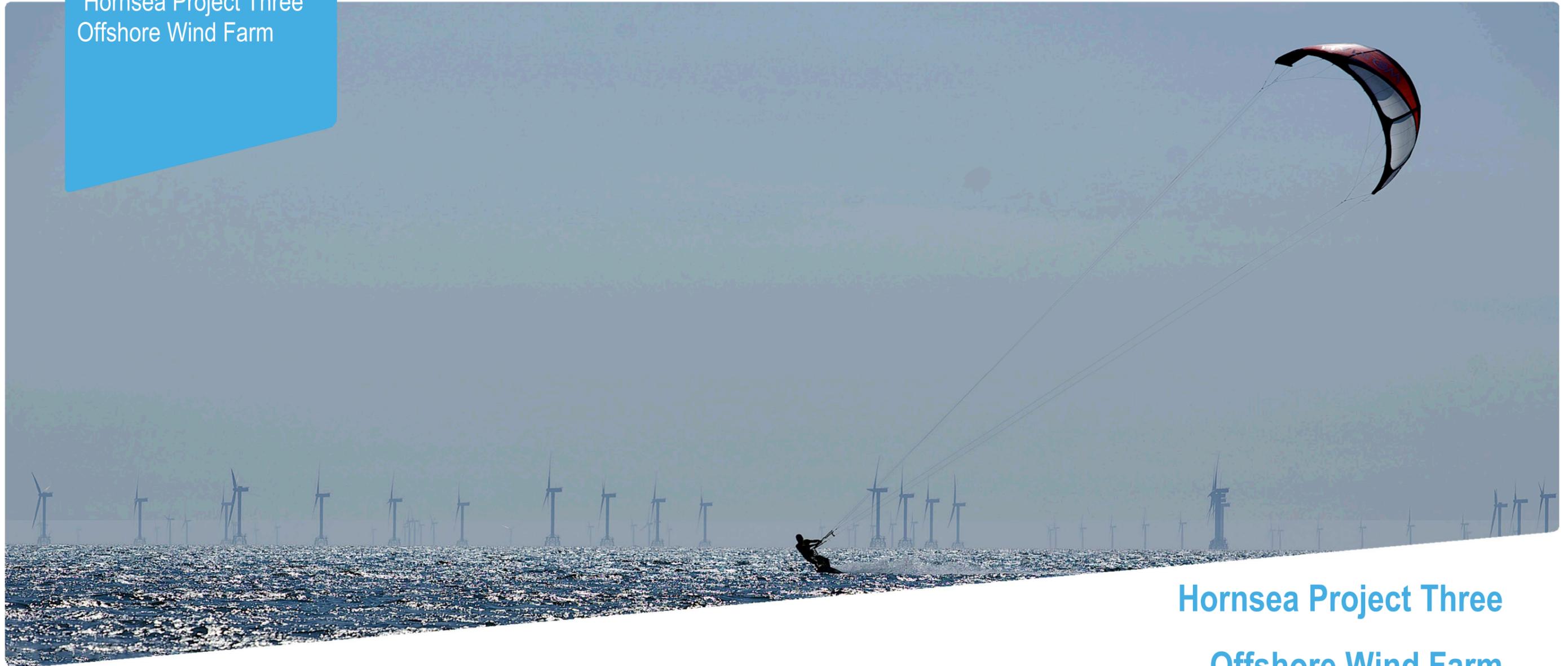


Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three Offshore Wind Farm

Report to Inform Appropriate Assessment
Annex 2 - Additional Special Protection Areas Screening Exercise
PINS Document Reference: A5.2.2
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Hornsea 3 
Offshore Wind Farm

 Orsted

Habitats Regulations Assessment

Report to inform Appropriate Assessment

Annex 2 – Additional Special Protection Areas Screening Exercise

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1. Additional Screening Exercise

1.1 Introduction

1.1.1.1 The Habitat Regulations Assessment (HRA) Screening Report was produced before the completion of site-specific surveys for Hornsea Three. As such, conclusions in relation to impacts that may occur in the non-breeding season on breeding Special Protection Area (SPA) features were based on the assumption that the abundance of seabirds would be low in this period based on historical data collected as part of the applications for the Hornsea Project One and Hornsea Project Two offshore wind farms.

1.1.1.2 Natural England, as part of the Evidence Plan process and within their Section 42 response, have queried the evidence and justifications provided in the HRA Screening Report in relation to a conclusion of no LSE on the tern features of the Greater Wash potential SPA (pSPA) suggesting that a Likely Significant Effect (LSE) should have been identified for some features for which a conclusion of no LSE was reached. A conclusion of no LSE was reached for all tern features based on the low sensitivity of these features to impacts associated with the Hornsea Three offshore export cable. The evidence base to support these conclusions are given further consideration in this Annex due to a change in route of the Hornsea Three offshore export cable and potential overlap between the Hornsea Three offshore cable route and the foraging areas of tern features within the Greater Wash pSPA.

1.1.1.3 In order to provide further confidence to the conclusions drawn in the HRA Screening Report, this Annex also presents an additional screening exercise based on interim advice published by JNCC and Natural England in relation to non-breeding HRA screening for seabirds (JNCC and Natural England, 2013).

1.2 Background

1.2.1 Greater Wash pSPA

1.2.1.1 The Greater Wash pSPA is proposed to be designated to include the foraging areas of breeding common tern, Sandwich tern and little tern in addition to wintering populations of red-throated diver, common scoter and little gull. The HRA Screening Report for Hornsea Three included consideration of all features of the Greater Wash pSPA with the conclusions of the screening process identified in Table 1.1.

Table 1.1: HRA Screening conclusions in relation to features of the Greater Wash pSPA

Feature	Screening conclusion
Red-throated diver	Potential for LSE due to species high vulnerability to disturbance/displacement impacts

Feature	Screening conclusion
Common scoter	Potential for LSE due to species high vulnerability to disturbance/displacement impacts
Little tern	No potential for LSE due to species low vulnerability to disturbance/displacement impacts
Sandwich tern	No potential for LSE due to species low vulnerability to disturbance/displacement impacts
Common tern	No potential for LSE due to species low vulnerability to disturbance/displacement impacts
Little gull	No potential for LSE due to species low vulnerability to disturbance/displacement impacts

1.2.1.2 Natural England provided comments on the HRA Screening process as part of the Section 42 consultation. In relation to the tern features of the Greater Wash pSPA Natural England stated that “in order to conclude no LSE for the tern features of the Greater Wash pSPA and North Norfolk Coast SPA requires demonstration that the export cable route (ECR) envelope has no potential overlap with tern foraging areas within the relevant SPAs”. As such, this Annex seeks to address this comment in the context of the conclusions reached in the HRA Screening Report.

1.2.1.3 Natural England also queried the conclusion of no LSE on the little gull feature of the Greater Wash pSPA in relation to collision risk impacts suggesting that birds that form part of the Greater Wash pSPA may be vulnerable to collision risk impacts whilst on migration. Further information is also provided in this Annex in relation to this point.

1.2.2 Non-breeding seabirds

1.2.2.1 Twelve Valued Ornithological Receptors (VORs) that are breeding features at SPAs in the UK were identified in Environmental Statement volume 5, annex 5.1: Baseline Characterisation Report for consideration in impact assessment. These features are therefore incorporated into the non-breeding seabirds additional screening exercise:

- Fulmar;
- Gannet;
- Arctic skua;
- Great skua;
- Puffin;
- Razorbill;
- Guillemot;
- Common tern;
- Arctic tern;
- Kittiwake;
- Lesser black-backed gull; and
- Great black-backed gull.

