbed presented in this section are based on the modelled numbers presented in Section 1.3.2 of Volume 7D, Appendix 7-1: Marine Mammal Piling Results. However, NatureScot requested that the numbers are scaled to the population size of 226. As such, the numbers of animals affected presented above are scaled from population size of 245 individuals to population size of 226 individuals.

2.2.1.3 The disturbance number used in the modelling was based on the worst case (single piling) for the installation of pin piles at jackets or anchors:

- 48 bottlenose dolphins disturbed per day for installation of pin piles at jackets (41 piling days); and
- 43 bottlenose dolphins disturbed per day for installation of anchors (234 piling days).

2.2.1.4 The results of the iPCoD modelling show that the level of disturbance has the potential to result in changes at the population level (Table 2-3 and Figure 2-1). At the end of the year 2030, coinciding with the third and last piling year at Caledonia South, the mean impacted population size as a proportion of the mean un-impacted population size is at its lowest (94.88% increasing population, 96.05% stable population), before increasing back up to 96.29% (increasing population) and 96.94% (stable population) by 2048 (Table 2-3). The impacted population is predicted to continue an increasing or stable trajectory (dependent on the population trajectory modelled) that is the same as the un-impacted population (Figure 2-1).

Table 2-3: Results of iPCoD modelling for bottlenose dolphin (Dose-response) (Scenario: 48 dolphins disturbed per jacket piling day (41 days), 43 dolphins disturbed per anchor piling day (234 days)).

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
Increasing Population			
Start 2028	228	228	100.00%
End 2028	237	237	100.00%
2029	245	238	97.14%
2030	254	241	94.88%
2031	264	251	95.08%
2036	315	304	96.51%
2042	392	377	96.17%
2048	485	467	96.29%
Stable Population			
Start 2028	228	228	100.00%
End 2028	228	228	100.00%
2029	228	223	97.81%
2030	228	219	96.05%
2031	228	219	96.05%
2036	229	222	96.94%
2042	230	222	96.52%
2048	229	222	96.94%
Note, time point descriptions are provided in Table 2-1.			

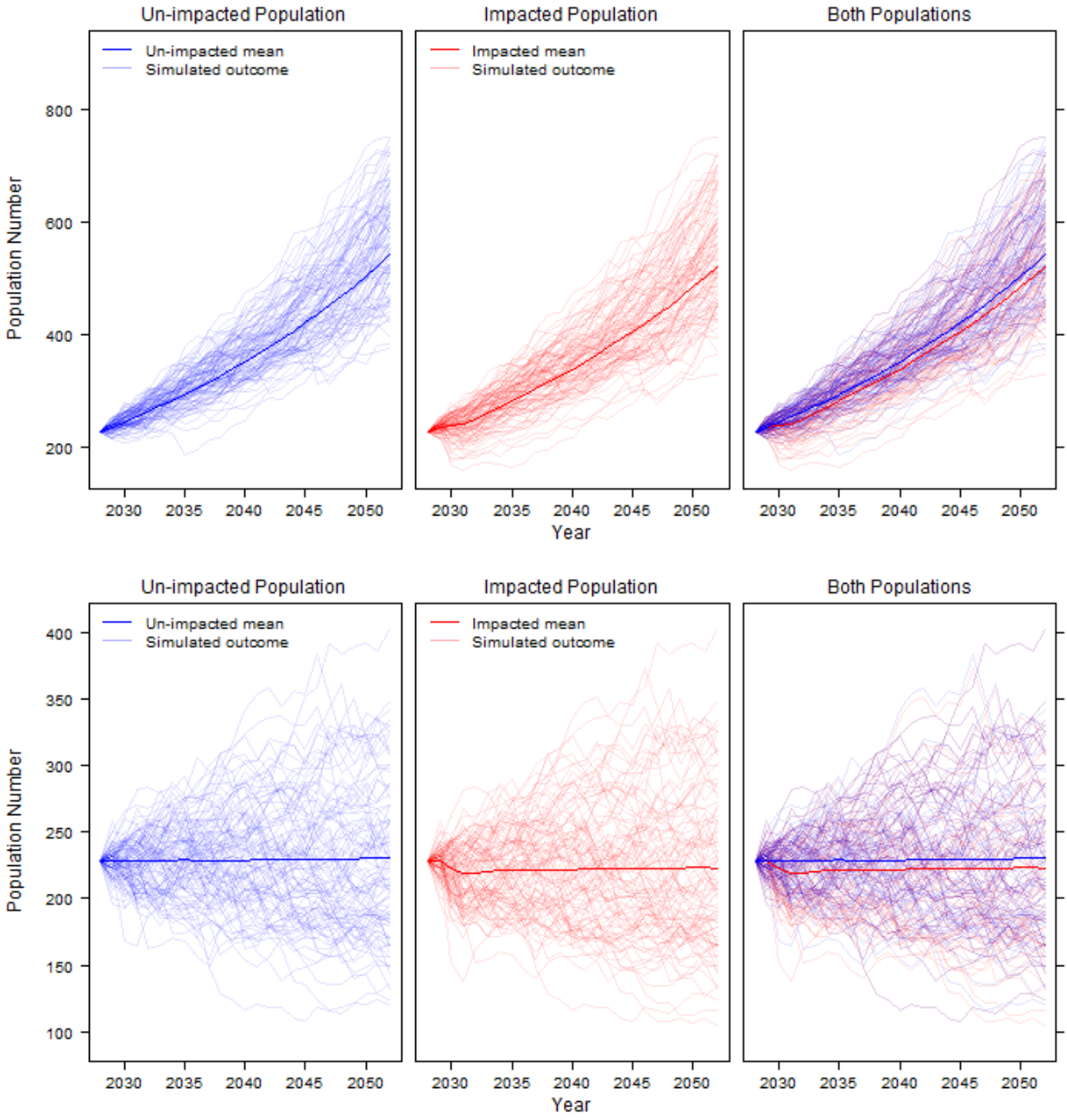

Figure 2-1: Predicted population trajectories for the un-impacted (baseline) and impacted bottlenose dolphin iPCoD simulations (Dose-response; top graph – increasing population and bottom graph – stable population) (Scenario: 48 dolphins disturbed per jacket piling day (41 days), 43 dolphins disturbed per anchor piling day (234 days)).

