Partners in UK offshore wind

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Annex 4.7 to Response to Hearing Action Point 15:Apportioning Sensitivity Analysis

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Image of an offshore wind farm

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Glossary

Term	Meaning
Applicant	Morgan Offshore Wind Limited.
Apportioning	A method that assigns unknown entities to known entities based on weighing factors. In this report, it refers to birds of unknown origin within the study area that are assigned to colonies based on distance to colony and colony size.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).
Morgan Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, scour protection, cable protection and offshore substation platforms (OSPs) forming part of the Morgan Offshore Wind Project: Generation Assets will be located.
Morgan Offshore Wind Project: Generation Assets	This is the name given to the Morgan Generation Assets project as a whole (includes all infrastructure and activities associated with the project construction, operations and maintenance, and decommissioning).
Special Protection Area	A designation under the European Union Directive on the Conservation of Wild Birds, under which countries have a duty to safeguard the habitats of migratory birds and certain particularly threatened birds.
The Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.

Acronyms

Acronym	Description
HRA	Habitats Regulations Assessment
ISAA	Information to support an appropriate assessment
LSE	Likely Significant Effect
SMP	Seabird Monitoring Programme
SPA	Special Protection Areas

Units

Unit	Description
%	Percentage

1 APPORTIONING SENSITIVITY ANALYSIS

1.1 Introduction

1.1.1.1 This document has been prepared in response to Relevant Representations received from Natural England (RR-026; comment number B26) (see Table 1.1). Natural England's comment focussed on the data used to inform apportioning analyses used as part of the assessments conducted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

Table 1.1: Relevant representations received from Natural England in relation to this clarification note.

Consultee	Relevant Representation number	Relevant Representation comment	Relevant Representation recommendation
Natural England	B26 (Applicant's ref RR-026.B.67)	The Applicant has used Seabird 2000 colony counts for apportioning breeding birds to colonies, rather than the more recent Seabirds Count census. The relevant data was published in October 2023 and therefore was available for the assessment. Seabird 2000 data is now dated, and in many cases does not represent the current situation with respect to breeding seabirds in the region of concern. For example, the Applicant uses a Manx shearwater population of 332 (166 AOS) for Lundy. The population reported in the latest count data is 11,008 (5504 AOS). We welcome that SPA colony apportioning has been undertaken using recent data in a second step but note that the overall proportion of birds apportioned to those SPAs is still derived from the Seabird 2000 data, with those birds being re-distributed according to relative population changes at the SPAs. We do not consider this approach to be appropriate as it is temporally mismatched and does not utilise the best available evidence.	Natural England advise that the best available evidence is used. In the case of apportioning to colonies in the breeding season, we consider that this is the latest Seabirds Count data. This data represents the most relevant and recent concurrent reference point for all UK colonies. The Applicant should present an updated assessment using Seabirds Count data.

1.1.1.2 As stated in the Applicant's response to Natural England (PD1-017 ref RR-026.B.67), assessments for offshore wind farm applications are undertaken across an extended period. The apportioning for the project was undertaken in October 2023 before the publication of the Seabirds Count dataset (16 November 2023; https://jncc.gov.uk/our-work/seabirds-count/).

1.1.1.3 At the time of undertaking the apportioning, the Seabird 2000 dataset represented the best available evidence. The approach taken by the Applicant has been applied as

part of the apportioning process for multiple projects (e.g. Moray Offshore Windfarm (West) Limited, 2018; Berwick Bank Wind Farm, 2022) and was formulated to account for the temporal misalignment between data for all colonies and data for SPA colonies, which are generally counted on a more regular basis. The approach incorporates two stages. The first stage apportions impacts to all colonies (SPA and non-SPA) using Seabird 2000 data. Following this, the proportion of the impact applicable to SPA populations is re-apportioned using the most recent count for each SPA colony which, for the Morgan Generation Assets, was, in some cases data from the Seabirds Count as published on the Seabird Monitoring Programme database. In other cases the data used would have been more recent having been submitted after the deadline for inclusion in the Seabirds Count dataset.