- 1.2.2.2 The seasons defined for each of these species are presented in Environmental Statement volume 5, annex 5.1: Baseline Characterisation Report with the majority defined based on information in Furness (2015). The processes presented in Environmental Statement volume 5, annex 5.2: Analysis of Displacement Impacts on Seabirds and Environmental Statement volume 5, annex 5.3: Collision Risk Modelling identify which of these twelve VORs are considered for displacement analysis and collision risk modelling. Taking the predicted impacts calculated for relevant features in these two annexes, a screening approach consistent with that used at Hornsea Project Two and advised by Natural England for that project has been applied in order to determine if there is potential for LSE.
- 1.2.2.3 The SPAs considered for each feature are consistent with the geographic areas used to define the Biologically Defined Minimum Population Scales (BDMPS) in Furness (2015). This therefore includes all SPAs for which populations are provided in Furness (2015) and any SPAs that have been designated since the publication of Furness (2015) and those currently at the pSPA stage.
- 1.2.2.4 Furness (2015) identifies the proportion of an SPA population that will contribute to the BDMPS population. Where a newly designated SPA/pSPA has been included in the screening process, the proportion of birds from that SPA that will be present in the BDMPS has been calculated using the proportion of birds predicted to be present in the BDMPS for SPAs in close proximity. For example, for the recently designated Northumberland Marine SPA, it has been assumed that the proportion of birds in the BDMPS will be identical to the proportion from the Farne Islands SPA. It should be noted that conclusions drawn for the Flamborough and Filey Coast pSPA are considered to also apply to the Flamborough Head and Bempton Cliffs SPA with affecting kittiwake only.

1.3 Methodology

1.3.1 Greater Wash pSPA

- 1.3.1.1 In order to address Natural England's comments in relation to potential connectivity between tern features of the Greater Wash pSPA and the Hornsea Three export cable, information relating to the foraging behaviour of Sandwich, common and little tern from breeding colonies that form part of the North Norfolk Coast SPA (presented in Wilson *et al.*, 2014 and Parsons *et al.*, 2015) has been used to determine whether there is connectivity between these features and the Hornsea Three export cable route. Consideration is given to the likely usage of the Hornsea Three export cable by the relevant species in order to identify whether there is potential for LSE.
- 1.3.1.2 For the little gull feature of the Greater Wash pSPA, the collision risk estimates presented in Environmental Statement volume 5, annex 5.3: Collision Risk Modelling have been analysed to identify if there is potential for LSE based on the likely contribution of the Greater Wash pSPA population to the larger migratory population that migrates through the North Sea.

1.3.2 Non-breeding seabirds

- 1.3.2.1 The approach used to determine if there is potential for LSE is consistent with that described in JNCC and Natural England (2013):
- Assuming an equal mixing of birds within the geographic area used to define the BDMPS, define the contribution of each SPA to the total BDMPS population; and
 - Apportion the predicted impact due to the development to each SPA based on the SPA proportions calculated.
- 1.3.2.2 The resulting apportioned impacts are then compared to the 1% threshold of baseline mortality for each SPA population. Originally developed for the Ramsar Convention (Kuijken, 2006), the 1% threshold level has been used extensively for site designation (Kuijken, 2006) and in assessing potential impacts of proposed developments (Skov *et al.*, 2007) and therefore its use as a coarse screening tool is considered appropriate. Where the 1% threshold is surpassed it is assumed there is potential for LSE; the feature and relevant SPAs are carried forward to the Report to Inform Appropriate Assessment (RIAA).
- 1.3.2.3 In order to provide a precautionary screening exercise, the following assumptions are made in relation to the impacts assessed (see Section 8.3 of the RIAA for back ground on these assumptions):
- Collision risk estimates
 - Option 2 at a 98.9% (gannet), 99.2% (kittiwake and little gull), 99.5% (lesser black-backed gull and great black-backed gull) or 98% (all other species) avoidance rate;
 - Displacement
 - Fulmar – 30% displacement, 10% mortality;
 - Gannet – 70% displacement, 10% mortality;
 - Puffin – 50% displacement, 10% mortality
 - Razorbill – 40% displacement; 10% mortality
 - Guillemot – 50% displacement; 10% mortality
- 1.3.2.4 Collision risk estimates calculated using Option 2 may represent an overlay precautionary scenario through using generic flight height data (Johnston *et al.*, 2014) which may not reflect behaviour at Hornsea Three (see discussion in Environmental Statement volume 2, chapter 5: Offshore Ornithology and Environmental Statement volume 5, chapter 5: annex 5.3: Collision Risk Modelling) they are used here to add further precaution to this screening exercise and to ensure that features are not erroneously omitted from the RIAA.

1.3.2.5 As discussed in the RIAA (Ørsted, 2018) and ES Volume 2 Chapter 5: Offshore Ornithology, applying a 10% mortality rate in the non-breeding season to assessments of displacement, is considered to over-estimate the likely magnitude of displacement impact for all features. However, it is used here in order to provide an additional level of precaution to the screening process to ensure that features are not erroneously omitted from the RIAA. The use of these mortality rates is also more precautionary than those that have been used before in similar screening approaches and accepted by Natural England (e.g. at Hornsea Project Two) which used lower mortality rates (post- and pre-breeding seasons = 2% and non-breeding season = 1%).

1.4 Screening

1.4.1 Greater Wash pSPA

Overview

1.4.1.1 The foraging areas of three tern species are included as part of the designation of the Greater Wash pSPA. These three tern features breed at colonies that form part of the North Norfolk Coast SPA. During Hornsea Three Expert Working Group meetings undertaken as part of the Hornsea Three Evidence Plan process it was advised by Natural England that conclusions drawn in relation to the Greater Wash pSPA would also apply to the North Norfolk Coast SPA (Consultation Report Annex 1: Evidence Plan). The potential for LSEs on the three tern features of the Greater Wash pSPA is considered in the following sections.

Little tern

1.4.1.2 The seaward extent of the Greater Wash pSPA was informed by a number of supporting studies including Parsons *et al.* (2015) which identified usage of the marine environment by little terns around a number of breeding colonies including those that form part of the North Norfolk Coast SPA. The maximum alongshore foraging extents of birds from colonies within the North Norfolk Coast SPA was 7 km east and west and seaward to a maximum distance of 2.13 km (Figure 1.1). This therefore strongly suggests no connectivity with the area in which the Hornsea Three export cable is to be located. When this is considered alongside the low vulnerability of little tern to disturbance impacts (Wade *et al.*, 2016) there is considered to be no potential for LSE on the little tern feature of the Greater Wash pSPA as a result of impacts associated with the construction, operation and maintenance or decommissioning of Hornsea Three.

