

# LLŶR FLOATING OFFSHORE WIND PROJECT

**Llŷr 1 Floating Offshore Wind Farm**

**Environmental Statement**

**Volume 6: Appendix 22D – Marine Ornithology  
Displacement Assessment**

**August 2024**

**Document Status**

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## Acronyms and abbreviations

Acronym or Abbreviation	Definition	Acronym or Abbreviation	Definition
BDMPS	Biologically defined minimum population scales	NRW	Natural Resources Wales
CEH	Centre for Ecology and Hydrology	OWF	Offshore Wind Farm
CL	Credible limits	PVA	Population Viability Analysis
EIA	Environmental Impact Assessment	RIAA	Report to Inform the Appropriate Assessment
EIAR	Environmental Impact Assessment Report	SNCBs	Statutory nature conservation bodies
JNCC	Joint Nature Conservation Committee	SPA	Special Protection Area
km <sup>2</sup>	Square kilometre	SSSI	Sites of Special Scientific Interest
Llŷr	Llŷr Offshore Wind Demonstration Project	SSSP	Skomer, Skokholm and the Seas off Pembrokeshire
LCL	Lower credible limit	UCL	Upper credible limit
MLT	Marine Licensing Team	WTGs	Wind Turbine Generators
MSPs	Mean seasonal peaks		

## Glossary of project terms

Term	Definition
The Applicant	The developer of the Project, Llŷr Floating Wind Limited
Array	All wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the Array Area, as defined, when considered collectively, excluding the offshore export cable(s).
Array Area	The area within which the wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure will be located
Barrier Effects	Barrier effects may occur when birds that would have previously flown through an area (e.g. on the way to feeding, resting or nesting areas) either have to cease flying or alter their flight paths due to the presence of an OWF (SNCB <i>et al.</i> , 2022).
BDMPS	<i>“Where the proportion of each population that occurs in UK waters is known, the Biogeographic population estimate can be narrowed to the numbers occurring within defined UK waters, creating Biologically Defined Minimum Population Sizes (BDMPS)”</i> (Furness 2015).
Displacement	Displacement is defined as ‘a reduced number of birds occurring within or immediately adjacent to an offshore wind farm’ (Furness <i>et al.</i> , 2013; Bradbury <i>et al.</i> , 2014).
Floventis Energy	A joint venture company between Cierco Ltd and SBM Offshore Ltd of which Llŷr Floating Wind Limited is a wholly owned subsidiary.
Landfall	The location where the offshore export cable(s) from the Array Area, as defined, are brought onshore and connected to the onshore export cables (as defined) via the transition joint bays (TJB).



Term	Definition
Llŷr 1	The proposed Project, for which the Applicant is applying for Section 36 and Marine Licence consents. Including all offshore and onshore infrastructure and activities, and all project phases.
Marine Licence	A licence required under the Marine and Coastal Access Act 2009 for marine works which is administered by Natural Resources Wales (NRW) Marine Licensing Team (MLT) on behalf of the Welsh Ministers.
Mean Seasonal Peak	The mean estimated peak abundance within the impacted area, per season.
Offshore Development Area	The footprint of the offshore infrastructure and associated temporary works, comprised of the Array Area and the Offshore Export Cable Corridor, as defined, that forms the offshore boundary for the S36 Consent and Marine Licence application
Offshore Export Cable	The cable(s) that transmit electricity produced by the WTGs to landfall.
Offshore Export Cable Corridor (OfECC)	The area within which the offshore export cable circuit(s) will be located, from the Array Area to the Landfall.
Onshore Development Area	The footprint of the onshore infrastructure and associated temporary works, comprised of the Onshore Export Cable Corridor and the Onshore Substation, as defined, and including new access routes and visibility splays, that forms the onshore boundary for the planning application.
Onshore Export Cable(s)	The cable(s) that transmit electricity from the landfall to the onshore substation
Onshore Export Cable Corridor (OnECC)	The area within which the onshore export cable circuit(s) will be located.
proposed Project	All aspects of the Llŷr 1 development (i.e. the onshore and offshore components).
Onshore Substation	Located within the Onshore Development Area, converts high voltage generated electricity into low voltage electricity that can be used for the grid and domestic consumption.
SeabORD modelling	SeabORD is an individual-based modelling method created by the Centre for Ecology and Hydrology to model the energetic consequences to seabirds from displacement and / or barrier effects occurring in relation to offshore renewable energy developments.
Section 36 consent	Consent to construct and operate an offshore generating station, under Section 36 (S.36) of the Electricity Act 1989. This includes deemed planning permission for onshore works.
Upper and Lower credible limits	The upper and lower credible limits are defined from the credible interval which is obtained from the posterior distribution estimated by inlabru. The credible interval is the central portion of the posterior distribution that contains 95% of the values, so the lower and upper limits are the minimum and maximum values from the credible interval.



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## 22. APPENDIX 22D: MARINE ORNITHOLOGY DISPLACEMENT ASSESSMENT

### 22.1 Introduction

1. This **Appendix 22D: Marine Ornithology Displacement Assessment** supports the assessment of displacement undertaken for the Llŷr 1 Floating Offshore Wind Farm (hereafter referred to as ‘the proposed Project’), for consideration in the **Environmental Statement (ES) Volume 3, Chapter 22 Marine Ornithology** and in **Appendix 8E: Habitats Regulations Assessment (HRA) Report to Inform Appropriate Assessment (RIAA)**.
2. **Chapter 22: Marine Ornithology** includes a summary of the statutory advice and pre-application liaison carried out with Natural Resources Wales Advisory (NRW (A)) and the Joint Nature Conservation Committee (JNCC) as well as the wider stakeholder liaison (including with the Royal Society for the Protection of Birds and the Wildlife Trusts) for this receptor group (**Table 22-4**, scoping and **Table 22-5**, pre-application consultation, as presented in **Chapter 22: Marine Ornithology**).
3. Within this current report ‘displacement’ refers to both displacement and barrier effects. Displacement is considered by Furness *et al.* (2013) and Bradbury *et al.* (2014) to be ‘a reduced number of birds occurring within or immediately adjacent to an offshore wind farm’. Birds that would normally utilise the Array Area and surrounding sea may be disturbed or displaced from the area due to the presence of the wind turbines, resulting in an effective loss of available habitat for sensitive species.
4. Barrier effects may occur when birds that would have previously flown through an area (e.g. on the way to feeding, resting or nesting areas) either have to cease flying, or alter their flight paths due to the presence of an offshore wind farm which may affect energetic costs (Masden *et al.*, 2010).
5. Short-term disturbance of birds may also occur during the construction and decommissioning phases, from activities to erect or remove the turbines, and associated activities such as cable laying or construction / decommissioning of substations.
6. The following species may be at risk of displacement impacts (**Section 22.2.1**):
  - common guillemot (*Uria aalge*), hereafter ‘guillemot’;
  - razorbill (*Alca torda*);
  - Atlantic puffin (*Fratercula arctica*), hereafter ‘puffin’;
  - northern gannet (*Morus bassanus*), hereafter ‘gannet’;
  - Manx shearwater (*Puffinus puffinus*), and
  - black-legged kittiwake (*Rissa tridactyla*), hereafter ‘kittiwake’<sup>1</sup>.
7. This **Appendix 22D: Marine Ornithology Displacement Assessment** provides the supporting information for such assessment, under EIA, as well as for the required colony-specific assessments for these seabirds as qualifying interests of Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs):
  - guillemot, razorbill, puffin, Manx shearwater and kittiwake at Skomer, Skokholm and the Seas off Pembrokeshire (SSSP) SPA;
  - gannet at Grassholm SPA; and
  - guillemot at Castlemartin SSSI.

<sup>1</sup> Kittiwake are included at the request of JNCC who have asked that they be considered.





8. Potential displacement impacts arising from Llŷr against the seabird populations at Lundy SSSI were also considered (i.e. Lundy SSSI was scoped in for consideration in this report). However, based on the calculated apportioning weightings (**Appendix 22B: Marine Ornithology Colony Apportioning**) it can be determined that potential impacts against Lundy SSSI seabirds will be negligible, and therefore further quantitative assessment is not required.

## 22.2 Methods

### 22.2.1. Displacement Matrices

#### Introduction

9. Following a workshop held 06-07 May 2015<sup>2</sup>, the statutory nature conservation bodies (SNCBs) issued interim advice on undertaking assessment of displacement impacts from offshore wind farms which was then updated in January 2022. This offers a consistent method for undertaking such assessment and promotes the use of 'displacement matrices' to give a range of displacement rates which are then considered in terms of adult mortality (SNCB, 2022).
10. The displacement matrices are informed by the following factors:
  - spatial scales;
  - defined seasons;
  - mean seasonal peak (MSP) population estimates (EIA and colony-apportioned); and
  - displacement and mortality rates.

#### Spatial Scales

11. For displacement assessment within this application, the defined impact zone is the Array Area plus a 2 km buffer (**Figure 22D-1**). The buffer is advised to take account of the fact that species may also be displaced from the area surrounding a wind farm, although this is likely to be to a lesser degree. Assessment is therefore based on the Array Area plus 2 km buffer as a 'worst-case'. It is noted that for certain species, such as divers and sea ducks, a 4 km buffer is currently recommended. However, these species were not recorded at the proposed Project during surveys.

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<sup>2</sup> Joint workshop organised by the Marine Renewables Ornithology Group (MROG), involving the SNCBs (including JNCC and NRW (A)), Marine Scotland Science (MSS), the Royal Society for the Protection of Birds (RSPB), environmental consultants and industry representatives.

[Seabird Displacement Impacts from Offshore Wind Farms: report of the MROG Workshop, 6-7th May 2015 | JNCC Resource Hub](#)

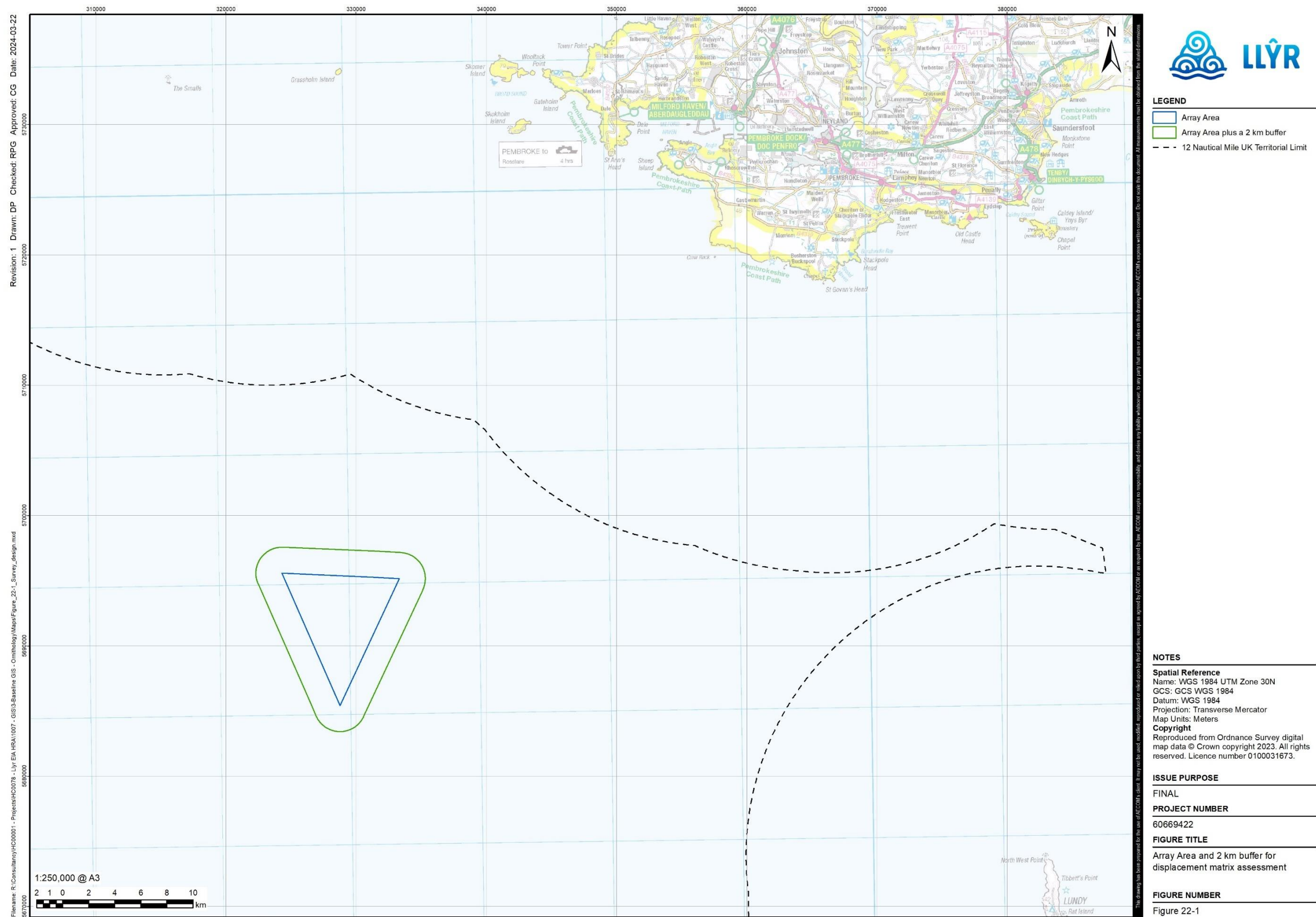


Figure 22D-1. Project array area plus 2 km buffer



### Defined Seasons

12. Seasonal definitions were agreed during pre-application consultation with NRW (A) and JNCC (**Table 22-5 of Chapter 22: Marine Ornithology**) and are based on Furness (2015) as set out in **Table 22D-1**. The full UK breeding season was used, with the non-breeding seasons (Biologically Defined Minimum Population Scale, 'BDMPS') adjusted accordingly to avoid overlapping months with the breeding seasons. This avoids 'double-counting' in the estimation of the mean seasonal peaks (MSPs).

*Table 22D-1. Seasons used in displacement assessment, adapted from Furness (2015)*

Species	Breeding season	Autumn migration	BDMPS Non-breeding / winter	Spring migration
Guillemot	Mar – July	-	Aug – Feb	-
Razorbill	Apr – July	Aug – Oct	Nov – Dec	Jan – Mar
Puffin	Apr – Aug	-	Sep – Mar	-
Manx shearwater	Apr – Aug	Sep – Oct	-	Mar
Gannet	Mar – Sep	Oct – Nov	-	Dec – Feb

### Mean Seasonal Peak Population Estimates for EIA

13. The SNCB guidance (SNCB, 2022) defines displacement as affecting both birds on the water and in flight, therefore, the MSPs were calculated from monthly population estimates for all birds present within the identified impact zone, comprising the Array Area plus a 2 km buffer. **Appendix 22A: Marine Ornithology Baseline** presents these monthly estimates and identifies the peak estimate in each year of survey work for each species for each season (seasons as defined in **Table 22D-1** above).
14. For each species, for each season, taking the mean of the two peak estimates (one from each year of survey work) gives the MSP as presented in **Table 22D-2**. The calculation of these MSP estimates is given in full for each species in **Appendix 22A: Marine Ornithology Baseline**.



Table 22D-2. MSPs for breeding and non-breeding seasons, and for overall annual EIA impacts

Species	Breeding season MSP (UCL – LCL) <sup>1</sup>	Autumn migration MSP (UCL – LCL)	Non-breeding / Winter MSP (UCL – LCL)	Spring migration MSP (UCL – LCL)	Annual total <sup>2</sup>
Guillemot	2,026 (1,527, 2,566)	-	13,009 (11,546, 14,532)	-	15,035
Razorbill	21 (7, 37)	1,888 (1,460, 2,338)	493 (305, 694)	257 (126, 388)	2,659
Puffin	152 (101, 205)	-	592 (485, 698)	-	744
Manx shearwater	3,434 (2,870, 4,058)	27 (12, 45)	-	1,267 (1,124, 1,410)	4,728
Gannet	246 (158, 338)	715 (611, 831)	-	65 (34, 94)	1,026
Kittiwake	88 (54, 124)	1,944 (1,598, 2,275)	-	206 (154, 256)	2,238

<sup>1</sup> UCL = Upper 95% Credible Limit, LCL = Lower 95% Credible Limit

<sup>2</sup> In Section 22.3 the annual total estimates feed into the bottom right cell of each relevant annual EIA matrix, from which the full range of displacement estimates are derived.

#### Apportioned MSPs for SPA and SSSI Colony-Specific Assessments

15. NRW (A) and JNCC have requested that colony-specific displacement matrices be provided for the focal species as SPA and SSSI interests. This requires the MSPs in **Table 22D-2** to be apportioned by colony using the weightings calculated in **Appendix 22B: Marine Ornithology Colony Apportioning** as presented for the relevant species and focal SPAs / SSSIs in **Table 22D-3** below.
16. The apportioned MSP estimates thus calculated are presented in **Table 22D-4**.

Table 22D-3. Summary of the apportioning weightings used to derive each species' seasonal MSP for the SPAs and SSSIs under consideration

Species	Breeding season	Autumn migration	Non-breeding / Winter season	Spring migration
<b>Skomer, Skokholm and the Seas off Pembrokeshire (SSSP) SPA</b>				
Guillemot	0.487	-	0.026	-
Razorbill	0.639	0.019	0.011	0.019
Puffin	0.980	-	0.029	
Manx shearwater	0.983	0.443	-	0.443
Kittiwake	0.636	0.001	-	0.002
<b>Grassholm SPA</b>				
Gannet	0.969	0.144	-	0.119
<b>Castlemartin SSSI</b>				
Guillemot	0.360	-	0.018	-



Table 22D-4. Apportioned MSPs for the key colony-specific assessments

Species	Breeding season MSP (UCL – LCL)	Autumn migration MSP (UCL – LCL)	Non-breeding / Winter MSP (UCL – LCL)	Spring migration MSP (UCL – LCL)	Annual total
<b>Skomer, Skokholm and the Seas off Pembrokeshire (SSSP) SPA</b>					
Guillemot	986.66 (743.65, 1,249.64)	-	338.23 (300.20, 377.83)	-	1,324.90
Razorbill	13.42 (4.47, 23.64)	35.87 (27.74, 44.42)	5.42 (3.36, 7.63)	4.88 (2.39, 7.37)	59.60
Puffin	148.96 (98.98, 200.90)	-	17.17 (14.07, 20.24)		166.13
Manx shearwater	3,375.62 (2,821.21, 3,989.01)	11.96 (5.32, 19.93)	-	561.28 (497.93, 624.63)	3,948.86
Kittiwake	55.97 (34.34, 78.86)	1.94 (1.60, 2.28)	-	0.41 (0.31, 0.51)	58.32
<b>Grassholm SPA</b>					
Gannet	238.37 (153.10, 327.52)	102.96 (87.98, 119.66)	-	7.73 (4.05, 11.19)	349.07
<b>Castlemartin SSSI</b>					
Guillemot	729.36 (549.72, 923.76)	-	234.16 (207.83, 261.58)	-	963.52

### SNCB Guidance on Displacement and Mortality Rates

17. Furness *et al.* (2013) and Bradbury *et al.* (2014) provide potential vulnerability rankings for a range of species based on susceptibility to disturbance and habitat specialisation. This gives an indication of species more likely to be displaced and the potential consequences of that displacement (**Table 22D-5**).

Table 22D-5. 'Disturbance Susceptibility' and 'Habitat Specialisation' scores from Bradbury *et al.* (2014), expanded from Furness *et al.* (2013). (Species are ranked between 1 and 5, with higher scores indicating greater sensitivity to displacement)

Species	Disturbance susceptibility	Habitat specialisation
Guillemot	3	3
Razorbill	3	3
Puffin	2	3
Manx shearwater	1	1
Gannet	2	1
Kittiwake	2	2

18. The 'disturbance susceptibility' scores<sup>3</sup> can be used as a proxy for displacement rates where specific empirical evidence is lacking. The higher the score for a species, the more likely

<sup>3</sup> Note that these 'disturbance susceptibility' scores were more recently updated by Wade *et al.* (2016) to account for data uncertainty. This included differentiating between how species react to fixed structures (such as turbines) than to vessel and helicopter traffic; giving greater weight to permanent infrastructure when recalculating disturbance vulnerability scores. As a result, gannet, guillemot, razorbill and puffin increased in their disturbance susceptibility scores to permanent structures to 4, 4, 4 and 3 respectively.



individual birds of that species will display a displacement response. The ‘habitat specialisation’ score may give an indication of the resulting consequences for individual fitness. Species with a higher score in this regard (which have more specialised habitat or feeding requirements) may be anticipated to suffer higher associated mortality arising from displacement.

19. These scores are presented here as they are referenced in the SNCB guidance (SNCB, 2022) and could potentially be used to take a more risk-based approach in future to application of the displacement matrix methodology (rather than assume the same impact ranges across all species and seasons).
20. In the meantime, **Table 22D-6** provides the displacement and mortality rates advised for each species by NRW (A) and JNCC. These are used to define the ‘impact ranges’ shaded in grey on each of the annual displacement matrices provided in **Section 22.3** and the seasonal matrices in **Appendix 22D: Annex A – EIA Seasonal Displacement Matrices** and **Appendix 22D: Annex B - SPA Seasonal Displacement Matrices**.

*Table 22D-6. Suggested rates of displacement and resulting mortality*

Species	Percentage of birds displaced (%)	Breeding season mortality (%)	Non-breeding season mortality (%)
Guillemot	30-70	1-10	1-10
Razorbill	30-70	1-10	1-10
Puffin	30-70	1-10	1-10
Manx shearwater	10-50	1-10	1-10
Gannet	60-80	1-10	1-10
Kittiwake	Full displacement matrices are provided for information at the request of JNCC, however, no advice was received on the displacement rates to apply for this species nor how to undertake any assessment, including for cumulative assessment ( <b>Chapter 22, Table 22-5</b> ).		

21. NRW (A) also suggest that any short-term disturbance of seabirds which potentially might occur during the construction or decommissioning of the proposed Project could be estimated as 50% of operational displacement, halving the annual estimates provided in the matrices (NRW (A) advice notes of 17 February 2023 and 5 April 2023, **Chapter 22, Table 22-5**).
22. This proposal is noted, and these 50% construction / decommissioning estimates can be readily calculated from the matrices provided in this Appendix (simply halve whichever estimate is chosen). However, while it is straightforward to obtain such figures, there is no way of feeding them through into population modelling, given that the population viability analysis (PVA) tool commissioned by Natural England cannot, at present, account for differential annual mortalities<sup>4</sup>.

#### 22.2.2. SeabORD Modelling

23. SeabORD is an individual-based modelling method created by the Centre for Ecology and Hydrology (CEH) to model the energetic consequences to seabirds from displacement and barrier effects occurring in relation to offshore wind farms. It currently addresses the auk species and kittiwake and potentially could be rolled out to other species in future.

<sup>4</sup> That is, it is not possible to model construction / decommissioning mortality estimates in addition to the 30-year operational mortality estimates.





24. SeabORD has been used to model displacement impacts for two scenarios: (i) Llŷr Project-alone and (ii) a cumulative scenario of Llŷr, Erebus and White Cross demonstration wind farm projects together. Displacement impacts are modelled for the guillemot, razorbill and puffin populations of Skomer, Skokholm and the Seas off Pembrokeshire SPA, as well for the guillemot population at Castlemartin Range SSSI.
25. As JNCC have requested that kittiwake also be considered in respect of displacement, SeabORD has additionally been run for the kittiwake population at Skomer, Skokholm and the Seas off Pembrokeshire SPA in order that JNCC can consider these outputs against those available from the displacement matrices provided for kittiwake (**Table 22D-19** and **Table 22D-20**).
26. As there is insufficient GPS data for the focal species in this area, the 'distance decay' option has been utilised for this modelling (SeabORD vs1.3). 'Distance decay' assumes a decreasing number of birds at increasing distance from colony. Please see the detailed technical description of SeabORD modelling provided in **Appendix 22D: Annex C - SeabORD Displacement Modelling**, including the input parameters used.

## 22.3 Results

### 22.3.1. Displacement Matrices

27. Displacement matrices for total annual impacts (EIA) and colony-apportioned annual impacts (HRA) are presented for each focal species in **Table 22D-8** to **Table 22D-20**, with **Appendix 22D: Annex A – EIA Seasonal Displacement Matrices** giving the seasonal breakdown for each species in relation to overall EIA, and **Appendix 22D: Annex B – SPA Seasonal Displacement Matrices** providing the equivalent for colony-apportioned impacts. Each of the seasonal displacement matrices includes the upper and lower 95% credible limits (CL) on the MSP as well as for each of the resulting displacement estimates generated by the matrix.
28. The impact range highlighted in each matrix<sup>5</sup> (in grey) is that advised by the SNCBs (as set out in **Table 22D-6**).
29. The annual matrices also highlight where the estimated displacement mortalities equate to 1% or more of the baseline mortality of the reference population which is used as a 'threshold of significance' (**Table 22D-7**). This is shown in bold on each matrix to the right of the dividing line<sup>6</sup>.

*Table 22D-7. 1% annual baseline mortality of relevant populations used as 'threshold of significance'*

Species	EIA	SSSP SPA	Castlemartin SSSI	Grassholm SPA
Guillemot	699	27	14	NA
Razorbill	637	18	NA	NA
Puffin	1,394	32	NA	NA
Manx shearwater	2,368	1,183	NA	NA
Gannet	536	NA	NA	58
Kittiwake	1,331	4	NA	NA

<sup>5</sup> Impact ranges highlighted for all species apart from kittiwake where JNCC's recommended displacement rates are not provided. However, full displacement matrices are included for kittiwake for JNCC's information.

<sup>6</sup> 1% baseline mortality 'thresholds' are shown for all species including kittiwake.