1.1.1.4 This note provides a sensitivity analysis for breeding season apportioning values comparing the breeding season apportioning values calculated in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) with those calculated using the Seabirds Count dataset.

2 METHODOLOGY

2.1 Methodology applied in this report

2.1.1.1 The methodology applied in this report continues to follow the NatureScot (2018) approach, albeit incorporating the Seabirds Count data (Burnell *et al.,* 2023). As these data represent the most recent census of UK seabird populations and are therefore temporally comparable, the approach applied requires only one step. This step is identical to Step 1 as described in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and is repeated below for clarity.

2.1.1.2 Following NatureScot guidance (NatureScot, 2018), potential impacts were apportioned between SPA and non-SPA breeding colonies that fall within each species' mean-maximum (plus one standard deviation) (Woodward *et al*., 2019) foraging range and the development site (the Morgan Array Area) using the 'theoretical approach'. The NatureScot method makes use of the weighting factors described in Table 2.1 (NatureScot, 2018).

Table 2.1: Colony-specific weighting factors used for Step 1 of the apportioning approach.

Weighting factor	Methodology
Colony size (with consistent count unit used between colonies for a species e.g. individuals, breeding pairs or apparently occupied sites)	Large colonies will contribute more individuals to the number of seabirds found in a given sea area, all other factors being equal. To account for this, a weighting factor based on colony size has been derived. For all colonies considered, colony size has been calculated from Seabirds Count data, with this providing a common reference point as all count data is contemporaneous (i.e. temporally comparable). Seabirds Count data is comprised of separate count sections with long stretches of coastline (e.g. Morecambe Bay and Duddon Estuary SPA), made up of several count sections. For the purposes of this analysis each count section has been treated as a separate colony. If a single designated site is made up of several count sections, then the combined designated site impact has been reconstructed after the weighting for each count section has been completed.
Distance of colony from the development site (using the geometric centre of both)	Weighting by distance from the colony has been calculated using the measured sea-route distance between the geometric centre of the Morgan Generation Assets to the geometric centre of the colony. The sea-route distance represents the distance between a colony and the project based on the movement of birds across the sea only, excluding any significant movements over land. For the purposes of this apportioning approach it is assumed that as birds radiate out from a colony, density will decrease by a factor proportional to $1/distance^2$ as area increases proportionally by $\pi.r^2$. For the purposes of this assessment, a weighting factor based on $1/distance_i^2$ has therefore been used as advised by NatureScot (2018).
Sea area (the areal extent of the open sea within the foraging range of the relevant species).	The available sea area for foraging has been measured by plotting a circle defined by the species-specific foraging range around the colony in ArcGIS and calculating the area of sea available to each seabird species. The fraction of the disc centred on the colony that is occupied by sea surface is then expressed as a decimal. As the density of birds will increase as the area of available foraging area decreases, this is used in the formula as 1/estimated area.

2.1.1.3 Seabird Count colony counts (Burnell *et al*., 2023) as advised by Natural England (RR-026; comment number B26) are used. The Seabird Count is the most recent concurrent reference point for all colonies in the UK.

2.1.1.4 Using the centroid for the Morgan Generation Assets, a buffer zone was created which equated to the species' mean-maximum foraging range plus one standard deviation, as taken from Woodward *et al*. (2019). For Manx shearwater and fulmar it was not

possible to use the mean-maximum plus 1 standard deviation foraging range due to limitations of the apportioning tool and therefore the mean-maximum foraging range was used. The NatureScot (2018) guidance recommends that the mean-maximum foraging range is used. However, more recent guidance provided as part of project-specific consultation by UK Statutory Nature Conservation Bodies recommends that the mean-maximum plus one standard deviation is used (e.g. NatureScot, 2021).

2.1.1.5 The distance between the Morgan Generation Assets centroid and each SPA and non-SPA colony within each species' foraging range at sea was then calculated assuming an at-sea route.

