

Hornsea Offshore Wind Farm

Project Two

**Response to Letter from the Secretary of State dated 26 May
2016**

**Response to Topic 2: Fulmar Displacement Mortality
Application Reference: EN010053**

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1 Fulmar Displacement Mortality

1.1 Introduction

- 1.1.1 Following the completion of the examination of Hornsea Project Two in December 2015, the Secretary of State, on 26 May 2016, has identified outstanding issues on which update or further clarification is requested.
- 1.1.2 One of the points of clarification requested by the Secretary of State relate to the Applicant's assessment of displacement of fulmar (*Fulmarus glacialis*) at the Forth Islands SPA, the Fowlsheugh SPA and the Flamborough and Filey Coast pSPA.
- 1.1.3 This report clarifies the Applicant's assessment of fulmar within the Habitat Regulations Assessment (HRA) (PINS Document Reference 12.6) and responds to the points raised by the Secretary of State.

1.2 Apportioning of impacts

- 1.2.1 As stated by the Secretary of State, the Applicant predicted a displacement mortality of 18 fulmar for Subzone 2 plus a 2km buffer during the breeding season. The approach used to apportion this mortality between the three SPAs in the Habitat Regulations Assessment (HRA) is outlined under the overview of displacement impacts in paragraph 5.8.72 of Part 1 (PINS Doc reference 12.6).
- 1.2.2 Paragraph 5.8.72 states that: "*For fulmar the total mortality from displacement is compared to those SPAs for which Project Two is within the mean-max foraging range of fulmar (Flamborough and Filey Coast pSPA, Forth Islands SPA and Fowlsheugh SPA). Birds have been attributed to the three colonies based on colony size and the contribution the colony makes to the regional breeding population*". The regional population utilised for the assessment in the HRA Report was taken to be the combined number of individuals breeding at the three SPAs identified. This provided a highly precautionary assessment, as a substantial number of fulmar are present with in the North Sea that breed at non-SPA colonies (Furness 2015).
- 1.2.3 The Applicant can confirm that the approach outlined in paragraph 5.8.72 is the approach that was used to apportion impacts to the three SPAs under consideration in each of the four biological seasons defined for fulmar and this reflects the results presented in all displacement matrices presented in the Report. To summarise, the displacement impact attributable to each SPA on a seasonal basis is presented in Table 1.1.

Table 1.1: Predicted displacement mortality as a result of Project Two apportioned to the three SPAs screened into the HRA for fulmar.

SPA	Breeding	Post-breeding	Non-breeding	Pre-breeding	Total
Flamborough and Filey Coast pSPA	8	0	0	0	8
Forth Islands	4	0	0	0	4
Fowlsheugh	6	0	0	0	6

1.2.4 Based on the above displacement results, the HRA Report concludes that there would be no potential for an adverse effect on the integrity of the fulmar component of each SPA fulmar feature during the breeding and non-breeding seasons.

1.3 SPA population estimates

1.3.1 3.1. As noted by the Secretary of State, where presenting the percentage of the fulmar population affected by displacement, the HRA Report has used the citation figure for the Forth Islands SPA and Fowlsheugh SPAs.

1.3.2 The populations of fulmar at the Forth Islands SPA and Fowlsheugh SPA have decreased since site designation, with figures from 2012, which are contemporaneous with the baseline surveys for undertaken for Hornsea Project Two available from the JNCC Seabird Monitoring Programme (SMP)¹ database (Table 1.2). The apportioning approach presented in this document applies the population estimates from 2012. The Applicant notes that further fulmar population estimates from 2015 are also now available from the SMP database, which indicate that there has been a slight increase at both SPAs since 2012.

Table 1.2: Populations of fulmar (no. of pairs) at the Forth Islands SPA and Fowlsheugh SPA

SPA	Citation	2012 ²
Forth Islands	798	569
Fowlsheugh	1,170	119

1.3.3 Apportioning for fulmar has been undertaken with significant precaution built in to the analysis. Firstly, it is assumed that all birds at the Project site originate from one of the three SPAs screened into the HRA (i.e. other non-SPA sites are not considered even though they may make a significant component of the regional fulmar population). In addition, it has also been assumed that all birds present at the Project site are breeding adults and no account taken of immature or non-

¹ <http://jncc.defra.gov.uk/smp/>

² Mean value from 2008-2012 is presented for Fowlsheugh SPA

breeding birds, which are likely to contribute a considerable proportion of birds to the population in the North Sea in all seasons.