Sandwich tern

1.4.1.3 As stated for little tern, the seaward extent of the Greater Wash pSPA was informed by a number of supporting studies. Of relevance to Sandwich tern was the report produced by Wilson *et al.* (2014) which investigated the usage of the marine environment by four species of terns (Arctic, common, roseate and Sandwich terns) around breeding colonies throughout the UK including the North Norfolk Coast SPA. Within the North Norfolk Coast SPA are two breeding colonies located at Scolt Head and Blakeney Point. The predicted usage of offshore areas by Sandwich tern for foraging from these colonies, as quantified by Wilson *et al.* (2014) is presented in Figure 1.2. These maps indicate that there is no connectivity between Sandwich tern breeding at Scolt Head and the area of the Greater Wash pSPA through which the Hornsea Three export cable will pass and only minimal connectivity between Sandwich terns breeding at Blakeney Point and the Hornsea Three export cable.

1.4.1.4 Natural England have suggested that features from the Greater Wash pSPA should be screened into the RIAA where there is overlap between the Hornsea Three export cable and the foraging areas of Sandwich tern in the Greater Wash pSPA. As already discussed, there is overlap between the Hornsea Three export cable and an area of low usage by Sandwich terns. As a result, on a precautionary basis it is been assumed that there is potential for LSE on the Sandwich tern feature of the Greater Wash pSPA and the species is taken forward for further assessment in the RIAA.

Common tern

1.4.1.5 Wilson *et al.* (2014) also presents predicted usage maps for common tern from the two breeding colonies (Scolt Head and Blakeney Point) for which the associated foraging areas are included as part of the Greater Wash pSPA. Figure 1.3 presents the predicted usage of the offshore environment by common tern from these two breeding colonies in relation to the Hornsea Three export cable route. There is no overlap between the Hornsea Three export cable corridor and the foraging areas of common tern from the Scolt Head breeding colony. The Hornsea Three export cable corridor overlaps with an area that is predicted to have negligible usage by common terns from the Blakeney Point breeding colony. This area is highly unlikely to represent an important foraging area with Wilson *et al.* (2014) suggesting areas of high usage are located much closer to the colony. Therefore, it is considered that there is no potential for LSE on the common tern feature of the Greater Wash pSPA or the North Norfolk Coast SPA as a result of impacts associated with the construction, operation and maintenance or decommissioning of Hornsea Three..

Little gull

- 1.4.1.6 In Environmental Statement volume 5, annex 5.3: Collision Risk Modelling, little gull was identified as a species for which collision risk modelling was required in relation to possible migratory movements through Hornsea Three. Using Option 2 and an avoidance rate of 99.2% (consistent with the 'small gull spp' avoidance rate reported by Cook *et al.*, 2014), less than one collision per annum was predicted for the migratory population of little gull that may interact with Hornsea Three. When using a precautionary avoidance rate of 98%, three collisions per annum are predicted. When apportioned amongst the total migratory population of little gull (30,000 – 75,000 individuals; Stienen *et al.* 2007) less than one collision would be attributed to the Greater Wash pSPA population of little gull (1,303 individuals). As such, it is considered that there is no potential for LSE on the Greater Wash pSPA population of little gull.

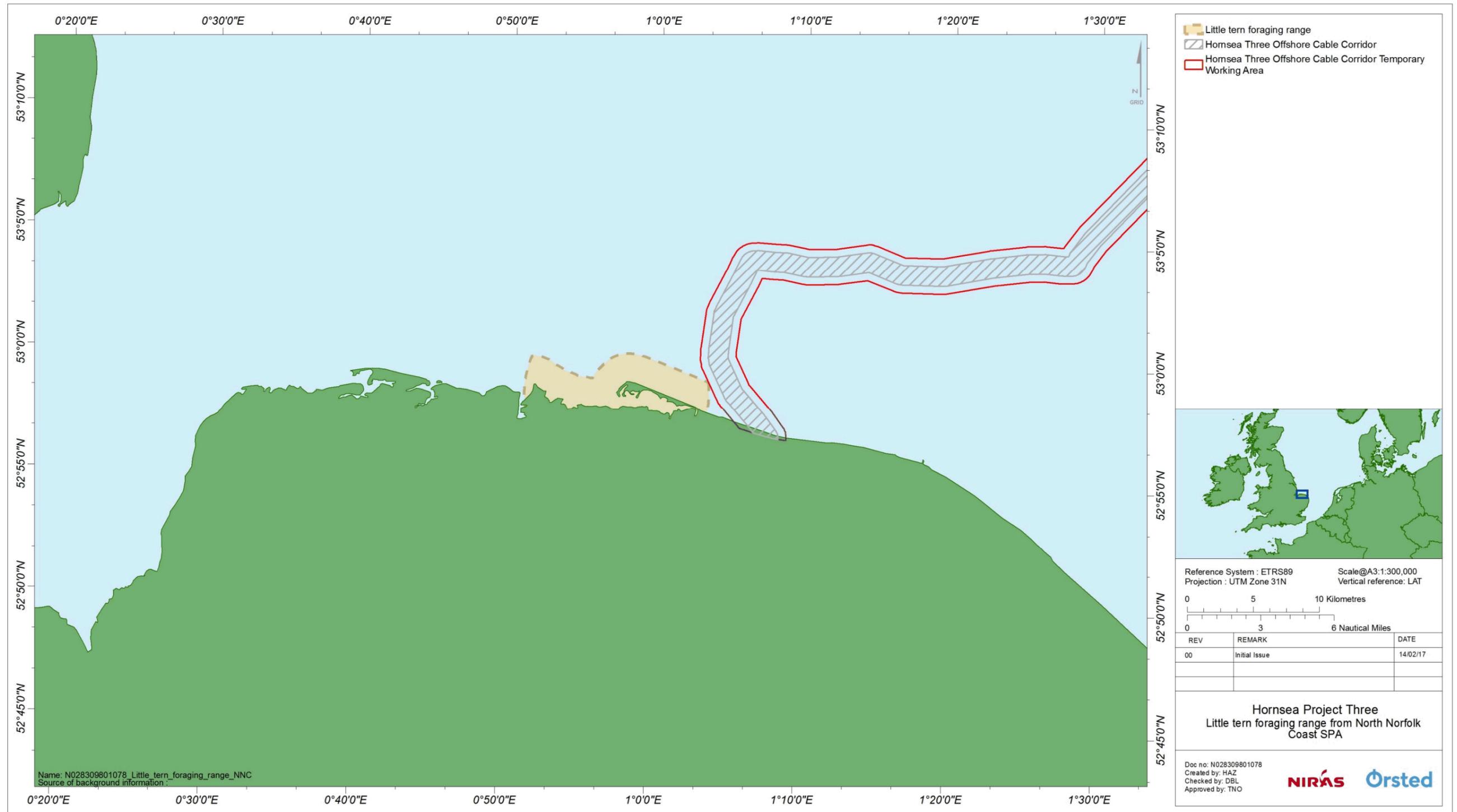


Figure 1.1: Foraging range of little terns from the breeding colony at Blakeney Point based on the values provided in Parsons *et al.* (2015).