## Guillemot

Table 22D-8. Guillemot displacement – total annual estimates for EIA

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	15.04	30.07	45.11	60.14	75.18	150.35	225.53	300.7	451.05	<b>751.75</b>	<b>1,202.8</b>	<b>1,503.5</b>
	20%	0.00	30.07	60.14	90.21	120.28	150.35	300.7	451.05	601.4	<b>902.1</b>	<b>1,503.5</b>	<b>2,405.6</b>	<b>3,007</b>
	30%	0.00	45.11	90.21	135.32	180.42	225.53	451.05	676.58	<b>902.1</b>	<b>1,353.15</b>	<b>2,255.25</b>	<b>3,608.4</b>	<b>4,510.5</b>
	40%	0.00	60.14	120.28	180.42	240.56	300.7	601.4	<b>902.1</b>	<b>1,202.8</b>	<b>1,804.2</b>	<b>3,007</b>	<b>4,811.2</b>	<b>6,014.0</b>
	50%	0.00	75.18	150.35	225.53	300.7	375.88	<b>751.75</b>	<b>1,127.63</b>	<b>1,503.5</b>	<b>2,255.25</b>	<b>3,758.75</b>	<b>6,014</b>	<b>7,517.5</b>
	60%	0.00	90.21	180.42	270.63	360.84	451.05	<b>902.1</b>	<b>1,353.15</b>	<b>1,804.2</b>	<b>2,706.3</b>	<b>4,510.5</b>	<b>7,216.8</b>	<b>9,021</b>
	70%	0.00	105.25	210.49	315.74	420.98	526.23	<b>1,052.45</b>	<b>1,578.68</b>	<b>2,104.9</b>	<b>3,157.35</b>	<b>5,262.25</b>	<b>8,419.6</b>	<b>10,524.5</b>
	80%	0.00	120.28	240.56	360.84	481.12	601.4	<b>1,202.8</b>	<b>1,804.2</b>	<b>2,405.6</b>	<b>3,608.4</b>	<b>6014</b>	<b>9,622.4</b>	<b>12,028</b>
	90%	0.00	135.32	270.63	405.95	541.26	676.58	<b>1,353.15</b>	<b>2,029.73</b>	<b>2,706.3</b>	<b>4,059.45</b>	<b>6,765.75</b>	<b>10,825.2</b>	<b>13,531.5</b>
	100%	0.00	150.35	300.7	451.05	601.4	<b>751.75</b>	<b>1,503.5</b>	<b>2,255.25</b>	<b>3,007</b>	<b>4,510.5</b>	<b>7,517.5</b>	<b>12,028</b>	<b>15,035</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer indicating where mortalities > 1% of EIA annual baseline mortality rates (in bold and to the right of the dividing line)



Table 22D-9. Guillemot displacement – total annual estimates for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	1.33	2.65	3.98	5.30	6.62	13.25	19.87	26.50	<b>39.75</b>	<b>66.25</b>	<b>105.99</b>	<b>132.49</b>
	20%	0.00	2.65	5.30	7.95	10.60	13.25	26.50	<b>39.75</b>	<b>53.00</b>	<b>79.49</b>	<b>132.49</b>	<b>211.98</b>	<b>264.98</b>
	30%	0.00	3.98	7.95	11.92	15.90	19.87	<b>39.75</b>	<b>59.62</b>	<b>79.49</b>	<b>119.24</b>	<b>198.73</b>	<b>317.98</b>	<b>397.47</b>
	40%	0.00	5.30	10.60	15.90	21.20	26.50	<b>53.00</b>	<b>79.49</b>	<b>105.99</b>	<b>158.99</b>	<b>264.98</b>	<b>423.97</b>	<b>529.96</b>
	50%	0.00	6.62	13.25	19.87	26.50	<b>33.12</b>	<b>66.25</b>	<b>99.37</b>	<b>132.49</b>	<b>198.73</b>	<b>331.22</b>	<b>529.96</b>	<b>662.45</b>
	60%	0.00	7.95	15.90	23.85	<b>31.80</b>	<b>39.75</b>	<b>79.49</b>	<b>119.24</b>	<b>158.99</b>	<b>238.48</b>	<b>397.47</b>	<b>635.95</b>	<b>794.94</b>
	70%	0.00	9.28	18.55	<b>27.82</b>	<b>37.10</b>	<b>46.37</b>	<b>92.74</b>	<b>139.12</b>	<b>185.49</b>	<b>278.23</b>	<b>463.71</b>	<b>741.94</b>	<b>927.43</b>
	80%	0.00	10.60	21.20	<b>31.80</b>	<b>42.40</b>	<b>53.00</b>	<b>105.99</b>	<b>158.99</b>	<b>211.98</b>	<b>317.98</b>	<b>529.96</b>	<b>847.93</b>	<b>1,059.92</b>
	90%	0.00	11.92	23.85	<b>35.77</b>	<b>47.70</b>	<b>59.62</b>	<b>119.24</b>	<b>178.86</b>	<b>238.48</b>	<b>357.72</b>	<b>596.20</b>	<b>953.93</b>	<b>1,192.41</b>
	100%	0.00	13.25	26.50	<b>39.75</b>	<b>53.00</b>	<b>66.25</b>	<b>132.49</b>	<b>198.73</b>	<b>264.98</b>	<b>397.47</b>	<b>662.45</b>	<b>1,059.92</b>	<b>1,324.90</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer (as apportioned to Skomer, Skokholm and Seas Off Pembrokeshire SPA), indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



Table 22D-10. Guillemot displacement– total annual estimates for Castlemartin range SSSI

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	0.96	1.93	2.89	3.85	4.82	9.64	<b>14.45</b>	<b>19.27</b>	<b>28.91</b>	<b>48.18</b>	<b>77.08</b>	<b>96.35</b>
	20%	0.00	1.93	3.85	5.78	7.71	9.64	<b>19.27</b>	<b>28.91</b>	<b>38.54</b>	<b>57.81</b>	<b>96.35</b>	<b>154.16</b>	<b>192.70</b>
	30%	0.00	2.89	5.78	8.67	11.56	<b>14.45</b>	<b>28.91</b>	<b>43.36</b>	<b>57.81</b>	<b>86.72</b>	<b>144.53</b>	<b>231.25</b>	<b>289.06</b>
	40%	0.00	3.85	7.71	11.56	<b>15.42</b>	<b>19.27</b>	<b>38.54</b>	<b>57.81</b>	<b>77.08</b>	<b>115.62</b>	<b>192.70</b>	<b>308.33</b>	<b>385.41</b>
	50%	0.00	4.82	9.64	<b>14.45</b>	<b>19.27</b>	<b>24.09</b>	<b>48.18</b>	<b>72.26</b>	<b>96.35</b>	<b>144.53</b>	<b>240.88</b>	<b>385.41</b>	<b>481.76</b>
	60%	0.00	5.78	11.56	<b>17.34</b>	<b>23.13</b>	<b>28.91</b>	<b>57.81</b>	<b>86.72</b>	<b>115.62</b>	<b>173.43</b>	<b>289.06</b>	<b>462.49</b>	<b>578.11</b>
	70%	0.00	6.75	13.49	<b>20.23</b>	<b>26.98</b>	<b>33.72</b>	<b>67.45</b>	<b>101.17</b>	<b>134.89</b>	<b>202.34</b>	<b>337.23</b>	<b>539.57</b>	<b>674.47</b>
	80%	0.00	7.71	<b>15.42</b>	<b>23.13</b>	<b>30.83</b>	<b>38.54</b>	<b>77.08</b>	<b>115.62</b>	<b>154.16</b>	<b>231.25</b>	<b>385.41</b>	<b>616.65</b>	<b>770.82</b>
	90%	0.00	8.67	<b>17.34</b>	<b>26.02</b>	<b>34.69</b>	<b>43.36</b>	<b>86.72</b>	<b>130.08</b>	<b>173.43</b>	<b>260.15</b>	<b>433.59</b>	<b>693.74</b>	<b>867.17</b>
	100%	0.00	9.64	<b>19.27</b>	<b>28.91</b>	<b>38.54</b>	<b>48.18</b>	<b>96.35</b>	<b>144.53</b>	<b>192.70</b>	<b>289.06</b>	<b>481.76</b>	<b>770.82</b>	<b>963.52</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer (as apportioned to Castlemartin Range SSSI), indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



## Razorbill

Table 22D-11. Razorbill displacement – total annual estimates for EIA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	2.66	5.32	7.98	10.64	13.3	26.59	39.89	53.18	79.77	132.95	212.72	265.9
	20%	0.00	5.32	10.64	15.95	21.27	26.59	53.18	79.77	106.36	159.54	265.9	425.44	531.8
	30%	0.00	7.98	15.95	23.93	31.91	39.89	79.77	119.66	159.54	239.31	398.85	<b>638.16</b>	<b>797.7</b>
	40%	0.00	10.64	21.27	31.91	42.54	53.18	106.36	159.54	212.72	319.08	531.8	<b>850.88</b>	<b>1,063.6</b>
	50%	0.00	13.3	26.59	39.89	53.18	66.48	132.95	199.43	265.9	398.85	<b>664.75</b>	<b>1,063.6</b>	<b>1,329.5</b>
	60%	0.00	15.95	31.91	47.86	63.82	79.77	159.54	239.31	319.08	478.62	<b>797.7</b>	<b>1,276.32</b>	<b>1,595.4</b>
	70%	0.00	18.61	37.23	55.84	74.45	93.07	186.13	279.2	372.26	558.39	<b>930.65</b>	<b>1,489.04</b>	<b>1,861.3</b>
	80%	0.00	21.27	42.54	63.82	85.09	106.36	212.72	319.08	425.44	<b>638.16</b>	<b>1,063.6</b>	<b>1,701.76</b>	<b>2,127.2</b>
	90%	0.00	23.93	47.86	71.79	95.72	119.66	239.31	358.97	478.62	<b>717.93</b>	<b>1,196.55</b>	<b>1,914.48</b>	<b>2,393.1</b>
	100%	0.00	26.59	53.18	79.77	106.36	132.95	265.9	398.85	531.8	<b>797.7</b>	<b>1,329.5</b>	<b>2,127.2</b>	<b>2,659</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer, indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



Table 22D-12. Razorbill displacement – total annual estimates for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	0.06	0.12	0.18	0.24	0.30	0.60	0.89	1.19	1.79	2.98	4.77	5.96
	20%	0.00	0.12	0.24	0.36	0.48	0.60	1.19	1.79	2.38	3.58	5.96	9.54	11.92
	30%	0.00	0.18	0.36	0.54	0.72	0.89	1.79	2.68	3.58	5.36	8.94	14.30	17.88
	40%	0.00	0.24	0.48	0.72	0.95	1.19	2.38	3.58	4.77	7.15	11.92	<b>19.07</b>	<b>23.84</b>
	50%	0.00	0.30	0.60	0.89	1.19	1.49	2.98	4.47	5.96	8.94	14.90	<b>23.84</b>	<b>29.80</b>
	60%	0.00	0.36	0.72	1.07	1.43	1.79	3.58	5.36	7.15	10.73	17.88	<b>28.61</b>	<b>35.76</b>
	70%	0.00	0.42	0.83	1.25	1.67	2.09	4.17	6.26	8.34	12.52	<b>20.86</b>	<b>33.37</b>	<b>41.72</b>
	80%	0.00	0.48	0.95	1.43	1.91	2.38	4.77	7.15	9.54	14.30	<b>23.84</b>	<b>38.14</b>	<b>47.68</b>
	90%	0.00	0.54	1.07	1.61	2.15	2.68	5.36	8.05	10.73	16.09	<b>26.82</b>	<b>42.91</b>	<b>53.64</b>
	100%	0.00	0.60	1.19	1.79	2.38	2.98	5.96	8.94	11.92	17.88	<b>29.80</b>	<b>47.68</b>	<b>59.60</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer (as apportioned to Skomer, Skokholm and Seas Off Pembrokeshire SPA), indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



## Puffin

Table 22D-13. Puffin displacement – total annual estimates for EIA

Puffin		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	0.74	1.49	2.23	2.98	3.72	7.44	11.16	14.88	22.32	37.2	59.52	74.4
	20%	0.00	1.49	2.98	4.46	5.95	7.44	14.88	22.32	29.76	44.64	74.4	119.04	148.8
	30%	0.00	2.23	4.46	6.7	8.93	11.16	22.32	33.48	44.64	66.96	111.6	178.56	223.2
	40%	0.00	2.98	5.95	8.93	11.90	14.88	29.76	44.64	59.52	89.28	148.8	238.08	297.6
	50%	0.00	3.72	7.44	11.16	14.88	18.6	37.2	55.8	74.4	111.6	186	297.6	372
	60%	0.00	4.46	8.93	13.39	17.86	22.32	44.64	66.96	89.28	133.92	223.2	357.12	446.4
	70%	0.00	5.21	10.42	15.62	20.83	26.04	52.08	78.12	104.16	156.24	260.4	416.64	520.8
	80%	0.00	5.95	11.90	17.86	23.81	29.76	59.52	89.28	119.04	178.56	297.6	476.16	595.2
	90%	0.00	6.7	13.39	20.09	26.78	33.48	66.96	100.44	133.92	200.88	334.8	535.68	669.6
	100%	0.00	7.44	14.88	22.32	29.76	37.2	74.4	111.6	148.8	223.2	372	595.2	744

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer, indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



Table 22D-14. Puffin displacement – total annual estimates for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Puffin		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	0.17	0.33	0.50	0.67	0.83	1.66	2.49	3.32	4.98	8.31	13.29	16.61
	20%	0.00	0.33	0.67	1.00	1.33	1.66	3.32	4.98	6.65	9.97	16.61	26.58	<b>33.23</b>
	30%	0.00	0.50	1.00	1.50	1.99	2.49	4.98	7.48	9.97	14.95	24.92	<b>39.87</b>	<b>49.84</b>
	40%	0.00	0.67	1.33	1.99	2.66	3.32	6.65	9.97	13.29	19.94	<b>33.23</b>	<b>53.16</b>	<b>66.45</b>
	50%	0.00	0.83	1.66	2.49	3.32	4.15	8.31	12.46	16.61	24.92	<b>41.53</b>	<b>66.45</b>	<b>83.06</b>
	60%	0.00	1.00	1.99	2.99	3.99	4.98	9.97	14.95	19.94	29.90	<b>49.84</b>	<b>79.74</b>	<b>99.68</b>
	70%	0.00	1.16	2.33	3.49	4.65	5.82	11.63	17.44	23.26	<b>34.89</b>	<b>58.15</b>	<b>93.03</b>	<b>116.29</b>
	80%	0.00	1.33	2.66	3.99	5.32	6.65	13.29	19.94	26.58	<b>39.87</b>	<b>66.45</b>	<b>106.32</b>	<b>132.90</b>
	90%	0.00	1.50	2.99	4.49	5.98	7.48	14.95	22.43	29.90	<b>44.85</b>	<b>74.76</b>	<b>119.61</b>	<b>149.52</b>
	100%	0.00	1.66	3.32	4.98	6.65	8.31	16.61	24.92	<b>33.23</b>	<b>49.84</b>	<b>83.06</b>	<b>132.90</b>	<b>166.13</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer (as apportioned to Skomer, Skokholm and Seas Off Pembrokeshire SPA), indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)





## Manx Shearwater

Table 22D-15. Manx shearwater displacement – total annual estimates for EIA

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	4.728	9.456	14.184	18.912	23.64	47.28	70.92	94.56	141.84	236.4	378.24	472.8
	20%	0.00	9.456	18.912	28.368	37.824	47.28	94.56	141.84	189.12	283.68	472.8	756.48	945.6
	30%	0.00	14.184	28.368	42.552	56.736	70.92	141.84	212.76	283.68	425.52	709.2	1,134.72	1,418.4
	40%	0.00	18.912	37.824	56.736	75.648	94.56	189.12	283.68	378.24	567.36	945.6	1,512.96	1,891.2
	50%	0.00	23.64	47.28	70.92	94.56	118.2	236.4	354.6	472.8	709.2	1,182	1,891.2	2,364
	60%	0.00	28.368	56.736	85.104	113.472	141.84	283.68	425.52	567.36	851.04	1,418.4	2,269.44	<b>2,836.8</b>
	70%	0.00	33.096	66.192	99.288	132.384	165.48	330.96	496.44	661.92	992.88	1,654.8	<b>2,647.68</b>	<b>3,309.6</b>
	80%	0.00	37.824	75.648	113.472	151.296	189.12	378.24	567.36	756.48	1,134.72	1,891.2	<b>3,025.92</b>	<b>3,782.4</b>
	90%	0.00	42.552	85.104	127.656	170.208	212.76	425.52	638.28	851.04	1,276.56	2,127.6	<b>3,404.16</b>	<b>4,255.2</b>
	100%	0.00	47.28	94.56	141.84	189.12	236.4	472.8	709.2	945.6	1,418.4	2,364	<b>3,782.4</b>	<b>4,728</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer, indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



Table 22D-16. Manx shearwater displacement – total annual estimates for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	3.97	7.94	11.91	15.87	19.84	39.69	59.53	79.37	119.06	198.43	317.48	396.85
	20%	0.00	7.94	15.87	23.81	31.75	39.69	79.37	119.06	158.74	238.11	396.85	634.96	793.70
	30%	0.00	11.91	23.81	35.72	47.62	59.53	119.06	178.58	238.11	357.17	595.28	952.45	<b>1,190.56</b>
	40%	0.00	15.87	31.75	47.62	63.50	79.37	158.74	238.11	317.48	476.22	793.70	<b>1,269.93</b>	<b>1,587.41</b>
	50%	0.00	19.84	39.69	59.53	79.37	99.21	198.43	297.64	396.85	595.28	992.13	<b>1,587.41</b>	<b>1,984.26</b>
	60%	0.00	23.81	47.62	71.43	95.25	119.06	238.11	357.17	476.22	714.34	<b>1,190.56</b>	<b>1,904.89</b>	<b>2,381.12</b>
	70%	0.00	27.78	55.56	83.34	111.12	138.90	277.80	416.70	555.59	833.39	<b>1,388.98</b>	<b>2,222.37</b>	<b>2,777.97</b>
	80%	0.00	31.75	63.50	95.25	126.99	158.74	317.48	476.22	634.96	952.45	<b>1,587.41</b>	<b>2,539.86</b>	<b>3,174.82</b>
	90%	0.00	35.72	71.43	107.15	142.87	178.58	357.17	535.75	714.34	1,071.50	<b>1,785.84</b>	<b>2,857.34</b>	<b>3,571.67</b>
	100%	0.00	39.69	79.37	119.06	158.74	198.43	396.85	595.28	793.70	<b>1,190.56</b>	<b>1,984.26</b>	<b>3,174.82</b>	<b>3,968.52</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer (as apportioned to Skomer, Skokholm and Seas Off Pembrokeshire SPA), indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



## Gannet

Table 22D-17. Gannet displacement – total annual estimates for EIA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	1.03	2.05	3.08	4.10	5.13	10.26	15.39	20.52	30.78	51.3	82.08	102.6
	20%	0.00	2.05	4.10	6.16	8.21	10.26	20.52	30.78	41.04	61.56	102.6	164.16	205.2
	30%	0.00	3.08	6.16	9.23	12.31	15.39	30.78	46.17	61.56	92.34	153.9	246.24	307.8
	40%	0.00	4.10	8.21	12.31	16.42	20.52	41.04	61.56	82.08	123.12	205.2	328.32	410.4
	50%	0.00	5.13	10.26	15.39	20.52	25.65	51.3	76.95	102.6	153.9	256.5	410.4	513
	60%	0.00	6.16	12.31	18.47	24.62	30.78	61.56	92.34	123.12	184.68	307.8	492.48	<b>615.6</b>
	70%	0.00	7.18	14.36	21.55	28.73	35.91	71.82	107.73	143.64	215.46	359.1	<b>574.56</b>	<b>718.2</b>
	80%	0.00	8.21	16.42	24.62	32.83	41.04	82.08	123.12	164.16	246.24	410.4	<b>656.64</b>	<b>820.8</b>
	90%	0.00	9.23	18.47	27.70	36.94	46.17	92.34	138.51	184.68	277.02	461.7	<b>738.72</b>	<b>923.4</b>
	100%	0.00	10.26	20.52	30.78	41.04	51.3	102.6	153.9	205.2	307.8	513	<b>820.8</b>	<b>1,026</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer, indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



Table 22D-18. Gannet displacement – total annual estimates for Grassholm SPA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10%	0.00	0.35	0.70	1.05	1.40	1.75	3.49	5.24	6.98	10.47	17.45	27.93	34.91
	20%	0.00	0.70	1.40	2.09	2.79	3.49	6.98	10.47	13.96	20.94	34.91	55.85	<b>69.81</b>
	30%	0.00	1.05	2.09	3.14	4.19	5.24	10.47	15.71	20.94	31.42	52.36	<b>83.78</b>	<b>104.72</b>
	40%	0.00	1.40	2.79	4.19	5.59	6.98	13.96	20.94	27.93	41.89	<b>69.81</b>	<b>111.70</b>	<b>139.63</b>
	50%	0.00	1.75	3.49	5.24	6.98	8.73	17.45	26.18	34.91	52.36	<b>87.27</b>	<b>139.63</b>	<b>174.54</b>
	60%	0.00	2.09	4.19	6.28	8.38	10.47	20.94	31.42	41.89	<b>62.83</b>	<b>104.72</b>	<b>167.55</b>	<b>209.44</b>
	70%	0.00	2.44	4.89	7.33	9.77	12.22	24.43	36.65	48.87	<b>73.31</b>	<b>122.17</b>	<b>195.48</b>	<b>244.35</b>
	80%	0.00	2.79	5.59	8.38	11.17	13.96	27.93	41.89	55.85	<b>83.78</b>	<b>139.63</b>	<b>223.40</b>	<b>279.26</b>
	90%	0.00	3.14	6.28	9.43	12.57	15.71	31.42	47.12	<b>62.83</b>	<b>94.25</b>	<b>157.08</b>	<b>251.33</b>	<b>314.16</b>
	100%	0.00	3.49	6.98	10.47	13.96	17.45	34.91	52.36	<b>69.81</b>	<b>104.72</b>	<b>174.54</b>	<b>279.26</b>	<b>349.07</b>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer (as apportioned to Grassholm SPA), indicating where mortalities > 1% of SPA baseline mortality rates (in bold and to the right of the dividing line)



## Kittiwake

Table 22D-19. Kittiwake displacement – total annual estimates for EIA (information presented for JNCC)

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% of all birds on-site)		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	0%	0	0	0	0	0	0	0	0	0	0	0	0	0
	10%	0	2.24	4.48	6.71	8.95	11.19	22.38	33.57	44.76	67.14	111.9	179.04	223.8
	20%	0	4.48	8.95	13.43	17.9	22.38	44.76	67.14	89.52	134.28	223.8	358.08	447.6
	30%	0	6.71	13.43	20.14	26.86	33.57	67.14	100.71	134.28	201.42	335.7	537.12	671.4
	40%	0	8.95	17.9	26.86	35.81	44.76	89.52	134.28	179.04	268.56	447.6	716.16	895.2
	50%	0	11.19	22.38	33.57	44.76	55.95	111.9	167.85	223.8	335.7	559.5	895.2	1,119
	60%	0	13.43	26.86	40.28	53.71	67.14	134.28	201.42	268.56	402.84	671.4	1,074.24	<b>1,342.8</b>
	70%	0	15.67	31.33	47	62.66	78.33	156.66	234.99	313.32	469.98	783.3	1,253.28	<b>1,566.6</b>
	80%	0	17.9	35.81	53.71	71.62	89.52	179.04	268.56	358.08	537.12	895.2	<b>1,432.32</b>	<b>1,790.4</b>
	90%	0	20.14	40.28	60.43	80.57	100.71	201.42	302.13	402.84	604.26	1,007.1	<b>1,611.36</b>	<b>2,014.2</b>
	100%	0	22.38	44.76	67.14	89.52	111.9	223.8	335.7	447.6	671.4	1,119	<b>1,790.4</b>	<b>2,238.0</b>

Mortalities > 1% of SPA baseline mortality rates are shown in bold to the right of the dividing line



Table 22D-20. Kittiwake displacement – total annual estimates for Skomer, Skokholm and Seas Off Pembrokeshire SPA (information presented for JNCC)

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0	0	0	0	0	0	0	0	0	0	0	0	0
	10%	0	0.06	0.11	0.18	0.23	0.29	0.58	0.88	1.17	1.75	2.92	4.67	5.83
	20%	0	0.11	0.23	0.35	0.47	0.58	1.17	1.75	2.34	3.5	5.83	9.33	11.66
	30%	0	0.18	0.35	0.52	0.69	0.88	1.75	2.63	3.5	5.25	8.75	14	17.49
	40%	0	0.23	0.47	0.69	0.94	1.17	2.34	3.5	4.67	7	11.66	18.66	23.33
	50%	0	0.29	0.58	0.88	1.17	1.46	2.92	4.38	5.83	8.75	14.58	23.33	29.16
	60%	0	0.35	0.69	1.05	1.4	1.75	3.5	5.25	7	10.49	17.49	27.99	35
	70%	0	0.4	0.82	1.23	1.63	2.04	4.09	6.12	8.17	12.25	20.41	32.66	40.83
	80%	0	0.47	0.94	1.4	1.86	2.34	4.67	7	9.33	14	23.33	37.32	46.66
	90%	0	0.52	1.05	1.57	2.09	2.63	5.25	7.88	10.49	15.74	26.25	42	52.49
100%	0	0.58	1.17	1.75	2.34	2.92	5.83	8.75	11.66	17.49	29.16	46.66	58.32	

Mortalities > 1% of SPA baseline mortality rates are shown in bold to the right of the dividing line



### 22.3.2. *SeabORD Outputs*

30. SeabORD model outputs for guillemot, razorbill, puffin and kittiwake populations for scenarios (i) Llŷr Project-alone and (ii) Llŷr, Erebus and White Cross together, are presented in **Appendix 22D: Annex C – SeabORD Displacement Modelling**.

## 22.4 Summary of Displacement Impacts

31. For the proposed Project (when considered in isolation), the SNCB-advised range of potential displacement impacts (as derived from the matrix approach), are below 1% annual baseline mortalities for all species assessed, except guillemot (with reference to the annual matrices presented in the preceding section and to **Table 22D-7** for the thresholds of concern).
32. For guillemot, the impact scenarios being taken forward for population modelling (in respect of both EIA and colony-specific requirements) are calculated in **Appendix 22E: Marine Ornithology Project Alone and Cumulative Impact Scenarios** with the process and outputs from the population modelling itself reported in **Appendix 22F: Marine Ornithology Population Modelling**.
33. For puffin, the Llŷr Project-alone and cumulative outputs from SeabORD<sup>7</sup> (for Llŷr, Erebus and White Cross together) will also be taken forward into the population modelling. In this regard, the population consequences of displacement impact on puffin are also modelled in **Appendix 22F – Marine Ornithology Population Modelling**. This work addresses the SeabORD outputs for puffin where the Llŷr Project-alone scenario approaches the identified threshold (**Table 22D-7**), and the cumulative scenario (Llŷr, Erebus and White Cross) exceeds it.

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<sup>7</sup> Predicted adult and chick displacement mortalities, the former equating to an impact on adult survival rates and the latter as an impact on productivity.





## 22.5 Appendix 22D: Annex A – EIA Seasonal Displacement Matrices

### 22.5.1 Guillemot

Annex A, Table 22D-1. Guillemot displacement – breeding season estimates for EIA

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	2.03 (1.53, 2.57)	4.05 (3.05, 5.13)	6.08 (4.58, 7.70)	8.10 (6.11, 10.26)	10.13 (7.64, 12.83)	20.26 (15.27, 25.66)	30.39 (22.91, 38.49)	40.52 (30.54, 51.32)	60.78 (45.81, 76.98)	101.30 (76.35, 128.30)	162.08 (122.16, 205.28)	202.60 (152.70, 256.60)
	20%	0.00 (0.00, 0.00)	4.05 (3.05, 5.13)	8.10 (6.11, 10.26)	12.16 (9.16, 15.40)	16.21 (12.22, 20.53)	20.26 (15.27, 25.66)	40.52 (30.54, 51.32)	60.78 (45.81, 76.98)	81.04 (61.08, 102.64)	121.56 (91.62, 153.96)	202.60 (152.70, 256.60)	324.16 (244.32, 410.56)	405.20 (305.40, 513.20)
	30%	0.00 (0.00, 0.00)	6.08 (4.58, 7.70)	12.16 (9.16, 15.40)	18.23 (13.74, 23.09)	24.31 (18.32, 30.79)	30.39 (22.91, 38.49)	60.78 (45.81, 76.98)	91.17 (68.72, 115.47)	121.56 (91.62, 153.96)	182.34 (137.43, 230.94)	303.90 (229.05, 384.90)	486.24 (366.48, 615.84)	607.80 (458.10, 769.80)
	40%	0.00 (0.00, 0.00)	8.10 (6.11, 10.26)	16.21 (12.22, 20.53)	24.31 (18.32, 30.79)	32.42 (24.43, 41.06)	40.52 (30.54, 51.32)	81.04 (61.08, 102.64)	121.56 (91.62, 153.96)	162.08 (122.16, 205.28)	243.12 (183.24, 307.92)	405.20 (305.40, 513.20)	648.32 (488.64, 821.12)	810.40 (610.80, 1,026.40)
	50%	0.00 (0.00, 0.00)	10.13 (7.64, 12.83)	20.26 (15.27, 25.66)	30.39 (22.90, 38.49)	40.52 (30.54, 51.32)	50.65 (38.18, 64.15)	101.30 (76.35, 128.30)	151.95 (114.52, 192.45)	202.60 (152.70, 256.60)	303.90 (229.05, 384.90)	506.50 (381.75, 641.50)	810.40 (610.80, 1,026.40)	1,013.00 (763.50, 1,283.00)
	60%	0.00 (0.00, 0.00)	12.16 (9.16, 15.40)	24.31 (18.32, 30.79)	36.47 (27.49, 46.19)	48.62 (36.65, 61.58)	60.78 (45.81, 76.98)	121.56 (91.62, 153.96)	182.34 (137.43, 230.94)	243.12 (183.24, 307.92)	364.68 (274.86, 461.88)	607.80 (458.10, 769.80)	972.48 (732.96, 1,231.68)	1,215.60 (916.20, 1,539.60)
	70%	0.00 (0.00, 0.00)	14.18 (10.69, 17.96)	28.36 (21.38, 35.92)	42.55 (32.07, 53.89)	56.73 (42.76, 71.85)	70.91 (53.45, 89.81)	141.82 (106.89, 179.62)	212.73 (160.34, 269.43)	283.64 (213.78, 359.24)	425.46 (320.67, 538.86)	709.10 (534.45, 898.10)	1,134.56 (855.12, 1,436.96)	1,418.20 (1,068.90, 1,796.20)



Guillemot		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
80%		0.00 (0.00, 0.00)	16.21 (12.22, 20.53)	32.42 (24.43, 41.06)	48.62 (36.65, 61.58)	64.83 (48.86, 82.11)	81.04 (61.08, 102.64)	162.08 (122.16, 205.28)	243.12 (183.24, 307.92)	324.16 (244.32, 410.56)	486.24 (366.48, 615.84)	810.40 (610.80, 1,026.40)	1,296.64 (977.28, 1,642.24)	1,620.80 (1,221.60, 2,052.80)
90%		0.00 (0.00, 0.00)	18.23 (13.74, 23.09)	36.47 (27.49, 46.19)	54.70 (41.23, 69.28)	72.94 (54.97, 92.38)	91.17 (68.72, 115.47)	182.34 (137.43, 230.94)	273.51 (206.14, 346.41)	364.68 (274.86, 461.88)	547.02 (412.29, 692.82)	911.70 (687.15, 1,154.70)	1,458.72 (1,099.44, 1,847.52)	1,823.40 (1,374.30, 2,309.40)
100%		0.00 (0.00, 0.00)	20.26 (15.27, 25.66)	40.52 (30.54, 51.32)	60.78 (45.81, 76.98)	81.04 (61.08, 102.64)	101.30 (68.72, 115.47)	202.60 (152.70, 256.60)	303.90 (229.05, 384.90)	405.20 (305.40, 513.20)	607.80 (458.10, 769.80)	1,013.00 (763.50, 1,283.00)	1,620.80 (1,221.60, 2,052.80)	2,026.00 (1,527.00, 2,566.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-2. Guillemot displacement – non-breeding season estimates for EIA

