Partners in UK offshore wind

MONA OFFSHORE WIND PROJECT

Offshore Ornithology Errata Clarification Note

Deadline: 3

Application Reference: EN010137

Document Reference: S_D3_26

Document Number: MOCNS-J3303-RPS-10335

30 September 2024

F01

Image of an offshore wind farm

www.morganandmona.com/en

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
F01	Submission at D3	RPS	Mona Offshore Wind Ltd	Mona Offshore Wind Ltd	30 Sept 2024

Prepared by:

RPS

Prepared for:

Mona Offshore Wind Ltd.

Contents

Tables

Glossary

Term	Meaning
Applicant	Mona Offshore Wind Limited.
Appropriate Assessment	A step-wise procedure undertaken in accordance with Article 6(3) of the Habitats Directive, to determine the implications of a plan or project on a European site in view of the site's conservation objectives, where the plan or project is not directly connected with or necessary to the management of a European site but likely to have a significant effect thereon, either individually or in-combination with other plans or projects.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (NSIP).
Environmental Statement	The document presenting the results of the Environmental Impact Assessment (EIA) process for the Mona Offshore Wind Project.
Evidence Plan Process	The Evidence Plan process is a mechanism to agree upfront what information the Applicant needs to supply to the Planning Inspectorate as part of the Development Consent Order (DCO) applications for the Mona Offshore Wind Project.
Inter-array cables	Cables which connect the wind turbines to each other and to the offshore substation platforms. Inter-array cables will carry the electrical current produced by the wind turbines to the offshore substation platforms.
Interconnector cables	Cables that may be required to interconnect the Offshore Substation Platforms in order to provide redundancy in the case of cable failure elsewhere.
Intertidal access areas	The area from Mean High Water Springs (MHWS) to Mean Low Water Springs (MLWS) which will be used for access to the beach and construction related activities.
Landfall	The area in which the offshore export cables make contact with land and the transitional area where the offshore cabling connects to the onshore cabling.
Local Authority	A body empowered by law to exercise various statutory functions for a particular area of the United Kingdom. This includes County Councils, District Councils and County Borough Councils.
Mona Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, offshore export cables and offshore substation platforms (OSPs) forming part of the Mona Offshore Wind Project will be located.
Mona Offshore Wind Project	The Mona Offshore Wind Project is comprised of both the generation assets, offshore and onshore transmission assets, and associated activities.
Mona Offshore Wind Project PEIR	The Mona Offshore Wind Project Preliminary Environmental Information Report (PEIR) that was submitted to The Planning Inspectorate (on behalf of the Secretary of State) and NRW for the Mona Offshore Wind Project.
Non-statutory consultee	Organisations that an applicant may choose to consult in relation to a project who are not designated in law but are likely to have an interest in the project.
Offshore Substation Platform (OSP)	The offshore substation platforms located within the Mona Array Area will transform the electricity generated by the wind turbines to a higher voltage allowing the power to be efficiently transmitted to shore.
Point of Interconnection	The point of connection at which a project is connected to the grid. For the Mona Offshore Wind Project, this is the Bodelwyddan National Grid Substation.

Term	Meaning
Statutory consultee	Organisations that are required to be consulted by an applicant pursuant to the Planning Act 2008 in relation to an application for development consent. Not all consultees will be statutory consultees (see non-statutory consultee definition).
Wind turbines	The wind turbine generators, including the tower, nacelle and rotor.
The Planning Inspectorate	The agency responsible for operating the planning process for NSIPs.

Acronyms

Acronym	Description
AfL	Agreement for Lease
BDMPS	Biologically Defined Minimum Population Scales
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EnBW	Energie Baden-Württemberg AG
ISAA	Information to support the Appropriate Assessment
JNCC	Joint Nature Conservation Committee
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
OSP	Offshore Substation Platform
PEIR	Preliminary Environmental Information Report
POI	Point of Interconnection
RR	Relevant Representation

Units

Unit	Description
kV	Kilovolt

1 Offshore Ornithology Errata Clarification Note

1.1 Overview

1.1.1.1 The Applicant acknowledges that Natural Resources Wales (Advisory) (NRW (A)) and the Joint Nature Conservation Committee (JNCC) identified discrepancies within the Environmental Statement and Habitats Regulations Assessment application materials in their relevant representations (RR-011 and RR-033, respectively) and written representations (REP1- 056 and REP1-066/REP1-067, respectively). Appreciating the need for clarity in the application material, the Applicant submitted the following revised offshore ornithology application Environmental Impact Assessment (EIA) and HRA material (as tracked and clean versions) at Deadline 2 to address the errata:

- Volume 2, Chapter 5: Offshore Ornithology (REP2-016)
- Volume 6, Annex 5.2: Offshore Ornithology Displacement Technical Report (REP2-018)
- Volume 6, Annex 5.3: Offshore Ornithology Collision Risk Modelling Technical Report (REP2-020)
- Volume 6, Annex 5.5: Offshore Ornithology Apportioning Technical Report (REP2-022)
- Volume 6, Annex 5.6: Offshore Ornithology Population Viability Analysis Technical Report (REP2-024)
- HRA Stage 1 Screening Report (REP2-012)
- HRA Stage 2 Information to Support an Appropriate Assessment (ISAA) Part Three: Special Protection Areas (SPAs) and Ramsar Sites Assessments (REP2-010)
- HRA Integrity Matrices (REP2-014).

1.1.1.2 The Applicant also submitted, alongside the revised application documents, a Schedule of Changes to the Offshore Ornithology EIA and HRA Documents (REP2-087). This document describes the changes made to the offshore ornithology EIA and HRA application materials including a summary of the change, details of where the change has been made, the reason for the change and how it corresponds to the errata identified in the Errata Sheet (REP1-044) submitted at Deadline 1. The revisions to the offshore ornithology EIA and HRA application materials at Deadline 2 have not resulted in any change to the conclusion of the assessments.

1.1.1.3 The SNCBs and the Applicant have identified subsequent errata not addressed in the revised offshore ornithology EIA and HRA documents submitted at Deadline 2. These further errata are included in the Errata Sheet (S_PD_1 F04) submitted at Deadline 3. Appreciating the need for clarity, the Applicant has provided further information for these errata in this Offshore Ornithology Errata Clarification Note.

1.2 Offshore ornithology kittiwake cumulative abundance

1.2.1.1 At Deadline 2, the JNCC submitted a response to the Errata Sheet (REP1-044) submitted by the Applicant at Deadline 1. The Applicant has responded to JNCC's comments in its Response to JNCC Errata Submission (S_D3_3) at Deadline 3 and has reviewed whether the comments made by the JNCC on the Errata Sheet (REP1-

044) submitted at Deadline 1 were captured in the revised offshore ornithology EIA and HRA application materials submitted at Deadline 2.

1.2.1.2 The Applicant has identified one comment from the JNCC that was not addressed in the revised offshore ornithology EIA and HRA documents submitted at Deadline 2. This is comment REP2-096.14 in the Applicant's Response to JNCC Errata Submission (S_D3_3) and is set out below:

REP1-044 Page 9, relevant to Volume 2, Chapter 5: Offshore ornithology Table 5.104

Error: Black-legged kittiwake cumulative abundances total (all projects) for annual abundance is 26,604.

Correction: Black-legged kittiwake cumulative abundances total (all projects) for annual abundance is 25,897.

JNCC comment: This corrected value appears to be without the 707 from Burbo Bank Extension. Was this a mistake originally, is there no annual value for Burbo Bank Extension?

1.2.1.3 This has been included in the Errata sheet (S_PD_1 F04) submitted at Deadline 3 and this Offshore Ornithology Errata Clarification Note is intended to explain the implication of this errata to the predicted impacts in the context of both the EIA and HRA to confirm whether it affects the conclusions of the assessments presented at application.

1.2.1.4 The errata is limited to Volume 2, Chapter 5: Offshore ornithology (REP2-016). Because the apportioned breeding impact for the Burbo Bank Extension Offshore Wind Farm is not considered in the HRA Stage 1 screening (REP2-012), there are no revisions in the HRA Stage 1 screening (REP2-012) as part of this errata. Whilst the apportioned breeding impact for the Burbo Bank Extension Offshore Wind Farm is considered in Table 1.45, Table 1.46, Table 1.47 in Section 1.5.4 of the HRA Stage 2 Information to Support an Appropriate Assessment (ISAA) Part Three: Special Protection Areas (SPAs) and Ramsar Sites Assessments (REP2-010), all of the impact (i.e. annual impact) has already been apportioned to the breeding season as a precaution. Given that the annual impact consists solely of the breeding impact, there are no changes required to the apportioned breeding impact from the Burbo Bank Extension Offshore Wind Farm to three SPAs considered in the in-combination presented in the HRA Stage 2 Information to Support an Appropriate Assessment (ISAA) Part Three: Special Protection Areas (SPAs) and Ramsar Sites Assessments (REP2-010).

1.2.1.5 As outlined in section 1.2, this errata does not alter the conclusions of the assessment presented in the application.