Deterrence Function

2.2.1.5 The number of animals affected was calculated using methodology described in Volume 8, Appendix 22: Marine Mammals Clarifications and Piling Re-Assessment Methodology. The disturbance value used in the modelling is six bottlenose dolphins per day for installation in Caledonia South (same value for both jackets and anchors, totalling 275 piling days).

2.2.1.6 The results of the iPCoD modelling show that the level of disturbance has the potential to result in slight changes at the population level for an increasing population (Table 2-4 and Figure 2-2). At the end of the year 2031, the mean impacted population size as a proportion of the mean un-impacted population size is at its lowest (98.86%), before increasing to 99.17% by 2048 (Table 2-4). The impacted population is predicted to continue on an increasing trajectory, the same as the un-impacted population (Figure 2-2).

2.2.1.7 For a stable population, the results of the iPCoD modelling show that the impacted population is predicted to continue at a stable trajectory with a mean population size that is 99.12 – 99.56% of the mean size of the un-impacted population (Table 2-4 and Figure 2-2).

Table 2-4: Results of iPCoD modelling for bottlenose dolphin (deterrence function) (Scenario: six dolphins disturbed per piling day (275 days)).

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
Increasing Population			
Start 2028	228	228	100.00%
End 2028	236	236	100.00%
2029	245	244	99.59%
2030	253	251	99.21%
2031	263	260	98.86%
2036	314	312	99.36%
2042	390	387	99.23%
2048	482	478	99.17%
Stable Population			
Start 2028	228	228	100.00%
End 2028	228	228	100.00%
2029	228	227	99.56%
2030	228	226	99.12%
2031	228	227	99.56%
2036	228	226	99.12%
2042	228	226	99.12%
2048	228	226	99.12%
Note, time point descriptions are provided in Table 2-1.			

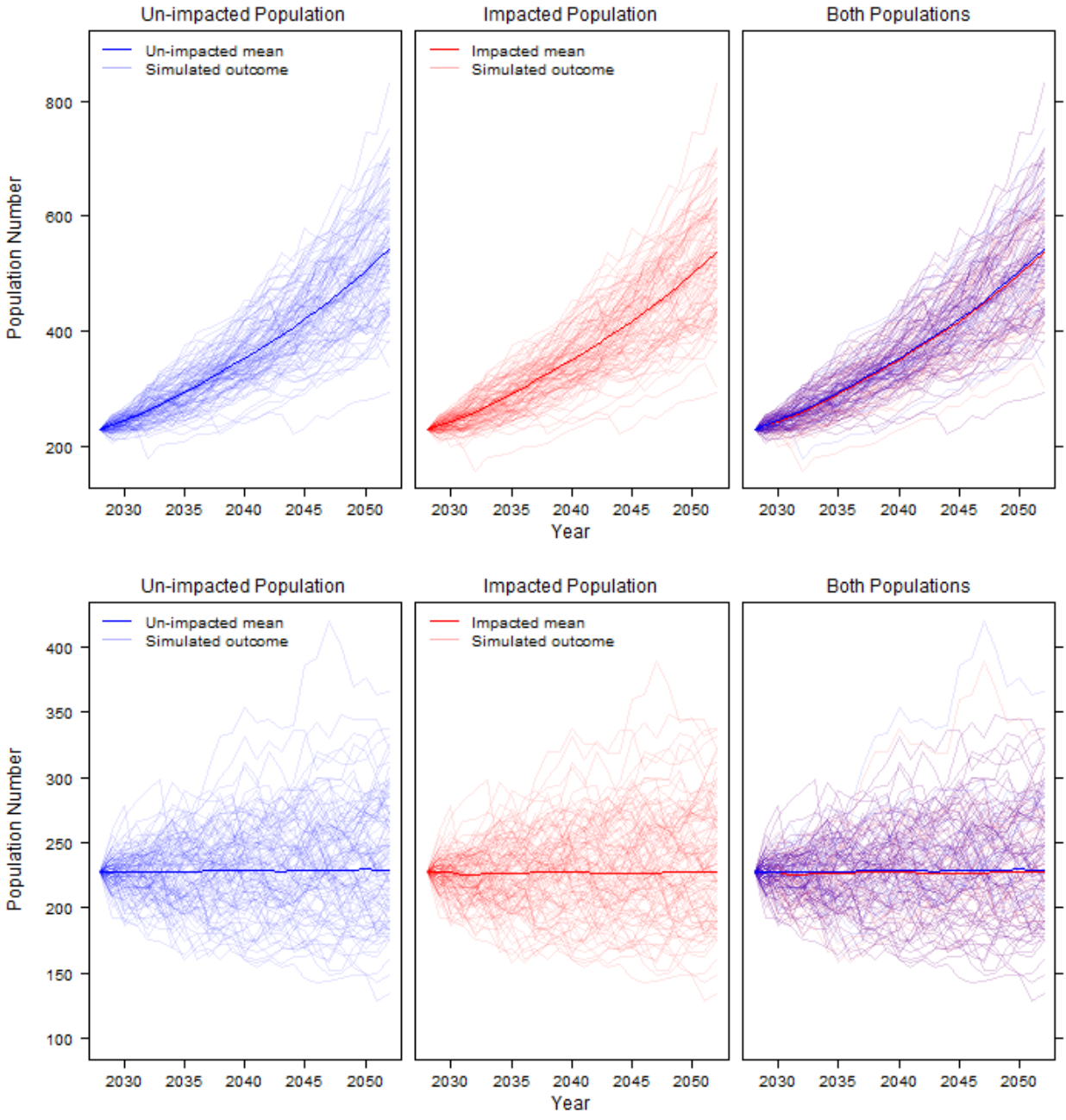

Figure 2-2: Predicted population trajectories for the un-impacted (baseline) and impacted bottlenose dolphin iPCoD simulations (Deterrence function; top graph – increasing population and bottom graph – stable population) (Scenario: 6 dolphins disturbed per piling day (275 days)).

26 km EDR

2.2.1.8 The number of animals affected was calculated based on 26 km EDR. The disturbance value used in the modelling are two bottlenose dolphins per day for installation in Caledonia South (same value for both jackets and anchors, totalling 275 piling days).

2.2.1.1 The results of the iPCoD modelling shows that the impacted population is predicted to continue at a stable trajectory with a mean population size that is 99.61 – 100% (increasing population) and 99.56 – 100% (stable population) of the mean size of the un-impacted population (Table 2-5 and Figure 2-3).

Table 2-5: Results of iPCoD modelling for bottlenose dolphin (EDR) (Scenario: two dolphins disturbed per piling day (275 days)).