2.1.1.6 The equation used for apportioning in Step 1 is:

$$\textbf{Colony Weight} = \frac{\textbf{Colony Population}}{\textbf{Sum of Populations}} \times \frac{\textbf{Sum of Distance}^2}{\textbf{Colony Distance}^2} \times \frac{{}^{1}/_{\textbf{Colony Sea Proportion}}}{\textbf{Sum of}\left(\frac{1}{\textbf{Colony Sea Proportions}}\right)}$$

2.1.1.7 No consideration has been given to any other components of the populations that may occur at the Morgan Generation Assets (e.g. immature and sabbatical birds) as the Relevant Representations included in Table 1.1 are not relevant to these aspects of the apportioning process.

2.2 Differences with original apportioning approach

2.2.1.1 As discussed in section 1.1, the Seabirds Count dataset was unavailable when apportioning to inform the assessments required for the Morgan Generation Assets was undertaken. As a result the apportioning approach, which has been used for many previous offshore wind farms, was applied in the original application. This approach incorporated two steps:

1. Apportioning impacts between Protected Site and non-Protected Site breeding colonies within foraging range of each array; and
2. Apportioning impacts between Protected Site only breeding colonies within foraging range of each array.

2.2.1.2 Step 1 followed the approach outlined in section 2.1 but used the Seabird 2000 dataset to provide a dataset that was temporally comparable for SPA and non-SPA breeding colonies. Step 2 repeated Step 1 but only for SPA colonies and using the most recent count data for SPAs. The apportioning values for the SPAs derived from Step 2 were then applied to the summated contributions of the SPAs calculated from the apportionment in Step 1 (i.e. re-distribution of the birds originally apportioned to the project from the SPAs in Step 1 to the proportion calculated in Step 2). The proportion of birds that are apportioned to non-SPA component remains as calculated in Step 1, irrespective of any changes in their colony sizes since the Seabird 2000 dataset was published.

2.2.1.3 A simplified hypothetical example, which assumes all colonies are the same distance from the hypothetical project, is provided in Table 2.2. The SPA proportion represents 90% of the total population in step 1 and this is progressed to step 2 to be re-apportioned based on the most recent population.

Table 2.2: Hypothetical apportioning example to illustrate the two-step apportioning approach.

SPA name	Population (Seabird 2000)	Apportioning value	Population (Seabirds Count)	Apportioning value
Step 1			Step 2	
SPA A	20,000	0.2	10,000	0.075
SPA B	30,000	0.3	50,000	0.375
SPA C	40,000	0.4	60,000	0.45
Non-SPA colonies	10,000	0.1	-	-
Total	100,000	1.0	120,000	0.9

2.2.1.4 In this report, population data from the Seabirds Count are used for all colonies. A hypothetical example following the same assumptions as applied in Table 2.2 is provided in Table 2.3.

Table 2.3: Hypothetical apportioning example to illustrate the approach applied in this report.

SPA name	Population (Seabirds Count)	Apportioning value
SPA A	10,000	0.071
SPA B	50,000	0.357
SPA C	60,000	0.429
Non-SPA colonies	20,000	0.143
Total	140,000	1.0

3 RESULTS

3.1.1.1 This section provides a comparison between the apportioning values presented in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and in those calculated in this report.

3.2 Gannet

3.2.1.1 A comparison of the apportioning values calculated for gannet in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and this report are presented in Table 3.1. Explanations for the differences observed in the apportioning values calculated are provided below Table 3.1.

3.2.1.2 Overall, the proportional weight of non-SPA colonies is higher in the apportioning approach applied in this report and therefore a higher proportion of the impacts associated with the Morgan Generation Assets are attributed to SPA colonies in the assessments presented at application (HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)).

Table 3.1: Calculation of apportioning values for gannet in the breeding season for SPAs within foraging range (Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057)).