1.2.2 Table 5.104 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 147 in the Errata Sheet (S_PD_1 F04))

1.2.2.1 The errata relates to the abundance estimate for Burbo Bank Extension within Table 5.104 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The annual impact (707 birds) is correct; however, following a review of Burbo Bank Extension's original documentation (Dong Energy, 2013), it was noted that the peak abundance (707 birds) occurred in June and, therefore, is part of the breeding season. The updated table to correct the errata is presented below with changes shown in comparison to Table 5.105 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.2.2.2 Table 5.104 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.1. Within Table 1.1, the red struck-through text is the

information presented in Table 5.104 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.1: Black-legged kittiwake cumulative abundances for offshore wind projects for disturbance and displacement assessment during the operations and maintenance phase (replication of Table 5.104 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual Abundance	Pre-breeding Abundance	Breeding Season Abundance	Post-breeding Abundance
Tier 1				
Awel y Môr Offshore Wind Farm	467	298	87	82
Burbo Bank Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
Burbo Bank Extension Offshore Wind Farm	707	Unavailable	~~Unavailable~~ 707	Unavailable
Erebus Floating Wind Demo	2,532	2	2,022	508
Gwynt y Môr Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
TwinHub (Wave Hub Floating Wind Farm)	249	56	4	189
Ormonde Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
Rampion Offshore Wind Farm	2,112	831	1,059	222
Robin Rigg Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
Rhyl Flats Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
Walney 1 & 2 Offshore Wind Farms	Unavailable	Unavailable	Unavailable	Unavailable
Walney (3 & 4) Extension Offshore Wind Farm	2,900	1,467	319	1,114
West of Duddon Sands Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
West of Orkney Windfarm	2,706	1,217	690	799
White Cross Offshore Windfarm	914	698	44	172
Tier 2				

Project	Annual Abundance	Pre-breeding Abundance	Breeding Season Abundance	Post-breeding Abundance
Morecambe Offshore Windfarm Generation Assets	9,106	1,161	3,899	4,046
Morgan Offshore Wind Project Generation Assets	2,724	645	460	1,619
Rampion 2 (Rampion Extension) Offshore Wind Farm	388	286	5	97
Total (minus the Mona Offshore Wind Project)	**24,805**	**6,661**	~~**8,589**~~ **9,296**	**8,848**
Mona Offshore Wind Project	1,860	574	726	560
Cumulative total (all projects)	**26,665**	**7,235**	~~**9,315**~~ **10,022**	**9,408**

1.2.2.3 Following Table 5.104, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the associated displacement matrix for the estimated cumulative mortality of black-legged kittiwake predicted to occur due to displacement during the breeding season (Table 5.106). This has also been revised as a result of this errata and presented below as Table 1.2.

Table 1.2: Operations and maintenance phase cumulative black-legged kittiwake mortality following displacement from offshore wind farms in the breeding season. (updated Table 5.106 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Black-legged kittiwake Breeding		Mortality level (% of displaced birds at risk of mortality)						
		1%	2%	5%	10%	25%	50%	100%
Displacement level	10%	10~~9~~	20~~19~~	50~~47~~	100~~93~~	251~~233~~	501~~466~~	1,002~~932~~
	20%	20~~19~~	40~~37~~	100~~93~~	200~~186~~	501~~466~~	1,002~~932~~	2,004~~1,863~~
	30%	30~~28~~	60~~56~~	150~~140~~	301~~279~~	752~~699~~	1,503~~1,397~~	3,007~~2,795~~
	40%	40~~37~~	80~~75~~	200~~186~~	401~~373~~	1,002~~932~~	2,004~~1,863~~	4,009~~3,726~~
	50%	50~~47~~	100~~93~~	251~~233~~	501~~466~~	1,253~~1,164~~	2,506~~2,329~~	5,011~~4,658~~
	60%	60~~56~~	120~~112~~	301~~279~~	601~~559~~	1,503~~1,397~~	3,007~~2,795~~	6,013~~5,589~~
	70%	70~~65~~	140~~130~~	351~~326~~	702~~652~~	1,754~~1,630~~	3,508~~3,260~~	7,015~~6,521~~
	80%	80~~75~~	160~~149~~	401~~373~~	802~~745~~	2,004~~1,863~~	4,009~~3,726~~	8,018~~7,452~~
	90%	90~~84~~	180~~168~~	451~~419~~	902~~838~~	2,255~~2,096~~	4,510~~4,192~~	9,020~~8,384~~
	100%	100~~93~~	200~~186~~	501~~466~~	1,002~~932~~	2,506~~2,329~~	5,011~~4,658~~	10,022~~9,315~~

1.2.2.4 Following the displacement matrices Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact for disturbance and displacement to black legged kittiwake from airborne noise, underwater sound, and presence of vessels and infrastructure. Paragraphs 5.9.2.91 and 5.9.2.92 in Volume

2, Chapter 5: Offshore ornithology (REP2-016) have been revised in paragraphs 1.2.2.5 and 1.2.2.6 below as a result of this errata.

1.2.2.5 During the breeding season the displacement from operation results in a loss of ~~47 (28 to 652)~~ 50 (30 to 702) individuals from the migratory population (Table 5.106). The regional seas UK Western Waters & Channel Biologically Defined Minimum Population Scales (BDMPS) population of black-legged kittiwake within the breeding season is estimated to be 245,234 individuals (Table 5.14). Assuming an average baseline mortality rate of 0.156, background mortality in the breeding season is 38,256 individuals. The addition of ~~47 (28 to 652)~~ 50 (30 to 702) individual mortalities due to cumulative displacement from the presence of infrastructure would increase the mortality relative to the baseline mortality by ~~0.122% (0.073 to 1.704%)~~ 0.131% (0.078 to 1.835%). The breeding season predicted mortality from the most extreme scenario cumulative assessment (70% displacement, 10% mortality) is above the 1% threshold increase in baseline mortality.

1.2.2.6 However, recent evidence suggests that 70% displacement and 10% mortality is overly cautious, and that kittiwake continued to use the area around a windfarm (Leopold et al. 2011; Vanermen, 2013; Furness, 2013; Peschko, 2020; NatureScot, 2023). Taking a more realistic 50% displacement and considering a precautionary mortality rate of 5%, the increase in baseline mortality would be ~~0.609%~~ 0.656%, which is below the 1% threshold for further investigation.

1.2.2.7 This errata, relating to the breeding season abundance for black-legged kittiwake for Burbo Bank Extension, has not resulted in a change of magnitude of effect from 'low', from that presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.2.2.8 This errata has not resulted in any change to the conclusions of the assessment from that presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.2.3 Table 5.117 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 165 in the Errata Sheet (S_PD_1 F04))

1.2.3.1 The errata relates to the total abundance estimate within Table 5.117 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.117 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.2.3.2 Table 5.117 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.3. Within Table 1.3, the red struck-through text is the information presented in Table 5.117 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.3: Expected annual collision mortality across relevant offshore wind farms for black-legged kittiwake (avoidance rate 99.28) (replication of Table 5.117 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual	Pre-breeding Season	Breeding Season	Post-breeding Season
Tier 1				
Awel y Môr Offshore Wind Farm	35.25	15.30	11.66	8.29

Project	Annual	Pre-breeding Season	Breeding Season	Post-breeding Season
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Burbo Bank Extension Offshore Wind Farm	23.04	unavailable	unavailable	unavailable
Erebus Floating Wind Demo	37.65	12.51	0.50	24.64
Gwynt y Môr Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	9.90	unavailable	unavailable	unavailable
Ormonde Wind Farm	3.27	unavailable	unavailable	unavailable
Rampion Offshore Wind Farm	126.72	41.76	70.56	15.84
Robin Rigg Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Walney 1 & 2 Offshore Wind Farms	unavailable	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	120.37	15.19	18.79	86.40
West of Duddon Sands Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
West of Orkney Windfarm	54.49	20.99	17.06	16.44
White Cross Offshore Windfarm	14.81	9.26	3.70	1.85
Tier 2				
Morecambe Offshore Windfarm Generation Assets	32.00	5.34	15.03	11.63
Morgan Offshore Wind Project Generation Assets	39.81	13.18	5.00	21.63
Rampion 2 (Rampion Extension) Offshore Wind Farm	28.00	17.00	1.00	10.00
Total (minus the **Mona Offshore Wind Project)**	**525.31**	**150.53**	**143.3**	**196.72**
Mona Offshore Wind Project	32.67	8.74	15.52	8.41

Project	Annual	Pre-breeding Season	Breeding Season	Post-breeding Season
Cumulative total (all projects)	**557.98**	**~~159.62~~ 159.27**	**158.82**	**205.13**

1.2.3.3 The paragraphs following Table 5.117 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact to black-legged kittiwake from collision risk annually. As there is no change to the annual impact, there is no change required to any other section of Volume 2, Chapter 5: Offshore ornithology (REP2-016) as a result of this errata.

1.2.3.4 This errata has not resulted in a change of magnitude of effect from 'low', that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.2.3.5 This errata has not resulted in any change to the conclusions of the assessment from what was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.3 Offshore ornithology common guillemot cumulative abundance

1.3.1 Table 5.51 Volume 2, Chapter 5: Offshore ornithology (REP2-016)) (errata reference 148 in the Errata Sheet (S_PD_1 F04))

1.3.1.1 An errata has been identified in Table 5.51 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) and the presentation of common guillemot cumulative abundances for potential overlapping construction phase offshore wind projects for the disturbance and displacement assessment. Table 1.4 below updates Table 5.51 in Volume 2, Chapter 5: Offshore ornithology (REP2-016) to correct for errata related to the non-breeding abundance and total annual abundance of common guillemot.