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	13.01 (11.55, 14.53)	26.02 (23.09, 29.06)	39.03 (34.64, 43.60)	52.04 (46.18, 58.13)	65.04 (57.73, 72.66)	130.09 (115.46, 145.32)	195.14 (173.19, 217.98)	260.18 (230.92, 290.64)	390.27 (346.38, 435.96)	650.45 (577.30, 726.60)	1,040.72 (923.68, 1,162.56)	1,300.90 (1,154.60, 1,453.20)
	20%	0.00 (0.00, 0.00)	26.02 (23.09, 29.06)	52.04 (46.18, 58.13)	78.05 (69.28, 87.19)	104.07 (92.37, 116.26)	130.09 (115.46, 145.32)	260.18 (230.92, 290.64)	390.27 (346.38, 435.96)	520.36 (461.84, 581.28)	780.54 (692.76, 871.92)	1,300.90 (1,154.60, 1,453.20)	2,081.44 (1,847.36, 2,325.12)	2,601.80 (2,309.20, 2,906.40)
	30%	0.00 (0.00, 0.00)	39.03 (34.64, 43.60)	78.05 (69.28, 87.19)	117.08 (103.91, 130.79)	156.11 (138.55, 174.38)	195.14 (173.19, 217.98)	390.27 (346.38, 435.96)	585.41 (519.57, 653.94)	780.54 (692.76, 871.92)	1,170.81 (1,039.14, 1,307.88)	1,951.35 (1,731.90, 2,179.80)	3,122.16 (2,771.04, 3,487.68)	3,902.70 (3,463.80, 4,359.60)
	40%	0.00 (0.00, 0.00)	52.04 (46.18, 58.13)	104.07 (92.37, 116.26)	156.11 (138.55, 174.38)	208.14 (184.74, 232.51)	260.18 (230.92, 290.64)	520.36 (461.84, 581.28)	780.54 (692.76, 871.92)	1,040.72 (923.68, 1,162.56)	1,561.08 (1,385.52, 1,743.84)	2,601.80 (2,309.20, 2,906.40)	4,162.88 (3,694.72, 4,650.24)	5,203.60 (4,618.40, 5,812.80)
	50%	0.00 (0.00, 0.00)	65.04 (57.73, 72.66)	130.09 (115.46, 145.32)	195.14 (173.19, 217.98)	260.18 (230.92, 290.64)	325.22 (288.65, 363.30)	650.45 (577.30, 726.60)	975.68 (865.95, 1,089.90)	1,300.90 (1,154.60, 1,453.20)	1,951.35 (1,731.90, 2,179.80)	3,252.25 (2,886.50, 3,633.00)	5,203.60 (4,618.40, 5,812.80)	6,504.50 (5,773.00, 7,266.00)
	60%	0.00 (0.00, 0.00)	78.05 (69.28, 87.19)	156.11 (138.55, 174.38)	234.16 (207.83, 261.58)	312.22 (277.10, 348.77)	390.27 (346.38, 435.96)	780.54 (692.76, 871.92)	1,170.81 (1,039.14, 1,307.88)	1,561.08 (1,385.52, 1,743.84)	2,341.62 (2,078.28, 2,615.76)	3,902.70 (3,463.80, 4,359.60)	6,244.32 (5,542.08, 6,975.36)	7,805.40 (6,927.60, 8,719.20)
	70%	0.00 (0.00, 0.00)	91.06 (80.82, 101.72)	182.13 (161.64, 203.45)	273.19 (242.47, 305.17)	364.25 (323.29, 406.90)	455.32 (404.11, 508.62)	910.63 (808.22, 1,017.24)	1,365.95 (1,212.33, 1,525.86)	1,821.26 (1,616.44, 2,034.48)	2,731.89 (2,424.66, 3,051.72)	4,553.15 (4,041.10, 5,086.20)	7,285.04 (6,465.76, 8,137.92)	9,106.30 (8,082.20, 10,172.40)
	80%	0.00 (0.00, 0.00)	104.07 (92.37, 116.26)	208.14 (184.74, 232.51)	312.22 (277.10, 348.77)	416.29 (369.47, 465.02)	520.36 (461.84, 581.28)	1,040.72 (923.68, 1,162.56)	1,561.08 (1,385.52, 1,743.84)	2,081.44 (1,847.36, 2,325.12)	3,122.16 (2,771.04, 3,487.68)	5,203.60 (4,618.40, 5,812.80)	8,325.76 (7,389.44, 9,300.48)	10,407.20 (9,236.80, 11,625.60)



Guillemot NON- BREEDING SEASON	Mortality level (% of displaced birds at risk of mortality)												
	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%	0.00 (0.00, 0.00)	117.08 (103.91, 130.79)	234.16 (207.83, 261.58)	351.24 (311.74, 392.36)	468.32 (415.66, 523.15)	585.41 (519.57, 653.94)	1,170.81 (1,039.14, 1,307.88)	1,756.21 (1,558.71, 1,961.82)	2,341.62 (2,078.28, 2,615.76)	3,512.43 (3,117.42, 3,923.64)	5,854.05 (5,195.70, 6,539.40)	9,366.48 (8,313.12, 10,463.04)	11,708.10 (10,391.40, 13,078.80)
100%	0.00 (0.00, 0.00)	130.09 (115.46, 145.32)	260.18 (230.92, 290.64)	390.27 (346.38, 435.96)	520.36 (461.84, 581.28)	650.45 (577.30, 726.60)	1,300.90 (1,154.60, 1,453.20)	1,951.35 (1,731.90, 2,179.80)	2,601.80 (2,309.20, 2,906.40)	3,902.70 (3,463.80, 4,359.60)	6,504.50 (5,773.00, 7,266.00)	10,407.20 (9,236.80, 11,625.60)	13,009.00 (11,546.00, 14,532.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.2 Razorbill

Annex A, Table 22D-3. Razorbill displacement – breeding season estimates for EIA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.02 (0.01, 0.04)	0.04 (0.01, 0.07)	0.06 (0.02, 0.11)	0.08 (0.03, 0.15)	0.11 (0.04, 0.19)	0.21 (0.07, 0.37)	0.32 (0.11, 0.56)	0.42 (0.14, 0.74)	0.63 (0.21, 1.11)	1.05 (0.35, 1.85)	1.68 (0.56, 2.96)	2.10 (0.70, 3.70)
	20%	0.00 (0.00, 0.00)	0.04 (0.01, 0.07)	0.08 (0.03, 0.15)	0.13 (0.04, 0.22)	0.17 (0.06, 0.30)	0.21 (0.07, 0.37)	0.42 (0.14, 0.74)	0.63 (0.21, 1.11)	0.84 (0.28, 1.48)	1.26 (0.42, 2.22)	2.10 (0.70, 3.70)	3.36 (1.12, 5.92)	4.20 (1.40, 7.40)
	30%	0.00 (0.00, 0.00)	0.06 (0.02, 0.11)	0.13 (0.04, 0.22)	0.19 (0.06, 0.33)	0.25 (0.08, 0.44)	0.32 (0.11, 0.56)	0.63 (0.21, 1.11)	0.95 (0.32, 1.67)	1.26 (0.42, 2.22)	1.89 (0.63, 3.33)	3.15 (1.05, 5.55)	5.04 (1.68, 8.88)	6.30 (2.10, 11.10)
	40%	0.00 (0.00, 0.00)	0.08 (0.03, 0.15)	0.17 (0.06, 0.30)	0.25 (0.08, 0.44)	0.34 (0.11, 0.59)	0.42 (0.14, 0.74)	0.84 (0.28, 1.48)	1.26 (0.42, 2.22)	1.68 (0.56, 2.96)	2.52 (0.84, 4.44)	4.20 (1.40, 7.40)	6.72 (2.24, 11.84)	8.40 (2.80, 14.80)
	50%	0.00 (0.00, 0.00)	0.10 (0.04, 0.18)	0.21 (0.07, 0.37)	0.32 (0.10, 0.55)	0.42 (0.14, 0.74)	0.52 (0.18, 0.92)	1.05 (0.35, 1.85)	1.57 (0.52, 2.78)	2.10 (0.70, 3.70)	3.15 (1.05, 5.55)	5.25 (1.75, 9.25)	8.40 (2.80, 14.80)	10.50 (3.50, 18.50)
	60%	0.00 (0.00, 0.00)	0.13 (0.04, 0.22)	0.25 (0.08, 0.44)	0.38 (0.13, 0.67)	0.50 (0.17, 0.89)	0.63 (0.21, 1.11)	1.26 (0.42, 2.22)	1.89 (0.63, 3.33)	2.52 (0.84, 4.44)	3.78 (1.26, 6.66)	6.30 (2.10, 11.10)	10.08 (3.36, 17.76)	12.60 (4.20, 22.20)
	70%	0.00 (0.00, 0.00)	0.15 (0.05, 0.26)	0.29 (0.10, 0.52)	0.44 (0.15, 0.78)	0.59 (0.20, 1.04)	0.74 (0.25, 1.30)	1.47 (0.49, 2.59)	2.20 (0.74, 3.89)	2.94 (0.98, 5.18)	4.41 (1.47, 7.77)	7.35 (2.45, 12.95)	11.76 (3.92, 20.72)	14.70 (4.90, 25.90)
	80%	0.00 (0.00, 0.00)	0.17 (0.06, 0.30)	0.34 (0.11, 0.59)	0.50 (0.17, 0.89)	0.67 (0.22, 1.18)	0.84 (0.28, 1.48)	1.68 (0.56, 2.96)	2.52 (0.84, 4.44)	3.36 (1.12, 5.92)	5.04 (1.68, 8.88)	8.40 (2.80, 14.80)	13.44 (4.48, 23.68)	16.80 (5.60, 29.60)



Razorbill		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%		0.00	0.19	0.38	0.57	0.76	0.95	1.89	2.84	3.78	5.67	9.45	15.12	18.90
		(0.00, 0.00)	(0.06, 0.33)	(0.13, 0.67)	(0.19, 1.00)	(0.25, 1.33)	(0.32, 1.67)	(0.63, 3.33)	(0.95, 5.00)	(1.26, 6.66)	(1.89, 9.99)	(3.15, 16.65)	(5.04, 26.64)	(6.30, 33.30)
100%		0.00	0.21	0.42	0.63	0.84	1.05	2.10	3.15	4.20	6.30	10.50	16.80	21.00
		(0.00, 0.00)	(0.07, 0.37)	(0.14, 0.74)	(0.21, 1.11)	(0.28, 1.48)	(0.35, 1.85)	(0.70, 3.70)	(1.05, 5.55)	(1.40, 7.40)	(2.10, 11.10)	(3.50, 18.50)	(5.60, 29.60)	(7.00, 37.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-4. Razorbill displacement – autumn migration estimates for EIA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	1.89 (1.46, 2.34)	3.78 (2.92, 4.68)	5.66 (4.38, 7.01)	7.55 (5.84, 9.35)	9.44 (7.30, 11.69)	18.88 (14.60, 23.38)	28.32 (21.90, 35.07)	37.76 (29.20, 46.76)	56.64 (43.80, 70.14)	94.40 (73.00, 116.90)	151.04 (116.80, 187.04)	188.80 (146.00, 233.80)
	20%	0.00 (0.00, 0.00)	3.78 (2.92, 4.68)	7.55 (5.84, 9.35)	11.33 (8.76, 14.03)	15.10 (11.68, 18.70)	18.88 (14.60, 23.38)	37.76 (29.20, 46.76)	56.64 (43.80, 70.14)	75.52 (58.40, 93.52)	113.28 (87.60, 140.28)	188.80 (146.00, 233.80)	302.08 (233.60, 374.08)	377.60 (146.00, 233.80)
	30%	0.00 (0.00, 0.00)	5.66 (4.38, 7.01)	11.33 (8.76, 14.03)	16.99 (13.14, 21.04)	22.66 (17.52, 28.06)	28.32 (21.90, 35.07)	56.64 (43.80, 70.14)	84.96 (65.70, 105.21)	113.28 (87.60, 140.28)	169.92 (131.40, 210.42)	283.20 (219.00, 350.70)	453.12 (350.40, 561.12)	566.40 (438.00, 701.40)
	40%	0.00 (0.00, 0.00)	7.55 (5.84, 9.35)	15.10 (11.68, 18.70)	22.66 (17.52, 28.06)	30.21 (23.36, 37.41)	37.76 (21.90, 35.07)	75.52 (58.40, 93.52)	113.28 (87.60, 140.28)	151.04 (87.60, 140.28)	226.56 (175.20, 280.56)	377.60 (292.00, 467.60)	604.16 (467.20, 748.16)	755.20 (584.00, 935.20)
	50%	0.00 (0.00, 0.00)	9.44 (7.30, 11.69)	18.88 (14.60, 23.38)	28.32 (21.90, 35.07)	37.76 (29.20, 46.76)	47.20 (36.50, 58.45)	94.40 (73.00, 116.90)	141.60 (109.50, 175.35)	188.80 (146.00, 233.80)	283.20 (219.00, 350.70)	472.00 (365.00, 584.50)	755.20 (584.00, 935.20)	944.00 (730.00, 1,169.00)
	60%	0.00 (0.00, 0.00)	11.33 (8.76, 14.03)	22.66 (17.52, 28.06)	33.98 (26.28, 42.08)	45.31 (35.04, 56.11)	56.64 (43.80, 70.14)	113.28 (87.60, 140.28)	169.92 (131.40, 210.42)	226.56 (175.20, 280.56)	339.84 (262.80, 420.84)	566.40 (438.00, 701.40)	906.24 (700.80, 1,122.24)	1,132.80 (876.00, 1,402.80)
	70%	0.00 (0.00, 0.00)	13.22 (10.22, 16.37)	26.43 (20.44, 32.73)	39.65 (30.66, 49.10)	52.86 (40.88, 65.46)	66.08 (51.10, 81.83)	132.16 (102.20, 163.66)	198.24 (153.30, 245.49)	264.32 (204.40, 327.32)	396.48 (306.60, 490.98)	660.80 (511.00, 818.30)	1,057.28 (817.60, 1,309.28)	1,321.60 (1,022.00, 1,636.60)
	80%	0.00 (0.00, 0.00)	15.10 (11.68, 18.70)	30.21 (23.36, 37.41)	45.31 (35.04, 56.11)	60.42 (46.72, 74.82)	75.52 (58.40, 93.52)	151.04 (116.80, 187.04)	226.56 (175.20, 280.56)	302.08 (233.60, 374.08)	453.12 (350.40, 561.12)	755.20 (584.00, 935.20)	1,208.32 (934.40, 1,496.32)	1,510.40 (1,168.00, 1,870.40)
	90%	0.00 (0.00, 0.00)	16.99 (13.14, 21.04)	33.98 (26.28, 42.08)	50.98 (39.42, 63.13)	67.97 (52.56, 84.17)	84.96 (65.70, 105.21)	169.92 (131.40, 210.42)	254.88 (197.10, 315.63)	339.84 (262.80, 420.84)	509.76 (394.20, 631.26)	849.60 (657.00, 1,052.10)	1,359.36 (1,051.20, 1,683.36)	1,699.20 (1,314.00, 2,104.20)





Razorbill		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%		0.00	18.88	37.76	56.64	75.52	94.40	188.80	283.20	377.60	566.40	944.00	1,510.40	1,888.00
		(0.00, 0.00)	(14.60, 23.38)	(29.20, 46.76)	(43.80, 70.14)	(58.40, 93.52)	(73.00, 116.90)	(146.00, 233.80)	(219.00, 350.70)	(292.00, 467.60)	(438.00, 701.40)	(730.00, 1,169.00)	(1,168.00, 1,870.40)	(1,460.00, 2,338.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-5. Razorbill displacement – wintering season estimates for EIA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
WINTERING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.49 (0.31, 0.69)	0.99 (0.61, 1.39)	1.48 (0.92, 2.08)	1.97 (1.22, 2.78)	2.47 (1.53, 3.47)	4.93 (3.05, 6.94)	7.40 (4.58, 10.41)	9.86 (6.10, 13.88)	14.79 (9.15, 20.82)	24.65 (15.25, 34.70)	39.44 (24.40, 55.52)	49.30 (30.50, 69.40)
	20%	0.00 (0.00, 0.00)	0.99 (0.61, 1.39)	1.97 (1.22, 2.78)	2.96 (1.83, 4.16)	3.94 (2.44, 5.55)	4.93 (3.05, 6.94)	9.86 (6.10, 13.88)	14.79 (9.15, 20.82)	19.72 (12.20, 27.76)	29.58 (18.30, 41.64)	49.30 (30.50, 69.40)	78.88 (48.80, 111.04)	98.60 (61.00, 138.80)
	30%	0.00 (0.00, 0.00)	1.48 (0.92, 2.08)	2.96 (1.83, 4.16)	4.44 (2.75, 6.25)	5.92 (3.66, 8.33)	7.40 (4.58, 10.41)	14.79 (9.15, 20.82)	22.19 (13.73, 31.23)	29.58 (18.30, 41.64)	44.37 (27.45, 62.46)	73.95 (45.75, 104.10)	118.32 (73.20, 166.56)	147.90 (91.50, 208.20)
	40%	0.00 (0.00, 0.00)	1.97 (1.22, 2.78)	3.94 (2.44, 5.55)	5.92 (3.66, 8.33)	7.89 (4.88, 11.10)	9.86 (6.10, 13.88)	19.72 (12.20, 27.76)	29.58 (13.73, 31.23)	39.44 (24.40, 55.52)	59.16 (36.60, 83.28)	98.60 (61.00, 138.80)	157.76 (97.60, 222.08)	197.20 (122.00, 277.60)
	50%	0.00 (0.00, 0.00)	2.46 (1.53, 3.47)	4.93 (3.05, 6.94)	7.39 (4.58, 10.41)	9.86 (6.10, 13.88)	12.33 (7.62, 17.35)	24.65 (15.25, 34.70)	36.98 (22.88, 52.05)	49.30 (30.50, 69.40)	73.95 (45.75, 104.10)	123.25 (76.25, 173.50)	197.20 (122.00, 277.60)	246.50 (152.50, 347.00)
	60%	0.00 (0.00, 0.00)	2.96 (1.83, 4.16)	5.92 (3.66, 8.33)	8.87 (5.49, 12.49)	11.83 (7.32, 16.66)	14.79 (9.15, 20.82)	29.58 (18.30, 41.64)	44.37 (27.45, 62.46)	59.16 (36.60, 83.28)	88.74 (54.90, 124.92)	147.90 (91.50, 208.20)	236.64 (146.40, 333.12)	295.80 (183.00, 416.40)
	70%	0.00 (0.00, 0.00)	3.45 (2.14, 4.86)	6.90 (4.27, 9.72)	10.35 (6.41, 14.57)	13.80 (8.54, 19.43)	17.26 (10.68, 24.29)	34.51 (21.35, 48.58)	51.77 (32.03, 72.87)	69.02 (42.70, 97.16)	103.53 (64.05, 145.74)	172.55 (106.75, 242.90)	276.08 (170.80, 388.64)	345.10 (213.50, 485.80)
	80%	0.00 (0.00, 0.00)	3.94 (2.44, 5.55)	7.89 (4.88, 11.10)	11.83 (7.32, 16.66)	15.78 (9.76, 22.21)	19.72 (12.20, 27.76)	39.44 (24.40, 55.52)	59.16 (36.60, 83.28)	78.88 (48.80, 111.04)	118.32 (73.20, 166.56)	197.20 (122.00, 277.60)	315.52 (195.20, 444.16)	394.40 (244.00, 555.20)
	90%	0.00 (0.00, 0.00)	4.44 (2.74, 6.25)	8.87 (5.49, 12.49)	13.31 (8.24, 18.74)	17.75 (10.98, 24.98)	22.19 (13.72, 31.23)	44.37 (27.45, 62.46)	66.56 (41.18, 93.69)	88.74 (54.90, 124.92)	133.11 (82.35, 187.38)	221.85 (137.25, 312.30)	354.96 (219.60, 499.68)	443.70 (274.50, 624.60)



Razorbill WINTERING SEASON	Mortality level (% of displaced birds at risk of mortality)												
	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%	0.00 (0.00, 0.00)	4.93 (3.05, 6.94)	9.86 (6.10, 13.88)	14.79 (9.15, 20.82)	19.72 (12.20, 27.76)	24.65 (15.25, 34.70)	49.30 (30.50, 69.40)	73.95 (45.75, 104.10)	98.60 (61.00, 138.80)	147.90 (91.50, 208.20)	246.50 (152.50, 347.00)	394.40 (244.00, 555.20)	493.00 (305.00, 694.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-6. Razorbill displacement – spring migration estimates for EIA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.26 (0.13, 0.39)	0.51 (0.25, 0.78)	0.77 (0.38, 1.16)	1.03 (0.50, 1.55)	1.29 (0.63, 1.94)	2.57 (1.26, 3.88)	3.86 (1.89, 5.82)	5.14 (2.52, 7.76)	7.71 (3.78, 11.64)	12.85 (6.30, 19.40)	20.56 (10.08, 31.04)	25.70 (12.60, 38.80)
	20%	0.00 (0.00, 0.00)	0.51 (0.25, 0.78)	1.03 (0.50, 1.55)	1.54 (0.76, 2.33)	2.06 (1.01, 3.10)	2.57 (1.26, 3.88)	5.14 (2.52, 7.76)	7.71 (3.78, 11.64)	10.28 (5.04, 15.52)	15.42 (7.56, 23.28)	25.70 (12.60, 38.80)	41.12 (20.16, 62.08)	51.40 (25.20, 77.60)
	30%	0.00 (0.00, 0.00)	0.77 (0.38, 1.16)	1.54 (0.76, 2.33)	2.31 (1.13, 3.49)	3.08 (1.51, 4.66)	3.86 (1.89, 5.82)	7.71 (3.78, 11.64)	11.57 (5.67, 17.46)	15.42 (7.56, 23.28)	23.13 (11.34, 34.92)	38.55 (18.90, 58.20)	61.68 (30.24, 93.12)	77.10 (37.80, 116.40)
	40%	0.00 (0.00, 0.00)	1.03 (0.50, 1.55)	2.06 (1.01, 3.10)	3.08 (1.51, 4.66)	4.11 (2.02, 6.21)	5.14 (2.52, 7.76)	10.28 (5.04, 15.52)	15.42 (7.56, 23.28)	20.56 (10.08, 31.04)	30.84 (15.12, 46.56)	51.40 (25.20, 77.60)	82.24 (40.32, 124.16)	102.80 (50.40, 155.20)
	50%	0.00 (0.00, 0.00)	1.28 (0.63, 1.94)	2.57 (1.26, 3.88)	3.86 (1.89, 5.82)	5.14 (2.52, 7.76)	6.43 (3.15, 9.70)	12.85 (6.30, 19.40)	19.27 (9.45, 29.10)	25.70 (12.60, 38.80)	38.55 (18.90, 58.20)	64.25 (31.50, 97.00)	102.80 (50.40, 155.20)	128.50 (63.00, 194.00)
	60%	0.00 (0.00, 0.00)	1.54 (0.76, 2.33)	3.08 (1.51, 4.66)	4.63 (2.27, 6.98)	6.17 (3.02, 9.31)	7.71 (3.78, 11.64)	15.42 (7.56, 23.28)	23.13 (11.34, 34.92)	30.84 (15.12, 46.56)	46.26 (22.68, 69.84)	77.10 (37.80, 116.40)	123.36 (60.48, 186.24)	154.20 (75.60, 232.80)
	70%	0.00 (0.00, 0.00)	1.80 (0.88, 2.72)	3.60 (1.76, 5.43)	5.40 (2.65, 8.15)	7.20 (3.53, 10.86)	9.00 (4.41, 13.58)	17.99 (8.82, 27.16)	26.98 (13.23, 40.74)	35.98 (17.64, 54.32)	53.97 (26.46, 81.48)	89.95 (44.10, 135.80)	143.92 (70.56, 217.28)	179.90 (88.20, 271.60)
	80%	0.00 (0.00, 0.00)	2.06 (1.01, 3.10)	4.11 (2.02, 6.21)	6.17 (3.02, 9.31)	8.22 (4.03, 12.42)	10.28 (5.04, 15.52)	20.56 (10.08, 31.04)	30.84 (15.12, 46.56)	41.12 (20.16, 62.08)	61.68 (30.24, 93.12)	102.80 (50.40, 155.20)	164.48 (80.64, 248.32)	205.60 (100.80, 310.40)
	90%	0.00 (0.00, 0.00)	2.31 (1.13, 3.49)	4.63 (2.27, 6.98)	6.94 (3.40, 10.48)	9.25 (4.54, 13.97)	11.57 (5.67, 17.46)	23.13 (11.34, 34.92)	34.70 (17.01, 52.38)	46.26 (22.68, 69.84)	69.39 (34.02, 104.76)	115.65 (56.70, 174.60)	185.04 (90.72, 279.36)	231.30 (113.40, 349.20)



Razorbill		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00 (0.00, 0.00)	2.57 (1.26, 3.88)	5.14 (2.52, 7.76)	7.71 (3.78, 11.64)	10.28 (5.04, 15.52)	12.85 (6.30, 19.40)	25.70 (12.60, 38.80)	38.55 (18.90, 58.20)	51.40 (25.20, 77.60)	77.10 (37.80, 116.40)	128.50 (63.00, 194.00)	205.60 (100.80, 310.40)	257.00 (126.00, 388.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.3 Puffin

Annex A, Table 22D-7. Puffin displacement – breeding season estimates for EIA

Puffin		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.15 (0.10, 0.20)	0.30 (0.20, 0.41)	0.46 (0.30, 0.62)	0.61 (0.40, 0.82)	0.76 (0.51, 1.03)	1.52 (1.01, 2.05)	2.28 (1.51, 3.08)	3.04 (2.02, 4.10)	4.56 (3.03, 6.15)	7.60 (5.05, 10.25)	12.16 (8.08, 16.40)	15.20 (10.10, 20.50)
	20%	0.00 (0.00, 0.00)	0.30 (0.20, 0.41)	0.61 (0.40, 0.82)	0.91 (0.61, 1.23)	1.22 (0.81, 1.64)	1.52 (1.01, 2.05)	3.04 (2.02, 4.10)	4.56 (3.03, 6.15)	6.08 (4.04, 8.20)	9.12 (6.06, 12.30)	15.20 (10.10, 20.50)	24.32 (16.16, 32.80)	30.40 (20.20, 41.00)
	30%	0.00 (0.00, 0.00)	0.46 (0.30, 0.62)	0.91 (0.61, 1.23)	1.37 (0.91, 1.85)	1.82 (1.21, 2.46)	2.28 (1.52, 3.08)	4.56 (3.03, 6.15)	6.84 (4.54, 9.23)	9.12 (6.06, 12.30)	13.68 (9.09, 18.45)	22.80 (15.15, 30.75)	36.48 (24.24, 49.20)	45.60 (30.30, 61.50)
	40%	0.00 (0.00, 0.00)	0.61 (0.40, 0.82)	1.22 (0.81, 1.64)	1.82 (1.21, 2.46)	2.43 (1.62, 3.28)	3.04 (2.02, 4.10)	6.08 (4.04, 8.20)	9.12 (6.06, 12.30)	12.16 (8.08, 16.40)	18.24 (12.12, 24.60)	30.40 (20.20, 41.00)	48.64 (32.32, 65.60)	60.80 (40.40, 82.00)
	50%	0.00 (0.00, 0.00)	0.76 (0.50, 1.02)	1.52 (1.01, 2.05)	2.28 (1.51, 3.07)	3.04 (2.02, 4.10)	3.80 (2.53, 5.12)	7.60 (5.05, 10.25)	11.40 (7.57, 15.38)	15.20 (10.10, 20.50)	22.80 (15.15, 30.75)	38.00 (25.25, 51.25)	60.80 (40.40, 82.00)	76.00 (50.50, 102.50)
	60%	0.00 (0.00, 0.00)	0.91 (0.61, 1.23)	1.82 (1.21, 2.46)	2.74 (1.82, 3.69)	3.65 (2.42, 4.92)	4.56 (3.03, 6.15)	9.12 (6.06, 12.30)	13.68 (9.09, 18.45)	18.24 (12.12, 24.60)	27.36 (18.18, 36.90)	45.60 (30.30, 61.50)	72.96 (48.48, 98.40)	91.20 (60.60, 123.00)
	70%	0.00 (0.00, 0.00)	1.06 (0.71, 1.44)	2.13 (1.41, 2.87)	3.19 (2.12, 4.30)	4.26 (2.83, 5.74)	5.32 (3.54, 7.18)	10.64 (7.07, 14.35)	15.96 (10.61, 21.53)	21.28 (14.14, 28.70)	31.92 (21.21, 43.05)	53.20 (35.35, 71.75)	85.12 (56.56, 114.80)	106.40 (70.70, 143.50)
	80%	0.00 (0.00, 0.00)	1.22 (0.81, 1.64)	2.43 (1.62, 3.28)	3.65 (2.42, 4.92)	4.86 (3.23, 6.56)	6.08 (4.04, 8.20)	12.16 (8.08, 16.40)	18.24 (12.12, 24.60)	24.32 (16.16, 32.80)	36.48 (24.24, 49.20)	60.80 (40.40, 82.00)	97.28 (64.64, 131.20)	121.60 (80.80, 164.00)



Puffin		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	90%	0.00	1.37	2.74	4.10	5.47	6.84	13.68	20.52	27.36	41.04	68.40	109.44	136.80
		(0.00, 0.00)	(0.91, 1.84)	(1.82, 3.69)	(2.73, 5.53)	(3.64, 7.38)	(4.55, 9.22)	(9.09, 18.45)	(13.63, 27.68)	(18.18, 36.90)	(27.27, 55.35)	(45.45, 92.25)	(72.72, 147.60)	(90.90, 184.50)
	100%	0.00	1.52	3.04	4.56	6.08	7.60	15.20	22.80	30.40	45.60	76.00	121.60	152.00
		(0.00, 0.00)	(1.01, 2.05)	(2.02, 4.10)	(3.03, 6.15)	(4.04, 8.20)	(5.05, 10.25)	(10.10, 20.50)	(15.15, 30.75)	(20.20, 41.00)	(30.30, 61.50)	(50.50, 102.50)	(80.80, 164.00)	(101.00, 205.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-8. Puffin displacement – non-breeding season estimates for EIA