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
Increasing Population			
2027	228	228	100.00%
2028	237	237	100.00%
2029	245	245	100.00%
2030	254	253	99.61%
2031	263	263	100.00%
2036	313	313	100.00%
2042	389	389	100.00%
2048	483	482	99.79%
Stable Population			
2027	228	228	100.00%
2028	229	229	100.00%
2029	229	228	99.56%
2030	228	227	99.56%
2031	228	228	100.00%
2036	229	229	100.00%
2042	229	228	99.56%
2048	227	227	100.00%
Note, time point descriptions are provided in Table 2-1.			

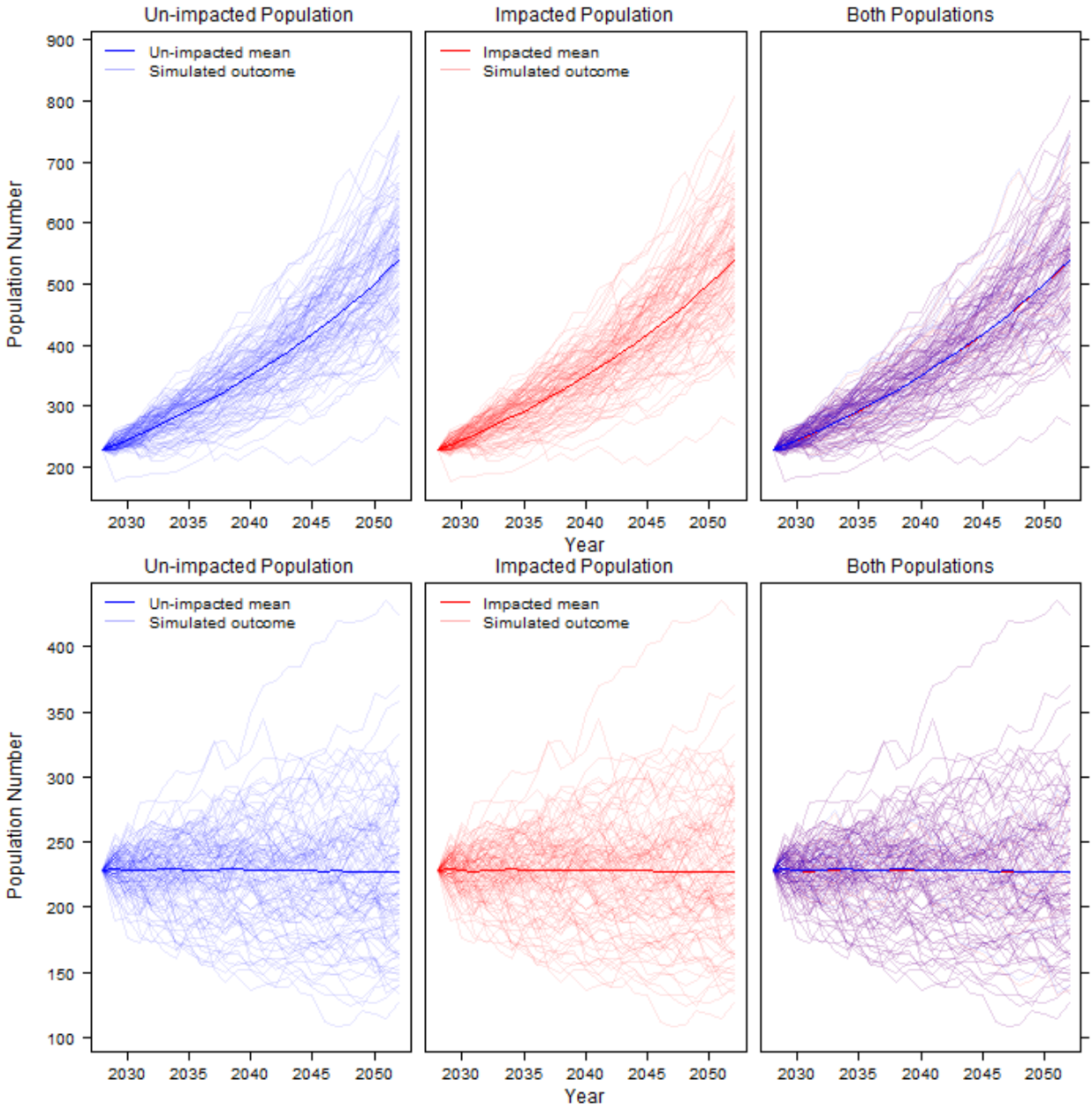

Figure 2-3: Predicted population trajectories for the un-impacted (baseline) and impacted bottlenose dolphin iPCoD simulations (26 km EDR; top graph – increasing population and bottom graph – stable population) (Scenario: two dolphin disturbed per piling day (275 days)).

3 Cumulative Re-Assessment

3.1 Time Points

3.1.1.1 The time points selected for the presentation of cumulative iPCoD modelling results are presented in Table 3-1. The timepoints are the same for harbour porpoise, bottlenose dolphin and minke whale.

Table 3-1: Time points selected for the presentation of cumulative iPCoD modelling

Time Points Selected (Indicative Year)	Time Point Description
2026	Population size at the beginning of the year 2026, before all piling starts
2028	End of 1st year of piling at Caledonia South, piling at other projects
2030	End of final year of piling at Caledonia South, piling at other projects
2036	6-years after piling ends at Caledonia South, piling at other projects
2038	8-years after piling ends at Caledonia South and the end of piling at all other projects
2039	9-years after piling has ended at Caledonia South and 1-year after piling has ended at other projects
2044	14-years after piling has ended at Caledonia South and 6-years after piling has ended at other projects
2050	20-years after piling has ended at Caledonia South and 12-years after piling has ended at other projects

3.1.1.2 The time points selected for the presentation of cumulative iPCoD modelling results are presented in Table 3-2 for MF, NC&O and ES SMUs.

Table 3-2: Time points selected for the presentation of cumulative iPCoD modelling results for cumulative impacts on the MF SMU, NC&O SMU and ES SMU for harbour seal.