1.3.1.2 The red struck-through text is the information presented in Table 5.51 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.4: Common guillemot cumulative abundances for potential overlapping construction phase offshore wind projects for disturbance and displacement assessment (replication of Table 5.51 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual Abundance	Breeding Season Abundance	Non-breeding Abundance
Tier 1			
Awel y Môr Offshore Wind Farm	4,488	1,569	2,919
Erebus Floating Wind Demo	~~35,389~~ 35,339	7,001	~~28,388~~ 28,338
White Cross Offshore Windfarm	4,363	3,304	1,059
West of Orkney Windfarm	9,136	4,861	4,275
Tier 2			

Project	Annual Abundance	Breeding Season Abundance	Non-breeding Abundance
Morecambe Offshore Windfarm Generation Assets	11,697	4,050	7,647
Morgan Offshore Wind Project Generation Assets	8,994	4,893	4,101
TOTAL (minus the Mona Offshore Wind Project)	~~74,067~~ 74,017	**25,678**	~~48,389~~ 48,339
Mona Offshore Wind Project	7,976	4,220	3,756
TOTAL (all projects)	~~82,043~~ 81,993	**29,898**	~~52,145~~ 52,095

1.3.1.3 Following Table 5.51, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the associated displacement matrices for the estimated cumulative mortality of common guillemot predicted to occur due to displacement in the non-breeding season (Table 5.55) and annually (Table 5.54). These have also been revised as a result of this errata and presented below in Table 1.5 and Table 1.6.

Table 1.5: Construction phase cumulative common guillemot mortality following displacement from offshore wind farms in the non-breeding season (updates Table 5.53 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Common guillemot Non-breeding		Mortality level (% of displaced birds at risk of mortality)						
		1%	2%	5%	10%	25%	50%	100%
Displacement level	5%	26	52	130	260 ~~261~~	651~~652~~	1,302 ~~1,304~~	2,605 ~~2,607~~
	10%	52	104	260 ~~261~~	521	1,302 ~~1,304~~	2,605 ~~2,607~~	5,210 ~~5,215~~
	15%	78	156	391	781 ~~782~~	1,954 ~~1,955~~	3,907 ~~3,911~~	7,814 ~~7,822~~
	20%	104	208 ~~209~~	521	1,042 ~~1,043~~	2,605 ~~2,607~~	5,210 ~~5,215~~	10,419 ~~10,429~~
	25%	130	260 ~~261~~	651 ~~652~~	1,302 ~~1,304~~	3,256 ~~3,259~~	6,512 ~~6,518~~	13,024 ~~13,036~~
	30%	156	313	781 ~~782~~	1,563 ~~1,564~~	3,907 ~~3,911~~	7,814 ~~7,822~~	15,629 ~~15,644~~
	35%	182~~183~~	365	912 ~~913~~	1,823 ~~1,825~~	4,558 ~~4,563~~	9,117 ~~9,125~~	18,233 ~~18,251~~
	60%	313	625 ~~626~~	1,563 ~~1,564~~	3,126 ~~3,129~~	7,814 ~~7,822~~	15,629 ~~15,644~~	31,257 ~~31,287~~
	80%	417	834	2,084 ~~2,086~~	4,168 ~~4,172~~	10,419 ~~10,429~~	20,838 ~~20,858~~	41,676 ~~41,716~~
	100%	521	1,042 ~~1,043~~	2,605 ~~2,607~~	5,210 ~~5,215~~	13,024 ~~13,036~~	26,048 ~~26,073~~	52,095 ~~52,145~~

Table 1.6: Construction phase cumulative common guillemot mortality following displacement from offshore wind farms annually (updates 5.54 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Common guillemot Annual	Mortality level (% of displaced birds at risk of mortality)						
Displacement level	1%	2%	5%	10%	25%	50%	100%
5%	41	82	205	410	1,025 ~~1,026~~	2,050 ~~2,051~~	4,100 ~~4,102~~
10%	82	164	410	820	2,050 ~~2,051~~	4,100 ~~4,102~~	8,199 ~~8,204~~
15%	123	246	615	1,230 ~~1,231~~	3,075 ~~3,077~~	6,149 ~~6,153~~	12,299 ~~12,306~~
20%	164	328	820	1,640 ~~1,641~~	4,100 ~~4,102~~	8,199 ~~8,204~~	16,399 ~~16,409~~
25%	205	410	1,025 ~~1,026~~	2,050 ~~2,051~~	5,152 ~~5,128~~	10,249 ~~10,255~~	20,498 ~~20,511~~
30%	246	492	1,230 ~~1,231~~	2,460 ~~2,461~~	6,149 ~~6,153~~	12,299 ~~12,306~~	24,598 ~~24,613~~
35%	287	574	1,435 ~~1,436~~	2,870 ~~2,872~~	7,174 ~~7,179~~	14,349 ~~14,358~~	28,698 ~~28,715~~
60%	492	984~~985~~	2,460 ~~2,461~~	4,920 ~~4,923~~	12,299 ~~12,306~~	24,598 ~~24,613~~	49,196 ~~49,226~~
80%	656	1,312~~1,313~~	3,280 ~~3,282~~	6,559 ~~6,563~~	16,399 ~~16,409~~	32,797 ~~32,817~~	65,594 ~~65,634~~
100%	820	1,640~~1,641~~	4,100 ~~4,102~~	8,199 ~~8,204~~	20,498 ~~20,511~~	40,997 ~~41,022~~	81,993 ~~82,043~~

1.3.1.4 Following the displacement matrices Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact for disturbance and displacement to common guillemot from airborne noise, underwater sound, and presence of vessels and infrastructure during construction. Paragraphs 5.9.2.10 and 5.9.2.12 in Volume 2, Chapter 5: Offshore ornithology (REP2-016) have been revised in paragraphs 1.3.1.5 and 1.3.1.6 below as a result of this errata.

1.3.1.5 During the non-breeding season, the displacement from construction results in an additional loss of 130 (78 to ~~1,825~~ 1,823) individuals from the non-breeding population (Table 5.53). The regional seas UK Western Waters BDMPS population of common guillemots within the non-breeding season is estimated to be 1,139,220 individuals (Table 5.14). Assuming an average baseline mortality rate of 0.133, background mortality in the non-breeding season is 151,516 individuals. The addition of 130 (78 to ~~1,825~~ 1,823) individual mortalities due to cumulative displacement from construction activities would increase the mortality relative to the baseline mortality by 0.086 % (0.051 to ~~1.205%~~ 1.203~~).~~

1.3.1.6 The annual estimated mortality resulting from displacement during construction is 205 (123 to ~~2,872~~ 2,870) individuals (Table 5.54). Using the largest BDMPS UK Western Waters population of 1,145,528 individuals and, using the average baseline mortality rate of 0.133 (Table 5.15), the annual background predicted mortality would be 152,355. The of 205 (123 to ~~2,872~~ 2,870) mortalities would increase the baseline mortality rate by 0.134% (0.081% to ~~1.885%~~ 1.883%). The annual predicted mortality from the cumulative assessment during construction is above the 1% threshold increase when using 35% displacement and 10% mortality, which is highly precautionary. The construction period is short term, with the extent of construction overlap varying between each offshore wind farm (Table 5.51) and so it is likely that the impact estimated even at the 25% displacement and 1% mortality range is an

overestimate. Expected mortality arising from construction activities is likely to be on the lower end of the range considered.

Conclusion

1.3.1.7 This errata has not resulted in a change in the magnitude of effect from what was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016), of 'low', and has not resulted in any change to the conclusions of the assessment from that presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016) of 'minor adverse, not significant in EIA terms'.