- 1.3.4 When updating the displacement assessment to utilise the updated 2012 SPA population estimates from Forth Islands and Fowlsheugh SPAs, it inevitably leads to corresponding changes to predicted apportioned mortality. Table 1.3 presents the impacts apportioned to each SPA using both the citation and updated populations for Forth Islands and Fowlsheugh SPAs alongside the population published for Flamborough and Filey Coast pSPA in the Departmental Brief (1,447 pairs³). Although a 2015 population estimate is now available for Flamborough and Filey Coast pSPA, this is not included in the analysis as it lies outside of the period where baseline surveys for Hornsea Project Two were conducted. Therefore Table 1.3 presents two apportioning values for Flamborough and Filey Coast pSPA based on the contribution 1,477 pairs makes to the regional SPA population depending on whether cited or 2012 population estimates are used from Forth Islands and Fowlsheugh SPAs.
- 1.3.5 When applying the 2012 population estimates from Forth Islands and Fowlsheugh SPAs, this results in annual fulmar apportioned displacement mortality for Flamborough and Filey Coast pSPA increasing from 8 to 13 birds. This represents 0.45% of the fulmar pSPA population and 0.006% of the total assemblage of which fulmar is a listed component. On this basis, the conclusions arrived at in the HRA Report remain unchanged; there is no potential for an adverse effect on the integrity of the fulmar component of the Flamborough and Filey Coast pSPA assemblage feature during the breeding and non-breeding seasons from Hornsea Project Two alone. This conclusion is reached without considering the extensive precaution incorporated into the assessment as detailed above.
- 1.3.6 Apportioned annual fulmar mortality to the Forth Islands SPA increases slightly when applying 2012 population estimates to 5 birds (from 4), representing 0.44% of the SPA population. Again, the HRA Report conclusions remain unchanged and there is considered no potential for an adverse effect on the integrity of the fulmar feature of the SPA during the breeding and non-breeding seasons as a result of displacement mortality from Hornsea Project Two alone.
- 1.3.7 Apportioned fulmar mortality to Fowlsheugh reduces from 6 birds per annum to a single bird when applying the 2012 population estimates, so that the conclusion HRA Report is again maintained. There is no potential for an adverse effect on the integrity of the fulmar feature of the SPA during the breeding and non-breeding seasons as a result of displacement mortality from Hornsea Project Two alone.

³ http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/Images/Flamborough-departmental-brief_tcm6-37219.pdf

Table 1.3: Hornsea Project Two displacement mortality apportioned to SPA populations of fulmar⁴

SPA	Population used for apportioning	Apportioning value (%)	Displacement mortality (no. of birds) ⁵				Total displacement mortality	Percentage of SPA population ⁶	Percentage of assemblage population
			Breeding	Post-breeding	Non-breeding	Pre-breeding			
Flamborough and Filey Coast	Departmental Brief	42.5	8	0	0	0	8	0.28	0.004
		67.8	12	1	0	0	13	0.45	0.006
Forth Islands	Citation	23.2	4	0	0	0	4	0.25	-
	2012	26.7	5	0	0	0	5	0.44	-
Fowlsheugh	Citation	34.4	6	0	0	0	6	0.26	-
	2008-12	5.6	1	0	0	0	1	0.42	-

⁴ Predicted impacts are rounded to whole numbers and total displacement mortality is calculated from these whole numbers.

⁵ Fulmar specific rates applied to the analysis are 30% displacement, 2% mortality in the breeding season and 30% displacement and 1% mortality in the non-breeding seasons as presented in the HRA Report.

⁶ % of predicted mortality when compared to the population estimates presented in Table 1.2.

1.4 SPA population estimates

Forth Islands SPA

- 1.4.1 The in combination assessment for the fulmar population at the Forth Islands SPA, as presented in the HRA Report calculated a total breeding season displacement mortality of 13 birds which included 6 birds from Hornsea Project Two. This was the result of a rounding error; the value from Hornsea Project Two is of 4 birds when using citation population estimates from each SPA as presented in Table 1.3 of this note. This would therefore reduce the total breeding season in-combination impact to 11 birds, which represents 0.69% of the citation population of fulmar.

Non-breeding methodology

- 1.4.2 The Secretary of State has requested that the Applicant provides details of the method used for the in combination assessment of the Forth Islands SPA, the Fowlsheugh SPA and the Flamborough and Filey Coast pSPA in relation to fulmar in the non-breeding months. Paragraph 5.8.78 of the HRA Report provides an overview of the approach to in combination assessment. In essence, as for other species, non-breeding screening utilizes the Biologically Defined Minimum Population Scale (BDMPS) for fulmar as presented in Furness (2015) and screens in all projects, where data exists, within this scale. The BDMPS approach defines a geographic range within which in-combination impacts may occur in order to identify plans and projects that may act in-combination with Hornsea Project Two. This approach was applied for all species considered in the HRA Report. The fundamental aspects of this approach are recommended by Natural England (i.e. using a BDMPS to identify projects for an in-combination assessment) (see, for example, paragraph 2.6 of Natural England's submission at Deadline VI).
- 1.4.3 The scale used for fulmar for Hornsea Project Two follows the 'practical' approach put forward by Furness (2015) which comprises a BDMPS of UK North Sea Waters. In effect, only three projects within the BDMPS in any biological season for fulmar published quantitative displacement data on fulmar (Inch Cape and Hornsea Project One in addition to Hornsea Project Two), as detailed in Table 5.35 of the HRA Report.
- 1.4.4 Displacement mortality resulting from Hornsea Project One (6 birds breeding season; 1 bird non-breeding season) and Inch Cape (1 bird breeding season; 1 bird non-breeding season) as reported in their respective application documents is presented in the HRA Report and the Offshore Ornithology ES Chapter. However, no attempt to apportion these estimates is made within the HRA Report. Table 1.4 below shows the in combination assessment to show both apportioned results from Hornsea Project One and Inch Cape and also to show the implication of applying the 2012 SPA population estimates to the assessment.
- 1.4.5 Table 1.4 finds that the in-combination fulmar mortality apportioned to Flamborough and Filey Coast pSPA is either 12 or 20 birds per annum (depending on whether citation or 2012 population estimates for the Forth islands and