Time Points Selected (Indicative Year)	Time Point Description
MF SMU	
Start 2028	Population size at the beginning of the year 2028, before all piling starts
End 2028	End of 1st year of piling at Caledonia South, piling at all projects considered for harbour seal within the MF SMU
2030	End of final year of piling at Caledonia South and the end of piling at all projects considered for harbour seal within the MF SMU
2031	1-year after piling ends at Caledonia South and at all projects considered for harbour seal within the MF SMU
2036	6-years after piling ends at Caledonia South and at all projects considered for harbour seal within the MF SMU
2042	12-years after piling has ended at Caledonia South and at all projects considered for harbour seal within the MF SMU
2048	18-years after piling has ended at Caledonia South and at all projects considered for harbour seal within the MF SMU
NC&O SMU	
Start 2028	Population size at the beginning of the year 2028, before all piling starts
End 2028	End of 1st year of piling at Caledonia South, piling at all projects considered for harbour seal within the NC&O SMU
2030	End of final year of piling at Caledonia South, piling at all projects considered for harbour seal within the NC&O SMU
2033	3-years after piling ends at Caledonia South and the end of piling at all projects considered for harbour seal within the NC&O SMU
2034	4-years after piling ends at Caledonia South and 1-years after piling has ended at other projects considered for harbour seal within the NC&O SMU
2039	9-years after piling ends at Caledonia South and 6-years after piling has ended at other projects considered for harbour seal within the NC&O SMU

Time Points Selected (Indicative Year)	Time Point Description
2045	15-years after piling ends at Caledonia South and 12-years after piling has ended at other projects considered for harbour seal within the NC&O SMU
2051	21-years after piling ends at Caledonia South and 18-years after piling has ended at other projects considered for harbour seal within the NC&O SMU
ES MU	
2026	Population size at the beginning of the year 2026, before all piling starts
2028	End of 1st year of piling at Caledonia South, piling at all projects considered for harbour seal within the ES SMU
2030	End of final year of piling at Caledonia South, piling at all projects considered for harbour seal within the ES SMU
2033	3-years after piling ends at Caledonia South and the end of piling at all projects considered for harbour seal within the ES SMU
2034	4-years after piling ends at Caledonia South and 1-year after piling at all projects considered for harbour seal within the ES SMU
2039	9-years after piling ends at Caledonia South and 6-years after piling has ended at other projects considered for harbour seal within the ES SMU
2045	15-years after piling ends at Caledonia South and 12-years after piling has ended at other projects considered for harbour seal within the ES SMU

3.2 Harbour Porpoise

Number of Animals Impacted

3.2.1.1 The numbers of harbour porpoise at risk of experiencing disturbance due to piling at each project used in the modelling are presented in Table 3-3 (using the Graham *et al*., 2019[1]) deterrence function).

Table 3-3: The number of harbour porpoise predicted to be disturbed for each project based on deterrence function (Graham *et al.*, 2019)

Project	Number Animals Impacted
Caledonia South	388
Berwick Bank	732
Cenos	1114
Green Volt	675
Ossian	733
Salamander	681
West of Orkney	155
Muir Mhòr	731
Ayre	397
Bowdun	715
Broadshore	523
Buchan	614
Morven	733
Sinclair	543
Bellrock	733
Stromar	414

iPCoD Results

3.2.1.2 The results of the cumulative iPCoD modelling show that the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population, and with a mean population size that is greater than 99% of the mean size of the un-impacted population (Table 3-4 and Figure 3-1).

Table 3-4: Results of cumulative iPCoD modelling for harbour porpoise (NS MU).

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
UK Portion of the NS MU			
2026	159,634	159,634	100.00%
2028	160,145	159,972	99.89%
2030	159,774	159,175	99.63%
2036	159,841	158,944	99.44%
2038	159,687	158,773	99.43%
2039	159,608	158,695	99.43%
2044	160,094	159,185	99.43%
2050	160,014	159,103	99.43%
NS MU			
2026	346,602	346,602	100.00%
2028	346,704	346,551	99.96%
2030	346,294	345,755	99.84%
2036	346,908	346,108	99.77%
2038	347,366	346,533	99.76%
2039	347,667	346,833	99.76%
2044	348,025	347,195	99.76%
2050	347,517	346,691	99.76%
Note, time point descriptions are provided in Table 3-1.			