Puffin		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.59 (0.49, 0.70)	1.18 (0.97, 1.40)	1.78 (1.46, 2.09)	2.37 (1.94, 2.79)	2.96 (2.43, 3.49)	5.92 (4.85, 6.98)	8.88 (7.28, 10.47)	11.84 (9.70, 13.96)	17.76 (14.55, 20.94)	29.60 (24.25, 34.90)	47.36 (38.80, 55.84)	59.20 (48.50, 69.80)
	20%	0.00 (0.00, 0.00)	1.18 (0.97, 1.40)	2.37 (1.94, 2.79)	3.55 (2.91, 4.19)	4.74 (3.88, 5.58)	5.92 (4.85, 6.98)	11.84 (9.70, 13.96)	17.76 (14.55, 20.94)	23.68 (19.40, 27.92)	35.52 (29.10, 41.88)	59.20 (48.50, 69.80)	94.72 (77.60, 111.68)	118.40 (97.00, 139.60)
	30%	0.00 (0.00, 0.00)	1.78 (1.46, 2.09)	3.55 (2.91, 4.19)	5.33 (4.36, 6.28)	7.10 (5.82, 8.38)	8.88 (7.28, 10.47)	17.76 (14.55, 20.94)	26.64 (21.83, 31.41)	35.52 (29.10, 41.88)	53.28 (43.65, 62.82)	88.80 (72.75, 104.70)	142.08 (116.40, 167.52)	177.60 (145.50, 209.40)
	40%	0.00 (0.00, 0.00)	2.37 (1.94, 2.79)	4.74 (3.88, 5.58)	7.10 (5.82, 8.38)	9.47 (7.76, 11.17)	11.84 (9.70, 13.96)	23.68 (19.40, 27.92)	35.52 (29.10, 41.88)	47.36 (38.80, 55.84)	71.04 (58.20, 83.76)	118.40 (97.00, 139.60)	189.44 (155.20, 223.36)	236.80 (194.00, 279.20)
	50%	0.00 (0.00, 0.00)	2.96 (2.43, 3.49)	5.92 (4.85, 6.98)	8.88 (7.27, 10.47)	11.84 (9.70, 13.96)	14.80 (12.12, 17.45)	29.60 (24.25, 34.90)	44.40 (36.38, 52.35)	59.20 (48.50, 69.80)	88.80 (72.75, 104.70)	148.00 (121.25, 174.50)	236.80 (194.00, 279.20)	296.00 (242.50, 349.00)
	60%	0.00 (0.00, 0.00)	3.55 (2.91, 4.19)	7.10 (5.82, 8.38)	10.66 (8.73, 12.56)	14.21 (11.64, 16.75)	17.76 (14.55, 20.94)	35.52 (29.10, 41.88)	53.28 (43.65, 62.82)	71.04 (58.20, 83.76)	106.56 (87.30, 125.64)	177.60 (145.50, 209.40)	284.16 (232.80, 335.04)	355.20 (291.00, 418.80)
	70%	0.00 (0.00, 0.00)	4.14 (3.40, 4.89)	8.29 (6.79, 9.77)	12.43 (10.19, 14.66)	16.58 (13.58, 19.54)	20.72 (16.98, 24.43)	41.44 (33.95, 48.86)	62.16 (50.93, 73.29)	82.88 (67.90, 97.72)	124.32 (101.85, 146.58)	207.20 (169.75, 244.30)	331.52 (271.60, 390.88)	414.40 (339.50, 488.60)
	80%	0.00 (0.00, 0.00)	4.74 (3.88, 5.58)	9.47 (7.76, 11.17)	14.21 (11.64, 16.75)	18.94 (15.52, 22.34)	23.68 (19.40, 27.92)	47.36 (38.80, 55.84)	71.04 (58.20, 83.76)	94.72 (77.60, 111.68)	142.08 (116.40, 167.52)	236.80 (194.00, 279.20)	378.88 (310.40, 446.72)	473.60 (388.00, 558.40)





Puffin		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%		0.00	5.33	10.66	15.98	21.31	26.64	53.28	79.92	106.56	159.84	266.40	426.24	532.80
		(0.00, 0.00)	(4.36, 6.28)	(8.73, 12.56)	(13.09, 18.85)	(17.46, 25.13)	(21.82, 31.41)	(43.65, 62.82)	(65.48, 94.23)	(87.30, 125.64)	(130.95, 188.46)	(218.25, 314.10)	(349.20, 502.56)	(436.50, 628.20)
100%		0.00	5.92	11.84	17.76	23.68	29.60	59.20	88.80	118.40	177.60	296.00	473.60	592.00
		(0.00, 0.00)	(4.85, 6.98)	(9.70, 13.96)	(14.55, 20.94)	(19.40, 27.92)	(24.25, 34.90)	(48.50, 69.80)	(72.75, 104.70)	(97.00, 139.60)	(145.50, 209.40)	(242.50, 349.00)	(388.00, 558.40)	(485.00, 698.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.4 Manx Shearwater

Annex A, Table 22D-9. Manx shearwater displacement – breeding season estimates for EIA

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	3.43 (2.87, 4.06)	6.87 (5.74, 8.12)	10.30 (8.61, 12.17)	13.74 (11.48, 16.23)	17.17 (14.35, 20.29)	34.34 (28.70, 40.58)	51.51 (43.05, 60.87)	68.68 (57.40, 81.16)	103.02 (86.10, 121.74)	171.70 (143.50, 202.90)	274.72 (229.60, 324.64)	343.40 (287.00, 405.80)
	20%	0.00 (0.00, 0.00)	6.87 (5.74, 8.12)	13.74 (11.48, 16.23)	20.60 (17.22, 24.35)	27.47 (22.96, 32.46)	34.34 (28.70, 40.58)	68.68 (57.40, 81.16)	103.02 (86.10, 121.74)	137.36 (114.80, 162.32)	206.04 (172.20, 243.48)	343.40 (287.00, 405.80)	549.44 (459.20, 649.28)	686.80 (574.00, 811.60)
	30%	0.00 (0.00, 0.00)	10.30 (8.61, 12.17)	20.60 (17.22, 24.35)	30.91 (25.83, 36.52)	41.21 (34.44, 48.70)	51.51 (43.05, 60.87)	103.02 (86.10, 121.74)	154.53 (129.15, 182.61)	206.04 (172.20, 243.48)	309.06 (258.30, 365.22)	515.10 (430.50, 608.70)	824.16 (688.80, 973.92)	1,030.20 (861.00, 1,217.40)
	40%	0.00 (0.00, 0.00)	13.74 (11.48, 16.23)	27.47 (22.96, 32.46)	41.21 (34.44, 48.70)	54.94 (45.92, 64.93)	68.68 (57.40, 81.16)	137.36 (114.80, 162.32)	206.04 (172.20, 243.48)	274.72 (229.60, 324.64)	412.08 (344.40, 486.96)	686.80 (574.00, 811.60)	1,098.88 (918.40, 1,298.56)	1,373.60 (1,148.00, 1,623.20)
	50%	0.00 (0.00, 0.00)	17.17 (14.35, 20.29)	34.34 (28.70, 40.58)	51.51 (43.05, 60.87)	68.68 (57.40, 81.16)	85.85 (71.75, 101.45)	171.70 (143.50, 202.90)	257.55 (215.25, 304.35)	343.40 (287.00, 405.80)	515.10 (430.50, 608.70)	858.50 (717.50, 1,014.50)	1,373.60 (1,148.00, 1,623.20)	1,717.00 (1,435.00, 2,029.00)
	60%	0.00 (0.00, 0.00)	20.60 (17.22, 24.35)	41.21 (34.44, 48.70)	61.81 (51.66, 73.04)	82.42 (68.88, 97.39)	103.02 (86.10, 121.74)	206.04 (172.20, 243.48)	309.06 (258.30, 365.22)	412.08 (344.40, 486.96)	618.12 (516.60, 730.44)	1,030.20 (861.00, 1,217.40)	1,648.32 (1,377.60, 1,947.84)	2,060.40 (1,722.00, 2,434.80)
	70%	0.00 (0.00, 0.00)	24.04 (20.09, 28.41)	48.08 (40.18, 56.81)	72.11 (60.27, 85.22)	96.15 (80.36, 113.62)	120.19 (100.45, 142.03)	240.38 (200.90, 284.06)	360.57 (301.35, 426.09)	480.76 (401.80, 568.12)	721.14 (602.70, 852.18)	1,201.90 (1,004.50, 1,420.30)	1,923.04 (1,607.20, 2,272.48)	2,403.80 (2,009.00, 2,840.60)
	80%	0.00 (0.00, 0.00)	27.47 (22.96, 32.46)	54.94 (45.92, 64.93)	82.42 (68.88, 97.39)	109.89 (91.84, 129.86)	137.36 (114.80, 162.32)	274.72 (229.60, 324.64)	412.08 (344.40, 486.96)	549.44 (459.20, 649.28)	824.16 (688.80, 973.92)	1,373.60 (1,148.00, 1,623.20)	2,197.76 (1,836.80, 2,597.12)	2,747.20 (2,296.00, 3,246.40)



Manx shearwater  BREEDING SEASON	Mortality level (% of displaced birds at risk of mortality)												
	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%	0.00 (0.00, 0.00)	30.91 (25.83, 36.52)	61.81 (51.66, 73.04)	92.72 (77.49, 109.57)	123.62 (103.32, 146.09)	154.53 (129.15, 182.61)	309.06 (258.30, 365.22)	463.59 (387.45, 547.83)	618.12 (516.60, 730.44)	927.18 (774.90, 1,095.66)	1,545.30 (1,291.50, 1,826.10)	2,472.48 (2,066.40, 2,921.76)	3,090.60 (2,583.00, 3,652.20)
100%	0.00 (0.00, 0.00)	34.34 (28.70, 40.58)	68.68 (57.40, 81.16)	103.02 (86.10, 121.74)	137.36 (114.80, 162.32)	171.70 (143.50, 202.90)	343.40 (287.00, 405.80)	515.10 (430.50, 608.70)	686.80 (574.00, 811.60)	1,030.20 (861.00, 1,217.40)	1,717.00 (1,435.00, 2,029.00)	2,747.20 (2,296.00, 3,246.40)	3,434.00 (2,870.00, 4,058.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-10. Manx shearwater displacement – autumn migration estimates for EIA

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.03 (0.01, 0.05)	0.05 (0.02, 0.09)	0.08 (0.04, 0.13)	0.11 (0.05, 0.18)	0.14 (0.06, 0.22)	0.27 (0.12, 0.45)	0.41 (0.18, 0.68)	0.54 (0.24, 0.90)	0.81 (0.36, 1.35)	1.35 (0.60, 2.25)	2.16 (0.96, 3.60)	2.70 (1.20, 4.50)
	20%	0.00 (0.00, 0.00)	0.05 (0.02, 0.09)	0.11 (0.05, 0.18)	0.16 (0.07, 0.27)	0.22 (0.10, 0.36)	0.27 (0.12, 0.45)	0.54 (0.24, 0.90)	0.81 (0.36, 1.35)	1.08 (0.48, 1.80)	1.62 (0.72, 2.70)	2.70 (1.20, 4.50)	4.32 (1.92, 7.20)	5.40 (2.40, 9.00)
	30%	0.00 (0.00, 0.00)	0.08 (0.04, 0.14)	0.16 (0.07, 0.27)	0.24 (0.11, 0.41)	0.32 (0.14, 0.54)	0.41 (0.18, 0.68)	0.81 (0.36, 1.35)	1.22 (0.54, 2.03)	1.62 (0.72, 2.70)	2.43 (1.08, 4.05)	4.05 (1.80, 6.75)	6.48 (2.88, 10.80)	8.10 (3.60, 13.50)
	40%	0.00 (0.00, 0.00)	0.11 (0.05, 0.18)	0.22 (0.10, 0.36)	0.32 (0.14, 0.54)	0.43 (0.19, 0.72)	0.54 (0.24, 0.90)	1.08 (0.48, 1.80)	1.62 (0.72, 2.70)	2.16 (0.96, 3.60)	3.24 (1.44, 5.40)	5.40 (2.40, 9.00)	8.64 (3.84, 14.40)	10.80 (4.80, 18.00)
	50%	0.00 (0.00, 0.00)	0.14 (0.06, 0.22)	0.27 (0.12, 0.45)	0.40 (0.18, 0.67)	0.54 (0.24, 0.90)	0.68 (0.30, 1.12)	1.35 (0.60, 2.25)	2.02 (0.90, 3.38)	2.70 (1.20, 4.50)	4.05 (1.80, 6.75)	6.75 (3.00, 11.25)	10.80 (4.80, 18.00)	13.50 (6.00, 22.50)
	60%	0.00 (0.00, 0.00)	0.16 (0.07, 0.27)	0.32 (0.14, 0.54)	0.49 (0.22, 0.81)	0.65 (0.29, 1.08)	0.81 (0.36, 1.35)	1.62 (0.72, 2.70)	2.43 (1.08, 4.05)	3.24 (1.44, 5.40)	4.86 (2.16, 8.10)	8.10 (3.60, 13.50)	12.96 (5.76, 21.60)	16.20 (7.20, 27.00)
	70%	0.00 (0.00, 0.00)	0.19 (0.08, 0.32)	0.38 (0.17, 0.63)	0.57 (0.25, 0.94)	0.76 (0.34, 1.26)	0.95 (0.42, 1.58)	1.89 (0.84, 3.15)	2.84 (1.26, 4.73)	3.78 (1.68, 6.30)	5.67 (2.52, 9.45)	9.45 (4.20, 15.75)	15.12 (6.72, 25.20)	18.90 (8.40, 31.50)
	80%	0.00 (0.00, 0.00)	0.22 (0.10, 0.36)	0.43 (0.19, 0.72)	0.65 (0.29, 1.08)	0.86 (0.38, 1.44)	1.08 (0.48, 1.80)	2.16 (0.96, 3.60)	3.24 (1.44, 5.40)	4.32 (1.92, 7.20)	6.48 (2.88, 10.80)	10.80 (4.80, 18.00)	17.28 (7.68, 28.80)	21.60 (9.60, 36.00)
	90%	0.00 (0.00, 0.00)	0.24 (0.11, 0.41)	0.49 (0.22, 0.81)	0.73 (0.32, 1.21)	0.97 (0.43, 1.62)	1.22 (0.54, 2.02)	2.43 (1.08, 4.05)	3.64 (1.62, 6.08)	4.86 (2.16, 8.10)	7.29 (3.24, 12.15)	12.15 (5.40, 20.25)	19.44 (8.64, 32.40)	24.30 (10.80, 40.50)



Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%		0.00 (0.00, 0.00)	0.27 (0.12, 0.45)	0.54 (0.24, 0.90)	0.81 (0.36, 1.35)	1.08 (0.48, 1.80)	1.35 (0.60, 2.25)	2.70 (1.20, 4.50)	4.05 (1.80, 6.75)	5.40 (2.40, 9.00)	8.10 (3.60, 13.50)	13.50 (6.00, 22.50)	21.60 (9.60, 36.00)	27.00 (12.00, 45.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-11. Manx shearwater displacement – spring migration estimates for EIA

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	1.27 (1.12, 1.41)	2.53 (2.25, 2.82)	3.80 (3.37, 4.23)	5.07 (4.50, 5.64)	6.34 (5.62, 7.05)	12.67 (11.24, 14.10)	19.00 (16.86, 21.15)	25.34 (22.48, 28.20)	38.01 (33.72, 42.30)	63.35 (56.20, 70.50)	101.36 (89.92, 112.80)	126.70 (112.40, 141.00)
	20%	0.00 (0.00, 0.00)	2.53 (2.25, 2.82)	5.07 (4.50, 5.64)	7.60 (6.74, 8.46)	10.14 (8.99, 11.28)	12.67 (11.24, 14.10)	25.34 (22.48, 28.20)	38.01 (33.72, 42.30)	50.68 (44.96, 56.40)	76.02 (67.44, 84.60)	126.70 (112.40, 141.00)	202.72 (179.84, 225.60)	253.40 (224.80, 282.00)
	30%	0.00 (0.00, 0.00)	3.80 (3.37, 4.23)	7.60 (6.74, 8.46)	11.40 (10.12, 12.69)	15.20 (13.49, 16.92)	19.01 (16.86, 21.15)	38.01 (33.72, 42.30)	57.02 (50.58, 63.45)	76.02 (67.44, 84.60)	114.03 (101.16, 126.90)	190.05 (168.60, 211.50)	304.08 (269.76, 338.40)	380.10 (337.20, 423.00)
	40%	0.00 (0.00, 0.00)	5.07 (4.50, 5.64)	10.14 (8.99, 11.28)	15.20 (13.49, 16.92)	20.27 (17.98, 22.56)	25.34 (22.48, 28.20)	50.68 (44.96, 56.40)	76.02 (67.44, 84.60)	101.36 (89.92, 112.80)	152.04 (134.88, 169.20)	253.40 (224.80, 282.00)	405.44 (359.68, 451.20)	506.80 (449.60, 564.00)
	50%	0.00 (0.00, 0.00)	6.34 (5.62, 7.05)	12.67 (11.24, 14.10)	19.00 (16.86, 21.15)	25.34 (22.48, 28.20)	31.68 (28.10, 35.25)	63.35 (56.20, 70.50)	95.02 (84.30, 105.75)	126.70 (112.40, 141.00)	190.05 (168.60, 211.50)	316.75 (281.00, 352.50)	506.80 (449.60, 564.00)	633.50 (562.00, 705.00)
	60%	0.00 (0.00, 0.00)	7.60 (6.74, 8.46)	15.20 (13.49, 16.92)	22.81 (20.23, 25.38)	30.41 (26.98, 33.84)	38.01 (33.72, 42.30)	76.02 (67.44, 84.60)	114.03 (101.16, 126.90)	152.04 (134.88, 169.20)	228.06 (202.32, 253.80)	380.10 (337.20, 423.00)	608.16 (539.52, 676.80)	760.20 (674.40, 846.00)
	70%	0.00 (0.00, 0.00)	8.87 (7.87, 9.87)	17.74 (15.74, 19.74)	26.61 (23.60, 29.61)	35.48 (31.47, 39.48)	44.35 (39.34, 49.35)	88.69 (78.68, 98.70)	133.04 (118.02, 148.05)	177.38 (157.36, 197.40)	266.07 (236.04, 296.10)	443.45 (393.40, 493.50)	709.52 (629.44, 789.60)	886.90 (786.80, 987.00)
	80%	0.00 (0.00, 0.00)	10.14 (8.99, 11.28)	20.27 (17.98, 22.56)	30.41 (26.98, 33.84)	40.54 (35.97, 45.12)	50.68 (44.96, 56.40)	101.36 (89.92, 112.80)	152.04 (134.88, 169.20)	202.72 (179.84, 225.60)	304.08 (269.76, 338.40)	506.80 (449.60, 564.00)	810.88 (719.36, 902.40)	1,013.60 (899.20, 1,128.00)



Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
SPRING MIGRATION														
90%		0.00	11.40	22.81	34.21	45.61	57.02	114.03	171.04	228.06	342.09	570.15	912.24	1,140.30
		(0.00, 0.00)	(10.12, 12.69)	(20.23, 25.38)	(30.35, 38.07)	(40.46, 50.76)	(50.58, 63.45)	(101.16, 126.90)	(151.74, 190.35)	(202.32, 253.80)	(303.48, 380.70)	(505.80, 634.50)	(809.28, 1,015.20)	(1,011.60, 1,269.00)
100%		0.00	12.67	25.34	38.01	50.68	63.35	126.70	190.05	253.40	380.10	633.50	1,013.60	1,267.00
		(0.00, 0.00)	(11.24, 14.10)	(22.48, 28.20)	(33.72, 42.30)	(44.96, 56.40)	(56.20, 70.50)	(112.40, 141.00)	(168.60, 211.50)	(224.80, 282.00)	(337.20, 423.00)	(562.00, 705.00)	(899.20, 1,128.00)	(1,124.00, 1,410.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.5 Gannet

Annex A, Table 22D-12. Gannet displacement – breeding season estimates for EIA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.25 (0.16, 0.34)	0.49 (0.32, 0.68)	0.74 (0.47, 1.01)	0.98 (0.63, 1.35)	1.23 (0.79, 1.69)	2.46 (1.58, 3.38)	3.69 (2.37, 5.07)	4.92 (3.16, 6.76)	7.38 (4.74, 10.14)	12.30 (7.90, 16.90)	19.68 (12.64, 27.04)	24.60 (15.80, 33.80)
	20%	0.00 (0.00, 0.00)	0.49 (0.32, 0.68)	0.98 (0.63, 1.35)	1.48 (0.95, 2.03)	1.97 (1.26, 2.70)	2.46 (1.58, 3.38)	4.92 (3.16, 6.76)	7.38 (4.74, 10.14)	9.84 (6.32, 13.52)	14.76 (9.48, 20.28)	24.60 (15.80, 33.80)	39.36 (25.28, 54.08)	49.20 (31.60, 67.60)
	30%	0.00 (0.00, 0.00)	0.74 (0.47, 1.01)	1.48 (0.95, 2.03)	2.21 (1.42, 3.04)	2.95 (1.90, 4.06)	3.69 (2.37, 5.07)	7.38 (4.74, 10.14)	11.07 (7.11, 15.21)	14.76 (9.48, 20.28)	22.14 (14.22, 30.42)	36.90 (23.70, 50.70)	59.04 (37.92, 81.12)	73.80 (47.40, 101.40)
	40%	0.00 (0.00, 0.00)	0.98 (0.63, 1.35)	1.97 (1.26, 2.70)	2.95 (1.90, 4.06)	3.94 (2.53, 5.41)	4.92 (3.16, 6.76)	9.84 (6.32, 13.52)	14.76 (9.48, 20.28)	19.68 (12.64, 27.04)	29.52 (18.96, 40.56)	49.20 (31.60, 67.60)	78.72 (50.56, 108.16)	98.40 (63.20, 135.20)
	50%	0.00 (0.00, 0.00)	1.23 (0.79, 1.69)	2.46 (1.58, 3.38)	3.69 (2.37, 5.07)	4.92 (3.16, 6.76)	6.15 (3.95, 8.45)	12.30 (7.90, 16.90)	18.45 (11.85, 25.35)	24.60 (15.80, 33.80)	36.90 (23.70, 50.70)	61.50 (39.50, 84.50)	98.40 (63.20, 135.20)	123.00 (79.00, 169.00)
	60%	0.00 (0.00, 0.00)	1.48 (0.95, 2.03)	2.95 (1.90, 4.06)	4.43 (2.84, 6.08)	5.90 (3.79, 8.11)	7.38 (4.74, 10.14)	14.76 (9.48, 20.28)	22.14 (14.22, 30.42)	29.52 (18.96, 40.56)	44.28 (28.44, 60.84)	73.80 (47.40, 101.40)	118.08 (75.84, 162.24)	147.60 (94.80, 202.80)
	70%	0.00 (0.00, 0.00)	1.72 (1.11, 2.37)	3.44 (2.21, 4.73)	5.17 (3.32, 7.10)	6.89 (4.42, 9.46)	8.61 (5.53, 11.83)	17.22 (11.06, 23.66)	25.83 (16.59, 35.49)	34.44 (22.12, 47.32)	51.66 (33.18, 70.98)	86.10 (55.30, 118.30)	137.76 (88.48, 189.28)	172.20 (110.60, 236.60)
	80%	0.00 (0.00, 0.00)	1.97 (1.26, 2.70)	3.94 (2.53, 5.41)	5.90 (3.79, 8.11)	7.87 (5.06, 10.82)	9.84 (6.32, 13.52)	19.68 (12.64, 27.04)	29.52 (18.96, 40.56)	39.36 (25.28, 54.08)	59.04 (37.92, 81.12)	98.40 (63.20, 135.20)	157.44 (101.12, 216.32)	196.80 (126.40, 270.40)





Gannet		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%		0.00	2.21	4.43	6.64	8.86	11.07	22.14	33.21	44.28	66.42	110.70	177.12	221.40
		(0.00, 0.00)	(1.42, 3.04)	(2.84, 6.08)	(4.27, 9.13)	(5.69, 12.17)	(7.11, 15.21)	(14.22, 30.42)	(21.33, 45.63)	(28.44, 60.84)	(42.66, 91.26)	(71.10, 152.10)	(113.76, 243.36)	(142.20, 304.20)
100%		0.00	2.46	4.92	7.38	9.84	12.30	24.60	36.90	49.20	73.80	123.00	196.80	246.00
		(0.00, 0.00)	(1.58, 3.38)	(3.16, 6.76)	(4.74, 10.14)	(6.32, 13.52)	(7.90, 16.90)	(15.80, 33.80)	(23.70, 50.70)	(31.60, 67.60)	(47.40, 101.40)	(79.00, 169.00)	(126.40, 270.40)	(158.00, 338.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-13. Gannet displacement – autumn migration estimates for EIA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.72 (0.61, 0.83)	1.43 (1.22, 1.66)	2.14 (1.83, 2.49)	2.86 (2.44, 3.32)	3.58 (3.06, 4.16)	7.15 (6.11, 8.31)	10.73 (9.16, 12.46)	14.30 (12.22, 16.62)	21.45 (18.33, 24.93)	35.75 (30.55, 41.55)	57.20 (48.88, 66.48)	71.50 (61.10, 83.10)
	20%	0.00 (0.00, 0.00)	1.43 (1.22, 1.66)	2.86 (2.44, 3.32)	4.29 (3.67, 4.99)	5.72 (4.89, 6.65)	7.15 (6.11, 8.31)	14.30 (12.22, 16.62)	21.45 (18.33, 24.93)	28.60 (24.44, 33.24)	42.90 (36.66, 49.86)	71.50 (61.10, 83.10)	114.40 (97.76, 132.96)	143.00 (122.20, 166.20)
	30%	0.00 (0.00, 0.00)	2.15 (1.83, 2.49)	4.29 (3.67, 4.99)	6.44 (5.50, 7.48)	8.58 (7.33, 9.97)	10.73 (9.17, 12.47)	21.45 (18.33, 24.93)	32.18 (27.50, 37.40)	42.90 (36.66, 49.86)	64.35 (54.99, 74.79)	107.25 (91.65, 124.65)	171.60 (146.64, 199.44)	214.50 (183.30, 249.30)
	40%	0.00 (0.00, 0.00)	2.86 (2.44, 3.32)	5.72 (4.89, 6.65)	8.58 (7.33, 9.97)	11.44 (9.78, 13.30)	14.30 (12.22, 16.62)	28.60 (24.44, 33.24)	42.90 (36.66, 49.86)	57.20 (48.88, 66.48)	85.80 (73.32, 99.72)	143.00 (122.20, 166.20)	228.80 (195.52, 265.92)	286.00 (244.40, 332.40)
	50%	0.00 (0.00, 0.00)	3.58 (3.06, 4.16)	7.15 (6.11, 8.31)	10.72 (9.16, 12.46)	14.30 (12.22, 16.62)	17.88 (15.28, 20.78)	35.75 (30.55, 41.55)	53.62 (45.82, 62.32)	71.50 (61.10, 83.10)	107.25 (91.65, 124.65)	178.75 (152.75, 207.75)	286.00 (244.40, 332.40)	357.50 (305.50, 415.50)
	60%	0.00 (0.00, 0.00)	4.29 (3.67, 4.99)	8.58 (7.33, 9.97)	12.87 (11.00, 14.96)	17.16 (14.66, 19.94)	21.45 (18.33, 24.93)	42.90 (36.66, 49.86)	64.35 (54.99, 74.79)	85.80 (73.32, 99.72)	128.70 (109.98, 149.58)	214.50 (183.30, 249.30)	343.20 (293.28, 398.88)	429.00 (366.60, 498.60)
	70%	0.00 (0.00, 0.00)	5.01 (4.28, 5.82)	10.01 (8.55, 11.63)	15.02 (12.83, 17.45)	20.02 (17.11, 23.27)	25.03 (21.39, 29.09)	50.05 (42.77, 58.17)	75.08 (64.16, 87.25)	100.10 (85.54, 116.34)	150.15 (128.31, 174.51)	250.25 (213.85, 290.85)	400.40 (342.16, 465.36)	500.50 (427.70, 581.70)
	80%	0.00 (0.00, 0.00)	5.72 (4.89, 6.65)	11.44 (9.78, 13.30)	17.16 (14.66, 19.94)	22.88 (19.55, 26.59)	28.60 (24.44, 33.24)	57.20 (48.88, 66.48)	85.80 (73.32, 99.72)	114.40 (97.76, 132.96)	171.60 (146.64, 199.44)	286.00 (244.40, 332.40)	457.60 (391.04, 531.84)	572.00 (488.80, 664.80)
	90%	0.00 (0.00, 0.00)	6.44 (5.50, 7.48)	12.87 (11.00, 14.96)	19.30 (16.50, 22.44)	25.74 (22.00, 29.92)	32.18 (27.50, 37.40)	64.35 (54.99, 74.79)	96.53 (82.48, 112.18)	128.70 (109.98, 149.58)	193.05 (164.97, 224.37)	321.75 (274.95, 373.95)	514.80 (439.92, 598.32)	643.50 (549.90, 747.90)