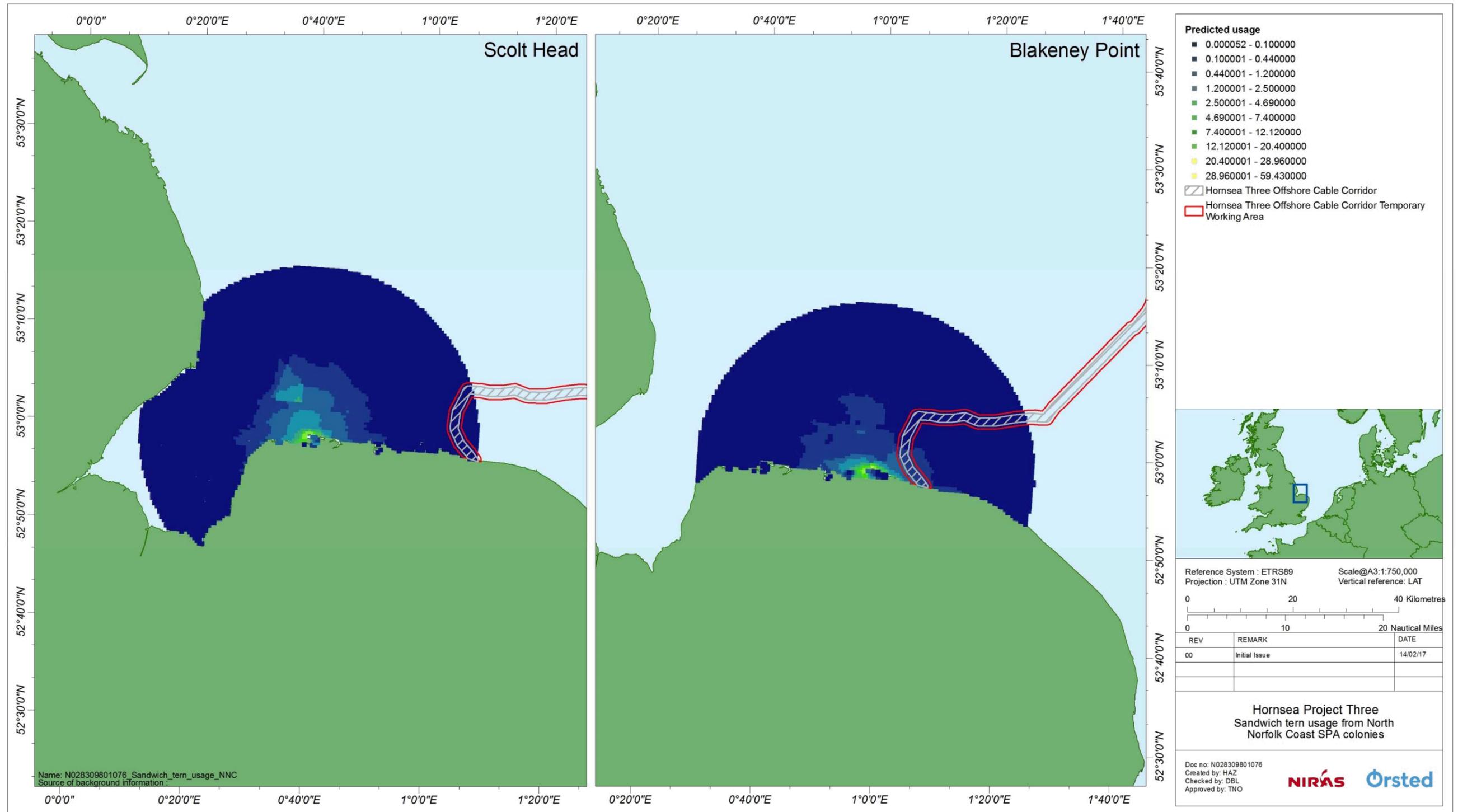


Figure 1.2: Predicted relative usage of the waters around two Sandwich tern breeding colonies that form part of the North Norfolk Coast SPA. Usage values are relative and are categorised based on natural groupings inherent in the data (data from Wilson et al., 2014 provided by JNCC).

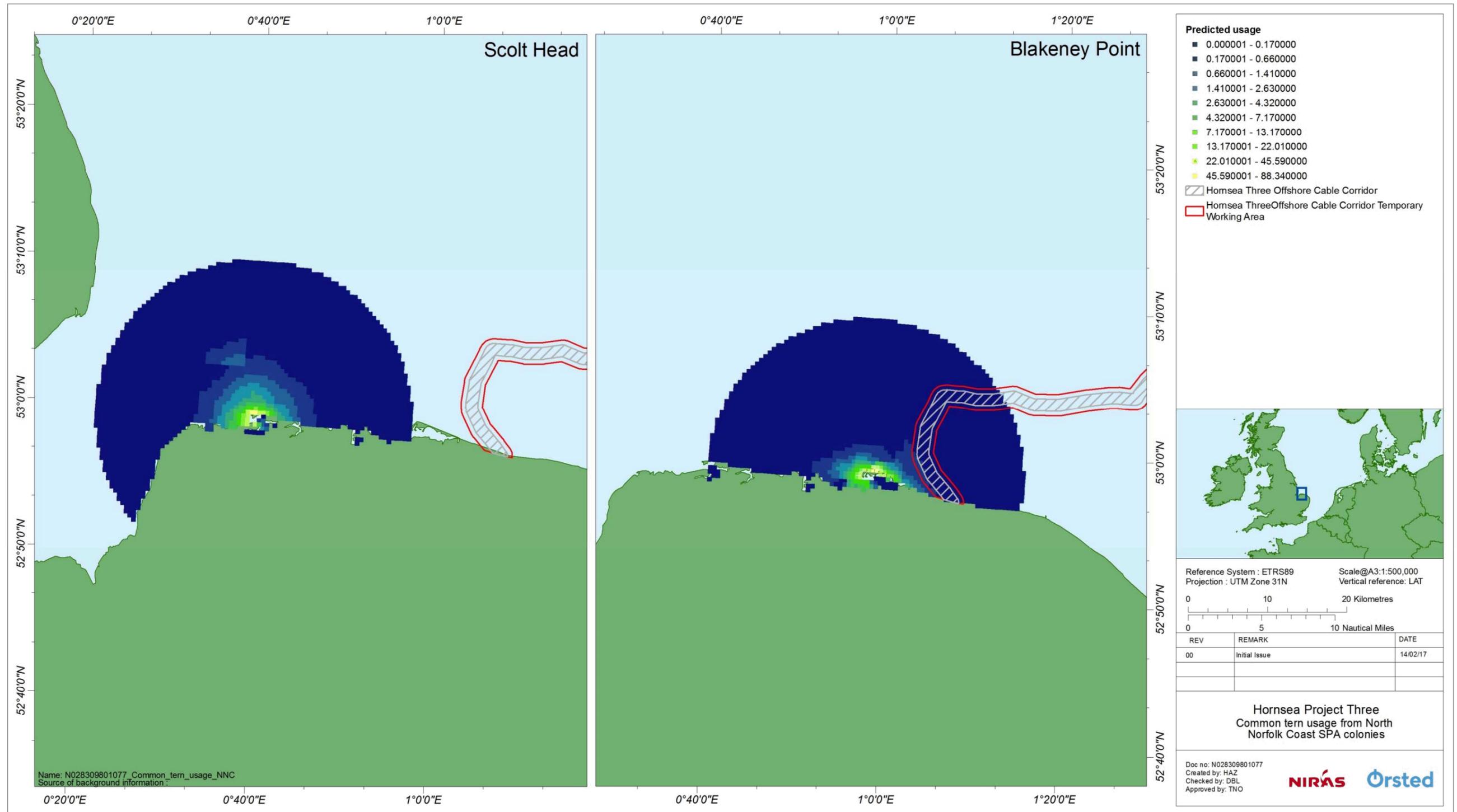


Figure 1.3: Predicted relative usage of the waters around two common tern breeding colonies that form part of the North Norfolk Coast SPA. Usage values are relative and are categorised based on natural groupings inherent in the data (data from Wilson *et al.*, 2014 provided by JNCC).