1.3.2 Table 5.81 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 162 in the Errata Sheet (S_PD_1 F04))

1.3.2.1 The errata relates to the total abundance estimate for all projects within Table 5.81 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.81 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.3.2.2 Table 5.81 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.7. Within Table 1.7, the red struck-through text is the information presented in Table 5.81 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.7: Common guillemot cumulative abundances for offshore wind projects for disturbance and displacement assessment during the operations and maintenance phase (replication of Table 5.81 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual Abundance	Breeding Season Abundance	Non-breeding Season Abundance
Tier 1			
Awel y Môr Offshore Wind Farm	4,488	1,569	2,919
Burbo Bank Offshore Wind Farm	Unavailable	Unavailable	Unavailable
Burbo Bank Extension Offshore Wind Farm	2,562	1,000	1,561
Erebus Floating Wind Demo	35,339	7,001	28,338
Gwynt y Môr Offshore Wind Farm	unavailable	Unavailable	Unavailable
Twinhub (Wave Hub Floating Wind Farm)	256	39	217
Ormonde Wind Farm	912	912	Unavailable
Robin Rigg Offshore Wind Farm	138	~~Unavailable~~138	Unavailable
Rhyl Flats Offshore Wind Farm	Unavailable	Unavailable	Unavailable
Walney 1 & 2 Offshore Wind Farms	Unavailable	Unavailable	Unavailable

Project	Annual Abundance	Breeding Season Abundance	Non-breeding Season Abundance
Walney (3 & 4) Extension Offshore Wind Farm	6,096	4,169	1,927
West of Duddon Sands Offshore Windfarm	1,321	1,321	Unavailable
West of Orkney Windfarm	9,136	4,861	4,275
White Cross Offshore Windfarm	4,363	3,304	1,059
Tier 2			
Morecambe Offshore Windfarm Generation Assets	11,697	4,050	7,647
Morgan Offshore Wind Project Generation Assets	8,994	4,893	4,101
Total abundance (minus the Mona Offshore Wind Project)	**85,302**	**~~32,849~~33,257**	**52,044**
Mona Offshore Wind Project	7,976	4,220	3,756
Cumulative total abundance (all projects)	**93,278**	**~~37,069~~ 37,477**	**55,800**
Collision impacts			
Tier 1			
Holyhead Deep – Tidal Energy	8	Unavailable	Unavailable
West Anglesey Demonstration Zone tidal site	46	38	8

Following Table 5.81, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the associated displacement matrix for the estimated cumulative mortality of common guillemot predicted to occur due to displacement during the breeding season (Table 5.82). This has also been revised as a result of this errata and presented below as

1.3.2.3 Table 1.8.

Table 1.8: Operations and maintenance phase cumulative common guillemot mortality following displacement from offshore wind farms in the breeding season. (updated Table 5.82 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Common guillemot Breeding	Mortality level (% of displaced birds at risk of mortality)						
Displacement level	1%	2%	5%	10%	25%	50%	100%
10%	37	~~74~~75	~~185~~187	~~371~~375	~~927~~937	~~1,853~~ 1,874	~~3,707~~ 3.748
20%	~~74~~75	~~148~~150	~~371~~375	~~741~~750	~~1,853~~ 1,874	~~3,707~~ 3,748	~~7,414~~ 7,495
30%	~~111~~112	~~222~~225	~~556~~562	~~1,112~~ 1,124	~~2,780~~ 2,811	~~5,560~~ 5,622	~~11,121~~ 11,243
40%	~~148~~150	~~297~~300	~~741~~750	~~1,483~~ 1,499	~~3,707~~ 3,748	~~7,414~~ 7,495	~~14,828~~ 14,991
50%	~~185~~187	~~371~~375	~~927~~937	~~1,853~~ 1,874	~~4,634~~ 4,685	~~9,267~~ 9,369	~~18,535~~ 18,739
60%	~~222~~225	~~445~~450	~~1,112~~ 1,124	~~2,224~~ 2,249	~~5,560~~ 5,622	~~11,121~~ 11,243	~~22,241~~ 22,486
70%	~~259~~262	~~519~~525	~~1,297~~ 1,312	~~2,595~~ 2,623	~~6,487~~ 6,558	~~12,974~~ 13,177	~~25,948~~ 26,234
80%	~~297~~300	~~593~~600	~~1,483~~ 1,499	~~2,966~~ 2,998	~~7,414~~ 7,495	~~14,828~~ 14,991	~~29,655~~ 29,982
90%	~~334~~337	~~667~~675	~~1,668~~ 1,686	~~3,336~~ 3,373	~~8,341~~ 8,432	~~16,681~~ 16,865	~~33,362~~ 33,729
100%	~~371~~375	~~741~~750	~~1,853~~ 1,874	~~3,707~~ 3,748	~~9,267~~ 9,369	~~18,535~~ 18,739	~~37,069~~ 37,477

1.3.2.4 Following the displacement matrices Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact for disturbance and displacement to common guillemot from airborne noise, underwater sound, and presence of vessels and infrastructure. Paragraph 5.9.2.82 in Volume 2, Chapter 5: Offshore ornithology (REP2-016) have been revised in the paragraph **Error! R eference source not found.** below as a result of this errata.

1.3.2.5 During the breeding season, the displacement from operation when using a displacement of 50% (range of 30 to 70%) and a mortality of 1% (range of 1 to 10%), results in an additional loss of 187 (112 to 2,623)~~185 (111 to 2,595)~~ individuals from the breeding population. The regional seas UK Western Waters BDMPS population of common guillemots within the breeding season is estimated to be 1,145,528 individuals (Table 5.14). Assuming an average baseline mortality rate of 0.133 (Table 5.15), background mortality in the breeding season is 152,355 individuals. The addition of 187 (112 to 2,623)~~185 (111 to 2,595)~~ individual mortalities due to cumulative displacement from the presence of infrastructure, plus the additional 38 mortalities from collision with underwater turbines, would increase the mortality relative to the baseline mortality by 0.123 (0.074% to 1.722%) ~~0.122 % (0.073 to 1.703%)~~.

1.3.2.6 This errata has not resulted in a change of magnitude of effect from what was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.3.2.7 This errata has not resulted in any change to the conclusions of the assessment from what was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.4 Offshore ornithology herring gull collisions for Erebus

1.4.1 Tables 5.122 and 5.123 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 149 in the Errata Sheet (S_PD_1 F04))

1.4.1.1 An errata has been identified in the data presented for Erebus Floating Wind Demo in table 5.122 and table 5.123 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) and the presentation of herring gull expected annual collision risk mortality across relevant offshore wind farms using the species-group avoidance rate of 99.39 and species-specific avoidance rate of 99.52, respectively.

1.4.1.2 The Applicant has presented summarised tables with Table 1.9 and Table 1.10 correcting Table 5.122 and Table 5.123, respectively, in Volume 2, Chapter 5: Offshore ornithology (REP2-016). The red struck-through text is the information presented in Table 5.122 and Table 5.123 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.9: Expected annual collision mortality across relevant offshore wind farms for herring gull (avoidance rate 99.39) (updates to Table 5.122 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual	Breeding Season	Non-breeding
Tier 1			
Awel y Môr Offshore Wind Farm	3.61	2.03	1.59
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable
Burbo Bank Extension Offshore Wind Farm	13.17	unavailable	unavailable
Erebus Floating Wind Demo	~~0.82~~ 4.60	~~0.00~~ 2.83	~~0.82~~ 1.77
Gwynt y Môr Offshore Wind Farm	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	12.75	unavailable	unavailable
Ormonde Wind Farm	0.44	unavailable	unavailable
Robin Rigg Offshore Wind Farm	unavailable	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	unavailable	unavailable	unavailable
Walney 1 & 2 Offshore Wind Farms	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	75.64	46.36	29.28
West of Duddon Sands Offshore Wind Farm	unavailable	unavailable	unavailable
West of Orkney Windfarm	0	0	0

Project	Annual	Breeding Season	Non-breeding
White Cross Offshore Windfarm	0.30	0.30	0
Tier 2			
Morecambe Offshore Windfarm Generation Assets	3.42	0.93	2.49
Morgan Offshore Wind Project Generation Assets	11.82	2.57	9.25
TOTAL (minus the Mona Offshore Wind Project)	~~**121.98**~~ **125.75**	~~**52.19**~~ **55.02**	~~**43.42**~~ **44.38**
Mona Offshore Wind Project	1.51	0.03	1.48
TOTAL (all projects)	~~**123.51**~~ **127.26**	~~**52.22**~~ **55.05**	~~**44.93**~~ **45.86**

Table 1.10: Expected annual collision mortality across relevant offshore wind farms for herring gull (avoidance rate 99.52) (updates to Table 5.123 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual	Breeding Season	Non-breeding
Tier 1			
Awel y Môr Offshore Wind Farm	2.84	1.59	1.25
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable
Burbo Bank Extension Offshore Wind Farm	10.36	unavailable	unavailable
Erebus Floating Wind Demo	~~0.64~~ 3.62	~~0.00~~ 2.23	~~0.64~~ 1.39
Gwynt y Môr Offshore Wind Farm	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	10.04	unavailable	unavailable
Ormonde Wind Farm	0.35	unavailable	unavailable
Robin Rigg Offshore Wind Farm	unavailable	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	unavailable	unavailable	unavailable
Walney 1 & 2 Offshore Wind Farms	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	59.52	36.48	23.04

Project	Annual	Breeding Season	Non-breeding
West of Duddon Sands Offshore Wind Farm	unavailable	unavailable	unavailable
West of Orkney Windfarm	0	0	0
White Cross Offshore Windfarm	0.24	0.24	0.00
Tier 2			
Morecambe Offshore Windfarm Generation Assets	2.69	0.73	1.96
Morgan Offshore Wind Project Generation Assets	9.30	2.02	7.28
TOTAL (minus the Mona Offshore Wind Project)	~~**95.98**~~ **98.96**	~~**41.07**~~ **43.29**	~~**34.17**~~ **34.92**
Mona Offshore Wind Project	1.19	0.02	1.16
TOTAL (all projects)	~~**97.19**~~ **100.14**	~~**41.09**~~ **43.31**	~~**35.35**~~ **36.08**

1.4.1.3 Following the expected annual collision mortality tables, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the estimated annual cumulative collision mortality of herring gull from the relevant projects with available data in paragraph 5.9.3.21 and paragraph 5.9.3.22, which have been revised in paragraphs 1.4.1.4 and 1.4.1.5 below in light of this errata.