SPA name	Population (no. of breeding adults)		Proportional weight of colony		Difference
	APP-057	This report	APP-057	This report	
Ailsa Craig	66,452	66,452	0.568	0.501	Decrease
Grassholm	72,022	72,022	0.258	0.228	Decrease
Saltee Islands	9,444	9,444	0.032	0.027	Decrease
Non-SPA Total	-	-	0.131	0.197	Increase

3.2.1.3 The populations used to calculate apportioning values for SPAs in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) represent the most recent counts for these SPAs. The only update to the apportioning calculations for gannet is the inclusion of Seabirds Count data for non-SPA colonies. The total population of gannet at non-SPA colonies has increased between Seabird 2000 and the Seabirds Count, meaning that the proportional weight of these non-SPA colonies has increased and therefore the proportional weight of each SPA colony has decreased.

3.2.1.4 A decrease in the proportional weight of the SPAs means that the impacts predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) would decrease if the apportioning values calculated in this report were to be applied. The conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098), namely no adverse effect on the integrity of the SPAs, therefore remain valid.

3.3 Kittiwake

3.3.1.1 A comparison of the apportioning values calculated for kittiwake in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and this report are presented in Table 3.2.

Table 3.2: Calculation of apportioning values for kittiwake in the breeding season for SPAs within foraging range (Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057)).

SPA name	Population (no. of breeding adults)				Proportional weight of colony		Difference	Explanation (see bullet points below)
	APP-057		This report		APP-057	This report		
	Population	Year	Population	Year				
Ailsa Craig	980	2021	980	2021	0.004	0.008	Increase	1
Howth Head Coast	6,162	2015	3,546	2015	0.045	0.038	Decrease	2
Ireland's Eye	4,230	2010-2015	910	2015	0.031	0.010	Decrease	2
Lambay Island	6,640	2015	6,640	2015	0.056	0.082	Increase	1
North Colonsay and Western Cliffs	-	-	-	-	-	-	No change	3
Rathlin Island	27,534	2021	27,412	2021	0.067	0.149	Increase	1
Saltee Islands	1,690	2013	2,076	2015	0.002	0.005	Increase	1
Skomer, Skokholm and the Seas off Pembrokeshire	3,088	2022	2,878	2021	0.004	0.008	Increase	1
Wicklow Head	1,414	2022	1,546	2019	0.007	0.012	Increase	1
Non-SPA Total	-	-	-	-	0.782	0.686	Increase	

3.3.1.2 Explanations for the changes observed in the apportioning values, corresponding with the numbers in Table 3.2 for each SPA are provided below:

1. The contribution of non-SPA colonies has decreased and therefore, although the population for this SPA is identical between both apportioning analyses the reductions at non-SPA colonies means that the proportional weight for this SPA has increased. In addition the discrepancies between the populations included in the Seabirds Count dataset and the JNCC Seabird Monitoring Programme (SMP) database, which has resulted in apparent decreases at other SPAs, means that the contribution of this SPA also increases.
2. Discrepancy between the populations included in the Seabirds Count dataset and JNCC SMP database results in the proportional weight of this SPA reducing.

3. Although this SPA was identified during Likely Significant Effect (LSE) screening using a straight line distance, when using an at-sea distance the Morgan Generation Assets are beyond the foraging range of kittiwake from this SPA. This is consistent with the treatment of this SPA in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057).

3.3.1.3 Overall the proportion of any impact attributable to non-SPA colonies has reduced. However, differences in the SPA proportions presented in Table 3.2 are considered to be negligible and are not considered to materially affect the conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

3.3.1.4 The conclusions for each SPA as reached in the Morgan Generation Assets HRA (APP-098 and APP-099) as a result of impacts associated with the Morgan Generation Assets are presented in Table 3.3. Consideration is given in Table 3.3 to the likely effects on the conclusions presented in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

Table 3.3: Potential effects on conclusions reached in the Morgan Generation Assets HRA (APP-098 and APP-099) as a result of the apportioning values calculated in this report for kittiwake.

SPA name	Increase in baseline mortality as predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)	Likely effect of the apportioning values presented in this report
Ailsa Craig	0.02 to 0.04	Increase in apportioning value would increase the apportioned impact, which would exceed the 0.05% baseline mortality threshold used in step 1 of HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).
Howth Head Coast	0.03 to 0.06	Decrease in apportioning value and therefore apportioned impact will decrease. Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
Ireland's Eye	0.07 to 0.17	Decrease in apportioning value and therefore apportioned impact will decrease. Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.

