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MONA OFFSHORE WIND PROJECT

Environmental Statement

Volume 6, Annex 5.2: Offshore Ornithology Displacement Technical Report

F02 (Clean)

Deadline: 2

Application Reference: EN010137

Document Reference: F6.5.2 F02

Document Number: MOCNS-J3303-RPS-10074

27 August 2024

F02

Image of an offshore wind farm

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Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
F01	Application	RPS	Mona Offshore Wind Ltd	Mona Offshore Wind Ltd	Feb 2024
F02	Examination- Deadline 2	RPS	Mona Offshore Wind Ltd	Mona Offshore Wind Ltd	27 Aug 2024

Prepared by:

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Prepared for:

Mona Offshore Wind Limited.

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Glossary

Term	Meaning
Season	Bird behaviour and abundance is recognised to differ across a calendar year, with particular months recognised as being part of different seasons. The biologically defined minimum population scale (BDMPS) seasons used in this report are based on those described in Furness (2015). Separate seasons are recognised in this technical report in order to establish the level of importance any seabird species has within the study area during any particular period of time.
Disturbance sensitivity	Species disturbance sensitivity to wind farm structures, ship and helicopter traffic factors are compiled by Bradbury *et al*. (2014). They used scores from 1 (limited escape behaviour and a very short flight distance when approached) to 5 (strong escape behaviour at a large response distance).
Habitat specialisation	The habitat specialisation factor represents the range of habitats species are able to use and whether they use these as specialists or generalists. Species habitat specialisation scores used in this Technical Report have been compiled by Bradbury *et al*. (2014). This score classifies species into categories from 1 (tend to forage over large marine areas with little known association with particular marine features) to 5 (tend to feed on very specific habitat features, such as shallow banks with bivalve communities, or kelp beds).
Ornithology	Ornithology is a branch of zoology that concerns the study of birds.
Significant effect	The significance of an effect is determined by considering the overall importance of the receptor and the magnitude of the effect using a matrix-based approach.
Statutory Nature Conservation Bodies (SNCBs)	Comprised of Joint Nature Conservation Committee, Natural Resources Wales, Department of Agriculture, Environment and Rural Affairs/Northern Ireland Environment Agency, Natural England and Scottish Natural Heritage, these agencies provide advice in relation to nature conservation to the government.

Acronyms

Term	Meaning
BDMPS	Biologically Defined Minimum Population Scale
BTO	British Trust for Ornithology
EWG	Expert Working Group
LCI/UCI	Lower/Upper Confidence Interval
MRSea	Marine Renewables Strategic environmental assessment
SMP	Seabird Monitoring Programme
SNCB	Statutory Nature Conservation Body
SPA	Special Protection Area
VORs	Valued Ornithological Receptors

Units

Unit	Description
%	Percent
km	Kilometres
km^2	Kilometres squared

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1 Offshore ornithology displacement technical report

1.1 Introduction

1.1.1 Background

1.1.1.1 Seabirds can be impacted by offshore wind farm developments in a number of ways, including collision, displacement, barrier effects and disturbance, as well as indirect impacts such as changes to prey availability.

1.1.1.2 Disturbance can exist when a bird's normal pattern of activity is interrupted by anthropogenic activity (i.e. vessel movements and increase noise from construction activities). Birds using a given area of sea for feeding, resting and/or commuting may therefore be disturbed by these activities in or near those areas. As the result of disturbance, displaced seabirds may move to areas already occupied by other seabirds and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource. Alternatively, displaced seabirds may be forced to move into areas of lower quality (e.g. areas of lower prey availability). Such disturbance and resulting avoidance could ultimately affect their demographic fitness (i.e. survival rates and breeding productivity) as well as potentially impacting on other birds in areas that displaced birds move to. Disturbance is typically considered a temporary effect, with impacts reducing once the activity causing disturbance stops.

1.1.1.3 Furness *et al.* (2013) defines displacement as 'a reduced number of birds occurring within or immediately adjacent to an offshore wind farm' due to the presence of turbines. Displacement, as an effect, may occur both in the area of the disturbance or development and to some distance beyond it, which is known as a 'buffer' (e.g. Mendel et al. 2014). Displacement is considered to be a permanent effect, with birds facing adverse effects due to the removal of feeding areas, resulting in birds having to travel to more distant areas of sea for feeding and/or resting opportunities.

1.1.1.4 Species differ greatly in their susceptibility to disturbance and displacement. Species sensitivity to disturbance in response to offshore wind farms has been quantified by Garthe and Hüppop (2004), Furness *et al*. (2013), Bradbury *et al*. (2014) and Wade *et al*. (2016). In a review of studies from 20 operational offshore wind farms in Europe, Dierschke *et al*. (2016) assessed the extent of displacement or attraction of a number of seabird species. Whilst diver species and northern gannet *Morus bassanus* showed consistent and strong avoidance behaviour of operational wind farms, northern fulmar *Fulmarus glacialis*, common scoter *Melanitta nigra*, Manx shearwater *Puffinus puffinus*, razorbill *Alca torda*, common guillemot *Uria aalge*, little gull *Larus minutus* and sandwich tern *Thalasseus sandvicensis* showed less consistent displacement.