1.4.1.4 The estimated annual cumulative collision mortality of herring gull from the relevant projects with available data, using species-specific (0.9952) and species-group (0.9939) avoidance rates used in the CRM for cumulative projects is ~~97.19~~ 100.14 per year and ~~123.51~~ 127.27 per year, respectively.

1.4.1.5 Using the largest population (during the breeding season) of 217,167 individuals, with an average baseline mortality rate of 0.171 (Table 5.15), the background predicted mortality would be 37,136. The addition of ~~97.19~~ 100.14 mortalities per year when considering the species-specific avoidance rate (0.9952) or ~~123.51~~ 127.27 mortalities per year when considering the species-group avoidance rate (0.9939) would increase the baseline mortality rate by ~~0.262%~~ 0.270% or ~~0.333%~~ 0.343%, respectively. The annual predicted mortality from the cumulative collision risk assessment is below the 1% threshold increase in baseline mortality.

Conclusion

1.4.1.6 This errata has not resulted in a change in the magnitude of effect from ‘low’ that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016) and has not resulted in any change to the conclusions of the assessment from ‘minor, not significant in EIA terms’, that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.5 Offshore ornithology Manx shearwater cumulative abundance errata

1.5.1 Table 5.75 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 161 in the Errata Sheet (S_PD_1 F04))

1.5.1.1 The errata relates to the total abundance estimate for all projects within Table 5.75 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.75 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.5.1.2 Table 5.75 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.11. Within Table 1.11, the red struck-through text is the information presented in Table 5.75 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.11: Manx shearwater cumulative abundances for overlapping construction phase offshore wind projects for disturbance and displacement assessment (replication of Table 5.75 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual Cumulative Abundance	Pre-breeding Cumulative Abundance	Breeding Season Cumulative Abundance	Post-breeding Cumulative Abundance
Tier 1				
Awel y Môr Offshore Wind Farm	417	214	26	177
Erebus Floating Wind Demo	2,115	18	1,540	557
West of Orkney Windfarm	11	0	8	3
White Cross Offshore Windfarm	12,181	12,126	33	22
Tier 2				
Morecambe Offshore Windfarm Generation Assets	7,583	0	7,577	6
Morgan Offshore Wind Project Generation Assets	993	59	467	467
Rampion 2 (Rampion Extension) Offshore Wind Farm	0	0	0	0
TOTAL (minus the Mona Offshore Wind Project)	**23,300**	**12,417**	**9,651**	**1,232**
Mona Offshore Wind Project	1,271	6	1,249	16
TOTAL (all projects)	**24,571**	~~**12,420**~~ **12,423**	**10,900**	**1,248**

1.5.1.3 Following Table 5.75, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the associated displacement matrix for the estimated cumulative mortality of Manx shearwater predicted to occur due to displacement during the pre-breeding season (Table 5.76). This has also been revised as a result of this errata and presented below as Table 1.12.

Table 1.12: Construction phase cumulative Manx shearwater mortality following displacement from offshore wind farms in the pre-breeding season. (updated Table 5.76 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Manx shearwater Pre-breeding	Mortality level (% of displaced birds at risk of mortality)						
Displacement level	1%	2%	5%	10%	25%	50%	100%
10%	12	25	62	124	311	621	1,242
20%	25	50	124	248	621	1,242	~~2,484~~2,485
30%	37	75	186	373	932	1,863	~~3,726~~3,727
40%	50	99	248	497	1,242	2,484	~~4,968~~4,969
50%	62	124	311	621	1,553	~~3,105~~3,106	~~6,210~~6,212
60%	75	149	373	745	1,863	~~3,726~~3,727	~~7,452~~7,454
70%	87	174	435	869	2,174	~~4,347~~4,348	~~8,694~~8,696
80%	99	199	497	994	~~2,484~~2,485	~~4,968~~4,969	~~9,936~~9,938
90%	112	224	559	1,118	2,795	~~5,589~~5,590	~~11,178~~11,181
100%	124	248	621	1,242	~~3,105~~3,106	~~6,210~~6,212	~~12,420~~12,423

1.5.1.4 Following the displacement matrices Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact for disturbance and displacement to Manx shearwater from airborne noise, underwater sound, and presence of vessels and infrastructure. Paragraph 5.9.2.44 in Volume 2, Chapter 5: Offshore ornithology (REP2-016) does not change as the errata does not change the range of impacts considered.

1.5.1.5 This errata has not resulted in a change of magnitude of effect from 'negligible' from that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.5.1.6 This errata has not resulted in any change to the conclusions of the assessment from what was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016) of 'minor, not significant in EIA terms'.

1.5.2 Table 5.110 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 164 in the Errata Sheet (S_PD_1 F04))

1.5.2.1 The errata relates to the total abundance estimate for all projects within Table 5.110 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.110 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.5.2.2 Table 5.110 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.13. Within Table 1.13, the red struck-through text is the information presented in Table 5.110 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.13: Manx shearwater cumulative abundances for offshore wind projects for disturbance and displacement assessment during the operations and maintenance phase (replication of Table 5.110 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual Abundance	Pre-breeding Abundance	Breeding Season Abundance	Post-breeding Abundance
Tier 1				
Awel y Môr Offshore Wind Farm	417	177	26	214
Burbo Bank Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
Burbo Bank Extension Offshore Wind Farm	443	Unavailable	443	Unavailable
Erebus Floating Wind Demo	2,115	18	1,540	557
Gwynt y Môr Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
TwinHub (Wave Hub Floating Wind Farm)	1,274	Unavailable	1,270	3
Ormonde Wind Farm	1,001	Unavailable	~~Unavailable~~1,001	Unavailable
Rampion Offshore Wind Farm	33	0	33	0
Robin Rigg Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
Rhyl Flats Offshore Wind Farm	Unavailable	Unavailable	Unavailable	Unavailable
Walney 1 & 2 Offshore Wind Farms	Unavailable	Unavailable	Unavailable	Unavailable
Walney (3 & 4) Extension Offshore Wind Farm	912	Unavailable	588	324
West of Duddon Sands Offshore Wind Farm	544	Unavailable	544	Unavailable
West of Orkney Windfarm	10	0	8	3
White Cross Offshore Windfarm	12,181	12,126	33	22
Tier 2				
Morecambe Offshore Windfarm Generation Assets	7,583	0	7,577	6
Morgan Offshore Wind Project Generation Assets	993	59	467	467
Rampion 2 (Rampion Extension) Offshore Wind Farm	0	0	0	0
TOTAL (minus the Mona Offshore Wind Project)	~~27,560~~27,506	**12,380**	~~12,529~~13,530	**1,596**
Mona Offshore Wind Project	1,271	~~3~~6	1,249	16
TOTAL (all projects)	~~28,831~~ 28,777	~~12,383~~ 12,386	~~13,778~~ 14,779	**1,612**

1.5.2.3 Following Table 5.110, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the associated displacement matrix for the estimated cumulative mortality of Manx shearwater predicted to occur due to displacement during the pre-breeding season (Table 5.111), breeding season (Table 5.112) and annually (Table 5.114). This

has also been revised as a result of this errata and presented below as Table 1.14, Table 1.15 and

1.5.2.5 Table 1.16, respectively.

Table 1.14: Operations and maintenance phase cumulative Manx shearwater mortality following displacement from offshore wind farms in the pre-breeding season. (updated Table 5.111 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Manx shearwater Pre-breeding	Mortality level (% of displaced birds at risk of mortality)						
Displacement level	1%	2%	5%	10%	25%	50%	100%
10%	12	25	62	124	310	619	1,238
20%	25	50	124	248	619	1,238	2,477
30%	37	74	186	371	929	1,857	~~3,715~~3,716
40%	50	99	248	495	1,238	2,477	~~4,953~~4,954
50%	62	124	310	619	1,548	~~3,096~~3,097	~~6,192~~6,193
60%	74	149	371	743	~~1,857~~1,858	~~3,715~~3,716	~~7,430~~7,432
70%	87	173	433	867	~~2,167~~2,168	~~4,334~~4,335	~~8,668~~8,670
80%	99	198	495	991	~~2,477~~2,477	~~4,953~~4,954	~~9,906~~9,909
90%	111	223	557	~~1,114~~1,115	~~2,786~~2,787	~~5,572~~5,574	~~11,145~~11,147
100%	124	248	619	~~1,238~~1,239	~~3,096~~3,097	~~6,192~~6,193	~~12,383~~12,386