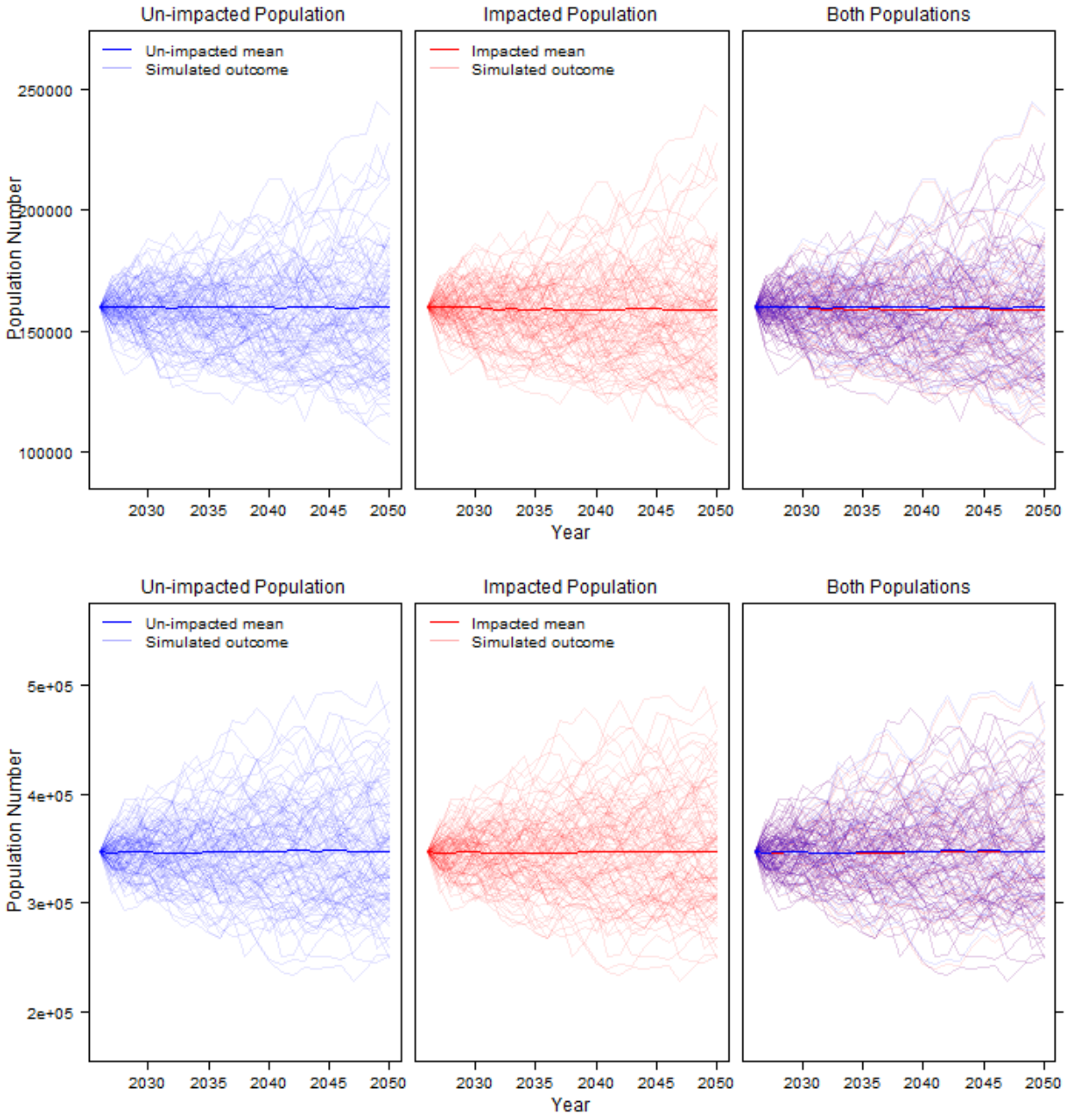

Figure 3-1: Predicted population trajectories for the un-impacted (baseline) and impacted harbour porpoise iPCoD simulations (top graph – UK portion of the NS MU and bottom graph – NS MU).

3.3 Bottlenose Dolphin

Number of Animals Impacted

3.3.1.1 The numbers of bottlenose dolphin at risk of experiencing disturbance due to piling at each project used in the modelling are presented in Table 3-5 (using the Graham *et al*. (2019[1]) deterrence function).

Table 3-5: The number of bottlenose dolphins predicted to be disturbed for each project calculated based on deterrence function (Graham *et al*., 2019).

Project	Number Animals Impacted
Caledonia South	6
Berwick Bank	12
Green Volt	1
Ossian	1
Salamander	8
Muir Mhòr	2
Ayre	1
Bowdun	9
Broadshore	3
Buchan	1
Morven	3
Sinclair	1
Stromar	1

iPCoD Results

3.3.1.2 The results of the cumulative iPCoD modelling show that for the CES MU, although the level of disturbance has the potential to result in changes at population level, the impacted population is predicted to continue on an increasing or stable trajectory (depending on the modelled population), the same as the unimpacted population (Table 3-6, Figure 3-2).

3.3.1.3 For an increasing population, in the year 2050, coinciding with 12 years after all cumulative piling has ended, the mean impacted population size as a proportion of the mean unimpacted population size is at its lowest (94.64%) (Table 3-6). For the stable population, the mean impacted population size as a proportion of the mean unimpacted population size is at its lowest (95.11%) in the 2044, coinciding with eight years after all cumulative piling has ended (Table 3-6).

Table 3-6: Results of cumulative iPCoD modelling for bottlenose dolphin (CES MU).

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
Increasing Population			
2026	228	228	100.00%
2028	254	247	97.24%
2030	273	260	95.24%
2036	340	322	94.71%
2038	365	346	94.79%
2039	377	357	94.69%
2044	451	427	94.68%
2050	560	530	94.64%
Stable Population			
2026	228	228	100.00%
2028	226	221	97.79%
2030	225	216	96.00%
2036	224	214	95.54%
2038	225	215	95.56%
2039	225	215	95.56%
2044	225	214	95.11%
2050	226	215	95.13%
Note, time point descriptions are provided in Table 3-1.			