SPA name	Increase in baseline mortality as predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)	Likely effect of the apportioning values presented in this report
Lambay Island	0.02 to <0.05	Increase in apportioning value would increase the apportioned impact, which would exceed the 0.05% baseline mortality threshold used in step 1 of HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).
North Colonsay and Western Cliffs	0.02 to 0.04	No change to apportioning value and therefore no change to conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).
Rathlin Island	0.01	Increase in apportioning value, but this will not increase the apportioned impact beyond the 0.05% increase in baseline mortality threshold applied in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
Saltee Islands	0.01 to 0.03	Slight increase in apportioning value, but this will not increase the apportioned impact beyond the 0.05% increase in baseline mortality threshold applied in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
Skomer, Skokholm and the Seas off Pembrokeshire	0.01 to 0.02	Slight increase in apportioning value, but this will not increase the apportioned impact beyond the 0.05% increase in baseline mortality threshold applied in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.

SPA name	Increase in baseline mortality as predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)	Likely effect of the apportioning values presented in this report
Wicklow Head	0.02 to 0.04	Increase in apportioning value would increase the apportioned impact, which would exceed the 0.05% baseline mortality threshold used in step 1 of HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

3.3.1.5 For the majority of SPAs included in Table 3.3, any change to the conclusions of no adverse effect reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) can be ruled out due to decreases in associated apportioning values or non-material increases. For the Ailsa Craig SPA, Lambay Island SPA and Wicklow Head SPA, the increase in apportioning value would have resulted in the kittiwake feature of the SPA requiring additional consideration in step 1 of HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098), specifically in relation to in-combination impacts.

3.3.1.6 The impact to kittiwake at the Ailsa Craig SPA and Wicklow Head SPA predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) was up to 0.1 birds/annum representing a negligible contribution to any in-combination impact. Similarly, although the impact apportioned to the Lambay Island SPA in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) was higher at up to 0.5 birds/annum, this is also considered to be a negligible contribution to any in-combination impact, even if the apportioning value estimated in this report were to be applied.

3.3.1.7 Comparable SPAs, at least from a geographic perspective, were progressed to step 2 of HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) with no adverse effect conclusions reached for these SPAs (Ireland's Eye SPA). The assessments for these SPAs identified various assumptions incorporated into the analyses undertaken to support the assessments that resulted in high levels of precaution being applied which were considered to lead to impacts being over-estimated.

3.3.1.8 It is therefore considered that the conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remain valid, namely no adverse effect on the integrity of the SPAs at which kittiwake is a qualifying feature.

3.4 Herring gull

3.4.1.1 A comparison of the apportioning values calculated for herring gull in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and this report are

presented in Table 3.4. Explanations for the differences observed in the apportioning values calculated are provided below Table 3.4.

Table 3.4: Calculation of apportioning values for herring gull in the breeding season for SPAs within foraging range (Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057)).

SPA name	Population (no. of breeding adults)				Proportional weight of colony		Difference
	APP-057		This report		APP-057	This report	
	Population	Year	Population	Year			
Morecambe Bay and Duddon Estuary	1,552	2018-2023	902	2016-2020	0.509	0.175	Decrease
Non-SPA Total[1]	-	-	-	-	0.491	0.825	Increase

3.4.1.2 A two stage apportioning approach was used in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057). The first stage calculated the proportional weight of SPA and non-SPA colonies using Seabird 2000 data. In the second stage, the proportion represented by SPA colonies was re-attributed to SPA colonies based on the most recent SPA populations as included in the JNCC SMP database.

3.4.1.3 The first stage of the apportioning process applied in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) used a population of 20,266 breeding individuals for herring gull at the Morecambe Bay and Duddon Estuary SPA. As the only SPA for herring gull with which the Morgan Generation Assets had connectivity, the entire SPA proportion was attributed to the Morecambe Bay and Duddon Estuary SPA during the second stage of the apportioning approach applied in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057). The population at the Morecambe Bay and Duddon Estuary SPA has reduced considerably since Seabird 2000, meaning that a population of 902 breeding individual is incorporated into the apportioning exercise applied in this report. This significantly reduces the apportioning value attributed to the Morecambe Bay and Duddon Estuary SPA as illustrated in Table 3.4.