Gannet		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00	7.15	14.30	21.45	28.60	35.75	71.50	107.25	143.00	214.50	357.50	572.00	715.00
		(0.00, 0.00)	(6.11, 8.31)	(12.22, 16.62)	(18.33, 24.93)	(24.44, 33.24)	(30.55, 41.55)	(61.10, 83.10)	(91.65, 124.65)	(122.20, 166.20)	(183.30, 249.30)	(305.50, 415.50)	(488.80, 664.80)	(611.00, 831.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex A, Table 22D-14. Gannet displacement – spring migration estimates for EIA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.06 (0.03, 0.09)	0.13 (0.07, 0.19)	0.20 (0.10, 0.28)	0.26 (0.14, 0.38)	0.32 (0.17, 0.47)	0.65 (0.34, 0.94)	0.98 (0.51, 1.41)	1.30 (0.68, 1.88)	1.95 (1.02, 2.82)	3.25 (1.70, 4.70)	5.20 (2.72, 7.52)	6.50 (3.40, 9.40)
	20%	0.00 (0.00, 0.00)	0.13 (0.07, 0.19)	0.26 (0.14, 0.38)	0.39 (0.20, 0.56)	0.52 (0.27, 0.75)	0.65 (0.34, 0.94)	1.30 (0.68, 1.88)	1.95 (1.02, 2.82)	2.60 (1.36, 3.76)	3.90 (2.04, 5.64)	6.50 (3.40, 9.40)	10.40 (5.44, 15.04)	13.00 (6.80, 18.80)
	30%	0.00 (0.00, 0.00)	0.20 (0.10, 0.28)	0.39 (0.20, 0.56)	0.59 (0.31, 0.85)	0.78 (0.41, 1.13)	0.98 (0.51, 1.41)	1.95 (1.02, 2.82)	2.93 (1.53, 4.23)	3.90 (2.04, 5.64)	5.85 (3.06, 8.46)	9.75 (5.10, 14.10)	15.60 (8.16, 22.56)	19.50 (10.20, 28.20)
	40%	0.00 (0.00, 0.00)	0.26 (0.14, 0.38)	0.52 (0.27, 0.75)	0.78 (0.41, 1.13)	1.04 (0.54, 1.50)	1.30 (0.68, 1.88)	2.60 (1.36, 3.76)	3.90 (2.04, 5.64)	5.20 (2.72, 7.52)	7.80 (4.08, 11.28)	13.00 (6.80, 18.80)	20.80 (10.88, 30.08)	26.00 (13.60, 37.60)
	50%	0.00 (0.00, 0.00)	0.32 (0.17, 0.47)	0.65 (0.34, 0.94)	0.98 (0.51, 1.41)	1.30 (0.68, 1.88)	1.62 (0.85, 2.35)	3.25 (1.70, 4.70)	4.88 (2.55, 7.05)	6.50 (3.40, 9.40)	9.75 (5.10, 14.10)	16.25 (8.50, 23.50)	26.00 (13.60, 37.60)	32.50 (17.00, 47.00)
	60%	0.00 (0.00, 0.00)	0.39 (0.20, 0.56)	0.78 (0.41, 1.13)	1.17 (0.61, 1.69)	1.56 (0.82, 2.26)	1.95 (1.02, 2.82)	3.90 (2.04, 5.64)	5.85 (3.06, 8.46)	7.80 (4.08, 11.28)	11.70 (6.12, 16.92)	19.50 (10.20, 28.20)	31.20 (16.32, 45.12)	39.00 (20.40, 56.40)
	70%	0.00 (0.00, 0.00)	0.46 (0.24, 0.66)	0.91 (0.48, 1.32)	1.36 (0.71, 1.97)	1.82 (0.95, 2.63)	2.28 (1.19, 3.29)	4.55 (2.38, 6.58)	6.83 (3.57, 9.87)	9.10 (4.76, 13.16)	13.65 (7.14, 19.74)	22.75 (11.90, 32.90)	36.40 (19.04, 52.64)	45.50 (23.80, 65.80)
	80%	0.00 (0.00, 0.00)	0.52 (0.27, 0.75)	1.04 (0.54, 1.50)	1.56 (0.82, 2.26)	2.08 (1.09, 3.01)	2.60 (1.36, 3.76)	5.20 (2.72, 7.52)	7.80 (4.08, 11.28)	10.40 (5.44, 15.04)	15.60 (8.16, 22.56)	26.00 (13.60, 37.60)	41.60 (21.76, 60.16)	52.00 (27.20, 75.20)
	90%	0.00 (0.00, 0.00)	0.59 (0.31, 0.85)	1.17 (0.61, 1.69)	1.75 (0.92, 2.54)	2.34 (1.22, 3.38)	2.93 (1.53, 4.23)	5.85 (3.06, 8.46)	8.78 (4.59, 12.69)	11.70 (6.12, 16.92)	17.55 (9.18, 25.38)	29.25 (15.30, 42.30)	46.80 (24.48, 67.68)	58.50 (30.60, 84.60)



Gannet		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00 (0.00, 0.00)	0.65 (0.34, 0.94)	1.30 (0.68, 1.88)	1.95 (1.02, 2.82)	2.60 (1.36, 3.76)	3.25 (1.70, 4.70)	6.50 (3.40, 9.40)	9.75 (5.10, 14.10)	13.00 (6.80, 18.80)	19.50 (10.20, 28.20)	32.50 (17.00, 47.00)	52.00 (27.20, 75.20)	65.00 (34.00, 94.00)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.6 Kittiwake

Annex A, Table 22D-15. Kittiwake displacement – breeding season estimates for EIA

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.09 (0.05, 0.12)	0.18 (0.11, 0.25)	0.26 (0.16, 0.37)	0.35 (0.22, 0.50)	0.44 (0.27, 0.62)	0.88 (0.54, 1.24)	1.32 (0.81, 1.86)	1.76 (1.08, 2.48)	2.64 (1.62, 3.72)	4.40 (2.70, 6.20)	7.04 (4.32, 9.92)	8.80 (5.40, 12.40)
	20%	0.00 (0.00, 0.00)	0.18 (0.11, 0.25)	0.35 (0.22, 0.50)	0.53 (0.32, 0.74)	0.70 (0.43, 0.99)	0.88 (0.54, 1.24)	1.76 (1.08, 2.48)	2.64 (1.62, 3.72)	3.52 (2.16, 4.96)	5.28 (3.24, 7.44)	8.80 (5.40, 12.40)	14.08 (8.64, 19.84)	17.60 (10.80, 24.80)
	30%	0.00 (0.00, 0.00)	0.26 (0.16, 0.37)	0.53 (0.32, 0.74)	0.79 (0.49, 1.12)	1.06 (0.65, 1.49)	1.32 (0.81, 1.86)	2.64 (1.62, 3.72)	3.96 (2.43, 5.58)	5.28 (3.24, 7.44)	7.92 (4.86, 11.16)	13.20 (8.10, 18.60)	21.12 (12.96, 29.76)	26.40 (16.20, 37.20)
	40%	0.00 (0.00, 0.00)	0.35 (0.22, 0.50)	0.70 (0.43, 0.99)	1.06 (0.65, 1.49)	1.41 (0.86, 1.98)	1.76 (1.08, 2.48)	3.52 (2.16, 4.96)	5.28 (3.24, 7.44)	7.04 (4.32, 9.92)	10.56 (6.48, 14.88)	17.60 (10.80, 24.80)	28.16 (17.28, 39.68)	35.20 (21.60, 49.60)
	50%	0.00 (0.00, 0.00)	0.44 (0.27, 0.62)	0.88 (0.54, 1.24)	1.32 (0.81, 1.86)	1.76 (1.08, 2.48)	2.20 (1.35, 3.10)	4.40 (2.70, 6.20)	6.60 (4.05, 9.30)	8.80 (5.40, 12.40)	13.20 (8.10, 18.60)	22.00 (13.50, 31.00)	35.20 (21.60, 49.60)	44.00 (27.00, 62.00)
	60%	0.00 (0.00, 0.00)	0.53 (0.32, 0.74)	1.06 (0.65, 1.49)	1.58 (0.97, 2.23)	2.11 (1.30, 2.98)	2.64 (1.62, 3.72)	5.28 (3.24, 7.44)	7.92 (4.86, 11.16)	10.56 (6.48, 14.88)	15.84 (9.72, 22.32)	26.40 (16.20, 37.20)	42.24 (25.92, 59.52)	52.80 (32.40, 74.40)
	70%	0.00 (0.00, 0.00)	0.62 (0.38, 0.87)	1.23 (0.76, 1.74)	1.85 (1.13, 2.60)	2.46 (1.51, 3.47)	3.08 (1.89, 4.34)	6.16 (3.78, 8.68)	9.24 (5.67, 13.02)	12.32 (7.56, 17.36)	18.48 (11.34, 26.04)	30.80 (18.90, 43.40)	49.28 (30.24, 69.44)	61.60 (37.80, 86.80)
	80%	0.00 (0.00, 0.00)	0.70 (0.43, 0.99)	1.41 (0.86, 1.98)	2.11 (1.30, 2.98)	2.82 (1.73, 3.97)	3.52 (2.16, 4.96)	7.04 (4.32, 9.92)	10.56 (6.48, 14.88)	14.08 (8.64, 19.84)	21.12 (12.96, 29.76)	35.20 (21.60, 49.60)	56.32 (34.56, 79.36)	70.40 (43.20, 99.20)



Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%		0.00	0.79	1.58	2.38	3.17	3.96	7.92	11.88	15.84	23.76	39.60	63.36	79.20
		(0.00, 0.00)	(0.49, 1.12)	(0.97, 2.23)	(1.46, 3.35)	(1.94, 4.46)	(2.43, 5.58)	(4.86, 11.16)	(7.29, 16.74)	(9.72, 22.32)	(14.58, 33.48)	(24.30, 55.80)	(38.88, 89.28)	(48.60, 111.60)
100%		0.00	0.88	1.76	2.64	3.52	4.40	8.80	13.20	17.60	26.40	44.00	70.40	88.00
		(0.00, 0.00)	(0.54, 1.24)	(1.08, 2.48)	(1.62, 3.72)	(2.16, 4.96)	(2.70, 6.20)	(5.40, 12.40)	(8.10, 18.60)	(10.80, 24.80)	(16.20, 37.20)	(27.00, 62.00)	(43.20, 99.20)	(54.00, 124.00)



Annex A, Table 22D-16. Kittiwake displacement – autumn migration estimates for EIA

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	1.94 (1.60, 2.28)	3.89 (3.20, 4.55)	5.83 (4.79, 6.82)	7.78 (6.39, 9.10)	9.72 (7.99, 11.38)	19.44 (15.98, 22.75)	29.16 (23.97, 34.12)	38.88 (31.96, 45.50)	58.32 (47.94, 68.25)	97.20 (79.90, 113.75)	155.52 (127.84, 182.00)	194.40 (159.80, 227.50)
	20%	0.00 (0.00, 0.00)	3.89 (3.20, 4.55)	7.78 (6.39, 9.10)	11.66 (9.59, 13.65)	15.55 (12.78, 18.20)	19.44 (15.98, 22.75)	38.88 (31.96, 45.50)	58.32 (47.94, 68.25)	77.76 (63.92, 91.00)	116.64 (95.88, 136.50)	194.40 (159.80, 227.50)	311.04 (255.68, 364.00)	388.80 (319.60, 455.00)
	30%	0.00 (0.00, 0.00)	5.83 (4.79, 6.83)	11.66 (9.59, 13.65)	17.50 (14.38, 20.48)	23.33 (19.18, 27.30)	29.16 (23.97, 34.13)	58.32 (47.94, 68.25)	87.48 (71.91, 102.38)	116.64 (95.88, 136.50)	174.96 (143.82, 204.75)	291.60 (239.70, 341.25)	466.56 (383.52, 546.00)	583.20 (479.40, 682.50)
	40%	0.00 (0.00, 0.00)	7.78 (6.39, 9.10)	15.55 (12.78, 18.20)	23.33 (19.18, 27.30)	31.10 (25.57, 36.40)	38.88 (31.96, 45.50)	77.76 (63.92, 91.00)	116.64 (95.88, 136.50)	155.52 (127.84, 182.00)	233.28 (191.76, 273.00)	388.80 (319.60, 455.00)	622.08 (511.36, 728.00)	777.60 (639.20, 910.00)
	50%	0.00 (0.00, 0.00)	9.72 (7.99, 11.38)	19.44 (15.98, 22.75)	29.16 (23.97, 34.12)	38.88 (31.96, 45.50)	48.60 (39.95, 56.88)	97.20 (79.90, 113.75)	145.80 (119.85, 170.62)	194.40 (159.80, 227.50)	291.60 (239.70, 341.25)	486.00 (399.50, 568.75)	777.60 (639.20, 910.00)	972.00 (799.00, 1,137.50)
	60%	0.00 (0.00, 0.00)	11.66 (9.59, 13.65)	23.33 (19.18, 27.30)	34.99 (28.76, 40.95)	46.66 (38.35, 54.60)	58.32 (47.94, 68.25)	116.64 (95.88, 136.50)	174.96 (143.82, 204.75)	233.28 (191.76, 273.00)	349.92 (287.64, 409.50)	583.20 (479.40, 682.50)	933.12 (767.04, 1,092.00)	1,166.40 (958.80, 1,365.00)
	70%	0.00 (0.00, 0.00)	13.61 (11.19, 15.93)	27.22 (22.37, 31.85)	40.82 (33.56, 47.78)	54.43 (44.74, 63.70)	68.04 (55.93, 79.63)	136.08 (111.86, 159.25)	204.12 (167.79, 238.88)	272.16 (223.72, 318.50)	408.24 (335.58, 477.75)	680.40 (559.30, 796.25)	1,088.64 (894.88, 1,274.00)	1,360.80 (1,118.60, 1,592.50)
	80%	0.00 (0.00, 0.00)	15.55 (12.78, 18.20)	31.10 (25.57, 36.40)	46.66 (38.35, 54.60)	62.21 (51.14, 72.80)	77.76 (63.92, 91.00)	155.52 (127.84, 182.00)	233.28 (191.76, 273.00)	311.04 (255.68, 364.00)	466.56 (383.52, 546.00)	777.60 (639.20, 910.00)	1,244.16 (1,022.72, 1,456.00)	1,555.20 (1,278.40, 1,820.00)
	90%	0.00 (0.00, 0.00)	17.50 (14.38, 20.48)	34.99 (28.76, 40.95)	52.49 (43.15, 61.43)	69.98 (57.53, 81.90)	87.48 (71.91, 102.38)	174.96 (143.82, 204.75)	262.44 (215.73, 307.12)	349.92 (287.64, 409.50)	524.88 (431.46, 614.25)	874.80 (719.10, 1,023.75)	1,399.68 (1,150.56, 1,638.00)	1,749.60 (1,438.20, 2,047.50)





Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00 <i>(0.00, 0.00)</i>	19.44 <i>(15.98, 22.75)</i>	38.88 <i>(31.96, 45.50)</i>	58.32 <i>(47.94, 68.25)</i>	77.76 <i>(63.92, 91.00)</i>	97.20 <i>(79.90, 113.75)</i>	194.40 <i>(159.80, 227.50)</i>	291.60 <i>(239.70, 341.25)</i>	388.80 <i>(319.60, 455.00)</i>	583.20 <i>(479.40, 682.50)</i>	972.00 <i>(799.00, 1,137.50)</i>	1,555.20 <i>(1,278.40, 1,820.00)</i>	1,944.00 <i>(1,598.00, 2,275.00)</i>



Annex A, Table 22D-17. Kittiwake displacement – spring migration estimates for EIA

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.21 (0.15, 0.26)	0.41 (0.31, 0.51)	0.62 (0.46, 0.77)	0.82 (0.62, 1.02)	1.03 (0.77, 1.28)	2.06 (1.54, 2.56)	3.09 (2.31, 3.84)	4.12 (3.08, 5.12)	6.18 (4.62, 7.68)	10.30 (7.70, 12.80)	16.48 (12.32, 20.48)	20.60 (15.40, 25.60)
	20%	0.00 (0.00, 0.00)	0.41 (0.31, 0.51)	0.82 (0.62, 1.02)	1.24 (0.92, 1.54)	1.65 (1.23, 2.05)	2.06 (1.54, 2.56)	4.12 (3.08, 5.12)	6.18 (4.62, 7.68)	8.24 (6.16, 10.24)	12.36 (9.24, 15.36)	20.60 (15.40, 25.60)	32.96 (24.64, 40.96)	41.20 (30.80, 51.20)
	30%	0.00 (0.00, 0.00)	0.62 (0.46, 0.77)	1.24 (0.92, 1.54)	1.85 (1.39, 2.30)	2.47 (1.85, 3.07)	3.09 (2.31, 3.84)	6.18 (4.62, 7.68)	9.27 (6.93, 11.52)	12.36 (9.24, 15.36)	18.54 (13.86, 23.04)	30.90 (23.10, 38.40)	49.44 (36.96, 61.44)	61.80 (46.20, 76.80)
	40%	0.00 (0.00, 0.00)	0.82 (0.62, 1.02)	1.65 (1.23, 2.05)	2.47 (1.85, 3.07)	3.30 (2.46, 4.10)	4.12 (3.08, 5.12)	8.24 (6.16, 10.24)	12.36 (9.24, 15.36)	16.48 (12.32, 20.48)	24.72 (18.48, 30.72)	41.20 (30.80, 51.20)	65.92 (49.28, 81.92)	82.40 (61.60, 102.40)
	50%	0.00 (0.00, 0.00)	1.03 (0.77, 1.28)	2.06 (1.54, 2.56)	3.09 (2.31, 3.84)	4.12 (3.08, 5.12)	5.15 (3.85, 6.40)	10.30 (7.70, 12.80)	15.45 (11.55, 19.20)	20.60 (15.40, 25.60)	30.90 (23.10, 38.40)	51.50 (38.50, 64.00)	82.40 (61.60, 102.40)	103.00 (77.00, 128.00)
	60%	0.00 (0.00, 0.00)	1.24 (0.92, 1.54)	2.47 (1.85, 3.07)	3.71 (2.77, 4.61)	4.94 (3.70, 6.14)	6.18 (4.62, 7.68)	12.36 (9.24, 15.36)	18.54 (13.86, 23.04)	24.72 (18.48, 30.72)	37.08 (27.72, 46.08)	61.80 (46.20, 76.80)	98.88 (73.92, 122.88)	123.60 (92.40, 153.60)
	70%	0.00 (0.00, 0.00)	1.44 (1.08, 1.79)	2.88 (2.16, 3.58)	4.33 (3.23, 5.38)	5.77 (4.31, 7.17)	7.21 (5.39, 8.96)	14.42 (10.78, 17.92)	21.63 (16.17, 26.88)	28.84 (21.56, 35.84)	43.26 (32.34, 53.76)	72.10 (53.90, 89.60)	115.36 (86.24, 143.36)	144.20 (107.80, 179.20)
	80%	0.00 (0.00, 0.00)	1.65 (1.23, 2.05)	3.30 (2.46, 4.10)	4.94 (3.70, 6.14)	6.59 (4.93, 8.19)	8.24 (6.16, 10.24)	16.48 (12.32, 20.48)	24.72 (18.48, 30.72)	32.96 (24.64, 40.96)	49.44 (36.96, 61.44)	82.40 (61.60, 102.40)	131.84 (98.56, 163.84)	164.80 (123.20, 204.80)
	90%	0.00 (0.00, 0.00)	1.85 (1.39, 2.30)	3.71 (2.77, 4.61)	5.56 (4.16, 6.91)	7.42 (5.54, 9.22)	9.27 (6.93, 11.52)	18.54 (13.86, 23.04)	27.81 (20.79, 34.56)	37.08 (27.72, 46.08)	55.62 (41.58, 69.12)	92.70 (69.30, 115.20)	148.32 (110.88, 184.32)	185.40 (138.60, 230.40)



Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%		0.00 (0.00, 0.00)	2.06 (1.54, 2.56)	4.12 (3.08, 5.12)	6.18 (4.62, 7.68)	8.24 (6.16, 10.24)	10.30 (7.70, 12.80)	20.60 (15.40, 25.60)	30.90 (23.10, 38.40)	41.20 (30.80, 51.20)	61.80 (46.20, 76.80)	103.00 (77.00, 128.00)	164.80 (123.20, 204.80)	206.00 (154.00, 256.00)



## 22.6 Appendix 22D: Annex B – SPA Seasonal Displacement Matrices

### 22.6.3. Guillemot – Skomer, Skokholm and the Seas Off Pembrokeshire SPA

Annex B, Table 22D-1. Guillemot displacement – in the breeding season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.99 (0.74, 1.25)	1.97 (1.49, 2.50)	2.96 (2.23, 3.75)	3.95 (2.97, 5.00)	4.93 (3.72, 6.25)	9.87 (7.44, 12.50)	14.80 (11.15, 18.74)	19.73 (14.87, 24.99)	29.60 (22.31, 37.49)	49.33 (37.18, 62.48)	78.93 (59.49, 99.97)	98.67 (74.36, 124.96)
	20%	0.00 (0.00, 0.00)	1.97 (1.49, 2.50)	3.95 (2.97, 5.00)	5.92 (4.46, 7.50)	7.89 (5.95, 10.00)	9.87 (7.44, 12.50)	19.73 (14.87, 24.99)	29.60 (22.31, 37.49)	39.47 (29.75, 49.99)	59.20 (44.62, 74.98)	98.67 (74.36, 124.96)	157.87 (118.98, 199.94)	197.33 (148.73, 249.93)
	30%	0.00 (0.00, 0.00)	2.96 (2.23, 3.75)	5.92 (4.46, 7.50)	8.88 (6.69, 11.25)	11.84 (8.92, 15.00)	14.80 (11.15, 18.74)	29.60 (22.31, 37.49)	44.40 (33.46, 56.23)	59.20 (44.62, 74.98)	88.80 (66.93, 112.47)	148.00 (111.55, 187.45)	236.80 (178.48, 299.91)	296.00 (223.09, 374.89)
	40%	0.00 (0.00, 0.00)	3.95 (2.97, 5.00)	7.89 (2.97, 5.00)	11.84 (8.92, 15.00)	15.79 (11.90, 19.99)	19.73 (14.87, 24.99)	39.47 (29.75, 49.99)	59.20 (44.62, 74.98)	78.93 (59.49, 99.97)	118.40 (89.24, 149.96)	197.33 (148.73, 249.93)	315.73 (237.97, 399.89)	394.66 (297.46, 499.86)
	50%	0.00 (0.00, 0.00)	4.93 (3.72, 6.25)	9.87 (7.44, 12.50)	14.80 (11.15, 18.74)	19.73 (14.87, 24.99)	24.67 (18.59, 31.24)	49.33 (37.18, 62.48)	74.00 (37.18, 62.48)	98.67 (74.36, 124.96)	148.00 (111.55, 187.45)	246.67 (185.91, 312.41)	394.66 (297.46, 499.86)	493.33 (371.82, 624.82)
	60%	0.00 (0.00, 0.00)	5.92 (4.46, 7.50)	11.84 (8.92, 15.00)	17.76 (13.39, 22.49)	23.68 (17.85, 29.99)	29.60 (22.31, 37.49)	59.20 (44.62, 74.98)	88.80 (66.93, 112.47)	118.40 (89.24, 149.96)	177.60 (133.86, 224.94)	296.00 (223.09, 374.89)	473.60 (356.95, 599.83)	592.00 (446.19, 749.79)
	70%	0.00 (0.00, 0.00)	6.91 (5.21, 8.75)	13.81 (10.41, 17.49)	20.72 (15.62, 26.24)	27.63 (20.82, 34.99)	34.53 (26.03, 43.74)	69.07 (52.06, 87.47)	103.60 (78.08, 131.21)	138.13 (104.11, 174.95)	207.20 (156.17, 262.42)	345.33 (260.28, 437.37)	552.53 (416.44, 699.80)	690.66 (520.55, 874.75)



Guillemot		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
80%		0.00	7.89	15.79	23.68	31.57	39.47	78.93	118.40	157.87	236.80	394.66	631.46	789.33
		(0.00, 0.00)	(5.95, 10.00)	(11.90, 19.99)	(17.85, 29.99)	(23.80, 39.99)	(29.75, 49.99)	(59.49, 99.97)	(89.24, 149.96)	(118.98, 199.94)	(178.48, 299.91)	(297.46, 499.86)	(475.94, 799.77)	(594.92, 999.71)
		0.00	8.88	17.76	26.64	35.52	44.40	88.80	133.20	177.60	266.40	444.00	710.40	888.00
90%		0.00	8.88	17.76	26.64	35.52	44.40	88.80	133.20	177.60	266.40	444.00	710.40	888.00
		(0.00, 0.00)	(6.69, 11.25)	(13.39, 22.49)	(20.08, 33.74)	(26.77, 44.99)	(33.46, 56.23)	(66.93, 112.47)	(100.39, 168.70)	(133.86, 224.94)	(200.79, 337.40)	(334.64, 562.34)	(535.43, 899.74)	(669.28, 1,124.68)
		0.00	9.87	19.73	29.60	39.47	49.33	98.67	148.00	197.33	296.00	493.33	789.33	986.66
100%		0.00	9.87	19.73	29.60	39.47	49.33	98.67	148.00	197.33	296.00	493.33	789.33	986.66
		(0.00, 0.00)	(7.44, 12.50)	(14.87, 24.99)	(22.31, 37.49)	(29.75, 49.99)	(37.18, 62.48)	(74.36, 124.96)	(111.55, 187.45)	(148.73, 249.93)	(223.09, 374.89)	(371.82, 624.82)	(594.92, 999.71)	(743.65, 1,249.64)
		0.00	9.87	19.73	29.60	39.47	49.33	98.67	148.00	197.33	296.00	493.33	789.33	986.66

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-2. Guillemot displacement –non-breeding season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.34 (0.30, 0.38)	0.68 (0.60, 0.76)	1.01 (0.90, 1.13)	1.35 (1.20, 1.51)	1.69 (1.50, 1.89)	3.38 (3.00, 3.78)	5.07 (4.50, 5.67)	6.76 (6.00, 7.56)	10.15 (9.01, 11.33)	16.91 (15.01, 18.89)	27.06 (24.02, 30.23)	33.82 (30.02, 37.78)
	20%	0.00 (0.00, 0.00)	0.68 (0.60, 0.76)	1.35 (1.20, 1.51)	2.03 (1.80, 2.27)	2.71 (2.40, 3.02)	3.38 (3.00, 3.78)	6.76 (6.00, 7.56)	10.15 (9.01, 11.33)	13.53 (12.01, 15.11)	20.29 (18.01, 22.67)	33.82 (30.02, 37.78)	54.12 (48.03, 60.45)	67.65 (60.04, 75.57)
	30%	0.00 (0.00, 0.00)	1.01 (0.90, 1.13)	2.03 (1.80, 2.27)	3.04 (2.70, 3.40)	4.06 (3.60, 4.53)	5.07 (4.50, 5.67)	10.15 (9.01, 11.33)	15.22 (13.51, 17.00)	20.29 (18.01, 22.67)	30.44 (27.02, 34.00)	50.74 (45.03, 56.67)	81.18 (72.05, 90.68)	101.47 (90.06, 113.35)
	40%	0.00 (0.00, 0.00)	1.35 (1.20, 1.51)	2.71 (2.40, 3.02)	4.06 (3.60, 4.53)	5.41 (4.80, 6.05)	6.76 (6.00, 7.56)	13.53 (12.01, 15.11)	20.29 (18.01, 22.67)	27.06 (24.02, 30.23)	40.59 (36.02, 45.34)	67.65 (60.04, 75.57)	108.23 (96.06, 120.91)	135.29 (120.08, 151.13)
	50%	0.00 (0.00, 0.00)	1.69 (1.50, 1.89)	3.38 (3.00, 3.78)	5.07 (4.50, 5.67)	6.76 (6.00, 7.56)	8.46 (7.50, 9.45)	16.91 (15.01, 18.89)	25.37 (22.51, 28.34)	33.82 (30.02, 37.78)	50.74 (45.03, 56.67)	84.56 (75.05, 94.46)	135.29 (120.08, 151.13)	169.12 (150.10, 188.92)
	60%	0.00 (0.00, 0.00)	2.03 (1.80, 2.27)	4.06 (3.60, 4.53)	6.09 (5.40, 6.80)	8.12 (7.20, 9.07)	10.15 (9.01, 11.33)	20.29 (18.01, 22.67)	30.44 (27.02, 34.00)	40.59 (36.02, 45.34)	60.88 (54.04, 68.01)	101.47 (90.06, 113.35)	162.35 (144.09, 181.36)	202.94 (180.12, 226.70)
	70%	0.00 (0.00, 0.00)	2.37 (2.10, 2.64)	4.74 (4.20, 5.29)	7.10 (6.30, 7.93)	9.47 (8.41, 10.58)	11.84 (10.51, 13.22)	23.68 (21.01, 26.45)	35.51 (31.52, 39.67)	47.35 (42.03, 52.90)	71.03 (63.04, 79.34)	118.38 (105.07, 132.24)	189.41 (168.11, 211.59)	236.76 (210.14, 264.48)
	80%	0.00 (0.00, 0.00)	2.71 (2.40, 3.02)	5.41 (4.80, 6.05)	8.12 (7.20, 9.07)	10.82 (9.61, 12.09)	13.53 (12.01, 15.11)	27.06 (24.02, 30.23)	40.59 (36.02, 45.34)	54.12 (48.03, 60.45)	81.18 (72.05, 90.68)	135.29 (120.08, 151.13)	216.47 (192.13, 241.81)	270.59 (240.16, 302.27)