Table 1.15: Operations and maintenance phase cumulative Manx shearwater mortality following displacement from offshore wind farms in the breeding season. (updated Table 5.112 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Manx shearwater Breeding	Mortality level (% of displaced birds at risk of mortality)						
Displacement level	1%	2%	5%	10%	25%	50%	100%
10%	~~14~~15	~~28~~30	~~69~~74	~~138~~148	~~344~~369	~~689~~739	~~1,378~~1,478
20%	~~28~~30	~~55~~59	~~138~~148	~~276~~296	~~689~~739	~~1,378~~1,478	~~2,756~~2,956
30%	~~41~~44	~~83~~89	~~207~~222	~~413~~443	~~1,033~~1,108	~~2,067~~2,217	~~4,133~~4,434
40%	~~55~~59	~~110~~118	~~276~~296	~~551~~591	~~1,378~~1,478	~~2,756~~2,956	~~5,511~~5,912
50%	~~69~~74	~~138~~148	~~344~~369	~~689~~739	~~1,722~~1,847	~~3,445~~3,695	~~6,889~~7,390
60%	~~83~~89	~~165~~177	~~413~~443	~~827~~887	~~2,067~~2,217	~~4,133~~4,434	~~8,267~~8,867
70%	~~96~~103	~~193~~207	~~482~~517	~~964~~1,035	~~2,411~~2,586	~~4,822~~5,173	~~9,645~~10,345
80%	~~110~~118	~~220~~236	~~551~~591	~~1,102~~1,182	~~2,756~~2,956	~~5,511~~5,912	~~11,022~~11,823
90%	~~124~~133	~~248~~266	~~620~~665	~~1,240~~1,330	~~3,100~~3,325	~~6,200~~6,651	~~12,400~~13,301
100%	~~138~~148	~~276~~296	~~689~~739	~~1,378~~1,478	~~3,445~~3,695	~~6,889~~7,390	~~13,778~~14,779

Table 1.16: Operations and maintenance phase cumulative Manx shearwater mortality following displacement from offshore wind farms in the annually. (updated Table 5.114 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Manx shearwater Annual	Mortality level (% of displaced birds at risk of mortality)						
Displacement level	1%	2%	5%	10%	25%	50%	100%
10%	29	58	144	288	~~721~~719	~~1,442~~1,439	~~2,883~~2,878
20%	58	115	288	~~577~~576	~~1,442~~1,439	~~2,883~~2,878	~~5,766~~5,755
30%	86	173	432	~~865~~863	~~2,162~~2,158	~~4,325~~4,317	~~8,649~~8,633
40%	115	~~231~~230	~~577~~576	~~1,153~~1,151	~~2,883~~2,878	~~5,766~~5,755	~~11,532~~11,511
50%	144	288	~~721~~719	~~1,442~~1,439	~~3,604~~3,597	~~7,208~~7,194	~~14,416~~14,389
60%	173	~~346~~345	~~865~~863	~~1,730~~1,727	~~4,325~~4,317	~~8,649~~8,633	~~17,299~~17,266
70%	~~202~~201	~~404~~403	~~1,009~~1,007	~~2,018~~2,014	~~5,045~~5,036	~~10,091~~10,072	~~20,182~~20,144
80%	~~231~~230	~~461~~460	~~1,153~~1,151	~~2,306~~2,302	~~5,766~~5,755	~~11,532~~11,511	~~23,065~~23,022
90%	259	~~519~~518	~~1,297~~1,295	~~2,595~~2,590	~~6,487~~6,475	~~12,974~~12,950	~~25,948~~25,899
100 %	288	~~577~~576	~~1,442~~1,439	~~2,883~~2,878	~~7,208~~7,194	~~14,416~~14,389	~~28,831~~28,777

1.5.2.6 Following the displacement matrices Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact for disturbance and displacement to Manx shearwater from airborne noise, underwater sound, and presence of vessels and infrastructure. Paragraphs 5.9.2.100 and 5.9.2.102 in Volume 2, Chapter 5: Offshore ornithology (REP2-016) have been revised in paragraphs 1.2.2.5 and 1.2.2.6 below as a result of this errata.

1.5.2.7 During the breeding season the displacement from operation results in a loss of ~~69 (41 to 964)~~ 74 (44 to 1,035) individuals from the migratory population (Table 1.15). The regional seas UK Western Waters & Channel BDMPS population of Manx shearwater within the breeding season is estimated to be 1,821,544 individuals (Table 5.14). Assuming an average baseline mortality rate of 0.130, background mortality in the breeding season is 236,801 individuals. The addition of ~~69 (41 to 964)~~ 74 (44 to 1,035) individual mortalities due to cumulative displacement from operation and maintenance activities would increase the mortality relative to the baseline mortality by ~~0.029 % (0.017 to 0.407%)~~0.031% (0.019 to 0.437%).

1.5.2.8 The annual estimated mortality resulting from displacement during construction is 144 (86 to ~~2,018~~2,014) individuals (Table 5.114). Using the largest population of 1,821,544 individuals, with an average baseline mortality rate of 0.130, the background predicted mortality would be 236,801. The addition of 144 (86 to ~~2,018~~2,014) mortalities would increase the baseline mortality rate by 0.061% (0.036 to ~~0.852%~~0.851%). The annual predicted mortality from the cumulative assessment is below the 1% threshold increase in baseline mortality.

1.5.2.9 This errata has not resulted in a change of magnitude of effect from ‘negligible’ from what was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.5.2.10 This errata has not resulted in any change to the conclusions of the assessment of 'negligible, not significant in EIA terms', from what was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.6 Offshore ornithology Atlantic puffin cumulative abundance errata

1.6.1 Table 5.93 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 163 in the Errata Sheet (S_PD_1 F04))

1.6.1.1 The errata relates to the total abundance estimate for all projects (minus the Mona Offshore Wind Project) within Table 5.93 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.93 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.6.1.2 Table 5.93 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.17. Within Table 1.17, the red struck-through text is the information presented in Table 5.93 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.17: Atlantic puffin cumulative abundances for offshore wind projects for disturbance and displacement assessment during the operations and maintenance phase (replication of Table 5.93 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual Abundance	Breeding Season Abundance	Non-breeding Season Abundance
Tier 1			
Awel y Môr Offshore Wind Farm	8	8	0
Burbo Bank Offshore Wind Farm	0	Unavailable	Unavailable
Burbo Bank Extension Offshore Wind Farm	10	10	0
Erebus Floating Wind Demo	1,576	1,416	160
Gwynt y Môr Offshore Wind Farm	0	Unavailable	Unavailable
TwinHub (Wave Hub Floating Wind Farm)	0	0	0
Ormonde Wind Farm	1	1	0
Robin Rigg Offshore Wind Farm	0	0	0
Rhyl Flats Offshore Wind Farm	0	Unavailable	Unavailable
Walney 1 & 2 Offshore Wind Farms	0	Unavailable	Unavailable

Project	Annual Abundance	Breeding Season Abundance	Non-breeding Season Abundance
Walney (3 & 4) Extension Offshore Wind Farm	172	53	119
West of Duddon Sands Offshore Windfarm	96	61	35
West of Orkney Windfarm	6,449	5,272	1,177
White Cross Offshore Wind Farm	80	49	31
Tier 2			
Morecambe Offshore Windfarm Generation Assets	67	57	10
Morgan Offshore Wind Project Generation Assets	18	18	0
Total (minus the Mona Offshore Wind Project)	**8,477**	~~**6,946**~~ **6,945**	**1,532**
Mona Offshore Wind Project	37	15	22
Cumulative total (all projects)	**8,514**	**6,960**	**1,554**
Collision impacts			
Tier 1			
Holyhead Deep – Tidal Energy	0	Unavailable	Unavailable
West Anglesey Demonstration Zone tidal site	0.9	0.9	0

1.6.1.3 Due to the change in breeding season total (minus the Mona Offshore Wind Project) makes no difference to the cumulative total when considering all projects. Therefore, this errata has not resulted in a change of magnitude of effect from 'negligible' that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.6.1.4 This errata has not resulted in any change to the conclusions of the assessment from 'negligible, not significant in EIA terms', that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.7 Offshore ornithology lesser black-backed gull cumulative abundance errata

1.7.1 Table 5.125 and Table 5.126 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 166 to 177 in the Errata Sheet (S_PD_1 F04))

1.7.1.1 The errata relates to the total abundance estimate within Table 5.125 and 5.126 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.125 and 5.126 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.7.1.2 Table 5.125 and 5.126 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.18 and Table 1.19, respectively. Within Table 1.18 and Table 1.19, the red struck-through text is the information presented in Table 5.125 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.18: Expected annual collision mortality across relevant offshore wind farms for lesser black-backed gull (avoidance rate 99.39) (replication of Table 5.125 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual	Pre-breeding season	Breeding season	Post-breeding season	Non-breeding Season
Tier 1					
Awel y Môr Offshore Wind Farm	0.00	0.00	0.00	0.00	unavailable
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable	unavailable
Burbo Bank Extension Offshore Wind Farm	53.68	unavailable	unavailable	unavailable	unavailable
Erebus Floating Wind Demo	8.21	0.00	7.61	0.60	Grouped as post-breeding
Gwynt y Môr Offshore Wind Farm	5.00	unavailable	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	3.33	unavailable	unavailable	unavailable	unavailable
Ormonde Wind Farm	26.96	unavailable	unavailable	unavailable	unavailable
Robin Rigg Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	1.00	unavailable	unavailable	unavailable	unavailable