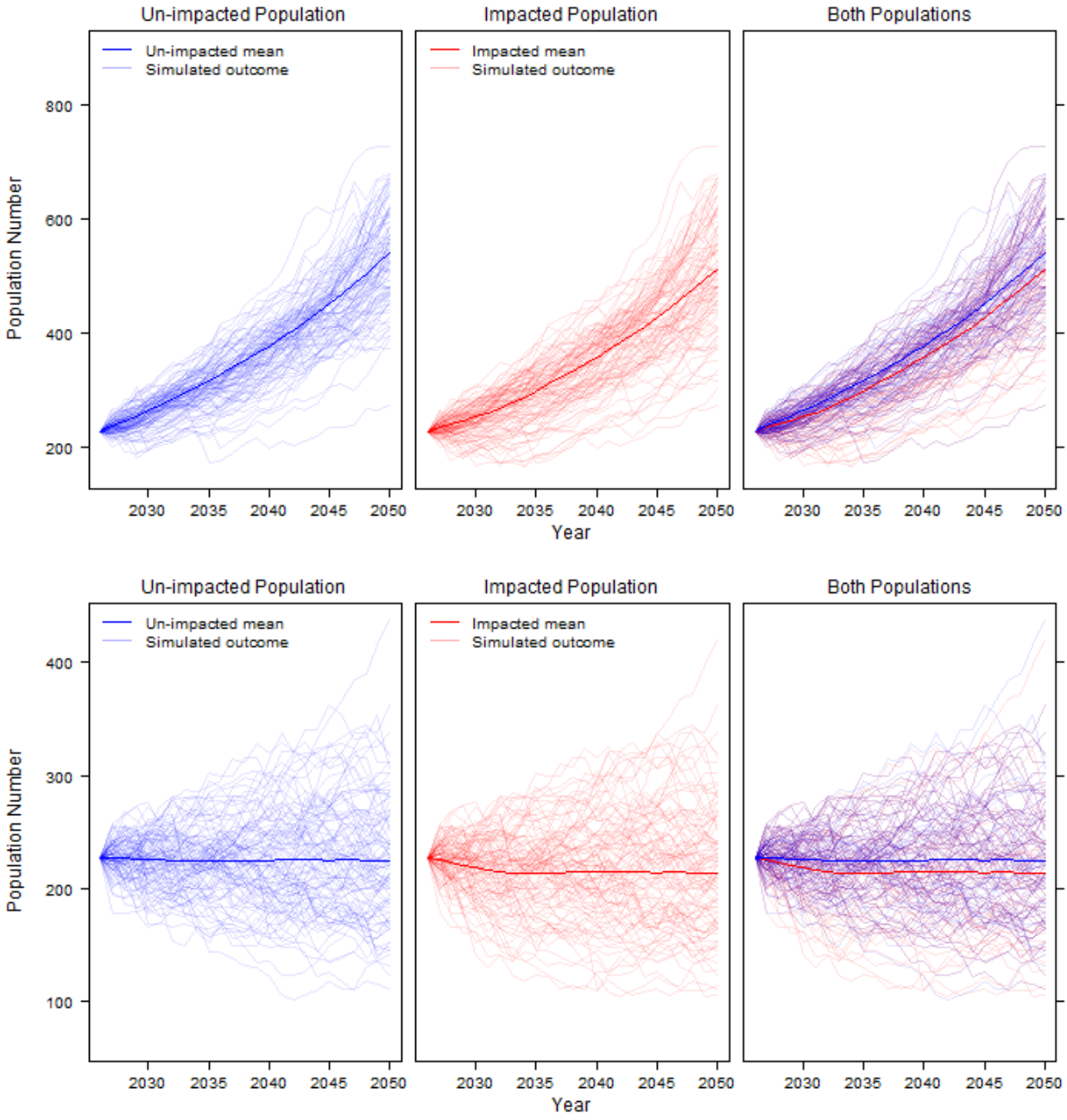

Figure 3-2: Predicted population trajectories for the un-impacted (baseline) and impacted bottlenose dolphin iPCoD simulations (top graph – increasing population and bottom graph – stable population).

3.4 Minke Whale

Number of Animals Impacted

3.4.1.1 The numbers of minke whale at risk of experiencing disturbance due to piling at each project used in the modelling are presented in Table 3-7 (using the Graham *et al*. (2019[1]) deterrence function).

Table 3-7: The number of minke whales predicted to be disturbed for each project based on deterrence function (Graham *et al.*, 2019).

Project	Number Animals Impacted
Caledonia South	35
Berwick Bank	28
Cenos	54
Green Volt	34
Ossian	35
Salamander	26
West of Orkney	31
Muir Mhòr	34
Ayre	25
Bowdun	29
Broadshore	30
Buchan	32
Morven	32
Sinclair	30
Bellrock	41
Stromar	31
Havbredey	27
Talisk	23
Spiorad na Mara	17

iPCoD Results

3.4.1.2 The results of the cumulative iPCoD modelling show that the impacted population is predicted to continue at a stable trajectory, the same as the un-impacted population, and at 99.99 - 100% of the size of the un-impacted population (Table 3-8 and Figure 3-3).

Table 3-8: Results of cumulative iPCoD modelling for minke whale.

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
UK Portion of the CGNS MU			
2026	10,255	10,255	100.00%
2028	10,277	10,277	100.00%
2030	10,274	10,273	99.99%
2036	10,224	10,224	100.00%
2038	10,197	10,196	99.99%
2039	10,198	10,198	100.00%
2044	10,165	10,165	100.00%
2050	10,197	10,197	100.00%
CGNS MU			
2026	20,120	20,120	100.00%
2028	20,004	20,003	100.00%
2030	19,983	19,980	99.98%
2036	19,880	19,879	99.99%
2038	19,831	19,830	99.99%
2039	19,858	19,857	99.99%
2044	19,771	19,770	99.99%
2050	19,727	19,725	99.99%
Note, time point descriptions are provided in Table 3-1.			

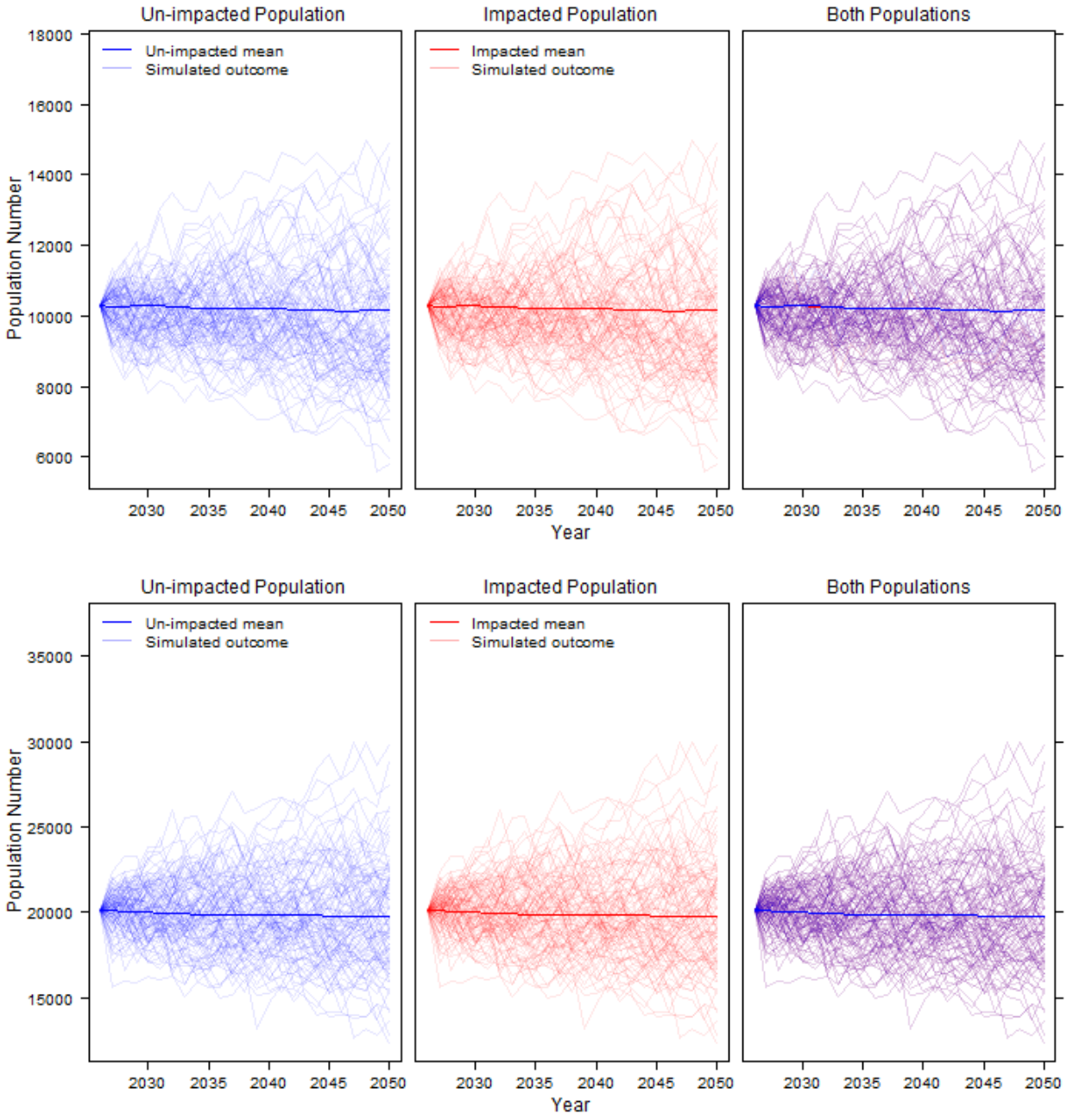

Figure 3-3: Predicted population trajectories for the un-impacted (baseline) and impacted minke whale iPCoD simulations (top graph – UK portion of the CGNS MU and bottom graph – CGNS MU).