3.4.1.4 A decrease in the proportional weight of the SPA means that the impact predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) would decrease if the apportioning values calculated in this report were to be applied. The conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098), namely no adverse effect on the integrity of the SPA, therefore remain valid.

3.5 Lesser black-backed gull

3.5.1.1 A comparison of the apportioning values calculated for lesser black-backed gull in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and this report are presented in Table 3.5.

Table 3.5: Calculation of apportioning values for lesser black-backed gull in the breeding season for SPAs within foraging range (Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057)).

SPA name	Population (no. of breeding adults)				Proportional weight of colony		Difference	Explanation (see bullet points below)
	APP-057		This report		APP-057	This report		
	Population	Year	Population	Year				
Ailsa Craig	378	2019	378	2019	0.002	0.002	No change	N/A
Bowland Fells	29,254	2018	29,254	2018	0.501	0.546	Increase	1
Lambay Island	952	2010	690	2015	0.006	0.005	Decrease	2
Morecambe Bay and Duddon Estuary	1,768	2023	808	2017-2020	0.130	0.049	Decrease	3
Ribble and Alt Estuaries	8,978	2021	8,978	2021	0.276	0.281	Increase	4
Rathlin Island	1,038	2021	1,038	2021	0.002	0.003	Increase	4
Non-SPA Total	-				0.084	0.113	Increase	

3.5.1.2 Explanations for the changes observed in the apportioning values, corresponding with the numbers in Table 3.5 for each SPA are provided below:

1. The Seabird 2000 database only included population data for one of the subsites that comprises the Bowland Fells SPA (Tarnbrook Fell). Whilst both subsites were included in Step 2 of the apportioning approach applied in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) both could not be included in Step 1. The inclusion of both in the apportioning approach applied in this report therefore results in the slight increase in the proportional weight of the colony.
2. SPA population has decreased, resulting in a decrease in the proportional weight of the colony.
3. The population at the SPA has decreased since Seabird 2000 (although has increased between the Seabirds Count and the most recent count). The population incorporated into Step 1 of the apportioning approach in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) was significantly higher (38,974 breeding birds) meaning a larger proportion of the overall weighting was progressed to Step 2. This therefore meant that although the proportion attributable to the SPA was lower, as the population was small when compared to other SPAs, the larger overall proportion progressed to Step 2 meant that more of the overall weighting was attributed to the SPA.
4. The slight increase noted for this SPA is likely a result of changes observed elsewhere (e.g. the reductions at Lambay Island SPA or the Morecambe Bay and Duddon Estuary SPA). However, the populations used throughout both apportioning approaches were similar, and therefore the increase is only slight.

3.5.1.3 The conclusions for each SPA as reached in the Morgan Generation Assets HRA (APP-098 and APP-099) as a result of collision risk associated with the Morgan

Generation Assets are presented in Table 3.6. Consideration is given in Table 3.6 to the likely effects on the conclusions presented in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

Table 3.6: Potential effects on conclusions reached in the Morgan Generation Assets HRA (APP-098 and APP-099) as a result of the apportioning values calculated in this report for lesser black-backed gull.

SPA name	Increase in baseline mortality as predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)	Likely effect of the apportioning values presented in this report
Ailsa Craig	No LSE identified based on predicted impact being effectively zero	No change to apportioning value and therefore no LSE identified.
Bowland Fells	<0.01 to <0.01	Slight increase in apportioning value, but this will not increase the apportioned impact beyond the 0.05% increase in baseline mortality threshold applied in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
Lambay Island	No LSE identified based on predicted impact being effectively zero	Decrease in apportioning value and therefore no LSE identified.
Morecambe Bay and Duddon Estuary	0.01 to 0.03	Decrease in apportioning value and therefore apportioned impact will decrease. Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
Ribble and Alt Estuaries	<0.01 to 0.01	Slight increase in apportioning value, but this will not increase the apportioned impact beyond the 0.05% increase in baseline mortality threshold applied in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
Rathlin Island	No LSE identified based on predicted impact being effectively zero	Slight increase in apportioning value. However, this is will not result in an LSE being identified due to predicted impact being effectively zero.