1.4.2 Non-breeding seabirds

- 1.4.2.1 Four migratory species that are breeding features at SPAs in the UK were identified as VORs in Environmental Statement volume 5, annex 5.1: Baseline Characterisation Report (Arctic skua, great skua, common tern and Arctic tern). These species are considered vulnerable to collision risk impacts and therefore collision risk modelling was conducted for these species in Environmental Statement volume 5, annex 5.3: Collision Risk Modelling. Using Option 2 at a precautionary 98% avoidance rate, less than 1 collision was predicted for all four species. As such, it is considered that there is no potential for LSE on any SPAs at which these species are breeding features and no further consideration is given to these species in this report.
- 1.4.2.2 For all remaining features identified in Section 1.2.2, Table 1.2 to Table 1.19 present the screening exercise for each feature. These tables only include those SPAs that are considered by Furness (2015) to contribute birds to a relevant BDMPS population for each relevant species/season combination.
- 1.4.2.3 Based on the screening exercise presented in Table 1.2 to Table 1.19, no LSEs are predicted in the non-breeding season due to impacts associated with the construction, operation or decommissioning of Hornsea Three for SPAs at which the species identified in Section 1.2.2 are qualifying features. However, it should be noted that for those species for which connectivity between Hornsea Three and relevant SPAs has been identified in the breeding season (see Annex 3: Phenology, connectivity and apportioning for features of FFC pSPA), impacts that may occur on these features in the non-breeding season are also considered in the RIAA.

Table 1.2: Screening for LSE, displacement impacts on fulmar in the post-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Hermaness, Saxa Vord and Valla Field	12,600	957,502	8.96	1.32	29	0.39	N
Fetlar	16,042	957,502	11.41	1.68	29	0.49	N
Foula	35,564	957,502	25.29	3.71	29	1.09	N
Noss	9,446	957,502	6.72	0.99	29	0.29	N
Sumburgh Head	419	957,502	0.30	0.04	29	0.01	N
Fair Isle	53,368	957,502	37.95	5.57	29	1.63	N
West Westray	1,219	957,502	0.87	0.13	29	0.04	N
Calf of Eday	3,316	957,502	2.36	0.35	29	0.10	N
Rousay	1,854	957,502	1.32	0.19	29	0.06	N
Hoy	35,255	957,502	25.07	3.68	29	1.08	N
Copinsay	2,934	957,502	2.09	0.31	29	0.09	N
North Caithness Cliffs	25,650	957,502	18.24	2.68	29	0.78	N
East Caithness Cliffs	28,404	957,502	18.18	2.97	29	0.87	N
Buchan Ness to Collieston Coast	2,734	957,502	1.75	0.29	29	0.08	N
Troup, Pennan and Lion's Heads	3,590	957,502	2.30	0.37	29	0.11	N
Fowlsheugh	386	957,502	0.25	0.04	29	0.01	N
Forth Islands	1,664	957,502	1.06	0.17	29	0.05	N
Flamborough and Filey Coast pSPA	1,756	957,502	1.12	0.18	29	0.05	N

Table 1.3: Screening for LSE, displacement impacts on fulmar in the non-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Hermaness, Saxa Vord and Valla Field	9,800	568,736	8.96	1.72	11	0.18	N
Fetlar	12,477	568,736	11.41	2.19	11	0.23	N
Foula	27,661	568,736	25.29	4.86	11	0.51	N
Noss	7,347	568,736	6.72	1.29	11	0.14	N
Sumburgh Head	326	568,736	0.30	0.06	11	0.01	N
Fair Isle	41,509	568,736	37.95	7.30	11	0.77	N
West Westray	948	568,736	0.87	0.17	11	0.02	N
Calf of Eday	2,579	568,736	2.36	0.45	11	0.05	N
Rousay	1,442	568,736	1.32	0.25	11	0.03	N
Hoy	27,420	568,736	25.07	4.82	11	0.51	N
Copinsay	2,282	568,736	2.09	0.40	11	0.04	N
North Caithness Cliffs	19,950	568,736	18.24	3.51	11	0.37	N
East Caithness Cliffs	19,883	568,736	18.18	3.50	11	0.37	N
Buchan Ness to Collieston Coast	1,914	568,736	1.75	0.34	11	0.04	N
Troup, Pennan and Lion's Heads	2,513	568,736	2.30	0.44	11	0.05	N
Fowlsheugh	270	568,736	0.25	0.05	11	0.01	N
Forth Islands	1,165	568,736	1.06	0.20	11	0.02	N
Flamborough and Filey Coast pSPA	1,229	568,736	1.12	0.22	11	0.02	N
Cape Wrath	85	568,736	2.71	0.01	11	0.00	N
Handa	75	568,736	2.39	0.01	11	0.00	N
Flannan Isles	293	568,736	9.38	0.05	11	0.01	N
North Rona and Sula Sgeir	200	568,736	6.40	0.04	11	0.00	N
Shiant Isles	175	568,736	5.62	0.03	11	0.00	N
St Kilda	2,642	568,736	84.55	0.46	11	0.05	N
Mingulay and Berneray	362	568,736	11.58	0.06	11	0.01	N
Rathlin Island	61	568,736	1.94	0.01	11	0.00	N

Table 1.4: Screening for LSE, displacement impacts on fulmar in the pre-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Hermaness, Saxa Vord and Valla Field	12,600	957,502	8.96	1.32	16	0.21	N
Fetlar	16,042	957,502	11.41	1.68	16	0.26	N
Foula	35,564	957,502	25.29	3.71	16	0.58	N
Noss	9,446	957,502	6.72	0.99	16	0.16	N
Sumburgh Head	419	957,502	0.30	0.04	16	0.01	N
Fair Isle	53,368	957,502	37.95	5.57	16	0.88	N
West Westray	1,219	957,502	0.87	0.13	16	0.02	N
Calf of Eday	3,316	957,502	2.36	0.35	16	0.05	N
Rousay	1,854	957,502	1.32	0.19	16	0.03	N
Hoy	35,255	957,502	25.07	3.68	16	0.58	N
Copinsay	2,934	957,502	2.09	0.31	16	0.05	N
North Caithness Cliffs	25,650	957,502	18.24	2.68	16	0.42	N
East Caithness Cliffs	28,404	957,502	18.18	2.97	16	0.47	N
Buchan Ness to Collieston Coast	2,734	957,502	1.75	0.29	16	0.04	N
Troup, Pennan and Lion's Heads	3,590	957,502	2.30	0.37	16	0.06	N
Fowlsheugh	386	957,502	0.25	0.04	16	0.01	N
Forth Islands	1,664	957,502	1.06	0.17	16	0.03	N
Flamborough and Filey Coast pSPA	1,756	957,502	1.12	0.18	16	0.03	N