Guillemot		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%		0.00 (0.00, 0.00)	3.04 (2.70, 3.40)	6.09 (5.40, 6.80)	9.13 (8.11, 10.20)	12.18 (10.81, 13.60)	15.22 (13.51, 17.00)	30.44 (27.02, 34.00)	45.66 (40.53, 51.01)	60.88 (54.04, 68.01)	91.32 (81.05, 102.01)	152.21 (135.09, 170.02)	243.53 (216.14, 272.04)	304.41 (270.18, 340.05)
100%		0.00 (0.00, 0.00)	3.38 (3.00, 3.78)	6.76 (6.00, 7.56)	10.15 (9.01, 11.33)	13.53 (12.01, 15.11)	16.91 (15.01, 18.89)	33.82 (30.02, 37.78)	50.74 (45.03, 56.67)	67.65 (60.04, 75.57)	101.47 (90.06, 113.35)	169.12 (150.10, 188.92)	270.59 (240.16, 302.27)	338.23 (300.20, 377.83)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.7 Guillemot – Castlemartin Range SSSI

Annex B, Table 22D-3. Guillemot displacement – breeding season for Castlemartin SSSI

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.73 (0.55, 0.92)	1.46 (1.10, 1.85)	2.19 (1.65, 2.77)	2.92 (2.20, 3.70)	3.65 (2.75, 4.62)	7.29 (5.50, 9.24)	10.94 (8.25, 13.86)	14.59 (10.99, 18.48)	21.88 (16.49, 27.71)	36.47 (27.49, 46.19)	58.35 (43.98, 73.90)	72.94 (54.97, 92.38)
	20%	0.00 (0.00, 0.00)	1.46 (1.10, 1.85)	2.92 (2.20, 3.70)	4.38 (3.30, 5.54)	5.83 (4.40, 7.39)	7.29 (5.50, 9.24)	14.59 (10.99, 18.48)	21.88 (16.49, 27.71)	29.17 (21.99, 36.95)	43.76 (32.98, 55.43)	72.94 (54.97, 92.38)	116.70 (87.96, 147.80)	145.87 (109.94, 184.75)
	30%	0.00 (0.00, 0.00)	2.19 (1.65, 2.77)	4.38 (3.30, 5.54)	6.56 (4.95, 8.31)	8.75 (6.60, 11.09)	10.94 (8.25, 13.86)	21.88 (16.49, 27.71)	32.82 (24.74, 41.57)	43.76 (32.98, 55.43)	65.64 (49.47, 83.14)	109.40 (82.46, 138.56)	175.05 (131.93, 221.70)	218.81 (164.92, 277.13)
	40%	0.00 (0.00, 0.00)	2.92 (2.20, 3.70)	5.83 (4.40, 7.39)	8.75 (6.60, 11.09)	11.67 (8.80, 14.78)	14.59 (10.99, 18.48)	29.17 (21.99, 36.95)	43.76 (32.98, 55.43)	58.35 (43.98, 73.90)	87.52 (65.97, 110.85)	145.87 (109.94, 184.75)	233.40 (175.91, 295.60)	291.74 (219.89, 369.50)
	50%	0.00 (0.00, 0.00)	3.65 (2.75, 4.62)	7.29 (5.50, 9.24)	10.94 (8.25, 13.86)	14.59 (10.99, 18.48)	18.23 (13.74, 23.09)	36.47 (27.49, 46.19)	54.70 (41.23, 69.28)	72.94 (54.97, 92.38)	109.40 (82.46, 138.56)	182.34 (137.43, 230.94)	291.74 (219.89, 369.50)	364.68 (274.86, 461.88)
	60%	0.00 (0.00, 0.00)	4.38 (3.30, 5.54)	8.75 (6.60, 11.09)	13.13 (9.89, 16.63)	17.50 (13.19, 22.17)	21.88 (16.49, 27.71)	43.76 (32.98, 55.43)	65.64 (49.47, 83.14)	87.52 (65.97, 110.85)	131.28 (98.95, 166.28)	218.81 (164.92, 277.13)	350.09 (263.87, 443.40)	437.62 (329.83, 554.26)
	70%	0.00 (0.00, 0.00)	5.11 (3.85, 6.47)	10.21 (7.70, 12.93)	15.32 (11.54, 19.40)	20.42 (15.39, 25.87)	25.53 (19.24, 32.33)	51.06 (38.48, 64.66)	76.58 (57.72, 96.99)	102.11 (76.96, 129.33)	153.17 (115.44, 193.99)	255.28 (192.40, 323.32)	408.44 (307.84, 517.31)	510.55 (384.80, 646.63)
	80%	0.00 (0.00, 0.00)	5.83 (4.40, 7.39)	11.67 (8.80, 14.78)	17.50 (13.19, 22.17)	23.34 (17.59, 29.56)	29.17 (21.99, 36.95)	58.35 (43.98, 73.90)	87.52 (65.97, 110.85)	116.70 (87.96, 147.80)	175.05 (131.93, 221.70)	291.74 (219.89, 369.50)	466.79 (351.82, 591.21)	583.49 (439.78, 739.01)





Guillemot		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%		0.00 (0.00, 0.00)	6.56 (4.95, 8.31)	13.13 (9.89, 16.63)	19.69 (14.84, 24.94)	26.26 (19.79, 33.26)	32.82 (24.74, 41.57)	65.64 (49.47, 83.14)	98.46 (74.21, 124.71)	131.28 (98.95, 166.28)	196.93 (148.42, 249.42)	328.21 (247.37, 415.69)	525.14 (395.80, 665.11)	656.42 (494.75, 831.38)
100%		0.00 (0.00, 0.00)	7.29 (5.50, 9.24)	14.59 (10.99, 18.48)	21.88 (16.49, 27.71)	29.17 (21.99, 36.95)	36.47 (27.49, 46.19)	72.94 (54.97, 92.38)	109.40 (82.46, 138.56)	145.87 (109.94, 184.75)	218.81 (164.92, 277.13)	364.68 (274.86, 461.88)	583.49 (439.78, 739.01)	729.36 (549.72, 923.76)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-4. Guillemot displacement – non-breeding season for Castlemartin SSSI

Guillemot		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.23 (0.21, 0.26)	0.47 (0.42, 0.52)	0.70 (0.62, 0.78)	0.94 (0.83, 1.05)	1.17 (1.04, 1.31)	2.34 (2.08, 2.62)	3.51 (3.12, 3.92)	4.68 (4.16, 5.23)	7.02 (6.23, 7.85)	11.71 (10.39, 13.08)	18.73 (16.63, 20.93)	23.42 (20.78, 26.16)
	20%	0.00 (0.00, 0.00)	0.47 (0.42, 0.52)	0.94 (0.83, 1.05)	1.40 (1.25, 1.57)	1.87 (1.66, 2.09)	2.34 (2.08, 2.62)	4.68 (4.16, 5.23)	7.02 (6.23, 7.85)	9.37 (8.31, 10.46)	14.05 (12.47, 15.69)	23.42 (20.78, 26.16)	37.47 (33.25, 41.85)	46.83 (41.57, 52.32)
	30%	0.00 (0.00, 0.00)	0.70 (0.62, 0.78)	1.40 (1.25, 1.57)	2.11 (1.87, 2.35)	2.81 (2.49, 3.14)	3.51 (3.12, 3.92)	7.02 (6.23, 7.85)	10.54 (9.35, 11.77)	14.05 (12.47, 15.69)	21.07 (18.70, 23.54)	35.12 (31.17, 39.24)	56.20 (49.88, 62.78)	70.25 (62.35, 78.47)
	40%	0.00 (0.00, 0.00)	0.94 (0.83, 1.05)	1.87 (1.66, 2.09)	2.81 (2.49, 3.14)	3.75 (3.33, 4.19)	4.68 (4.16, 5.23)	9.37 (8.31, 10.46)	14.05 (12.47, 15.69)	18.73 (16.63, 20.93)	28.10 (24.94, 31.39)	46.83 (41.57, 52.32)	74.93 (66.50, 83.70)	93.66 (83.13, 104.63)
	50%	0.00 (0.00, 0.00)	1.17 (1.04, 1.31)	2.34 (2.08, 2.62)	3.51 (3.12, 3.92)	4.68 (4.16, 5.23)	5.85 (5.20, 6.54)	11.71 (10.39, 13.08)	17.56 (15.59, 19.62)	23.42 (20.78, 26.16)	35.12 (31.17, 39.24)	58.54 (51.96, 65.39)	93.66 (83.13, 104.63)	117.08 (103.91, 130.79)
	60%	0.00 (0.00, 0.00)	1.40 (1.25, 1.57)	2.81 (2.49, 3.14)	4.21 (3.74, 4.71)	5.62 (4.99, 6.28)	7.02 (6.23, 7.85)	14.05 (12.47, 15.69)	21.07 (18.70, 23.54)	28.10 (24.94, 31.39)	42.15 (37.41, 47.08)	70.25 (62.35, 78.47)	112.40 (99.76, 125.56)	140.50 (124.70, 156.95)
	70%	0.00 (0.00, 0.00)	1.64 (1.45, 1.83)	3.28 (2.91, 3.66)	4.92 (4.36, 5.49)	6.56 (5.82, 7.32)	8.20 (7.27, 9.16)	16.39 (14.55, 18.31)	24.59 (21.82, 27.47)	32.78 (29.10, 36.62)	49.17 (43.64, 54.93)	81.96 (72.74, 91.55)	131.13 (116.38, 146.48)	163.91 (145.48, 183.10)
	80%	0.00 (0.00, 0.00)	1.87 (1.66, 2.09)	3.75 (3.33, 4.19)	5.62 (4.99, 6.28)	7.49 (6.65, 8.37)	9.37 (8.31, 10.46)	18.73 (16.63, 20.93)	28.10 (24.94, 31.39)	37.47 (33.25, 41.85)	56.20 (49.88, 62.78)	93.66 (83.13, 104.63)	149.86 (133.01, 167.41)	187.33 (166.26, 209.26)
	90%	0.00 (0.00, 0.00)	2.11 (1.87, 2.35)	4.21 (3.74, 4.71)	6.32 (5.61, 7.06)	8.43 (7.48, 9.42)	10.54 (9.35, 11.77)	21.07 (18.70, 23.54)	31.61 (28.06, 35.31)	42.15 (37.41, 47.08)	63.22 (56.11, 70.63)	105.37 (93.52, 117.71)	168.60 (149.64, 188.33)	210.75 (187.05, 235.42)



Guillemot NON-BREEDING SEASON	Mortality level (% of displaced birds at risk of mortality)												
	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%	0.00 <i>(0.00, 0.00)</i>	2.34 <i>(2.08, 2.62)</i>	4.68 <i>(4.16, 5.23)</i>	7.02 <i>(6.23, 7.85)</i>	9.37 <i>(8.31, 10.46)</i>	11.71 <i>(10.39, 13.08)</i>	23.42 <i>(20.78, 26.16)</i>	35.12 <i>(31.17, 39.24)</i>	46.83 <i>(41.57, 52.32)</i>	70.25 <i>(62.35, 78.47)</i>	117.08 <i>(103.91, 130.79)</i>	187.33 <i>(166.26, 209.26)</i>	234.16 <i>(207.83, 261.58)</i>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.8 Razorbill – Skomer, Skokholm and the Seas Off Pembrokeshire SPA

Annex B, Table 22D-5. Razorbill displacement – breeding season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.01 (0.00, 0.02)	0.03 (0.01, 0.05)	0.04 (0.01, 0.07)	0.05 (0.02, 0.09)	0.07 (0.02, 0.12)	0.13 (0.04, 0.24)	0.20 (0.07, 0.35)	0.27 (0.09, 0.47)	0.40 (0.13, 0.71)	0.67 (0.22, 1.18)	1.07 (0.36, 1.89)	1.34 (0.45, 2.36)
	20%	0.00 (0.00, 0.00)	0.03 (0.01, 0.05)	0.05 (0.02, 0.09)	0.08 (0.03, 0.14)	0.11 (0.04, 0.19)	0.13 (0.04, 0.24)	0.27 (0.09, 0.47)	0.40 (0.13, 0.71)	0.54 (0.18, 0.95)	0.81 (0.27, 1.42)	1.34 (0.45, 2.36)	2.15 (0.72, 3.78)	2.68 (0.89, 4.73)
	30%	0.00 (0.00, 0.00)	0.04 (0.01, 0.07)	0.08 (0.03, 0.14)	0.12 (0.04, 0.21)	0.16 (0.05, 0.28)	0.20 (0.07, 0.35)	0.40 (0.13, 0.71)	0.60 (0.20, 1.06)	0.81 (0.27, 1.42)	1.21 (0.40, 2.13)	2.01 (0.67, 3.55)	3.22 (1.07, 5.67)	4.03 (1.34, 7.09)
	40%	0.00 (0.00, 0.00)	0.05 (0.02, 0.09)	0.11 (0.04, 0.19)	0.16 (0.05, 0.28)	0.21 (0.07, 0.38)	0.27 (0.09, 0.47)	0.54 (0.18, 0.95)	0.81 (0.27, 1.42)	1.07 (0.36, 1.89)	1.61 (0.54, 2.84)	2.68 (0.89, 4.73)	4.29 (1.43, 7.57)	5.37 (1.79, 9.46)
	50%	0.00 (0.00, 0.00)	0.07 (0.02, 0.12)	0.13 (0.04, 0.24)	0.20 (0.07, 0.35)	0.27 (0.09, 0.47)	0.34 (0.11, 0.59)	0.67 (0.22, 1.18)	1.01 (0.34, 1.77)	1.34 (0.45, 2.36)	2.01 (0.67, 3.55)	3.35 (1.12, 5.91)	5.37 (1.79, 9.46)	6.71 (2.24, 11.82)
	60%	0.00 (0.00, 0.00)	0.08 (0.03, 0.14)	0.16 (0.05, 0.28)	0.24 (0.08, 0.43)	0.32 (0.11, 0.57)	0.40 (0.13, 0.71)	0.81 (0.27, 1.42)	1.21 (0.40, 2.13)	1.61 (0.54, 2.84)	2.42 (0.81, 4.26)	4.03 (1.34, 7.09)	6.44 (2.15, 11.35)	8.05 (2.68, 14.19)
	70%	0.00 (0.00, 0.00)	0.09 (0.03, 0.17)	0.19 (0.06, 0.33)	0.28 (0.09, 0.50)	0.38 (0.13, 0.66)	0.47 (0.16, 0.83)	0.94 (0.31, 1.66)	1.41 (0.47, 2.48)	1.88 (0.63, 3.31)	2.82 (0.94, 4.97)	4.70 (1.57, 8.28)	7.51 (2.50, 13.24)	9.39 (3.13, 16.55)
	80%	0.00 (0.00, 0.00)	0.11 (0.04, 0.19)	0.21 (0.07, 0.38)	0.32 (0.11, 0.57)	0.43 (0.14, 0.76)	0.54 (0.18, 0.95)	1.07 (0.36, 1.89)	1.61 (0.54, 2.84)	2.15 (0.72, 3.78)	3.22 (1.07, 5.67)	5.37 (1.79, 9.46)	8.59 (2.86, 15.13)	10.74 (3.58, 18.91)



Razorbill		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%	0.00	0.12	0.24	0.36	0.48	0.60	1.21	1.81	2.42	3.62	6.04	9.66	12.08	
	(0.00, 0.00)	(0.04, 0.21)	(0.08, 0.43)	(0.12, 0.64)	(0.16, 0.85)	(0.20, 1.06)	(0.40, 2.13)	(0.60, 3.19)	(0.81, 4.26)	(1.21, 6.38)	(2.01, 10.64)	(3.22, 17.02)	(4.03, 21.28)	
100%	0.00	0.13	0.27	0.40	0.54	0.67	1.34	2.01	2.68	4.03	6.71	10.74	13.42	
	(0.00, 0.00)	(0.04, 0.24)	(0.09, 0.47)	(0.13, 0.71)	(0.18, 0.95)	(0.22, 1.18)	(0.45, 2.36)	(0.67, 3.55)	(0.89, 4.73)	(1.34, 7.09)	(2.24, 11.82)	(3.58, 18.91)	(4.47, 23.64)	

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-6. Razorbill displacement – autumn migration for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.04 (0.03, 0.04)	0.07 (0.06, 0.09)	0.11 (0.08, 0.13)	0.14 (0.11, 0.18)	0.18 (0.14, 0.22)	0.36 (0.28, 0.44)	0.54 (0.42, 0.67)	0.72 (0.55, 0.89)	1.08 (0.83, 1.33)	1.79 (1.39, 2.22)	2.87 (2.22, 3.55)	3.59 (2.77, 4.44)
	20%	0.00 (0.00, 0.00)	0.07 (0.06, 0.09)	0.14 (0.11, 0.18)	0.22 (0.17, 0.27)	0.29 (0.22, 0.36)	0.36 (0.28, 0.44)	0.72 (0.55, 0.89)	1.08 (0.83, 1.33)	1.43 (1.11, 1.78)	2.15 (1.66, 2.67)	3.59 (2.77, 4.44)	5.74 (4.44, 7.11)	7.17 (5.55, 8.88)
	30%	0.00 (0.00, 0.00)	0.11 (0.08, 0.13)	0.22 (0.17, 0.27)	0.32 (0.25, 0.40)	0.43 (0.33, 0.53)	0.54 (0.42, 0.67)	1.08 (0.83, 1.33)	1.61 (1.25, 2.00)	2.15 (1.66, 2.67)	3.23 (2.50, 4.00)	5.38 (4.16, 6.66)	8.61 (6.66, 10.66)	10.76 (8.32, 13.33)
	40%	0.00 (0.00, 0.00)	0.14 (0.11, 0.18)	0.29 (0.22, 0.36)	0.43 (0.33, 0.53)	0.57 (0.44, 0.71)	0.72 (0.55, 0.89)	1.43 (1.11, 1.78)	2.15 (1.66, 2.67)	2.87 (2.22, 3.55)	4.30 (3.33, 5.33)	7.17 (5.55, 8.88)	11.48 (8.88, 14.22)	14.35 (11.10, 17.77)
	50%	0.00 (0.00, 0.00)	0.18 (0.14, 0.22)	0.36 (0.28, 0.44)	0.54 (0.42, 0.67)	0.72 (0.55, 0.89)	0.90 (0.69, 1.11)	1.79 (1.39, 2.22)	2.69 (2.08, 3.33)	3.59 (2.77, 4.44)	5.38 (4.16, 6.66)	8.97 (6.93, 11.11)	14.35 (11.10, 17.77)	17.94 (13.87, 22.21)
	60%	0.00 (0.00, 0.00)	0.22 (0.17, 0.27)	0.43 (0.33, 0.53)	0.65 (0.50, 0.80)	0.86 (0.67, 1.07)	1.08 (0.83, 1.33)	2.15 (1.66, 2.67)	3.23 (2.50, 4.00)	4.30 (3.33, 5.33)	6.46 (4.99, 8.00)	10.76 (8.32, 13.33)	17.22 (13.32, 21.32)	21.52 (16.64, 26.65)
	70%	0.00 (0.00, 0.00)	0.25 (0.19, 0.31)	0.50 (0.39, 0.62)	0.75 (0.58, 0.93)	1.00 (0.78, 1.24)	1.26 (0.97, 1.55)	2.51 (1.94, 3.11)	3.77 (2.91, 4.66)	5.02 (3.88, 6.22)	7.53 (5.83, 9.33)	12.56 (9.71, 15.55)	20.09 (15.53, 24.88)	25.11 (19.42, 31.10)
	80%	0.00 (0.00, 0.00)	0.29 (0.22, 0.36)	0.57 (0.44, 0.71)	0.86 (0.67, 1.07)	1.15 (0.89, 1.42)	1.43 (1.11, 1.78)	2.87 (2.22, 3.55)	4.30 (3.33, 5.33)	5.74 (4.44, 7.11)	8.61 (6.66, 10.66)	14.35 (11.10, 17.77)	22.96 (17.75, 28.43)	28.70 (22.19, 35.54)
	90%	0.00 (0.00, 0.00)	0.32 (0.25, 0.40)	0.65 (0.50, 0.80)	0.97 (0.75, 1.20)	1.29 (1.00, 1.60)	1.61 (1.25, 2.00)	3.23 (2.50, 4.00)	4.84 (3.74, 6.00)	6.46 (4.99, 8.00)	9.69 (7.49, 11.99)	16.14 (12.48, 19.99)	25.83 (19.97, 31.98)	32.28 (24.97, 39.98)



Razorbill		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00 (0.00, 0.00)	0.36 (0.28, 0.44)	0.72 (0.55, 0.89)	1.08 (0.83, 1.33)	1.43 (1.11, 1.78)	1.79 (1.39, 2.22)	3.59 (2.77, 4.44)	5.38 (4.16, 6.66)	7.17 (5.55, 8.88)	10.76 (8.32, 13.33)	17.94 (13.87, 22.21)	28.70 (22.19, 35.54)	35.87 (27.74, 44.42)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-7. Razorbill displacement – non-breeding season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.01 (0.00, 0.01)	0.01 (0.01, 0.02)	0.02 (0.01, 0.02)	0.02 (0.01, 0.03)	0.03 (0.02, 0.04)	0.05 (0.03, 0.08)	0.08 (0.05, 0.11)	0.11 (0.07, 0.15)	0.16 (0.10, 0.23)	0.27 (0.17, 0.38)	0.43 (0.27, 0.61)	0.54 (0.34, 0.76)
	20%	0.00 (0.00, 0.00)	0.01 (0.01, 0.02)	0.02 (0.01, 0.03)	0.03 (0.02, 0.05)	0.04 (0.03, 0.06)	0.05 (0.03, 0.08)	0.11 (0.07, 0.15)	0.16 (0.10, 0.23)	0.22 (0.13, 0.31)	0.33 (0.20, 0.46)	0.54 (0.34, 0.76)	0.87 (0.54, 1.22)	1.08 (0.67, 1.53)
	30%	0.00 (0.00, 0.00)	0.02 (0.01, 0.02)	0.03 (0.02, 0.05)	0.05 (0.03, 0.07)	0.07 (0.04, 0.09)	0.08 (0.05, 0.11)	0.16 (0.10, 0.23)	0.24 (0.15, 0.34)	0.33 (0.20, 0.46)	0.49 (0.30, 0.69)	0.81 (0.50, 1.15)	1.30 (0.81, 1.83)	1.63 (1.01, 2.29)
	40%	0.00 (0.00, 0.00)	0.02 (0.01, 0.03)	0.04 (0.03, 0.06)	0.07 (0.04, 0.09)	0.09 (0.05, 0.12)	0.11 (0.07, 0.15)	0.22 (0.13, 0.31)	0.33 (0.20, 0.46)	0.43 (0.27, 0.61)	0.65 (0.40, 0.92)	1.08 (0.67, 1.53)	1.74 (1.07, 2.44)	2.17 (1.34, 3.05)
	50%	0.00 (0.00, 0.00)	0.03 (0.02, 0.04)	0.05 (0.03, 0.08)	0.08 (0.05, 0.11)	0.11 (0.07, 0.15)	0.14 (0.08, 0.19)	0.27 (0.17, 0.38)	0.41 (0.25, 0.57)	0.54 (0.34, 0.76)	0.81 (0.50, 1.15)	1.36 (0.84, 1.91)	2.17 (1.34, 3.05)	2.71 (1.68, 3.82)
	60%	0.00 (0.00, 0.00)	0.03 (0.02, 0.05)	0.07 (0.04, 0.09)	0.10 (0.06, 0.14)	0.13 (0.08, 0.18)	0.16 (0.10, 0.23)	0.33 (0.20, 0.46)	0.49 (0.30, 0.69)	0.65 (0.40, 0.92)	0.98 (0.60, 1.37)	1.63 (1.01, 2.29)	2.60 (1.61, 3.66)	3.25 (2.01, 4.58)
	70%	0.00 (0.00, 0.00)	0.04 (0.02, 0.05)	0.08 (0.05, 0.11)	0.11 (0.07, 0.16)	0.15 (0.09, 0.21)	0.19 (0.12, 0.27)	0.38 (0.23, 0.53)	0.57 (0.35, 0.80)	0.76 (0.47, 1.07)	1.14 (0.70, 1.60)	1.90 (1.17, 2.67)	3.04 (1.88, 4.28)	3.80 (2.35, 5.34)
	80%	0.00 (0.00, 0.00)	0.04 (0.03, 0.06)	0.09 (0.05, 0.12)	0.13 (0.08, 0.18)	0.17 (0.11, 0.24)	0.22 (0.13, 0.31)	0.43 (0.27, 0.61)	0.65 (0.40, 0.92)	0.87 (0.54, 1.22)	1.30 (0.81, 1.83)	2.17 (1.34, 3.05)	3.47 (2.15, 4.89)	4.34 (2.68, 6.11)
	90%	0.00 (0.00, 0.00)	0.05 (0.03, 0.07)	0.10 (0.06, 0.14)	0.15 (0.09, 0.21)	0.20 (0.12, 0.27)	0.24 (0.15, 0.34)	0.49 (0.30, 0.69)	0.73 (0.45, 1.03)	0.98 (0.60, 1.37)	1.46 (0.91, 2.06)	2.44 (1.51, 3.44)	3.90 (2.42, 5.50)	4.88 (3.02, 6.87)





Razorbill		Mortality level (% of displaced birds at risk of mortality)												
NON-BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00	0.05	0.11	0.16	0.22	0.27	0.54	0.81	1.08	1.63	2.71	4.34	5.42
		(0.00, 0.00)	(0.03, 0.08)	(0.07, 0.15)	(0.10, 0.23)	(0.10, 0.23)	(0.17, 0.38)	(0.34, 0.76)	(0.50, 1.15)	(0.67, 1.53)	(1.01, 2.29)	(1.68, 3.82)	(2.68, 6.11)	(3.36, 7.63)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-8. Razorbill displacement – spring migration season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Razorbill		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.01 (0.00, 0.01)	0.01 (0.01, 0.02)	0.02 (0.01, 0.03)	0.02 (0.01, 0.04)	0.05 (0.02, 0.07)	0.07 (0.04, 0.11)	0.10 (0.05, 0.15)	0.15 (0.07, 0.22)	0.24 (0.12, 0.37)	0.39 (0.19, 0.59)	0.49 (0.24, 0.74)
	20%	0.00 (0.00, 0.00)	0.01 (0.00, 0.01)	0.02 (0.01, 0.03)	0.03 (0.01, 0.04)	0.04 (0.02, 0.06)	0.05 (0.02, 0.07)	0.10 (0.05, 0.15)	0.15 (0.07, 0.22)	0.20 (0.10, 0.29)	0.29 (0.14, 0.44)	0.49 (0.24, 0.74)	0.78 (0.38, 1.18)	0.98 (0.48, 1.47)
	30%	0.00 (0.00, 0.00)	0.01 (0.01, 0.02)	0.03 (0.01, 0.04)	0.04 (0.02, 0.07)	0.06 (0.03, 0.09)	0.07 (0.04, 0.11)	0.15 (0.07, 0.22)	0.22 (0.11, 0.33)	0.29 (0.14, 0.44)	0.44 (0.22, 0.66)	0.73 (0.36, 1.11)	1.17 (0.57, 1.77)	1.46 (0.72, 2.21)
	40%	0.00 (0.00, 0.00)	0.02 (0.01, 0.03)	0.04 (0.02, 0.06)	0.06 (0.03, 0.09)	0.08 (0.04, 0.12)	0.10 (0.05, 0.15)	0.20 (0.10, 0.29)	0.29 (0.14, 0.44)	0.39 (0.19, 0.59)	0.59 (0.29, 0.88)	0.98 (0.48, 1.47)	1.56 (0.77, 2.36)	1.95 (0.96, 2.95)
	50%	0.00 (0.00, 0.00)	0.02 (0.01, 0.04)	0.05 (0.02, 0.07)	0.07 (0.04, 0.11)	0.10 (0.05, 0.15)	0.12 (0.06, 0.18)	0.24 (0.12, 0.37)	0.37 (0.18, 0.55)	0.49 (0.24, 0.74)	0.73 (0.36, 1.11)	1.22 (0.60, 1.84)	1.95 (0.96, 2.95)	2.44 (1.20, 3.69)
	60%	0.00 (0.00, 0.00)	0.03 (0.01, 0.04)	0.06 (0.03, 0.09)	0.09 (0.04, 0.13)	0.12 (0.06, 0.18)	0.15 (0.07, 0.22)	0.29 (0.14, 0.44)	0.44 (0.22, 0.66)	0.59 (0.29, 0.88)	0.88 (0.43, 1.33)	1.46 (0.72, 2.21)	2.34 (1.15, 3.54)	2.93 (1.44, 4.42)
	70%	0.00 (0.00, 0.00)	0.03 (0.02, 0.05)	0.07 (0.03, 0.10)	0.10 (0.05, 0.15)	0.14 (0.07, 0.21)	0.17 (0.08, 0.26)	0.34 (0.17, 0.52)	0.51 (0.25, 0.77)	0.68 (0.34, 1.03)	1.03 (0.50, 1.55)	1.71 (0.84, 2.58)	2.73 (1.34, 4.13)	3.42 (1.68, 5.16)
	80%	0.00 (0.00, 0.00)	0.04 (0.02, 0.06)	0.08 (0.04, 0.12)	0.12 (0.06, 0.18)	0.16 (0.08, 0.24)	0.20 (0.10, 0.29)	0.39 (0.19, 0.59)	0.59 (0.29, 0.88)	0.78 (0.38, 1.18)	1.17 (0.57, 1.77)	1.95 (0.96, 2.95)	3.13 (1.53, 4.72)	3.91 (1.92, 5.90)
	90%	0.00 (0.00, 0.00)	0.04 (0.02, 0.07)	0.09 (0.04, 0.13)	0.13 (0.06, 0.20)	0.18 (0.09, 0.27)	0.22 (0.11, 0.33)	0.44 (0.22, 0.66)	0.66 (0.32, 1.00)	0.88 (0.43, 1.33)	1.32 (0.65, 1.99)	2.20 (1.08, 3.32)	3.52 (1.72, 5.31)	4.39 (2.15, 6.63)