Project	Annual	Pre-breeding season	Breeding season	Post-breeding season	Non-breeding Season
Walney 1 & 2 Offshore Wind Farms	69.78	unavailable	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	35.75	3.17	8.91	7.56	16.10
West of Duddon Sands Offshore Wind Farm	63.93	unavailable	unavailable	unavailable	unavailable
West of Orkney Windfarm	unavailable	unavailable	unavailable	unavailable	unavailable
White Cross Offshore Windfarm	0.41	0.00	0.41	0.00	0.00
Tier 2					
Morecambe Offshore Windfarm Generation Assets	4.36	0.00	2.00	2.03	0.33
Morgan Offshore Wind Project Generation Assets	0.99	0.00	0.00	0.55	Grouped as post-breeding
Total (minus the **Mona** Offshore Wind Project**)**	~~**274.09**~~ **273.40**	**3.17**	**18.93**	**10.74**	~~**16.42**~~ **16.43**
Mona Offshore Wind Project	1.92	0.83	0.33	0.00	0.76
Cumulative total (all projects)	~~**276.01**~~**275.32**	**4.00**	**19.26**	**10.74**	~~**16.43**~~ **17.19**

Table 1.19: Expected annual collision mortality across relevant offshore wind farms for lesser black-backed gull (avoidance rate 99.54) (replication of Table 5.126 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual	Pre-breeding season	Breeding Season	Post-breeding season	Non-breeding Season
Tier 1					
Awel y Môr Offshore Wind Farm	0.00	0.00	0.00	0.00	unavailable
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable	unavailable

Project	Annual	Pre-breeding season	Breeding Season	Post-breeding season	Non-breeding Season
Burbo Bank Extension Offshore Wind Farm	40.48	unavailable	unavailable	unavailable	unavailable
Erebus Floating Wind Demo	6.19	0.00	5.74	0.45	0.00
Gwynt y Môr Offshore Wind Farm	4.60	unavailable	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	2.51	unavailable	unavailable	unavailable	unavailable
Ormonde Wind Farm	20.33	unavailable	unavailable	unavailable	unavailable
Robin Rigg Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	0.92	unavailable	unavailable	unavailable	unavailable
Walney 1 & 2 Offshore Wind Farms	52.62	unavailable	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	26.96	2.39	6.72	5.70	12.14
West of Duddon Sands Offshore Wind Farm	48.21	unavailable	unavailable	unavailable	unavailable
West of Orkney Windfarm	Species not assessed due to low numbers recorded	Species not assessed due to low numbers recorded	Species not assessed due to low numbers recorded	Species not assessed due to low numbers recorded	Species not assessed due to low numbers recorded
White Cross Offshore Windfarm	0.31	0.00	0.31	0.00	0.00
Tier 2					
Morecambe Offshore Windfarm Generation Assets	3.29	0.00	1.51	1.53	0.25
Morgan Offshore Wind Project Generation Assets	0.75	0.00	0.00	0.41	0.00

Project	Annual	Pre-breeding season	Breeding Season	Post-breeding season	Non-breeding Season
Total (minus the Mona Offshore Wind Project)	~~208.74~~ 207.17	**2.39**	~~14.27~~ 14.28	~~8.10~~ 8.09	~~11.82~~ 12.39
Mona Offshore Wind Project	1.47	0.64	0.26	0.00	0.58
Cumulative total (all projects)	~~210.19~~ 208.64	~~3.02~~ 3.03	~~14.52~~ 14.54	~~8.10~~ 8.09	~~12.39~~ 12.97

1.7.1.3 Following the expected annual collision mortality tables, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the estimated annual cumulative collision mortality of lesser black-backed gull from the relevant projects with available data in paragraphs 5.9.3.26 and paragraph 5.9.3.27, which have been revised in paragraphs 1.7.1.4 and 1.7.1.5 below in light of this errata.

1.7.1.4 The estimated cumulative collision mortality of lesser black-backed gull from the relevant projects with available data is ~~276.01~~275.32 per year using species-group avoidance rate of 99.39% and ~~210.19~~208.64 per year using species-specific rates of 99.54%.

1.7.1.5 Using the largest population of 240,750 individuals, with an average baseline mortality rate of 0.121 (Table 5.15), the background predicted mortality would be 29,131 The addition of ~~276.01~~275.32 and ~~210.19~~208.64 mortalities would increase the baseline mortality rate by ~~0.947~~0.945% and ~~0.722~~0.716% respectively. The annual predicted mortality from the cumulative collision risk assessment is below the 1% threshold increase in baseline mortality.

1.7.1.6 This errata has not resulted in a change of magnitude of effect from ‘low’ that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.7.1.7 This errata has not resulted in any change to the conclusions of the assessment from ‘minor, not significant in EIA terms’, that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.8 Offshore ornithology northern gannet cumulative abundance errata

1.8.1 Table 5.98 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 186 to 188 in the Errata Sheet (S_PD_1 F04))

1.8.1.1 The errata relates to the total abundance estimate within Table 5.98 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.99 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.8.1.2 Table 5.98 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.20. Within Table 1.20, the red struck-through text is the information presented in Table 5.128 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.20: Northern gannet cumulative abundances for offshore wind projects for disturbance and displacement assessment during the operations and maintenance phase (replication of Table 5.98 of Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Project	Annual	Pre-breeding season	Breeding season	Post-breeding season
Tier 1				
Awel y Môr Offshore Wind Farm	529	0	328	201
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Burbo Bank Extension Offshore Wind Farm	695	25	648	22
Erebus Floating Wind Demo	658	100	224	334
Gwynt y Môr Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	397	unavailable	244	153
Ormonde Wind Farm	199	unavailable	~~Unavailable~~ 199	unavailable
Robin Rigg Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Walney 1 & 2 Offshore Wind Farms	unavailable	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	433	24	150	259
West of Duddon Sands Offshore Wind Farm	431	unavailable	431	unavailable
West of Orkney Windfarm	2,188	59	958	1,171
White Cross Offshore Windfarm	456	141	239	76
Tier 2				
Morecambe Offshore Windfarm Generation Assets	912	0	748	164
Morgan Offshore Wind Project Generation Assets	424	53	209	192
Total (minus the Mona Offshore Wind Project)	**7,352**	**402**	**~~4,179~~4,378**	**2,572**

Project	Annual	Pre-breeding season	Breeding season	Post-breeding season
Mona Offshore Wind Project	337	28	251	58
Cumulative total (all projects)	**7,689**	**430**	**~~4,430~~4,629**	**2,630**
Collision impacts				
Tier 1				
Holyhead Deep – Tidal Energy	8	unavailable	unavailable	unavailable
West Anglesey Demonstration Zone tidal site	46.1	unavailable	38	8.1

1.8.1.3 Following Table 5.98, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the associated displacement matrix for the estimated cumulative mortality of black-legged kittiwake predicted to occur due to displacement during the breeding season (Table 5.100). This has also been revised as a result of this errata and presented below as Table 1.23.

Table 1.21: Operations and maintenance phase cumulative northern gannet mortality following displacement from offshore wind farms in the breeding season. (updated Table 5.100 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Northern gannet Breeding	Mortality level (% of displaced birds at risk of mortality)						
Displacement level	1%	2%	5%	10%	25%	50%	100%
10%	~~4~~5	9	~~22~~23	~~44~~46	~~111~~116	~~222~~231	~~443~~463
20%	9	~~18~~19	~~44~~46	~~89~~93	~~222~~231	~~443~~463	~~886~~926
30%	~~13~~14	~~27~~28	~~66~~69	~~133~~139	~~332~~347	~~665~~694	~~1,329~~1,389
40%	~~18~~19	~~35~~37	~~89~~93	~~177~~185	~~443~~463	~~886~~926	~~1,772~~1,852
50%	~~22~~23	~~44~~46	~~111~~116	~~222~~231	~~554~~579	~~1,108~~1,157	~~2,215~~2,315
60%	~~27~~28	~~53~~56	~~133~~139	~~266~~278	~~665~~694	~~1,329~~1,389	~~2,658~~2,777
70%	~~31~~32	~~62~~65	~~155~~162	~~310~~324	~~775~~810	~~1,551~~1,620	~~3,101~~3,240
80%	~~35~~37	~~71~~74	~~177~~185	~~354~~370	~~886~~926	~~1,772~~1,852	~~3,544~~3,703
90%	~~40~~42	~~80~~83	~~199~~208	~~399~~417	~~997~~1,042	~~1,994~~2,083	~~3,987~~4,166
100%	~~44~~46	~~89~~93	~~222~~231	~~443~~463	~~1,108~~1,157	~~2,215~~2,315	~~4,430~~4,629

1.8.1.4 Following the displacement matrices Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact for disturbance and displacement to northern gannet from airborne noise, underwater sound, and presence of vessels and infrastructure. Paragraph 5.9.2.84 in Volume 2, Chapter 5: Offshore ornithology (REP2-016) have been revised in paragraph 1.8.1.5 below as a result of this errata.