3.5 Harbour Seal

3.5.1.1 It is important to note when considering the iPCoD results for harbour seals, that the NC&O SMU is currently in decline (SCOS, 2022[2]). It is noted in SCOS (2022[2]) that the 2019 count was similar to the 2016 count, which could indicate that the decline has slowed, but more counts are required to confirm this. When interpreting the iPCoD results for the NC&O SMU, it is therefore necessary to understand that the un-impacted baseline SMU is predicted to significantly decline in the absence of any impacts.

Number of Animals Impacted

3.5.1.2 The numbers of harbour seal at risk of experiencing disturbance due to piling at each project used in the modelling are presented in Table 3-9.

Table 3-9: The number of harbour seal predicted to be disturbed for each project, based on the project-specific values presented in EIARs or calculated based on the EDRs and Carter *et al*. (2025).

Project	Number Animals Impacted	Data Source
MF SMU		
Caledonia South	87	Whyte *et al*. (2020[3]); Carter *et al.* (2025[4])
Broadshore	1	EDR; Carter *et al*. (2025[4])
Sinclair	1	EDR; Carter *et al*. (2025[4])
NC&O SMU		
Caledonia South	1	Whyte *et al*. (2020[3]); Carter *et al*. (2025[4])
West of Orkney	176	EIAR (Xodus Group Ltd, 2023[5])
Ayre	12	EDR; Carter *et al*. (2025[4])
Buchan	1	EDR; Carter *et al*. (2025[4])
Stromar	1	EDR; Carter *et al*. (2025[4])
ES SMU		
Caledonia South	1	Whyte *et al*. (2020[3]); Carter *et al*. (2025[4])
Berwick Bank	5	EIAR (RPS, 2022[6])
Green Volt	1	EIAR (Royal HaskoningDHV, 2023[7])
Salamander	4	EIAR (Salamander Offshore Wind Farm, 2023[8])
Muir Mhòr	1	EIAR (SMRU Consulting, 2024[9])
Bowdun	1	EDR; Carter *et al*. (2025[4])
Morven	1	EDR; Carter *et al*. (2025[4])

MF SMU

3.5.1.3 The results of the cumulative iPCoD modelling show that for the MF SMU the level of cumulative disturbance is not sufficient to result in any changes at the population level as the impacted population is predicted to continue at a stable trajectory and at 100% of the size of the un-impacted population (Table 3-10 and Figure 3-4).

Table 3-10: Results of cumulative iPCoD modelling for harbour seals (MF SMU)

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
Start 2028	1,360	1,360	100%
End 2028	1,359	1,359	100%
2030	1,360	1,360	100%
2031	1,362	1,362	100%
2036	1,363	1,363	100%
2042	1,373	1,373	100%
2048	1,378	1,378	100%
Note, time point descriptions are provided in Table 3-2.			

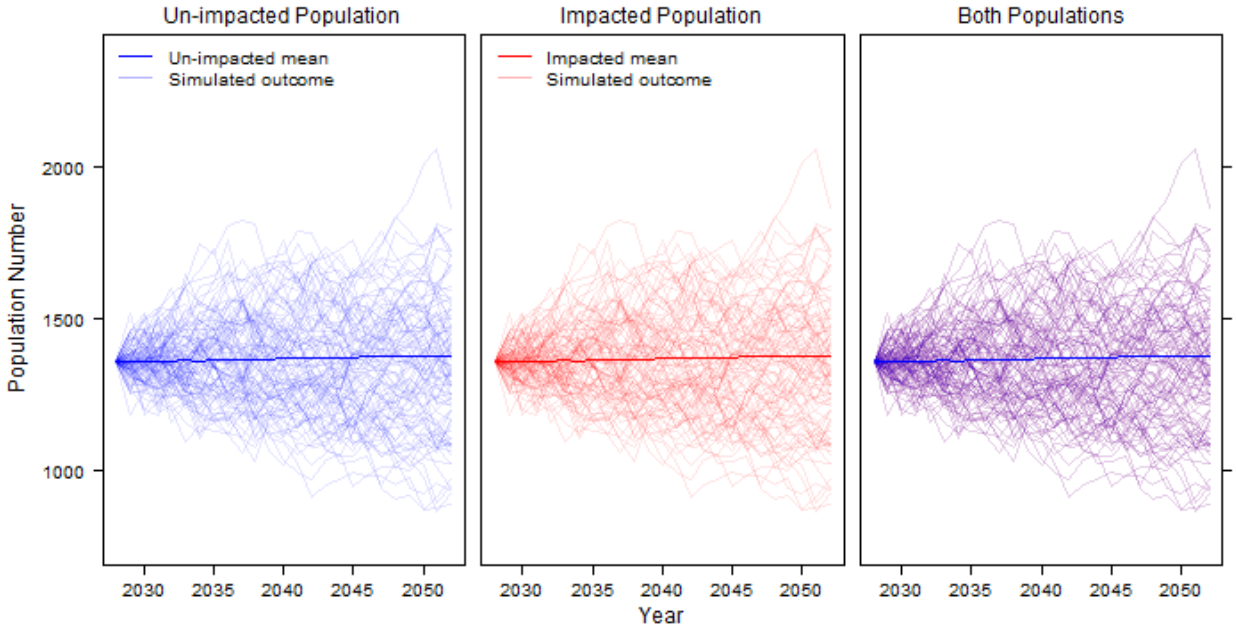

Figure 3-4: Predicted population trajectories for the un-impacted (baseline) and impacted harbour seal iPCoD simulations for the MF SMU.