Razorbill		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00 (0.00, 0.00)	0.05 (0.02, 0.07)	0.10 (0.05, 0.15)	0.15 (0.07, 0.22)	0.20 (0.10, 0.29)	0.24 (0.12, 0.37)	0.49 (0.24, 0.74)	0.73 (0.36, 1.11)	0.98 (0.48, 1.47)	1.46 (0.72, 2.21)	2.44 (1.20, 3.69)	3.91 (1.92, 5.90)	4.88 (2.39, 7.37)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.9 Puffin – Skomer, Skokholm and the Seas Off Pembrokeshire SPA

Annex B, Table 22D-9. Puffin displacement – breeding season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Puffin		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.15 (0.10, 0.20)	0.30 (0.20, 0.40)	0.45 (0.30, 0.60)	0.60 (0.40, 0.80)	0.74 (0.49, 1.00)	1.49 (0.99, 2.01)	2.23 (1.48, 3.01)	2.98 (1.98, 4.02)	4.47 (2.97, 6.03)	7.45 (4.95, 10.05)	11.92 (7.92, 16.07)	14.90 (9.90, 20.09)
	20%	0.00 (0.00, 0.00)	0.30 (0.20, 0.40)	0.60 (0.40, 0.80)	0.89 (0.59, 1.21)	1.19 (0.79, 1.61)	1.49 (0.99, 2.01)	2.98 (1.98, 4.02)	4.47 (2.97, 6.03)	5.96 (3.96, 8.04)	8.94 (5.94, 12.05)	14.90 (9.90, 20.09)	23.83 (15.84, 32.14)	29.79 (19.80, 40.18)
	30%	0.00 (0.00, 0.00)	0.45 (0.30, 0.60)	0.89 (0.59, 1.21)	1.34 (0.89, 1.81)	1.79 (1.19, 2.41)	2.23 (1.48, 3.01)	4.47 (2.97, 6.03)	6.70 (4.45, 9.04)	8.94 (5.94, 12.05)	13.41 (8.91, 18.08)	22.34 (14.85, 30.14)	35.75 (23.76, 48.22)	44.69 (29.69, 60.27)
	40%	0.00 (0.00, 0.00)	0.60 (0.40, 0.80)	1.19 (0.79, 1.61)	1.79 (1.19, 2.41)	2.38 (1.58, 3.21)	2.98 (1.98, 4.02)	5.96 (3.96, 8.04)	8.94 (5.94, 12.05)	11.92 (7.92, 16.07)	17.88 (11.88, 24.11)	29.79 (19.80, 40.18)	47.67 (31.67, 64.29)	59.58 (39.59, 80.36)
	50%	0.00 (0.00, 0.00)	0.74 (0.49, 1.00)	1.49 (0.99, 2.01)	2.23 (1.48, 3.01)	2.98 (1.98, 4.02)	3.72 (2.47, 5.02)	7.45 (4.95, 10.05)	11.17 (7.42, 15.07)	14.90 (9.90, 20.09)	22.34 (14.85, 30.13)	37.24 (24.75, 50.23)	59.58 (39.59, 80.36)	74.48 (49.49, 100.45)
	60%	0.00 (0.00, 0.00)	0.89 (0.59, 1.21)	1.79 (1.19, 2.41)	2.68 (1.78, 3.62)	3.58 (2.38, 4.82)	4.47 (2.97, 6.03)	8.94 (5.94, 12.05)	13.41 (8.91, 18.08)	17.88 (11.88, 24.11)	26.81 (17.82, 36.16)	44.69 (29.69, 60.27)	71.50 (47.51, 96.43)	89.38 (59.39, 120.54)
	70%	0.00 (0.00, 0.00)	1.04 (0.69, 1.41)	2.09 (1.39, 2.81)	3.13 (2.08, 4.22)	4.17 (2.77, 5.63)	5.21 (3.46, 7.03)	10.43 (6.93, 14.06)	15.64 (10.39, 21.09)	20.85 (13.86, 28.13)	31.28 (20.79, 42.19)	52.14 (34.64, 70.32)	83.42 (55.43, 112.50)	104.27 (69.29, 140.63)
	80%	0.00 (0.00, 0.00)	1.19 (0.79, 1.61)	2.38 (1.58, 3.21)	3.58 (2.38, 4.82)	4.77 (3.17, 6.43)	5.96 (3.96, 8.04)	11.92 (7.92, 16.07)	17.88 (11.88, 24.11)	23.83 (15.84, 32.14)	35.75 (23.76, 48.22)	59.58 (39.59, 80.36)	95.33 (63.35, 128.58)	119.17 (79.18, 160.72)



Puffin		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%		0.00	1.34	2.68	4.02	5.36	6.70	13.41	20.11	26.81	40.22	67.03	107.25	134.06
		(0.00, 0.00)	(0.89, 1.81)	(1.78, 3.62)	(2.67, 5.42)	(3.56, 7.23)	(4.45, 9.04)	(8.91, 18.08)	(13.36, 27.12)	(17.82, 36.16)	(26.72, 54.24)	(44.54, 90.40)	(71.27, 144.65)	(89.08, 180.81)
100%		0.00	1.49	2.98	4.47	5.96	7.45	14.90	22.34	29.79	44.69	74.48	119.17	148.96
		(0.00, 0.00)	(0.99, 2.01)	(1.98, 4.02)	(2.97, 6.03)	(3.96, 8.04)	(4.95, 10.05)	(9.90, 20.09)	(14.85, 30.13)	(19.80, 40.18)	(29.69, 60.27)	(49.49, 100.45)	(79.18, 160.72)	(98.98, 200.90)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-10. Puffin displacement – wintering season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Puffin		Mortality level (% of displaced birds at risk of mortality)												
WINTERING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.02 (0.01, 0.02)	0.03 (0.03, 0.04)	0.05 (0.04, 0.06)	0.07 (0.06, 0.08)	0.09 (0.07, 0.10)	0.17 (0.14, 0.20)	0.26 (0.21, 0.30)	0.34 (0.28, 0.40)	0.52 (0.42, 0.61)	0.86 (0.70, 1.01)	1.37 (1.13, 1.62)	1.72 (1.41, 2.02)
	20%	0.00 (0.00, 0.00)	0.03 (0.03, 0.04)	0.07 (0.06, 0.08)	0.10 (0.08, 0.12)	0.14 (0.11, 0.16)	0.17 (0.14, 0.20)	0.34 (0.28, 0.40)	0.52 (0.42, 0.61)	0.69 (0.56, 0.81)	1.03 (0.84, 1.21)	1.72 (1.41, 2.02)	2.75 (2.25, 3.24)	3.43 (2.81, 4.05)
	30%	0.00 (0.00, 0.00)	0.05 (0.04, 0.06)	0.10 (0.08, 0.12)	0.15 (0.13, 0.18)	0.21 (0.17, 0.24)	0.26 (0.21, 0.30)	0.52 (0.42, 0.61)	0.77 (0.63, 0.91)	1.03 (0.84, 1.21)	1.55 (1.27, 1.82)	2.58 (2.11, 3.04)	4.12 (3.38, 4.86)	5.15 (4.22, 6.07)
	40%	0.00 (0.00, 0.00)	0.07 (0.06, 0.08)	0.14 (0.11, 0.16)	0.21 (0.17, 0.24)	0.27 (0.23, 0.32)	0.34 (0.28, 0.40)	0.69 (0.56, 0.81)	1.03 (0.84, 1.21)	1.37 (1.13, 1.62)	2.06 (1.69, 2.43)	3.43 (2.81, 4.05)	5.49 (4.50, 6.48)	6.87 (5.63, 8.10)
	50%	0.00 (0.00, 0.00)	0.09 (0.07, 0.10)	0.17 (0.14, 0.20)	0.26 (0.21, 0.30)	0.34 (0.28, 0.40)	0.43 (0.35, 0.51)	0.86 (0.70, 1.01)	1.29 (1.05, 1.52)	1.72 (1.41, 2.02)	2.58 (2.11, 3.04)	4.29 (3.52, 5.06)	6.87 (5.63, 8.10)	8.58 (7.03, 10.12)
	60%	0.00 (0.00, 0.00)	0.10 (0.08, 0.12)	0.21 (0.17, 0.24)	0.31 (0.25, 0.36)	0.41 (0.34, 0.49)	0.52 (0.42, 0.61)	1.03 (0.84, 1.21)	1.55 (1.27, 1.82)	2.06 (1.69, 2.43)	3.09 (2.53, 3.64)	5.15 (4.22, 6.07)	8.24 (6.75, 9.72)	10.30 (8.44, 12.15)
	70%	0.00 (0.00, 0.00)	0.12 (0.10, 0.14)	0.24 (0.20, 0.28)	0.36 (0.30, 0.43)	0.48 (0.39, 0.57)	0.60 (0.49, 0.71)	1.20 (0.98, 1.42)	1.80 (1.48, 2.13)	2.40 (1.97, 2.83)	3.61 (2.95, 4.25)	6.01 (4.92, 7.08)	9.61 (7.88, 11.34)	12.02 (9.85, 14.17)
	80%	0.00 (0.00, 0.00)	0.14 (0.11, 0.16)	0.27 (0.23, 0.32)	0.41 (0.34, 0.49)	0.55 (0.45, 0.65)	0.69 (0.56, 0.81)	1.37 (1.13, 1.62)	2.06 (1.69, 2.43)	2.75 (2.25, 3.24)	4.12 (3.38, 4.86)	6.87 (5.63, 8.10)	10.99 (9.00, 12.95)	13.73 (11.25, 16.19)
	90%	0.00 (0.00, 0.00)	0.15 (0.13, 0.18)	0.31 (0.25, 0.36)	0.46 (0.38, 0.55)	0.62 (0.51, 0.73)	0.77 (0.63, 0.91)	1.55 (1.27, 1.82)	2.32 (1.90, 2.73)	3.09 (2.53, 3.64)	4.64 (3.80, 5.47)	7.73 (6.33, 9.11)	12.36 (10.13, 14.57)	15.45 (12.66, 18.22)



Puffin WINTERING SEASON	Mortality level (% of displaced birds at risk of mortality)												
	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%	0.00 (0.00, 0.00)	0.17 (0.14, 0.20)	0.34 (0.28, 0.40)	0.52 (0.42, 0.61)	0.69 (0.56, 0.81)	0.86 (0.70, 1.01)	1.72 (1.41, 2.02)	2.58 (2.11, 3.04)	3.43 (2.81, 4.05)	5.15 (4.22, 6.07)	8.58 (7.03, 10.12)	13.73 (11.25, 16.19)	17.17 (14.07, 20.24)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.10 Manx Shearwater – Skomer, Skokholm and the Seas Off Pembrokeshire SPA

Annex B, Table 22D-11. Manx shearwater displacement – breeding season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Manx shearwater	Mortality level (% of displaced birds at risk of mortality)													
	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%	
BREEDING SEASON														
Displacement level (% of all birds on-site)	0%	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.00)</i>	
	10%	0.00 <i>(0.00, 0.00)</i>	3.38 <i>(2.82, 3.99)</i>	6.75 <i>(5.64, 7.98)</i>	10.13 <i>(8.46, 11.97)</i>	13.50 <i>(11.28, 15.96)</i>	16.88 <i>(14.11, 19.95)</i>	33.76 <i>(28.21, 39.89)</i>	50.63 <i>(42.32, 59.84)</i>	67.51 <i>(56.42, 79.78)</i>	101.27 <i>(84.64, 119.67)</i>	168.78 <i>(141.06, 199.45)</i>	270.05 <i>(225.70, 319.12)</i>	337.56 <i>(282.12, 398.90)</i>
	20%	0.00 <i>(0.00, 0.00)</i>	6.75 <i>(5.64, 7.98)</i>	13.50 <i>(11.28, 15.96)</i>	20.25 <i>(16.93, 23.93)</i>	27.00 <i>(22.57, 31.91)</i>	33.76 <i>(28.21, 39.89)</i>	67.51 <i>(56.42, 79.78)</i>	101.27 <i>(84.64, 119.67)</i>	135.02 <i>(112.85, 159.56)</i>	202.54 <i>(169.27, 239.34)</i>	337.56 <i>(282.12, 398.90)</i>	540.10 <i>(451.39, 638.24)</i>	675.12 <i>(564.24, 797.80)</i>
	30%	0.00 <i>(0.00, 0.00)</i>	10.13 <i>(8.46, 11.97)</i>	20.25 <i>(16.93, 23.93)</i>	30.38 <i>(25.39, 35.90)</i>	40.51 <i>(33.85, 47.87)</i>	50.63 <i>(42.32, 59.84)</i>	101.27 <i>(84.64, 119.67)</i>	151.90 <i>(126.95, 179.51)</i>	202.54 <i>(169.27, 239.34)</i>	303.81 <i>(253.91, 359.01)</i>	506.34 <i>(423.18, 598.35)</i>	810.15 <i>(677.09, 957.36)</i>	1,012.69 <i>(846.36, 1,196.70)</i>
	40%	0.00 <i>(0.00, 0.00)</i>	13.50 <i>(11.28, 15.96)</i>	27.00 <i>(22.57, 31.91)</i>	40.51 <i>(33.85, 47.87)</i>	54.01 <i>(45.14, 63.82)</i>	67.51 <i>(56.42, 79.78)</i>	135.02 <i>(112.85, 159.56)</i>	202.54 <i>(169.27, 239.34)</i>	270.05 <i>(225.70, 319.12)</i>	405.07 <i>(338.55, 478.68)</i>	675.12 <i>(564.24, 797.80)</i>	1,080.20 <i>(902.79, 1,276.48)</i>	1,350.25 <i>(1,128.48, 1,595.61)</i>
	50%	0.00 <i>(0.00, 0.00)</i>	16.88 <i>(14.11, 19.95)</i>	33.76 <i>(28.21, 39.89)</i>	50.63 <i>(42.32, 59.84)</i>	67.51 <i>(56.42, 79.78)</i>	84.39 <i>(70.53, 99.73)</i>	168.78 <i>(141.06, 199.45)</i>	253.17 <i>(211.59, 299.18)</i>	337.56 <i>(282.12, 398.90)</i>	506.34 <i>(423.18, 598.35)</i>	843.91 <i>(705.30, 997.25)</i>	1,350.25 <i>(1,128.48, 1,595.61)</i>	1,687.81 <i>(1,410.61, 1,994.51)</i>
	60%	0.00 <i>(0.00, 0.00)</i>	20.25 <i>(16.93, 23.93)</i>	40.51 <i>(33.85, 47.87)</i>	60.76 <i>(50.78, 71.80)</i>	81.01 <i>(67.71, 95.74)</i>	101.27 <i>(84.64, 119.67)</i>	202.54 <i>(169.27, 239.34)</i>	303.81 <i>(253.91, 359.01)</i>	405.07 <i>(338.55, 478.68)</i>	607.61 <i>(507.82, 718.02)</i>	1,012.69 <i>(846.36, 1,196.70)</i>	1,620.30 <i>(1,354.18, 1,914.73)</i>	2,025.37 <i>(1,692.73, 2,393.41)</i>
	70%	0.00 <i>(0.00, 0.00)</i>	23.63 <i>(19.75, 27.92)</i>	47.26 <i>(39.50, 55.85)</i>	70.89 <i>(59.25, 83.77)</i>	94.52 <i>(78.99, 111.69)</i>	118.15 <i>(98.74, 139.62)</i>	236.29 <i>(197.48, 279.23)</i>	354.44 <i>(296.23, 418.85)</i>	472.59 <i>(394.97, 558.46)</i>	708.88 <i>(592.45, 837.69)</i>	1,181.47 <i>(987.42, 1,396.15)</i>	1,890.35 <i>(1,579.88, 2,233.85)</i>	2,362.94 <i>(1,974.85, 2,792.31)</i>
	80%	0.00 <i>(0.00, 0.00)</i>	27.00 <i>(22.57, 31.91)</i>	54.01 <i>(45.14, 63.82)</i>	81.01 <i>(67.71, 95.74)</i>	108.02 <i>(90.28, 127.65)</i>	135.02 <i>(112.85, 159.56)</i>	270.05 <i>(225.70, 319.12)</i>	405.07 <i>(338.55, 478.68)</i>	540.10 <i>(451.39, 638.24)</i>	810.15 <i>(677.09, 957.36)</i>	1,350.25 <i>(1,128.48, 1,595.61)</i>	2,160.40 <i>(1,805.57, 2,552.97)</i>	2,700.50 <i>(2,256.97, 3,191.21)</i>





Manx shearwater  BREEDING SEASON	Mortality level (% of displaced birds at risk of mortality)												
	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%	0.00	30.38	60.76	91.14	121.52	151.90	303.81	455.71	607.61	911.42	1,519.03	2,430.45	3,038.06
	(0.00, 0.00)	(25.39, 35.90)	(50.78, 71.80)	(76.17, 107.70)	(101.56, 143.60)	(126.95, 179.51)	(253.91, 359.01)	(380.86, 538.52)	(507.82, 718.02)	(761.73, 1,077.03)	(1,269.54, 1,795.06)	(2,031.27, 2,872.09)	(2,539.09, 3,590.11)
100%	0.00	33.76	67.51	101.27	135.02	168.78	337.56	506.34	675.12	1,012.69	1,687.81	2,700.50	3,375.62
	(0.00, 0.00)	(28.21, 39.89)	(56.42, 79.78)	(84.64, 119.67)	(112.85, 159.56)	(141.06, 199.45)	(282.12, 398.90)	(423.18, 598.35)	(564.24, 797.80)	(846.36, 1,196.70)	(1,410.61, 1,994.51)	(2,256.97, 3,191.21)	(2,821.21, 3,989.01)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-12. Manx shearwater displacement – autumn migration for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.01 (0.01, 0.02)	0.02 (0.01, 0.04)	0.04 (0.02, 0.06)	0.05 (0.02, 0.08)	0.06 (0.03, 0.10)	0.12 (0.05, 0.20)	0.18 (0.08, 0.30)	0.24 (0.11, 0.40)	0.36 (0.16, 0.60)	0.60 (0.27, 1.00)	0.96 (0.43, 1.59)	1.20 (0.53, 1.99)
	20%	0.00 (0.00, 0.00)	0.02 (0.01, 0.04)	0.05 (0.02, 0.08)	0.07 (0.03, 0.12)	0.10 (0.04, 0.16)	0.12 (0.05, 0.20)	0.24 (0.11, 0.40)	0.36 (0.16, 0.60)	0.48 (0.21, 0.80)	0.72 (0.32, 1.20)	1.20 (0.53, 1.99)	1.91 (0.85, 3.19)	2.39 (1.06, 3.99)
	30%	0.00 (0.00, 0.00)	0.04 (0.02, 0.06)	0.07 (0.03, 0.12)	0.11 (0.05, 0.18)	0.14 (0.06, 0.24)	0.18 (0.08, 0.30)	0.36 (0.16, 0.60)	0.54 (0.24, 0.90)	0.72 (0.32, 1.20)	1.08 (0.48, 1.79)	1.79 (0.80, 2.99)	2.87 (1.28, 4.78)	3.59 (1.59, 5.98)
	40%	0.00 (0.00, 0.00)	0.05 (0.02, 0.08)	0.10 (0.04, 0.16)	0.14 (0.06, 0.24)	0.19 (0.09, 0.32)	0.24 (0.11, 0.40)	0.48 (0.21, 0.80)	0.72 (0.32, 1.20)	0.96 (0.43, 1.59)	1.44 (0.64, 2.39)	2.39 (1.06, 3.99)	3.83 (1.70, 6.38)	4.78 (2.13, 7.97)
	50%	0.00 (0.00, 0.00)	0.06 (0.03, 0.10)	0.12 (0.05, 0.20)	0.18 (0.08, 0.30)	0.24 (0.11, 0.40)	0.30 (0.13, 0.50)	0.60 (0.27, 1.00)	0.90 (0.40, 1.50)	1.20 (0.53, 1.99)	1.79 (0.80, 2.99)	2.99 (1.33, 4.98)	4.78 (2.13, 7.97)	5.98 (2.66, 9.97)
	60%	0.00 (0.00, 0.00)	0.07 (0.03, 0.12)	0.14 (0.06, 0.24)	0.22 (0.10, 0.36)	0.29 (0.13, 0.48)	0.36 (0.16, 0.60)	0.72 (0.32, 1.20)	1.08 (0.48, 1.79)	1.44 (0.64, 2.39)	2.15 (0.96, 3.59)	3.59 (1.59, 5.98)	5.74 (2.55, 9.57)	7.18 (3.19, 11.96)
	70%	0.00 (0.00, 0.00)	0.08 (0.04, 0.14)	0.17 (0.07, 0.28)	0.25 (0.11, 0.42)	0.33 (0.15, 0.56)	0.42 (0.19, 0.70)	0.84 (0.37, 1.40)	1.26 (0.56, 2.09)	1.67 (0.74, 2.79)	2.51 (1.12, 4.19)	4.19 (1.86, 6.98)	6.70 (2.98, 11.16)	8.37 (3.72, 13.95)
	80%	0.00 (0.00, 0.00)	0.10 (0.04, 0.16)	0.19 (0.09, 0.32)	0.29 (0.13, 0.48)	0.38 (0.17, 0.64)	0.48 (0.21, 0.80)	0.96 (0.43, 1.59)	1.44 (0.64, 2.39)	1.91 (0.85, 3.19)	2.87 (1.28, 4.78)	4.78 (2.13, 7.97)	7.66 (3.40, 12.76)	9.57 (4.25, 15.95)
	90%	0.00 (0.00, 0.00)	0.11 (0.05, 0.18)	0.22 (0.10, 0.36)	0.32 (0.14, 0.54)	0.43 (0.19, 0.72)	0.54 (0.24, 0.90)	1.08 (0.48, 1.79)	1.61 (0.72, 2.69)	2.15 (0.96, 3.59)	3.23 (1.44, 5.38)	5.38 (2.39, 8.97)	8.61 (3.83, 14.35)	10.76 (4.78, 17.94)



Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%		0.00 (0.00, 0.00)	0.12 (0.05, 0.20)	0.24 (0.11, 0.40)	0.36 (0.16, 0.60)	0.48 (0.21, 0.80)	0.60 (0.27, 1.00)	1.20 (0.53, 1.99)	1.79 (0.80, 2.99)	2.39 (1.06, 3.99)	3.59 (1.59, 5.98)	5.98 (2.66, 9.97)	9.57 (4.25, 15.95)	11.96 (5.32, 19.93)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-13. Manx shearwater displacement – spring migration season for Skomer, Skokholm and Seas Off Pembrokeshire SPA

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.56 (0.50, 0.62)	1.12 (1.00, 1.25)	1.68 (1.49, 1.87)	2.25 (1.99, 2.50)	2.81 (2.49, 3.12)	5.61 (4.98, 6.25)	8.42 (7.47, 9.37)	11.23 (9.96, 12.49)	16.84 (14.94, 18.74)	28.06 (24.90, 31.23)	44.90 (39.83, 49.97)	56.13 (49.79, 62.46)
	20%	0.00 (0.00, 0.00)	1.12 (1.00, 1.25)	2.25 (1.99, 2.50)	3.37 (2.99, 3.75)	4.49 (3.98, 5.00)	5.61 (4.98, 6.25)	11.23 (9.96, 12.49)	16.84 (14.94, 18.74)	22.45 (19.92, 24.99)	33.68 (29.88, 37.48)	56.13 (49.79, 62.46)	89.80 (79.67, 99.94)	112.26 (99.59, 124.93)
	30%	0.00 (0.00, 0.00)	1.68 (1.49, 1.87)	3.37 (2.99, 3.75)	5.05 (4.48, 5.62)	6.74 (5.98, 7.50)	8.42 (7.47, 9.37)	16.84 (14.94, 18.74)	25.26 (22.41, 28.11)	33.68 (29.88, 37.48)	50.52 (44.81, 56.22)	84.19 (74.69, 93.69)	134.71 (119.50, 149.91)	168.38 (149.38, 187.39)
	40%	0.00 (0.00, 0.00)	2.25 (1.99, 2.50)	4.49 (3.98, 5.00)	6.74 (5.98, 7.50)	8.98 (7.97, 9.99)	11.23 (9.96, 12.49)	22.45 (19.92, 24.99)	33.68 (29.88, 37.48)	44.90 (39.83, 49.97)	67.35 (59.75, 74.96)	112.26 (99.59, 124.93)	179.61 (159.34, 199.88)	224.51 (199.17, 249.85)
	50%	0.00 (0.00, 0.00)	2.81 (2.49, 3.12)	5.61 (4.98, 6.25)	8.42 (7.47, 9.37)	11.23 (9.96, 12.49)	14.03 (12.45, 15.62)	28.06 (24.90, 31.23)	42.10 (37.34, 46.85)	56.13 (49.79, 62.46)	84.19 (74.69, 93.69)	140.32 (124.48, 156.16)	224.51 (199.17, 249.85)	280.64 (248.97, 312.32)
	60%	0.00 (0.00, 0.00)	3.37 (2.99, 3.75)	6.74 (5.98, 7.50)	10.10 (8.96, 11.24)	13.47 (11.95, 14.99)	16.84 (14.94, 18.74)	33.68 (29.88, 37.48)	50.52 (44.81, 56.22)	67.35 (59.75, 74.96)	101.03 (89.63, 112.43)	168.38 (149.38, 187.39)	269.41 (239.01, 299.82)	336.77 (298.76, 374.78)
	70%	0.00 (0.00, 0.00)	3.93 (3.49, 4.37)	7.86 (6.97, 8.74)	11.79 (10.46, 13.12)	15.72 (13.94, 17.49)	19.64 (17.43, 21.86)	39.29 (34.86, 43.72)	58.93 (52.28, 65.59)	78.58 (69.71, 87.45)	117.87 (104.57, 131.17)	196.45 (174.28, 218.62)	314.32 (278.84, 349.79)	392.90 (348.55, 437.24)
	80%	0.00 (0.00, 0.00)	4.49 (3.98, 5.00)	8.98 (7.97, 9.99)	13.47 (11.95, 14.99)	17.96 (15.93, 19.99)	22.45 (19.92, 24.99)	44.90 (39.83, 49.97)	67.35 (59.75, 74.96)	89.80 (79.67, 99.94)	134.71 (119.50, 149.91)	224.51 (199.17, 249.85)	359.22 (318.68, 399.76)	449.02 (398.35, 499.70)



Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
90%	0.00	5.05	10.10	15.15	20.21	25.26	50.52	75.77	101.03	151.55	252.58	404.12	505.15	
	(0.00, 0.00)	(4.48, 5.62)	(8.96, 11.24)	(13.44, 16.87)	(17.93, 22.49)	(22.41, 28.11)	(44.81, 56.22)	(67.22, 84.33)	(89.63, 112.43)	(134.44, 168.65)	(224.07, 281.08)	(358.51, 449.73)	(448.14, 562.17)	
100%	0.00	5.61	11.23	16.84	22.45	28.06	56.13	84.19	112.26	168.38	280.64	449.02	561.28	
	(0.00, 0.00)	(4.98, 6.25)	(9.96, 12.49)	(14.94, 18.74)	(19.92, 24.99)	(24.90, 31.23)	(49.79, 62.46)	(74.69, 93.69)	(99.59, 124.93)	(149.38, 187.39)	(248.97, 312.32)	(398.35, 499.70)	(497.93, 624.63)	

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.11 Gannet – Grassholm SPA

Annex B, Table 22D-14. Gannet displacement – breeding season for Grassholm SPA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.24 (0.15, 0.33)	0.48 (0.31, 0.66)	0.72 (0.46, 0.98)	0.95 (0.61, 1.31)	1.19 (0.77, 1.64)	2.38 (1.53, 3.28)	3.58 (2.30, 4.91)	4.77 (3.06, 6.55)	7.15 (4.59, 9.83)	11.92 (7.66, 16.38)	19.07 (12.25, 26.20)	23.84 (15.31, 32.75)
	20%	0.00 (0.00, 0.00)	0.48 (0.31, 0.66)	0.95 (0.61, 1.31)	1.43 (0.92, 1.97)	1.91 (1.22, 2.62)	2.38 (1.53, 3.28)	4.77 (3.06, 6.55)	7.15 (4.59, 9.83)	9.53 (6.12, 13.10)	14.30 (9.19, 19.65)	23.84 (15.31, 32.75)	38.14 (24.50, 52.40)	47.67 (30.62, 65.50)
	30%	0.00 (0.00, 0.00)	0.72 (0.46, 0.98)	1.43 (0.92, 1.97)	2.15 (1.38, 2.95)	2.86 (1.84, 3.93)	3.58 (2.30, 4.91)	7.15 (4.59, 9.83)	10.73 (6.89, 14.74)	14.30 (9.19, 19.65)	21.45 (13.78, 29.48)	35.76 (22.97, 49.13))	57.21 (36.74, 78.61)	71.51 (45.93, 98.26)
	40%	0.00 (0.00, 0.00)	0.95 (0.61, 1.31)	1.91 (1.22, 2.62)	2.86 (1.84, 3.93)	3.81 (2.45, 5.24)	4.77 (3.06, 6.55)	9.53 (6.12, 13.10)	14.30 (9.19, 19.65)	19.07 (12.25, 26.20)	28.60 (18.37, 39.30)	47.67 (30.62, 65.50)	76.28 (48.99, 104.81)	95.35 (61.24, 131.01)
	50%	0.00 (0.00, 0.00)	1.19 (0.77, 1.64)	2.38 (1.53, 3.28)	3.58 (2.30, 4.91)	4.77 (3.06, 6.55)	5.96 (3.83, 8.19)	11.92 (7.66, 16.38)	17.88 (11.48, 24.56)	23.84 (15.31, 32.75)	35.76 (22.97, 49.13)	59.59 (38.28, 81.88)	95.35 (61.24, 131.01)	119.19 (76.55, 163.76)
	60%	0.00 (0.00, 0.00)	1.43 (0.92, 1.97)	2.86 (1.84, 3.93)	4.29 (2.76, 5.90)	5.72 (3.67, 7.86)	7.15 (4.59, 9.83)	14.30 (9.19, 19.65)	21.45 (13.78, 29.48)	28.60 (18.37, 39.30)	42.91 (27.56, 58.95)	71.51 (45.93, 98.26)	114.42 (73.49, 157.21)	143.02 (91.86, 196.51)