Table 1.5: Screening for LSE, collision risk impacts on gannet in the post-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Flamborough and Filey Coast pSPA	22,122	456,298	17.92	4.85	11.7	0.57	N
Forth Islands	110,964	456,298	89.88	24.32	11.7	2.85	N
Fair Isle	6,278	456,298	6.36	1.38	11.7	0.16	N
Hermaness, Saxa Vord and Valla Field	38,965	456,298	39.45	8.54	11.7	1.00	N
Noss	15,627	456,298	15.82	3.42	11.7	0.40	N
Sule Skerry and Sule Stack	12,000	456,298	7.57	2.63	11.7	0.31	N
North Rona and Sula Sgeir	935	456,298	14.94	0.20	11.7	0.02	N
St Kilda	1,845	456,298	96.59	0.40	11.7	0.05	N
Ailsa Craig	11,924	456,298	43.95	2.61	11.7	0.31	N
Outer Firth of Forth and St Andrews Complex	10,945	456,298	8.87	2.40	11.7	0.28	N

Table 1.6: Screening for LSE, collision risk impacts on gannet in the pre-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Flamborough and Filey Coast pSPA	15,485	248,385	17.92	6.23	7.8	0.48	N
Forth Islands	77,675	248,385	89.88	31.27	7.8	2.43	N
Fair Isle	5,494	248,385	6.36	2.21	7.8	0.17	N
Hermaness, Saxa Vord and Valla Field	34,094	248,385	39.45	13.73	7.8	1.07	N
Noss	13,674	248,385	15.82	5.51	7.8	0.43	N
Outer Firth of Forth and St Andrews Complex	7,662	248,385	8.87	3.08	7.8	0.24	N

Table 1.7: Screening for LSE, displacement impacts on gannet in the post-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Flamborough and Filey Coast pSPA	22,122	456,298	17.92	4.85	69	3.34	N
Forth Islands	110,964	456,298	89.88	24.32	69	16.75	N
Fair Isle	6,278	456,298	6.36	1.38	69	0.95	N
Hermaness, Saxa Vord and Valla Field	38,965	456,298	39.45	8.54	69	5.88	N
Noss	15,627	456,298	15.82	3.42	69	2.36	N
Sule Skerry and Sule Stack	12,000	456,298	7.57	2.63	69	1.81	N
North Rona and Sula Sgeir	935	456,298	14.94	0.20	69	0.14	N
St Kilda	1,845	456,298	96.59	0.40	69	0.28	N
Ailsa Craig	11,924	456,298	43.95	2.61	69	1.80	N
Outer Firth of Forth and St Andrews Complex	10,945	456,298	8.87	2.40	69	1.65	N

Table 1.8: Screening for LSE, displacement impacts on gannet in the pre-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Flamborough and Filey Coast pSPA	15,485	248,385	17.92	6.23	28	1.77	N
Forth Islands	77,675	248,385	89.88	31.27	28	8.89	N
Fair Isle	5,494	248,385	6.36	2.21	28	0.63	N
Hermaness, Saxa Vord and Valla Field	34,094	248,385	39.45	13.73	28	3.90	N
Noss	13,674	248,385	15.82	5.51	28	1.57	N
Outer Firth of Forth and St Andrews Complex	7,662	248,385	8.87	3.08	28	0.88	N

Table 1.9: Screening for LSE, displacement impacts on puffin in the non-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Hermaness, Saxa Vord and Valla Field	7,098	231,957	44.48	3.06	6	0.19	N
Foula	6,750	231,957	42.30	2.91	6	0.18	N
Noss	241	231,957	1.51	0.10	6	0.01	N
Fair Isle	3,212	231,957	20.13	1.38	6	0.09	N
Hoy	1,050	231,957	6.58	0.45	6	0.03	N
North Caithness Cliffs	293	231,957	1.83	0.13	6	0.01	N
East Caithness Cliffs	82	231,957	0.52	0.04	6	0.00	N
Forth Islands	62,231	231,957	116.99	26.83	6	1.70	N
Farne Islands	39,962	231,957	75.13	17.23	6	1.09	N
Coquet Island	12,344	231,957	23.21	5.32	6	0.34	N
Flamborough and Filey Coast pSPA	958	231,957	1.80	0.41	6	0.03	N
Cape Wrath	3	231,957	3.01	0.00	6	0.00	N
North Rona and Sula Sgeir	11	231,957	10.23	0.00	6	0.00	N
Sule Skerry and Sule Stack	119	231,957	111.81	0.05	6	0.00	N
St Kilda	285	231,957	267.46	0.12	6	0.01	N
Shiant Isles	130	231,957	122.52	0.06	6	0.00	N
Flannan Isles	31	231,957	29.33	0.01	6	0.00	N
Canna and Sanday	2	231,957	1.78	0.00	6	0.00	N
Mingulay and Berneray	6	231,957	5.88	0.00	6	0.00	N
Rathlin Island	1	231,957	1.31	0.00	6	0.00	N
Skomer and Skokholm	48	231,957	45.33	0.02	6	0.00	N
Northumberland Marine	54,242	231,957	101.97	23.38	6	1.48	N
Outer Firth of Forth and St Andrews Complex	30,543	231,957	57.42	13.17	6	0.84	N

Table 1.10: Screening for LSE, displacement impacts on razorbill in the post-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Foula	713	591,874	0.79	0.12	81	0.10	N
Fair Isle	1,739	591,874	1.92	0.29	81	0.24	N
West Westray	1,045	591,874	1.16	0.18	81	0.14	N
North Caithness Cliffs	3,230	591,874	3.57	0.55	81	0.44	N
East Caithness Cliffs	25,000	591,874	26.25	4.22	81	3.41	N
Troup, Pennan and Lion's Heads	3,486	591,874	3.66	0.59	81	0.48	N
Fowlsheugh	7,048	591,874	7.40	1.19	81	0.96	N
Forth Islands	5,250	591,874	5.51	0.89	81	0.72	N
St Abb's Head to Fast Castle	2,438	591,874	2.56	0.41	81	0.33	N
Flamborough and Filey Coast pSPA	20,002	591,874	21.00	3.38	81	2.73	N
North Rona and Sula Sgeir	44	591,874	2.29	0.01	81	0.01	N
Cape Wrath	84	591,874	4.39	0.01	81	0.01	N
Handa	207	591,874	10.85	0.03	81	0.03	N
St Kilda	68	591,874	3.57	0.01	81	0.01	N
Shiant Isles	170	591,874	8.92	0.03	81	0.02	N
Flannan Isles	42	591,874	2.21	0.01	81	0.01	N
Mingulay and Berneray	404	591,874	21.23	0.07	81	0.06	N
Rathlin Island	616	591,874	32.33	0.10	81	0.08	N
Skomer and Skokholm	240	591,874	12.60	0.04	81	0.03	N

Table 1.11: Screening for LSE, displacement impacts on razorbill in the non-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Foula	225	218,622	0.79	0.10	146	0.15	N
Fair Isle	549	218,622	1.92	0.25	146	0.37	N
West Westray	330	218,622	1.16	0.15	146	0.22	N
North Caithness Cliffs	1,020	218,622	3.57	0.47	146	0.68	N
East Caithness Cliffs	7,500	218,622	26.25	3.43	146	5.01	N
Troup, Pennan and Lion's Heads	1,046	218,622	3.66	0.48	146	0.70	N
Fowlsheugh	2,114	218,622	7.40	0.97	146	1.41	N
Forth Islands	1,575	218,622	5.51	0.72	146	1.05	N
St Abb's Head to Fast Castle	731	218,622	2.56	0.33	146	0.49	N
Flamborough and Filey Coast pSPA	6,001	218,622	21.00	2.74	146	4.01	N
North Rona and Sula Sgeir	218	218,622	2.29	0.10	146	0.15	N
Cape Wrath	418	218,622	4.39	0.19	146	0.28	N
Handa	1,033	218,622	10.85	0.47	146	0.69	N
St Kilda	340	218,622	3.57	0.16	146	0.23	N
Shiant Isles	850	218,622	8.92	0.39	146	0.57	N
Flannan Isles	210	218,622	2.21	0.10	146	0.14	N
Mingulay and Berneray	2,022	218,622	21.23	0.92	146	1.35	N
Rathlin Island	1,539	218,622	32.33	0.70	146	1.03	N
Skomer and Skokholm	600	218,622	12.60	0.27	146	0.40	N