Fowlsheugh SPAs are applied to the analysis). These represent 0.41 and 0.69% of the fulmar population at the pSPA respectively. Therefore, the conclusions detailed in the HRA Report are maintained and there is no potential for of an adverse effect on integrity due to predicted mortality resulting from Hornsea Project Two in combination with other projects on the fulmar component of the Flamborough and Filey Coast pSPA assemblage feature.

- 1.4.6 Table 1.4 finds that in combination fulmar mortality apportioned to Forth Islands SPA is either 5 or 7 birds per annum (depending on whether citation or 2012 population figures are applied to the analysis). These represent 0.31 and 0.62% of the fulmar population at the SPA respectively. Given the small number of mortalities predicted, the conclusions detailed in the HRA Report are maintained and there is no potential for an adverse effect on site integrity due to displacement mortality from Hornsea Project Two in combination with other projects on the fulmar feature of Forth Islands SPA.
- 1.4.7 With respect to Fowlsheugh SPA, either a mortality estimate of 9 or 1 fulmar is predicted to be apportioned to the colony (depending on whether citation or 2012 population estimates are applied to the analysis). These represent 0.38 and 0.42% of the fulmar population at the SPA respectively. Therefore, the conclusions detailed in the HRA Report are maintained in that there is no potential for an adverse effect on integrity due displacement mortality from Hornsea Project Two in combination with other projects on the fulmar feature of Fowlsheugh SPA.
- 1.4.8 The non-breeding season in combination assessment for fulmar in the HRA Report has assumed that all birds recorded at the respective windfarm project sites originate from one of the three SPAs (with the number of birds allocated to each SPA based on the SPA colony size as undertaken for the Project alone). This adds considerable precaution to the assessment as the UK North Sea BDMPS population in the non-breeding season is of 568,736 individual fulmar (Furness 2015). Should this population be considered in the assessment apportioning values to each SPA would be in the region of 0.1 – 0.6% of the predicted in combination mortality predicted. This therefore would lead to any perceived impact being indistinguishable from baseline mortality. A similar approach of accounting for the wider regional population in the breeding season, if applied, would also result in a lesser impact on the fulmar feature of each SPA.

Table 1.4: In-combination assessment of fulmar displacement mortality apportioned to SPA populations⁷

SPA	Population used for apportioning	Apportioning value (%)	Hornsea Project Two		Hornsea Project One		Inch Cape		Total displacement mortality	Percentage of SPA population ⁸	Percentage of assemblage population
			Breeding	Non-breeding ⁹	Breeding	Non-breeding	Breeding	Non-breeding			
Flamborough and Filey Coast	Departmental Brief	42.5	8	1	3	0	0	0	12	0.41	0.006
		67.8	12	1	4	1	1	1	20	0.69	0.009
Forth Islands	Citation	23.2	4	0	1	0	0	0	5	0.31	-
	2012	26.7	5	0	2	0	0	0	7	0.62	-
Fowlsheugh	Citation	34.4	6	1	2	0	0	0	9	0.38	-
	2008-12	5.6	1	0	0	0	0	0	1	0.42	-

⁷ Individual project impacts are rounded to whole numbers and a total in-combination displacement mortality is calculated from these whole numbers

⁸ % of predicted mortality when compared to the population estimates in Table 1.2

⁹ 'Non-breeding season' encompasses all biological seasons outside of breeding in this case.

1.5 Natural England's conclusions

- 1.5.1 As identified by the Secretary of State, no Interested Party challenged the Applicant's conclusions on fulmar features from any SPA within the Examination.
- 1.5.2 The Applicant within its HRA Report provided an interpretation of what they considered Natural England's position on all species at the time of writing based on pre-application consultation. In consultation with the Applicant, Natural England updated their position on several species since the publication of the HRA Report. As fulmar was deemed not to be a species of concern in the Examination of the Project¹⁰, it was not one of the species that was updated.
- 1.5.3 The applicant understands that Natural England in their response to the Secretary of State at this deadline concludes no adverse effect on site integrity for the seabird assemblage feature at FFC pSPA as a result of potential displacement impacts on the fulmar component.

¹⁰ Fulmar was not listed as being of concern in Natural England's Written Representation submitted at Deadline I.

1.6 References

Furness, R.W. 2015. Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Reports, Number 164.

Natural England, 2014. *Departmental Brief: Proposed extension to Flamborough Head and Bempton Cliffs Special Protection Area and renaming as Flamborough and Filey Coast potential Special Protection Area (pSPA)*. [Online]. Available at: http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/Images/Flamborough-departmental-brief_tcm6-37219.pdf (Accessed June 2016).