Gannet		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
70%		0.00	1.67	3.34	5.01	6.67	8.34	16.69	25.03	33.37	50.06	83.43	133.49	166.86
		(0.00, 0.00)	(1.07, 2.29)	(2.14, 4.59)	(3.22, 6.88)	(4.29, 9.17)	(5.36, 11.46)	(10.72, 22.93)	(16.08, 34.39)	(21.43, 45.85)	(32.15, 68.78)	(53.59, 114.63)	(85.74, 183.41)	(107.17, 229.27)
		0.00	1.91	3.81	5.72	7.63	9.53	19.07	28.60	38.14	57.21	95.35	152.56	190.70
		(0.00, 0.00)	(1.22, 2.62)	(2.45, 5.24)	(3.67, 7.86)	(4.90, 10.48)	(6.12, 13.10)	(12.25, 26.20)	(18.37, 39.30))	(24.50, 52.40)	(36.74, 78.61)	(61.24, 131.01)	(97.99, 209.61)	(122.48, 262.02)
80%		0.00	2.15	4.29	6.44	8.58	10.73	21.45	32.18	42.91	64.36	107.27	171.63	214.54
		(0.00, 0.00)	(1.38, 2.95)	(2.76, 5.90)	(4.13, 8.84)	(5.51, 11.79)	(6.89, 14.74)	(13.78, 29.48)	(20.67, 44.22)	(27.56, 58.95)	(41.34, 88.43)	(68.90, 147.38)	(110.23, 235.82)	(137.79, 294.77)
		0.00	2.38	4.77	7.15	9.53	11.92	23.84	35.76	47.67	71.51	119.19	190.70	238.37
		(0.00, 0.00)	(1.53, 3.28)	(3.06, 6.55)	(4.59, 9.83)	(6.12, 13.10)	(7.66, 16.38)	(15.31, 32.75)	(22.97, 49.13)	(30.62, 65.50)	(45.93, 98.26)	(76.55, 163.76)	(122.48, 262.02)	(153.10, 327.52)
90%		0.00	2.38	4.77	7.15	9.53	11.92	23.84	35.76	47.67	71.51	119.19	190.70	238.37
		(0.00, 0.00)	(1.53, 3.28)	(3.06, 6.55)	(4.59, 9.83)	(6.12, 13.10)	(7.66, 16.38)	(15.31, 32.75)	(22.97, 49.13)	(30.62, 65.50)	(45.93, 98.26)	(76.55, 163.76)	(122.48, 262.02)	(153.10, 327.52)
		0.00	2.38	4.77	7.15	9.53	11.92	23.84	35.76	47.67	71.51	119.19	190.70	238.37
		(0.00, 0.00)	(1.53, 3.28)	(3.06, 6.55)	(4.59, 9.83)	(6.12, 13.10)	(7.66, 16.38)	(15.31, 32.75)	(22.97, 49.13)	(30.62, 65.50)	(45.93, 98.26)	(76.55, 163.76)	(122.48, 262.02)	(153.10, 327.52)
100%		0.00	2.38	4.77	7.15	9.53	11.92	23.84	35.76	47.67	71.51	119.19	190.70	238.37
		(0.00, 0.00)	(1.53, 3.28)	(3.06, 6.55)	(4.59, 9.83)	(6.12, 13.10)	(7.66, 16.38)	(15.31, 32.75)	(22.97, 49.13)	(30.62, 65.50)	(45.93, 98.26)	(76.55, 163.76)	(122.48, 262.02)	(153.10, 327.52)
		0.00	2.38	4.77	7.15	9.53	11.92	23.84	35.76	47.67	71.51	119.19	190.70	238.37
		(0.00, 0.00)	(1.53, 3.28)	(3.06, 6.55)	(4.59, 9.83)	(6.12, 13.10)	(7.66, 16.38)	(15.31, 32.75)	(22.97, 49.13)	(30.62, 65.50)	(45.93, 98.26)	(76.55, 163.76)	(122.48, 262.02)	(153.10, 327.52)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-15. Gannet displacement – autumn migration for Grassholm SPA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.10 (0.09, 0.12)	0.21 (0.18, 0.24)	0.31 (0.26, 0.36)	0.41 (0.35, 0.48)	0.51 (0.44, 0.60)	1.03 (0.88, 1.20)	1.54 (1.32, 1.79)	2.06 (1.76, 2.39)	3.09 (2.64, 3.59)	5.15 (4.40, 5.98)	8.24 (7.04, 9.57)	10.30 (8.80, 11.97)
	20%	0.00 (0.00, 0.00)	0.21 (0.18, 0.24)	0.41 (0.35, 0.48)	0.62 (0.53, 0.72)	0.82 (0.70, 0.96)	1.03 (0.88, 1.20)	2.06 (1.76, 2.39)	3.09 (2.64, 3.59)	4.12 (3.52, 4.79)	6.18 (5.28, 7.18)	10.30 (8.80, 11.97)	16.47 (14.08, 19.15)	20.59 (17.60, 23.93)
	30%	0.00 (0.00, 0.00)	0.31 (0.26, 0.36)	0.62 (0.53, 0.72)	0.93 (0.79, 1.08)	1.24 (1.06, 1.44)	1.54 (1.32, 1.79)	3.09 (2.64, 3.59)	4.63 (3.96, 5.38)	6.18 (5.28, 7.18)	9.27 (7.92, 10.77)	15.44 (13.20, 17.95)	24.71 (21.12, 28.72)	30.89 (26.40, 35.90)
	40%	0.00 (0.00, 0.00)	0.41 (0.35, 0.48)	0.82 (0.70, 0.96)	1.24 (1.06, 1.44)	1.65 (1.41, 1.91)	2.06 (1.76, 2.39)	4.12 (3.52, 4.79)	6.18 (5.28, 7.18)	8.24 (7.04, 9.57)	12.36 (10.56, 14.36)	20.59 (17.60, 23.93)	32.95 (28.15, 38.29)	41.18 (35.19, 47.87)
	50%	0.00 (0.00, 0.00)	0.51 (0.44, 0.60)	1.03 (0.88, 1.20)	1.54 (1.32, 1.79)	2.06 (1.76, 2.39)	2.57 (2.20, 2.99)	5.15 (4.40, 5.98)	7.72 (6.60, 8.97)	10.30 (8.80, 11.97)	15.44 (13.20, 17.95)	25.74 (22.00, 29.92)	41.18 (35.19, 47.87)	51.48 (43.99, 59.83)
	60%	0.00 (0.00, 0.00)	0.62 (0.53, 0.72)	1.24 (1.06, 1.44)	1.85 (1.58, 2.15)	2.47 (2.11, 2.87)	3.09 (2.64, 3.59)	6.18 (5.28, 7.18)	9.27 (7.92, 10.77)	12.36 (10.56, 14.36)	18.53 (15.84, 21.54)	30.89 (26.40, 35.90)	49.42 (42.23, 57.44)	61.78 (52.79, 71.80)
	70%	0.00 (0.00, 0.00)	0.72 (0.62, 0.84)	1.44 (1.23, 1.68)	2.16 (1.85, 2.51)	2.88 (2.46, 3.35)	3.60 (3.08, 4.19)	7.21 (6.16, 8.38)	10.81 (9.24, 12.56)	14.41 (12.32, 16.75)	21.62 (18.48, 25.13)	36.04 (30.79, 41.88)	57.66 (49.27, 67.01)	72.07 (61.59, 83.76)
	80%	0.00 (0.00, 0.00)	0.82 (0.70, 0.96)	1.65 (1.41, 1.91)	2.47 (2.11, 2.87)	3.29 (2.82, 3.83)	4.12 (3.52, 4.79)	8.24 (7.04, 9.57)	12.36 (10.56, 14.36)	16.47 (14.08, 19.15)	24.71 (21.12, 28.72)	41.18 (35.19, 47.87)	65.89 (56.31, 76.58)	82.37 (70.39, 95.73)
	90%	0.00 (0.00, 0.00)	0.93 (0.79, 1.08)	1.85 (1.58, 2.15)	2.78 (2.38, 3.23)	3.71 (3.17, 4.31)	4.63 (3.96, 5.38)	9.27 (7.92, 10.77)	13.90 (11.88, 16.15)	18.53 (15.84, 21.54)	27.80 (23.76, 32.31)	46.33 (39.59, 53.85)	74.13 (63.35, 86.16)	92.66 (79.19, 107.70)





Gannet		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%		0.00 <i>(0.00, 0.00)</i>	1.03 <i>(0.88, 1.20)</i>	2.06 <i>(1.76, 2.39)</i>	3.09 <i>(2.64, 3.59)</i>	4.12 <i>(3.52, 4.79)</i>	5.15 <i>(4.40, 5.98)</i>	10.30 <i>(8.80, 11.97)</i>	15.44 <i>(13.20, 17.95)</i>	20.59 <i>(17.60, 23.93)</i>	30.89 <i>(26.40, 35.90)</i>	51.48 <i>(43.99, 59.83)</i>	82.37 <i>(70.39, 95.73)</i>	102.96 <i>(87.98, 119.66)</i>

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



Annex B, Table 22D-16. Gannet displacement – spring migration for Grassholm SPA

Gannet		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.01 (0.00, 0.01)	0.02 (0.01, 0.02)	0.02 (0.01, 0.03)	0.03 (0.02, 0.04)	0.04 (0.02, 0.06)	0.08 (0.04, 0.11)	0.12 (0.06, 0.17)	0.15 (0.08, 0.22)	0.23 (0.12, 0.34)	0.39 (0.20, 0.56)	0.62 (0.32, 0.89)	0.77 (0.40, 1.12)
	20%	0.00 (0.00, 0.00)	0.02 (0.01, 0.02)	0.03 (0.02, 0.04)	0.05 (0.02, 0.07)	0.06 (0.03, 0.09)	0.08 (0.04, 0.11)	0.15 (0.08, 0.22)	0.23 (0.12, 0.34)	0.31 (0.16, 0.45)	0.46 (0.24, 0.67)	0.77 (0.40, 1.12)	1.24 (0.65, 1.79)	1.55 (0.81, 2.24)
	30%	0.00 (0.00, 0.00)	0.02 (0.01, 0.03)	0.05 (0.02, 0.07)	0.07 (0.04, 0.10)	0.09 (0.05, 0.13)	0.12 (0.06, 0.17)	0.23 (0.12, 0.34)	0.35 (0.18, 0.50)	0.46 (0.24, 0.67)	0.70 (0.36, 1.01)	1.16 (0.61, 1.68)	1.86 (0.97, 2.68)	2.32 (1.21, 3.36)
	40%	0.00 (0.00, 0.00)	0.03 (0.02, 0.04)	0.06 (0.03, 0.09)	0.09 (0.05, 0.13)	0.12 (0.06, 0.18)	0.15 (0.08, 0.22)	0.31 (0.16, 0.45)	0.46 (0.24, 0.67)	0.62 (0.32, 0.89)	0.93 (0.49, 1.34)	1.55 (0.81, 2.24)	2.48 (1.29, 3.58)	3.09 (1.62, 4.47)
	50%	0.00 (0.00, 0.00)	0.04 (0.02, 0.06)	0.08 (0.04, 0.11)	0.12 (0.06, 0.17)	0.15 (0.08, 0.22)	0.19 (0.10, 0.28)	0.39 (0.20, 0.56)	0.58 (0.30, 0.84)	0.77 (0.40, 1.12)	1.16 (0.61, 1.68)	1.93 (1.01, 2.80)	3.09 (1.62, 4.47)	3.87 (2.02, 5.59)
	60%	0.00 (0.00, 0.00)	0.05 (0.02, 0.07)	0.09 (0.05, 0.13)	0.14 (0.07, 0.20)	0.19 (0.10, 0.27)	0.23 (0.12, 0.34)	0.46 (0.24, 0.67)	0.70 (0.36, 1.01)	0.93 (0.49, 1.34)	1.39 (0.73, 2.01)	2.32 (1.21, 3.36)	3.71 (1.94, 5.37)	4.64 (2.43, 6.71)
	70%	0.00 (0.00, 0.00)	0.05 (0.03, 0.08)	0.11 (0.06, 0.16)	0.16 (0.08, 0.23)	0.22 (0.11, 0.31)	0.27 (0.14, 0.39)	0.54 (0.28, 0.78)	0.81 (0.42, 1.17)	1.08 (0.57, 1.57)	1.62 (0.85, 2.35)	2.71 (1.42, 3.92)	4.33 (2.27, 6.26)	5.41 (2.83, 7.83)
	80%	0.00 (0.00, 0.00)	0.06 (0.03, 0.09)	0.12 (0.06, 0.18)	0.19 (0.10, 0.27)	0.25 (0.13, 0.36)	0.31 (0.16, 0.45)	0.62 (0.32, 0.89)	0.93 (0.49, 1.34)	1.24 (0.65, 1.79)	1.86 (0.97, 2.68)	3.09 (1.62, 4.47)	4.95 (2.59, 7.16)	6.19 (3.24, 8.95)
	90%	0.00 (0.00, 0.00)	0.07 (0.04, 0.10)	0.14 (0.07, 0.20)	0.21 (0.11, 0.30)	0.28 (0.15, 0.40)	0.35 (0.18, 0.50)	0.70 (0.36, 1.01)	1.04 (0.55, 1.51)	1.39 (0.73, 2.01)	2.09 (1.09, 3.02)	3.48 (1.82, 5.03)	5.57 (2.91, 8.05)	6.96 (3.64, 10.07)



Gannet		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
100%		0.00 (0.00, 0.00)	0.08 (0.04, 0.11)	0.15 (0.08, 0.22)	0.23 (0.12, 0.34)	0.31 (0.16, 0.45)	0.39 (0.20, 0.56)	0.77 (0.40, 1.12)	1.16 (0.61, 1.68)	1.55 (0.81, 2.24)	2.32 (1.21, 3.36)	3.87 (2.02, 5.59)	6.19 (3.24, 8.95)	7.73 (4.05, 11.19)

Potential impact range (highlighted in grey) for the Array Area plus a 2 km buffer



## 22.5.12 Kittiwake – Skomer, Skokholm and the Seas Off Pembrokeshire SPA

Annex B, Table 22D-17. Kittiwake displacement – breeding season for Skomer, Skokholm and the Seas Off Pembrokeshire SPA (information presented for JNCC)

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
BREEDING SEASON		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.06 (0.03, 0.08)	0.11 (0.07, 0.16)	0.17 (0.10, 0.24)	0.22 (0.14, 0.32)	0.28 (0.17, 0.39)	0.56 (0.34, 0.79)	0.84 (0.52, 1.18)	1.12 (0.69, 1.58)	1.68 (1.03, 2.37)	2.80 (1.72, 3.94)	4.48 (2.75, 6.31)	5.60 (3.43, 7.89)
	20%	0.00 (0.00, 0.00)	0.11 (0.07, 0.16)	0.22 (0.14, 0.32)	0.34 (0.21, 0.47)	0.45 (0.27, 0.63)	0.56 (0.34, 0.79)	1.12 (0.69, 1.58)	1.68 (1.03, 2.37)	2.24 (1.37, 3.15)	3.36 (2.06, 4.73)	5.60 (3.43, 7.89)	8.95 (5.50, 12.62)	11.19 (6.87, 15.77)
	30%	0.00 (0.00, 0.00)	0.17 (0.10, 0.24)	0.34 (0.21, 0.47)	0.50 (0.31, 0.71)	0.67 (0.41, 0.95)	0.84 (0.52, 1.18)	1.68 (1.03, 2.37)	2.52 (1.55, 3.55)	3.36 (2.06, 4.73)	5.04 (3.09, 7.10)	8.40 (5.15, 11.83)	13.43 (8.24, 18.93)	16.79 (10.30, 23.66)
	40%	0.00 (0.00, 0.00)	0.22 (0.14, 0.32)	0.45 (0.27, 0.63)	0.67 (0.41, 0.95)	0.90 (0.55, 1.26)	1.12 (0.69, 1.58)	2.24 (1.37, 3.15)	3.36 (2.06, 4.73)	4.48 (2.75, 6.31)	6.72 (4.12, 9.46)	11.19 (6.87, 15.77)	17.91 (10.99, 25.24)	22.39 (13.74, 31.55)
	50%	0.00 (0.00, 0.00)	0.28 (0.17, 0.39)	0.56 (0.34, 0.79)	0.84 (0.52, 1.18)	1.12 (0.69, 1.58)	1.40 (0.86, 1.97)	2.80 (1.72, 3.94)	4.20 (2.58, 5.91)	5.60 (3.43, 7.89)	8.40 (5.15, 11.83)	13.99 (8.59, 19.72)	22.39 (13.74, 31.55)	27.98 (17.17, 39.43)
	60%	0.00 (0.00, 0.00)	0.34 (0.21, 0.47)	0.67 (0.41, 0.95)	1.01 (0.62, 1.42)	1.34 (0.82, 1.89)	1.68 (1.03, 2.37)	3.36 (2.06, 4.73)	5.04 (3.09, 7.10)	6.72 (4.12, 9.46)	10.07 (6.18, 14.20)	16.79 (10.30, 23.66)	26.86 (16.49, 37.85)	33.58 (20.61, 47.32)
	70%	0.00 (0.00, 0.00)	0.39 (0.24, 0.55)	0.78 (0.48, 1.10)	1.18 (0.72, 1.66)	1.57 (0.96, 2.21)	1.96 (1.20, 2.76)	3.92 (2.40, 5.52)	5.88 (3.61, 8.28)	7.84 (4.81, 11.04)	11.75 (7.21, 16.56)	19.59 (12.02, 27.60)	31.34 (19.23, 44.16)	39.18 (24.04, 55.20)
	80%	0.00 (0.00, 0.00)	0.45 (0.27, 0.63)	0.90 (0.55, 1.26)	1.34 (0.82, 1.89)	1.79 (1.10, 2.52)	2.24 (1.37, 3.15)	4.48 (2.75, 6.31)	6.72 (4.12, 9.46)	8.95 (5.50, 12.62)	13.43 (8.24, 18.93)	22.39 (13.74, 31.55)	35.82 (21.98, 50.47)	44.77 (27.48, 63.09)



Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
BREEDING	SEASON	0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	90%	0.00 <i>(0.00, 0.00)</i>	0.50 <i>(0.31, 0.71)</i>	1.01 <i>(0.62, 1.42)</i>	1.51 <i>(0.93, 2.13)</i>	2.01 <i>(1.24, 2.84)</i>	2.52 <i>(1.55, 3.55)</i>	5.04 <i>(3.09, 7.10)</i>	7.56 <i>(4.64, 10.65)</i>	10.07 <i>(6.18, 14.20)</i>	15.11 <i>(9.27, 21.29)</i>	25.19 <i>(15.45, 35.49)</i>	40.30 <i>(24.73, 56.78)</i>	50.37 <i>(30.91, 70.98)</i>
	100%	0.00 <i>(0.00, 0.00)</i>	0.56 <i>(0.34, 0.79)</i>	1.12 <i>(0.69, 1.58)</i>	1.68 <i>(1.03, 2.37)</i>	2.24 <i>(1.37, 3.15)</i>	2.80 <i>(1.72, 3.94)</i>	5.60 <i>(3.43, 7.89)</i>	8.40 <i>(5.15, 11.83)</i>	11.19 <i>(6.87, 15.77)</i>	16.79 <i>(10.30, 23.66)</i>	27.98 <i>(17.17, 39.43)</i>	44.77 <i>(27.48, 63.09)</i>	55.97 <i>(34.34, 78.86)</i>



Annex B, Table 22D-18. Kittiwake displacement – autumn migration for Skomer, Skokholm and the Seas Off Pembrokeshire SPA (information presented for JNCC)

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.01 (0.00, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.01)	0.02 (0.02, 0.02)	0.03 (0.02, 0.03)	0.04 (0.03, 0.05)	0.06 (0.05, 0.07)	0.10 (0.08, 0.11)	0.16 (0.13, 0.18)	0.19 (0.16, 0.23)
	20%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.01 (0.01, 0.01)	0.01 (0.01, 0.01)	0.02 (0.01, 0.02)	0.02 (0.02, 0.02)	0.04 (0.03, 0.05)	0.06 (0.05, 0.07)	0.08 (0.06, 0.09)	0.12 (0.10, 0.14)	0.19 (0.16, 0.23)	0.31 (0.26, 0.36)	0.39 (0.32, 0.46)
	30%	0.00 (0.00, 0.00)	0.01 (0.00, 0.01)	0.01 (0.01, 0.01)	0.02 (0.01, 0.02)	0.02 (0.02, 0.03)	0.03 (0.02, 0.03)	0.06 (0.05, 0.07)	0.09 (0.07, 0.10)	0.12 (0.10, 0.14)	0.17 (0.14, 0.20)	0.29 (0.24, 0.34)	0.47 (0.38, 0.55)	0.58 (0.48, 0.68)
	40%	0.00 (0.00, 0.00)	0.01 (0.01, 0.01)	0.02 (0.01, 0.02)	0.02 (0.02, 0.03)	0.03 (0.03, 0.04)	0.04 (0.03, 0.05)	0.08 (0.06, 0.09)	0.12 (0.10, 0.14)	0.16 (0.13, 0.18)	0.23 (0.19, 0.27)	0.39 (0.32, 0.46)	0.62 (0.51, 0.73)	0.78 (0.64, 0.91)
	50%	0.00 (0.00, 0.00)	0.01 (0.01, 0.01)	0.02 (0.02, 0.02)	0.03 (0.02, 0.03)	0.04 (0.03, 0.05)	0.05 (0.04, 0.06)	0.10 (0.08, 0.11)	0.15 (0.12, 0.17)	0.19 (0.16, 0.23)	0.29 (0.24, 0.34)	0.49 (0.40, 0.57)	0.78 (0.64, 0.91)	0.97 (0.80, 1.14)
	60%	0.00 (0.00, 0.00)	0.01 (0.01, 0.01)	0.02 (0.02, 0.03)	0.03 (0.03, 0.04)	0.05 (0.04, 0.05)	0.06 (0.05, 0.07)	0.12 (0.10, 0.14)	0.17 (0.14, 0.20)	0.23 (0.19, 0.27)	0.35 (0.29, 0.41)	0.58 (0.48, 0.68)	0.93 (0.77, 1.09)	1.17 (0.96, 1.37)
	70%	0.00 (0.00, 0.00)	0.01 (0.01, 0.02)	0.03 (0.02, 0.03)	0.04 (0.03, 0.05)	0.05 (0.04, 0.06)	0.07 (0.06, 0.08)	0.14 (0.11, 0.16)	0.20 (0.17, 0.24)	0.27 (0.22, 0.32)	0.41 (0.34, 0.48)	0.68 (0.56, 0.80)	1.09 (0.89, 1.27)	1.36 (1.12, 1.59)
	80%	0.00 (0.00, 0.00)	0.02 (0.01, 0.02)	0.03 (0.03, 0.04)	0.05 (0.04, 0.05)	0.06 (0.05, 0.07)	0.08 (0.06, 0.09)	0.16 (0.13, 0.18)	0.23 (0.19, 0.27)	0.31 (0.26, 0.36)	0.47 (0.38, 0.55)	0.78 (0.64, 0.91)	1.24 (1.02, 1.46)	1.56 (1.28, 1.82)
	90%	0.00 (0.00, 0.00)	0.02 (0.01, 0.02)	0.03 (0.03, 0.04)	0.05 (0.04, 0.06)	0.07 (0.06, 0.08)	0.09 (0.07, 0.10)	0.17 (0.14, 0.20)	0.26 (0.22, 0.31)	0.35 (0.29, 0.41)	0.52 (0.43, 0.61)	0.87 (0.72, 1.02)	1.40 (1.15, 1.64)	1.75 (1.44, 2.05)



Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
AUTUMN		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
MIGRATION														
	100%	0.00	0.02	0.04	0.06	0.08	0.10	0.19	0.29	0.39	0.58	0.97	1.56	1.94
		(0.00, 0.00)	(0.02, 0.02)	(0.03, 0.05)	(0.05, 0.07)	(0.06, 0.09)	(0.08, 0.11)	(0.16, 0.23)	(0.24, 0.34)	(0.32, 0.46)	(0.48, 0.68)	(0.80, 1.14)	(1.28, 1.82)	(1.60, 2.28)



Annex B, Table 22D-19. Kittiwake displacement – spring migration for Skomer, Skokholm and the Seas Off Pembrokeshire SPA (information presented for JNCC)

Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
Displacement level (% of all birds on-site)	0%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
	10%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.01 (0.00, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.02)	0.02 (0.02, 0.03)	0.03 (0.02, 0.04)	0.04 (0.03, 0.05)
	20%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.02)	0.02 (0.01, 0.02)	0.02 (0.02, 0.03)	0.04 (0.03, 0.05)	0.07 (0.05, 0.08)	0.08 (0.06, 0.10)
	30%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.01 (0.00, 0.01)	0.01 (0.01, 0.02)	0.02 (0.01, 0.02)	0.02 (0.02, 0.03)	0.04 (0.03, 0.05)	0.06 (0.05, 0.08)	0.10 (0.07, 0.12)	0.12 (0.09, 0.15)
	40%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.01 (0.00, 0.01)	0.01 (0.01, 0.01)	0.02 (0.01, 0.02)	0.02 (0.02, 0.03)	0.03 (0.02, 0.04)	0.05 (0.04, 0.06)	0.08 (0.06, 0.10)	0.13 (0.10, 0.16)	0.16 (0.12, 0.20)
	50%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.01 (0.00, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.01)	0.02 (0.02, 0.03)	0.03 (0.02, 0.04)	0.04 (0.03, 0.05)	0.06 (0.05, 0.08)	0.10 (0.08, 0.13)	0.16 (0.12, 0.20)	0.21 (0.15, 0.26)
	60%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.02)	0.02 (0.02, 0.03)	0.04 (0.03, 0.05)	0.05 (0.04, 0.06)	0.07 (0.06, 0.09)	0.12 (0.09, 0.15)	0.20 (0.15, 0.25)	0.25 (0.18, 0.31)
	70%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.01 (0.00, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.02)	0.03 (0.02, 0.04)	0.04 (0.03, 0.05)	0.06 (0.04, 0.07)	0.09 (0.06, 0.11)	0.14 (0.11, 0.18)	0.23 (0.17, 0.29)	0.29 (0.22, 0.36)
	80%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.01 (0.00, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.02)	0.02 (0.01, 0.02)	0.03 (0.02, 0.04)	0.05 (0.04, 0.06)	0.07 (0.05, 0.08)	0.10 (0.07, 0.12)	0.16 (0.12, 0.20)	0.26 (0.20, 0.33)	0.33 (0.25, 0.41)
	90%	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.01 (0.01, 0.01)	0.01 (0.01, 0.01)	0.01 (0.01, 0.02)	0.02 (0.01, 0.02)	0.04 (0.03, 0.05)	0.06 (0.04, 0.07)	0.07 (0.06, 0.09)	0.11 (0.08, 0.14)	0.19 (0.14, 0.23)	0.30 (0.22, 0.37)	0.37 (0.28, 0.46)





Kittiwake		Mortality level (% of displaced birds at risk of mortality)												
SPRING MIGRATION		0%	1%	2%	3%	4%	5%	10%	15%	20%	30%	50%	80%	100%
	100%	0.00 <i>(0.00, 0.00)</i>	0.00 <i>(0.00, 0.01)</i>	0.01 <i>(0.01, 0.01)</i>	0.01 <i>(0.01, 0.02)</i>	0.02 <i>(0.01, 0.02)</i>	0.02 <i>(0.02, 0.03)</i>	0.04 <i>(0.03, 0.05)</i>	0.06 <i>(0.05, 0.08)</i>	0.08 <i>(0.06, 0.10)</i>	0.12 <i>(0.09, 0.15)</i>	0.21 <i>(0.15, 0.26)</i>	0.33 <i>(0.25, 0.41)</i>	0.41 <i>(0.31, 0.51)</i>



## **22.6 APPENDIX 22D: ANNEX C – SEABORD DISPLACEMENT MODELLING**

Annex provided as a separate document.



## 22.8 References

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