Table 1.12: Screening for LSE, displacement impacts on razorbill in the pre-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Foula	713	591,874	0.79	0.12	49	0.06	N
Fair Isle	1,739	591,874	1.92	0.29	49	0.15	N
West Westray	1,045	591,874	1.16	0.18	49	0.09	N
North Caithness Cliffs	3,230	591,874	3.57	0.55	49	0.27	N
East Caithness Cliffs	25,000	591,874	26.25	4.22	49	2.09	N
Troup, Pennan and Lion's Heads	3,486	591,874	3.66	0.59	49	0.29	N
Fowlsheugh	7,048	591,874	7.40	1.19	49	0.59	N
Forth Islands	5,250	591,874	5.51	0.89	49	0.44	N
St Abb's Head to Fast Castle	2,438	591,874	2.56	0.41	49	0.20	N
Flamborough and Filey Coast pSPA	20,002	591,874	21.00	3.38	49	1.67	N
North Rona and Sula Sgeir	44	591,874	2.29	0.01	49	0.00	N
Cape Wrath	84	591,874	4.39	0.01	49	0.01	N
Handa	207	591,874	10.85	0.03	49	0.02	N
St Kilda	68	591,874	3.57	0.01	49	0.01	N
Shiant Isles	170	591,874	8.92	0.03	49	0.01	N
Flannan Isles	42	591,874	2.21	0.01	49	0.00	N
Mingulay and Berneray	404	591,874	21.23	0.07	49	0.03	N
Rathlin Island	616	591,874	32.33	0.10	49	0.05	N
Skomer and Skokholm	240	591,874	12.60	0.04	49	0.02	N

Table 1.13: Screening for LSE, displacement impacts on guillemot in the non-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
Hermaness, Saxa Vord and Valla Field	6,468	1,617,306	5.64	0.40	889	3.55	N
Foula	23,261	1,617,306	20.27	1.44	889	12.78	N
Noss	20,696	1,617,306	18.04	1.28	889	11.37	N
Sumburgh Head	6,667	1,617,306	5.81	0.41	889	3.66	N
Fair Isle	18,292	1,617,306	15.94	1.13	889	10.05	N
West Westray	47,460	1,617,306	41.36	2.93	889	26.08	N
Calf of Eday	8,820	1,617,306	7.69	0.55	889	4.85	N
Rousay	8,680	1,617,306	7.56	0.54	889	4.77	N
Marwick Head	15,536	1,617,306	13.54	0.96	889	8.54	N
Hoy	8,820	1,617,306	7.69	0.55	889	4.85	N
Copinsay	7,850	1,617,306	6.84	0.49	889	4.31	N
North Caithness Cliffs	65,800	1,617,306	57.34	4.07	889	36.15	N
East Caithness Cliffs	149,100	1,617,306	129.93	9.22	889	81.92	N
Troup, Pennan and Lion's Heads	15,313	1,617,306	13.34	0.95	889	8.41	N
Buchan Ness to Collieston Coast	20,685	1,617,306	15.77	1.28	889	11.36	N
Fowlsheugh	48,160	1,617,306	36.72	2.98	889	26.46	N
Forth Islands	26,413	1,617,306	17.90	1.63	889	14.51	N
St Abb's Head to Fast Castle	39,785	1,617,306	26.97	2.46	889	21.86	N
Farne Islands	60,358	1,617,306	40.91	3.73	889	33.16	N
Flamborough and Filey Coast pSPA	71,354	1,617,306	48.36	4.41	889	39.20	N
Sule Skerry and Sule Stack	763	1,617,306	9.31	0.05	889	0.42	N
North Rona and Sula Sgeir	500	1,617,306	6.10	0.03	889	0.27	N
Cape Wrath	2,736	1,617,306	33.38	0.17	889	1.50	N
Handa	3,799	1,617,306	46.35	0.23	889	2.09	N
Shiant Isles	515	1,617,306	6.28	0.03	889	0.28	N
Flannan Isles	981	1,617,306	11.96	0.06	889	0.54	N

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Displacement mortality	Apportioned impact	LSE (Yes/No)
St Kilda	1,570	1,617,306	19.15	0.10	889	0.86	N
Canna and Sanday	391	1,617,306	4.77	0.02	889	0.21	N
Rum	164	1,617,306	2.01	0.01	889	0.09	N
Mingulay and Berneray	1,353	1,617,306	16.50	0.08	889	0.74	N
Skomer and Skokholm	1,630	1,617,306	19.89	0.10	889	0.90	N
Northumberland Marine	59,176	1,617,306	40.11	3.66	889	32.51	N
Outer Firth of Forth and St Andrews Complex	25,311	1,617,306	17.16	1.56	889	13.91	N

Table 1.14: Screening for LSE, collision risk impacts on kittiwake in the post-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Hermaness, Saxa Vord and Valla Field	469	829,937	1.14	0.06	55	0.03	N
Foula	392	829,937	0.95	0.05	55	0.03	N
Noss	608	829,937	1.48	0.07	55	0.04	N
Sumburgh Head	252	829,937	0.61	0.03	55	0.02	N
Fair Isle	925	829,937	2.25	0.11	55	0.06	N
West Westray	14,466	829,937	35.20	1.74	55	0.96	N
Calf of Eday	896	829,937	2.18	0.11	55	0.06	N
Marwick Head	631	829,937	1.54	0.08	55	0.04	N
Rousay	2,117	829,937	5.15	0.26	55	0.14	N
Copinsay	799	829,937	1.94	0.10	55	0.05	N
Hoy	476	829,937	1.16	0.06	55	0.03	N
North Caithness Cliffs	12,180	829,937	29.64	1.47	55	0.81	N
East Caithness Cliffs	48,492	829,937	118.00	5.84	55	3.22	N
Troup, Pennan and Lion's Heads	17,875	829,937	43.50	2.15	55	1.19	N
Buchan Ness to Collieston Coast	15,050	829,937	36.62	1.81	55	1.00	N
Fowlsheugh	11,204	829,937	27.26	1.35	55	0.75	N
Forth Islands	3,720	829,937	9.05	0.45	55	0.25	N
St Abbs Head to Fast Castle	4,084	829,937	9.94	0.49	55	0.27	N
Farne Islands	4,132	829,937	10.05	0.50	55	0.27	N
Flamborough and Filey Coast pSPA	45,140	829,937	109.84	5.44	55	3.00	N
Cape Wrath	207	829,937	30.20	0.02	55	0.01	N
North Rona and Sula Sgeir	25	829,937	3.66	0.00	55	0.00	N
Handa	37	829,937	5.47	0.00	55	0.00	N
St Kilda	19	829,937	2.79	0.00	55	0.00	N
Flannan Isles	28	829,937	4.06	0.00	55	0.00	N
Shiant Isles	11	829,937	1.60	0.00	55	0.00	N