3.5.1.4 Whilst there have been increases to some of the apportioning values for some of the SPAs in Table 3.5, the magnitude of impacts predicted for lesser black-backed gull in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) are extremely low especially when considered in relation to baseline mortality. These impacts are considered highly unlikely to increase beyond the 0.05% baseline mortality threshold used as part of step 1 in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) to determine if an SPA was progressed to step 2. The conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remain valid, namely no adverse effect on the integrity of the SPAs at which lesser black-backed gull is a qualifying feature.

3.6 Manx shearwater

3.6.1.1 A comparison of the apportioning values calculated for Manx shearwater in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and this report are presented in Table 3.7.

Table 3.7: Calculation of apportioning values for Manx shearwater in the breeding season for SPAs within foraging range (Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057)).

SPA name	Population (no. of breeding adults)				Proportional weight of colony		Difference	Explanation (see bullet points below)
	APP-057		This report		APP-057	This report		
	Population	Year	Population	Year				
Copeland Islands	9,700	2007	9,700	2007	0.035	0.035	No change	N/A
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island	32,366	2001	41,350	2015-2021	0.085	0.090	Increase	1
Rum	240,000	2001	577,788	2021	0.088	0.172	Increase	2
Isles of Scilly	538	2022	912	2015-2021	<0.001	<0.001	No change	N/A
Skomer, Skokholm and the seas off Pembrokeshire/ Sgomer, Sgogwm a moroedd Benfro	910,312	2018	910,312	2018	0.752	0.638	Decrease	3
St Kilda	9,606	1999	7,462	2019	0.002	0.001	Decrease	4
Non-SPA Total[1]	-	-			0.016	0.072	Increase	N/A

3.6.1.2 Explanations for the changes observed in the apportioning values, corresponding with the numbers in Table 3.7 for each SPA are provided below:

1. Breeding colony is the closest of all SPAs to the Morgan Generation Assets and therefore any increase in population size at the SPA has a disproportionate effect (when compared to other colonies) on the proportional weight of the colony. As a result the apportioning value has increased.
2. The population at the SPA has nearly doubled which has resulted in an increase in the proportional weight of the colony.
3. SPA population has remained the same when compared to the population used in stage 2 of the apportioning approach applied in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057). The populations at other SPAs (e.g. Rum SPA) have increased and therefore the proportional weight of this SPA has reduced.
4. The population at this SPA has decreased and as a result so has the proportional weight of the colony.

3.6.1.3 The conclusions for each SPA as reached in the Morgan Generation Assets HRA (APP-098 and APP-099) as a result of impacts associated with the Morgan Generation Assets are presented in Table 3.8. Consideration is given in Table 3.8 to the likely effects on the conclusions presented in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

3.6.1.4 Overall, the proportional weight of non-SPA colonies is higher in the apportioning approach applied in this report and therefore a higher proportion of the impacts associated with the Morgan Generation Assets are attributed to SPA colonies in the assessments presented at application (HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)).

Table 3.8: Potential effects on conclusions reached in the Morgan Generation Assets HRA (APP-098 and APP-099) as a result of the apportioning values calculated in this report for Manx shearwater.

SPA name	Increase in baseline mortality as predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)	Likely effect of the apportioning values presented in this report
Copeland Islands	0.02	No change to apportioning value and therefore no change to conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island	0.01	Slight increase in apportioning value, but this will not increase the apportioned impact beyond the 0.05% increase in baseline mortality threshold applied in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
Rum	<0.01	Increase in apportioning value, but this will not increase the apportioned impact beyond the 0.05% increase in baseline mortality threshold applied in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.