1.8.1.5 During the breeding season, displacement from operation results in the loss of ~~31 (27 to 354)~~ 32 (28 to 370) individuals from the breeding population (Table 5.100). The regional seas UK Western Waters BDMPS population of northern gannet within the

breeding season is estimated to be 522,888 individuals (Table 5.14). Assuming an average baseline mortality rate of 0.193, background mortality in the breeding season is 100,917 individuals. The addition of ~~31 (27 to 354)~~ 32 (28 to 370) individual mortalities due to cumulative displacement from the presence of infrastructure, plus the additional 38 mortalities from underwater collision would increase the mortality relative to the baseline mortality by ~~0.068% (0.064 to 0.389%)~~ 0.032% (0.028 to 0.367%).

1.8.1.6 This errata has not resulted in a change of magnitude of effect from 'negligible' that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.8.1.7 This errata has not resulted in any change to the conclusions of the assessment from 'negligible, not significant in EIA terms', that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.8.2 Table 5.128 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 178 to 185 in the Errata Sheet (S_PD_1 F04))

1.8.2.1 The errata relates to the total abundance estimate within Table 5.128 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.128 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.8.2.2 Table 5.128 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.22 Within Table 1.22, the red struck-through text is the information presented in Table 5.128 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.22: Expected annual collision mortality across relevant offshore wind farms for northern gannet (avoidance rate 99.28) (replication of Table 5.128 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual	Pre-breeding season	Breeding season	Post-breeding season
Tier 1				
Awel y Môr Offshore Wind Farm	13.41	0.00	10.88	2.53
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Burbo Bank Extension Offshore Wind Farm	12.44	unavailable	unavailable	unavailable
Erebus Floating Wind Demo	4.59	0.61	3.37	0.61
Gwynt y Môr Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	26.18	unavailable	unavailable	unavailable
Ormonde Wind Farm	6.72	unavailable	unavailable	unavailable

Project	Annual	Pre-breeding season	Breeding season	Post-breeding season
Robin Rigg Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
Walney 1 & 2 Offshore Wind Farms	unavailable	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	33.77	0.92	16.30	16.56
West of Duddon Sands Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable
West of Orkney Windfarm	48.83	2.10	33.80	12.92
White Cross Offshore Windfarm	6.11	0	4.42	1.69
Tier 2				
Morecambe Offshore Windfarm Generation Assets	0.08	0.00	0.08	0.00
Morgan Offshore Wind Project Generation Assets	2.15	0.22	1.68	0.25
Total (minus the Mona Offshore Wind Project)	~~159.26~~ 154.28	~~4.93~~ 3.85	~~73.29~~ 70.53	~~35.70~~ 34.56
Mona Offshore Wind Project	5.65	0.41	4.73	0.51
Cumulative total (all projects)	~~164.91~~ 159.93	~~5.34~~ 4.26	~~78.02~~ 75.26	~~36.21~~ 35.07

Conclusion

1.8.2.3 This errata has not resulted in any change to the conclusions of the assessment from 'minor, not significant in EIA terms' that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

1.9 Offshore ornithology razorbill cumulative abundance errata

1.9.1 Table 5.86 Volume 2, Chapter 5: Offshore ornithology (REP2-016) (errata reference 189 to 191 in the Errata Sheet (S_PD_1 F04))

1.9.1.1 The errata relates to the total abundance estimate within Table 5.86 of Volume 2, Chapter 5: Offshore ornithology (REP2-016). The updated table to correct the errata is presented below with changes shown in comparison to Table 5.86 in Volume 2, Chapter 5: Offshore ornithology (REP2-016), as submitted at Deadline 2.

1.9.1.2 Table 5.86 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) is replicated within this document as Table 1.23. Within Table 1.23, the red struck-through text is the information presented in Table 5.86 of Volume 2, Chapter 5: Offshore ornithology (REP2-016), and the blue text indicates the correction.

Table 1.23: Expected annual collision mortality across relevant offshore wind farms for razorbill (avoidance rate 99.28) (replication of Table 5.86 of Volume 2, Chapter 5: Offshore ornithology (REP2-016)).

Project	Annual Abundance	Pre-breeding Abundance	Breeding Abundance	Post-breeding Abundance	Non-breeding Abundance
Tier 1					
Awel y Môr Offshore Wind Farm	692	336	140	66	150
Burbo Bank Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable	unavailable
Burbo Bank Extension Offshore Wind Farm	93	Bioseason not presented in original application	64	Bioseason not presented in original application	29
Erebus Floating Wind Demo	3,867	896	194	1708	1,069
Gwynt y Môr Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable	unavailable
TwinHub (Wave Hub Floating Wind Farm)	65	unavailable	12	unavailable	53
Ormonde Wind Farm	174	unavailable	174	unavailable	unavailable
Robin Rigg Offshore Wind Farm	63	unavailable	~~Unavailable~~63	unavailable	unavailable
Rhyl Flats Offshore Wind Farm	unavailable	unavailable	unavailable	unavailable	unavailable
Walney 1 & 2 Offshore Wind Farms	unavailable	unavailable	unavailable	unavailable	unavailable
Walney (3 & 4) Extension Offshore Wind Farm	4,016	0	76	874	3,066
West of Duddon Sands Offshore Wind Farm	202	unavailable	unavailable	unavailable	202
West of Orkney Windfarm	326	97	70	144	15

Project	Annual Abundance	Pre-breeding Abundance	Breeding Abundance	Post-breeding Abundance	Non-breeding Abundance
White Cross Offshore Windfarm	786	345	40	40	361
Tier 2					
Morecambe Offshore Windfarm Generation Assets	1,881	389	222	674	596
Morgan Offshore Wind Project Generation Assets	622	166	120	103	233
Total (minus the Mona Offshore Wind Project)	**12,787**	**2,229**	~~**1,112**~~ **1,175**	**3,609**	**5,774**
Mona Offshore Wind Project	2,519	1,924	83	91	421
Cumulative total (all projects)	**15,306**	**4,153**	~~**1,195**~~ **1,258**	**3,700**	**6,195**
Collision impacts					
Tier 1					
Holyhead Deep – Tidal Energy	1	unavailable	unavailable	unavailable	unavailable
West Anglesey Demonstration Zone tidal site	23	0	11.7	0	12

1.9.1.3 Following Table 5.86, Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the associated displacement matrix for the estimated cumulative mortality of razorbill predicted to occur due to displacement during the breeding season (Table 5.88). This has also been revised as a result of this errata and presented below as

1.9.1.4 Table 1.24

Table 1.24: Operations and maintenance phase cumulative razorbill mortality following displacement from offshore wind farms in the breeding season. (updated Table 5.88 of Volume 2, Chapter 5: Offshore ornithology (REP2-016) with revised values).

Razorbill Breeding		Mortality level (% of displaced birds at risk of mortality)						
Displacement level		1%	2%	5%	10%	25%	50%	100%
	10%	1	~~2~~3	6	~~12~~13	~~30~~31	~~60~~63	~~120~~126
	20%	~~2~~3	5	~~12~~13	~~24~~25	~~60~~63	~~120~~126	~~239~~252
	30%	4	~~7~~8	~~18~~19	~~36~~38	~~90~~94	~~179~~189	~~359~~377
	40%	5	10	~~24~~25	~~48~~50	~~120~~126	~~239~~252	~~478~~503
	50%	6	~~12~~13	~~30~~31	~~60~~63	~~149~~157	~~299~~315	~~598~~629
	60%	~~7~~8	~~14~~15	~~36~~38	~~72~~75	~~179~~189	~~359~~377	~~717~~755
	70%	~~8~~9	~~17~~18	~~42~~44	~~84~~88	~~209~~220	~~418~~440	~~837~~881
	80%	10	~~19~~20	~~48~~50	~~96~~101	~~239~~252	~~478~~503	~~956~~1,006
	90%	11	~~22~~23	~~54~~57	~~108~~113	~~269~~283	~~538~~566	~~1,076~~1,132
	100%	~~12~~13	~~24~~25	~~60~~63	~~120~~126	~~299~~315	~~598~~629	~~1,195~~1,258

1.9.1.5 Following the displacement matrices Volume 2, Chapter 5: Offshore ornithology (REP2-016) presents the consideration of magnitude of impact for disturbance and displacement to razorbill from airborne noise, underwater sound, and presence of vessels and infrastructure. Paragraph 5.9.2.69 in Volume 2, Chapter 5: Offshore ornithology (REP2-016) have been revised in paragraph 1.9.1.6 below as a result of this errata.

1.9.1.6 During the breeding season, displacement from operation results in the loss of six (four to ~~84~~88) individuals from the breeding population (Table 5.87). The regional seas UK Western Waters BDMPS population of razorbill within the breeding season is estimated to be 198,969 individuals (Table 5.14). Assuming an average baseline mortality rate of 0.172, background mortality in the breeding season is 34,223 individuals. The addition of six (four to ~~84~~88) individual mortalities due to cumulative displacement from the presence of infrastructure, plus the additional 11.7 mortalities from collision with underwater turbines would increase the mortality relative to the baseline mortality ~~by 0.052 % (0.045 to 0.279%)~~0.053% (0.45% to 0.292%).

1.9.1.7 This errata has not resulted in a change of magnitude of effect from ‘low’ that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).

Conclusion

1.9.1.8 This errata has not resulted in any change to the conclusions of the assessment from ‘minor adverse, not signficant in EIA terms’ that was presented in Volume 2, Chapter 5: Offshore ornithology (REP2-016).