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Canna and Sanday	16	829,937	2.39	0.00	55	0.00	N
Rum	16	829,937	2.30	0.00	55	0.00	N
Mingulay and Berneray	45	829,937	6.51	0.01	55	0.00	N
North Colonsay and Western Cliffs	111	829,937	16.24	0.01	55	0.01	N
Ailsa Craig	10	829,937	1.43	0.00	55	0.00	N
Rathlin Island	158	829,937	23.13	0.02	55	0.01	N
Skomer and Skokholm	21	829,937	3.05	0.00	55	0.00	N
Northumberland Marine	5,200	829,937	12.65	0.63	55	0.35	N
Outer Firth of Forth and St Andrews Complex	7,212	829,937	17.55	0.87	55	0.48	N

Table 1.15: Screening for LSE, collision risk impacts on kittiwake in the pre-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Hermaness, Saxa Vord and Valla Field	469	627,816	1.14	0.07	29	0.02	N
Foula	392	627,816	0.95	0.06	29	0.02	N
Noss	608	627,816	1.48	0.10	29	0.03	N
Sumburgh Head	252	627,816	0.61	0.04	29	0.01	N
Fair Isle	925	627,816	2.25	0.15	29	0.04	N
West Westray	14,466	627,816	35.20	2.30	29	0.68	N
Calf of Eday	896	627,816	2.18	0.14	29	0.04	N
Marwick Head	631	627,816	1.54	0.10	29	0.03	N
Rousay	2,117	627,816	5.15	0.34	29	0.10	N
Copinsay	799	627,816	1.94	0.13	29	0.04	N
Hoy	476	627,816	1.16	0.08	29	0.02	N
North Caithness Cliffs	12,180	627,816	29.64	1.94	29	0.57	N
East Caithness Cliffs	48,492	627,816	118.00	7.72	29	2.28	N
Troup, Pennan and Lion's Heads	17,875	627,816	43.50	2.85	29	0.84	N
Buchan Ness to Collieston Coast	15,050	627,816	36.62	2.40	29	0.71	N
Fowlsheugh	11,204	627,816	27.26	1.78	29	0.53	N
Forth Islands	3,720	627,816	9.05	0.59	29	0.17	N
St Abbs Head to Fast Castle	4,084	627,816	9.94	0.65	29	0.19	N
Farne Islands	4,132	627,816	10.05	0.66	29	0.19	N
Flamborough and Filey Coast pSPA	45,140	627,816	109.84	7.19	29	2.12	N
Cape Wrath	207	627,816	30.20	0.03	29	0.01	N
North Rona and Sula Sgeir	25	627,816	3.66	0.00	29	0.00	N
Handa	37	627,816	5.47	0.01	29	0.00	N
St Kilda	19	627,816	2.79	0.00	29	0.00	N
Flannan Isles	28	627,816	4.06	0.00	29	0.00	N
Shiant Isles	11	627,816	1.60	0.00	29	0.00	N

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Canna and Sanday	16	627,816	2.39	0.00	29	0.00	N
Rum	16	627,816	2.30	0.00	29	0.00	N
Mingulay and Berneray	45	627,816	6.51	0.01	29	0.00	N
North Colonsay and Western Cliffs	111	627,816	16.24	0.02	29	0.01	N
Ailsa Craig	10	627,816	1.43	0.00	29	0.00	N
Rathlin Island	158	627,816	23.13	0.03	29	0.01	N
Skomer and Skokholm	21	627,816	3.05	0.00	29	0.00	N
Northumberland Marine	5,200	627,816	12.65	0.83	29	0.24	N
Outer Firth of Forth and St Andrews Complex	7,212	627,816	17.55	1.15	29	0.34	N

Table 1.16: Screening for LSE, collision risk impacts on lesser black-backed gull in the post-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Forth Islands	3,216	209,007	3.70	1.54	2	0.03	N
Alde-Ore Estuary	1,280	209,007	1.47	0.61	2	0.01	N
Ailsa Craig	183	209,007	0.42	0.09	2	0.00	N
Rathlin Island	107	209,007	0.25	0.05	2	0.00	N
Lough Neagh and Lough Beg	493	209,007	1.13	0.24	2	0.00	N
Bowland Fells	4,575	209,007	10.52	2.19	2	0.04	N
Morecambe Bay	4,987	209,007	11.47	2.39	2	0.04	N
Ribble and Alt Estuaries	8,267	209,007	19.01	3.96	2	0.07	N
Skokholm and Skomer	5,784	209,007	22.17	2.77	2	0.05	N
Isles of Scilly	680	209,007	7.82	0.33	2	0.01	N

Table 1.17: Screening for LSE, collision risk impacts on lesser black-backed gull in the non-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Forth Islands	1,608	39,314	3.70	4.09	0.0	0.00	N
Alde-Ore Estuary	640	39,314	1.47	1.63	0.0	0.00	N
Ailsa Craig	37	39,314	0.42	0.09	0.0	0.00	N
Rathlin Island	21	39,314	0.25	0.05	0.0	0.00	N
Lough Neagh and Lough Beg	99	39,314	1.13	0.25	0.0	0.00	N
Bowland Fells	915	39,314	10.52	2.33	0.0	0.00	N
Morecambe Bay	997	39,314	11.47	2.54	0.0	0.00	N
Ribble and Alt Estuaries	1,653	39,314	19.01	4.20	0.0	0.00	N
Skokholm and Skomer	1,928	39,314	22.17	4.90	0.0	0.00	N
Isles of Scilly	680	39,314	7.82	1.73	0.0	0.00	N

Table 1.18: Screening for LSE, collision risk impacts on lesser black-backed gull in the pre-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Forth Islands	3,216	197,483	3.70	1.63	1	0.01	N
Alde-Ore Estuary	1,280	197,483	1.47	0.65	1	0.01	N
Ailsa Craig	183	197,483	0.42	0.09	1	0.00	N
Rathlin Island	107	197,483	0.25	0.05	1	0.00	N
Lough Neagh and Lough Beg	493	197,483	1.13	0.25	1	0.00	N
Bowland Fells	4,575	197,483	10.52	2.32	1	0.02	N
Morecambe Bay	4,987	197,483	11.47	2.53	1	0.02	N
Ribble and Alt Estuaries	8,267	197,483	19.01	4.19	1	0.03	N
Skokholm and Skomer	5,784	197,483	22.17	2.93	1	0.02	N
Isles of Scilly	680	197,483	7.82	0.34	1	0.00	N

Table 1.19: Screening for LSE, collision risk impacts on great black-backed gull in the non-breeding season.

SPA	SPA population interacting with Hornsea Three	BDMPS	1% baseline mortality	Proportion of BDMPS represented by SPA population	Collision risk estimate	Apportioned impact	LSE (Yes/No)
Calf of Eday	562	91,399	0.39	0.61	50	0.31	N
Copinsay	436	91,399	0.31	0.48	50	0.24	N
Hoy	120	91,399	0.08	0.13	50	0.07	N
East Caithness Cliffs	350	91,399	0.25	0.38	50	0.19	N
North Rona and Sula Sgeir	4	91,399	0.27	0.00	50	0.00	N
Isles of Scilly	18	91,399	1.26	0.02	50	0.01	N

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