SPA name	Increase in baseline mortality as predicted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098)	Likely effect of the apportioning values presented in this report
Isles of Scilly	<0.01	No change to apportioning value and therefore no change to conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).
Skomer, Skokholm and the seas off Pembrokeshire/Sgomer, Sgogwm a moroedd Benfro	0.01	Decrease in apportioning value and therefore apportioned impact will decrease. Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.
St Kilda	0.01	Decrease in apportioning value and therefore apportioned impact will decrease. Conclusion in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remains valid.

3.6.1.5 Whilst there have been increases to some of the apportioning values for two of the SPAs in Table 3.8, the conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) remain valid, namely no adverse effect on the integrity of the SPAs at which Manx shearwater is a qualifying feature.

3.7 Fulmar

3.7.1.1 A comparison of the apportioning values calculated for fulmar in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) and this report are presented in Table 3.9.

3.7.1.2 The apportioning approach applied in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) could not be applied to the Cape Wrath SPA, Flannan Isles SPA, Handa SPA, North Rona and Sula Sgeir SPA and St Kilda SPA (see Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) for further explanation). These have therefore been excluded from Table 3.9.

Table 3.9: Calculation of apportioning values for fulmar in the breeding season for SPAs within foraging range (Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057)).

SPA name	Population (no. of breeding adults)				Proportional weight of colony		Difference
	APP-057		This report		APP-057	This report	
	Population	Year	Population	Year			
Horn Head to Fanad Head	1,080	2015	558	2015	0.003	0.004	Increase
Isles of Scilly	432	2015-2022	159	2015-2021	0.001	<0.001	Decrease
Lambay Island	750	2015	750	2015	0.015	0.019	Increase
Mingulay and Berneray	7,786	2021-2022	14,096	2017-2021	0.013	0.037	Increase
Rathlin Island	2,076	2021	2,076	2021	0.015	0.022	Increase
Saltee Islands	450	2013	357	2015	0.002	0.004	Increase
The Shiant Isles	3,012	2015	3,012	2015	0.003	0.005	Increase

3.7.1.3 Whilst many of the apportioning values in Table 3.9 have increased, all but one of the SPAs for which connectivity with the Morgan Generation Assets was identified were screened out of the Morgan Generation Assets in HRA Stage 1 Screening Report (APP-099) due to the associated impacts being effectively zero. The unapportioned impact associated with the Morgan Generation Assets was 1.4 birds/annum with only 0.2 birds/annum predicted in the breeding season. For these SPAs to be progressed to HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098), it would require much larger increases in the apportioning values calculated in Volume 4, Annex 5.5: Offshore Ornithology Apportioning Technical Report (APP-057) than observed in this report. Of the SPAs included in Table 3.9, the one with the highest predicted impact in HRA Stage 1 Screening Report (APP-099), albeit an impact that was effectively zero, was the Mingulay and Berneray SPA, which is also the SPA that has the highest increase in the breeding season apportioning value presented in Table 3.9. When the updated apportioning value is applied, the impact apportioned to this SPA remains as effectively zero.

3.7.1.4 The St Kilda SPA was progressed to HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) as the impact apportioned to this SPA was more than zero. Due to the limitation of the apportioning analysis, as explained in HRA Stage 1 Screening Report (APP-099), the apportioning value for this SPA remains unchanged and therefore there would be no changes to the conclusion of no adverse effect reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

4 CONCLUSIONS

4.1.1.1 The sensitivity analysis conducted in this report has identified differences in the breeding season apportioning values for the species incorporated into the original apportioning analysis, conducted as part of the assessments undertaken for the Morgan Generation Assets in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098).

4.1.1.2 For all species and associated SPAs, these differences have not resulted in changes to the 'no adverse effect' conclusions reached in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098). Therefore, this document has applied the Seabirds Count data, as requested by Natural England in their Relevant Representation B26, and has shown that this does not change the findings of the assessments conducted in HRA Stage 2 information to support an appropriate assessment Part Three: Special Protection Areas and Ramsar Site assessments (APP-098) which remain valid.

5 REFERENCES

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