NC&O SMU

3.5.1.4 The results of the cumulative iPCoD modelling show that for the NC&O SMU the level of cumulative disturbance is not sufficient to result in any changes at the population level as the impacted population is predicted to continue declining at the same rate as the un-impacted population, at 100% of the size of the un-impacted population (Table 3-11 and Figure 3-5).

Table 3-11: Results of cumulative iPCoD modelling for harbour seals (NC&O SMU)

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
Start 2028	1,950	1,950	100.00%
End 2028	1,746	1,746	100.00%
2030	1,401	1,401	100.00%
203	1,007	1,007	100.00%
2034	905	905	100.00%
2039	523	523	100.00%
2045	268	268	100.00%
2051	156	156	100.00%
Note, time point descriptions are provided in Table 3-2.			

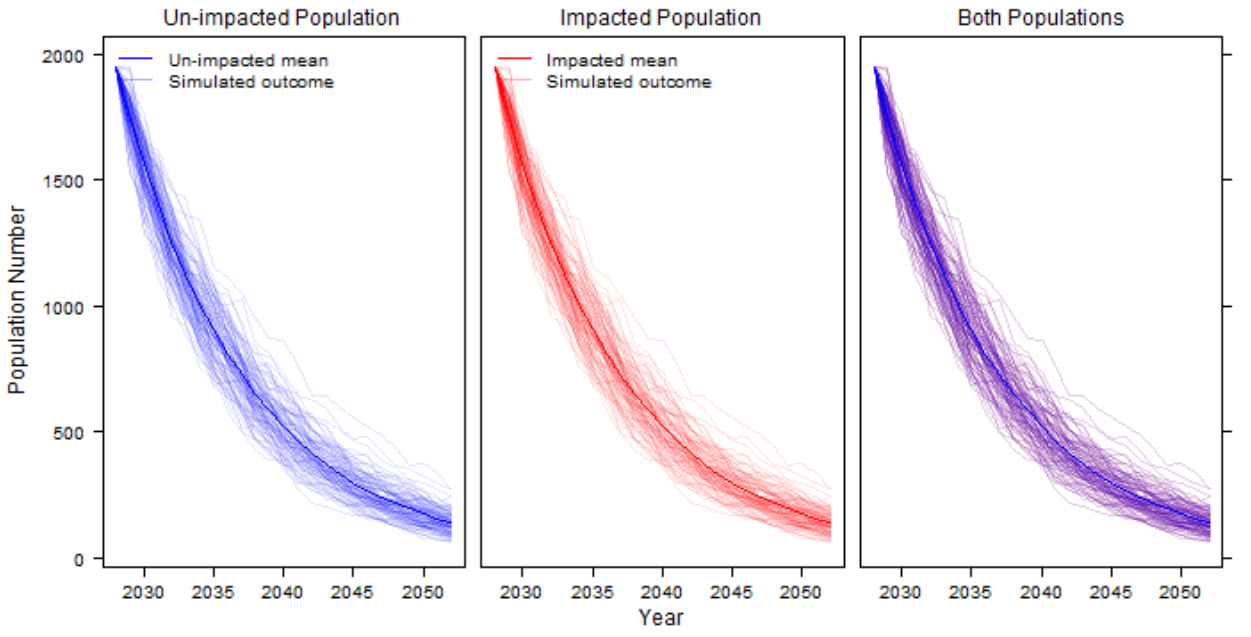

Figure 3-5: Predicted population trajectories for the un-impacted (baseline) and impacted harbour seal iPCoD simulations for the NC&O SMU.

ES SMU

3.5.1.5 The results of the cumulative iPCoD modelling show that for the MF SMU the level of cumulative disturbance is not sufficient to result in any changes at the population level as the impacted population is predicted to continue at a stable trajectory and at 100% of the size of the un-impacted population (Table 3-12 and Figure 3-6).

Table 3-12: Results of cumulative iPCoD modelling for harbour seals (ES SMU)

Time Point	Unimpacted Population Mean Size	Impacted Population Mean Size	Impacted Population as a Proportion of the Unimpacted Population
2026	386	386	100%
2028	386	386	100%
2030	387	387	100%
2033	389	389	100%
2034	388	388	100%
2039	390	390	100%
2045	391	391	100%
Note, time point descriptions are provided in Table 3-2.			

Figure 3-6: Predicted population trajectories for the un-impacted (baseline) and impacted harbour seal iPCoD simulations for the ES SMU.

References

[1] Graham, I. M., N. D. Merchant, A. Farcas, T. R. C. Barton, B. Cheney, S. Bono, and P. M. Thompson. (2019). Harbour porpoise responses to pile-driving diminish over time. Royal Society Open Science 6:190335.

[2] SCOS. (2022). Scientific Advice on Matters Related to the Management of Seal Populations: 2021.

[3] Whyte, K. F., D. J. F. Russell, C. E. Sparling, B. Binnerts, and G. D. Hastie. (2020). Estimating the effects of pile driving sounds on seals: Pitfalls and possibilities. J Acoust Soc Am 147:3948.

[4] Carter, M. I., M. Bivins, C. Duck, G. D. Hastie, C. D. Morris, S. E. Moss, D. Thompson, P. Thompson, C. Vincent, and D. J. Russell. (2025). Updated Habitat-Based At-Sea Distribution Maps for Harbour and Grey Seals in Scotland. Sea Mammal Research Unit, University of St Andrews.

[5] Xodus Group Ltd. (2023). West of Orkney Windfarm Offshore EIA Report. Volume 1, Chapter 12 - Marine Mammals and Megafauna.

[6] RPS. (2022). Berwick Bank Wind Farm Environmental Impact Assessment Report Volume 2, Chapter 10: Marine Mammals. Report to SSE Renewables.

[7] Royal HaskoningDHV. (2023). Green Volt, Offshore Windfarm EIA Report. Volume 1, Chapter 11 Marine Mammal Ecology.

[8] Salamander Offshore Wind Farm. (2023). Salamander Offshore EIA Report. Volume ER.A.3, Chapter 11: Marine Mammals.

[9] SMRU Consulting. (2024). Muir Mhòr Offshore Wind Farm Environmental Impact Assessment Report, Volume 2, Chapter 12: Marine Mammals.

Caledonia Offshore Wind Farm
5th Floor, Atria One
144 Morrison Street
Edinburgh
EH3 8EX

www.caledoniaoffshorewind.com

OCEAN WINDS