1.1.1.5 The Statutory Nature Conservation Bodies (SNCBs) have produced guidelines to assess seabird displacement associated with offshore wind farms (JNCC *et al.*, 2022). The guidelines promote the use of a displacement matrix approach (i.e. representing proportions of seabirds potentially displaced/dying as a result of offshore wind farm development). The SNCB note (JNCC *et al.*, 2022) details that the effects from disturbance and displacement is expected to be spatially limited to the offshore wind farm footprint and close proximity (birds are impacted by displacement up to 2 km from the wind farm footprint for most species, with displacement up to 4 km considered for divers and seaducks (and in some cases up to 10 km) due to being the most sensitive species groups to disturbance from sound, boat and helicopter traffic).

1.1.1.6 The displacement assessment for the Mona Offshore Wind Project makes use of the SNCB Matrix table approach, which was agreed during consultation with the Offshore Ornithology Expert Working Group (EWG) on 13 July 2022 as part of the Evidence Plan process (Evidence Plan sent to stakeholders on 26 May 2022, responses received on 24 June 2022 from Natural England and JNCC, and 7 July from Natural Resource Wales).

1.1.2 Aim of report

1.1.2.1 This report presents the method and results of the SNCB Matrix table approach to seabird displacement assessment resulting from the Mona Offshore Wind Project during the construction, operations and maintenance and decommissioning phases. The report considers the most abundant seabird species recorded during the digital aerial surveys carried out between March 2020 and February 2022 to characterise the baseline for the assessment. The full methods and results of the digital aerial surveys are presented in Volume 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1).

1.2 Consultation

1.2.1.1 A summary of the key issues raised during consultation activities undertaken to date specific to offshore ornithology is presented in Table 1.1 below, together with how these issues have been considered in the production of this technical report as part of the Environmental Statement.

1.2.2 Evidence Plan process

1.2.2.1 The purpose of the Evidence Plan process is to agree the information the Mona Offshore Wind Project needs to supply to the Secretary of State, as part of a DCO application for the Mona Offshore Wind Project. The Evidence Plan seeks to ensure compliance with EIA. The development and monitoring of the Evidence Plan and its subsequent progress is being undertaken by the Steering Group. The Steering Group will comprise of the Planning Inspectorate, the Applicant, NRW, Natural England, JNCC and the MMO as the key regulatory and SNCBs. To inform the EIA process during the pre-application stage of the Mona Offshore Wind Project, Expert Working Groups (EWGs) were also set up to discuss and agree topic specific issues with the relevant stakeholders. Consultation was undertaken via the Offshore Ornithology EWG, with meetings held in February 2022, July 2022, November 2022, February 2023, June 2023, October 2023 and December 2023.

1.2.2.2 The responses provided and changes suggested by the stakeholders through the EWG are summarized in Table 1.1 together with changes implemented in the technical report of the Environmental Statement.

1.2.2.3 A number of comments were received during the S42 consultation following submission of the PEIR chapter. All the responses provided, and changes suggested by the stakeholders are presented in the consultation report (Document reference E.3) together with changes implemented in the technical reports underpinning the Environmental Statement.

1.2.2.4 A summary of the key responses with changes implemented in the technical report of the Environmental Statement are presented in Table 1.1.

Table 1.1: Summary of key topics and issues raised during consultation activities undertaken for the Mona Offshore Wind Project relevant to offshore ornithology displacement technical report of the Environmental Statement.

Date	Consultee and type of response	Topics and issues raised	Response to issue raised and/or where considered in this chapter
June 2022	**Scoping Opinion** JNCC	Displacement and barrier effects to seabirds occurring during O&M should also be assumed to occur during both construction and decommissioning. Table 4.19 indicates that displacement will be considered during construction and decommissioning phases, but not barrier effects. In the absence of evidence to the contrary, then an assumption of a mean annual mortality of 50% of that assessed during O&M should be applied to the construction and decommissioning phases.	Displacement assessment was carried out for the construction, operations and maintenance, and decommissioning phases assuming that 50% of the annual displacement impact resulting from the operations and maintenance phase will occur during construction and decommissioning phases. Approach and results are presented in sections 1.3 and 1.4.
July 2022	**Offshore Ornithology Expert Working Group 2:** **Attended by:** Natural England, JNCC, NRW, RSPB, TWT	Agreed on the approach to displacement as set out in the Mona Displacement technical paper, taking into account clarifications to be provided by SNCBs.	It was agreed that kittiwake would be included in displacement along with the combined estimate of birds on the water and in flight for Manx shearwater.
June 2023	**S42 Consultation** NRW, JNCC	NRW recommend that a worked example of the approach for a species assessed by MRSea for collision (for example kittiwake) and for a species assessed for displacement (for example guillemot) be included, that details how unidentified birds and availability bias have been corrected for and how estimates of birds in flight have been made from all birds estimates.	Methodology has been further clarified in response to S42 consultation and therefore the requirement for a worked example is no longer necessary.
		NRW do not recommend that displacement is assessed for kittiwake as we currently consider the evidence base to be insufficient hence we have not provided advice/comment on this.	Although black-legged kittiwake are considered to have low sensitivity to displacement, this species has been considered following an agreement through the Evidence Plan Process and at the recommendation of JNCC.

Date	Consultee and type of response	Topics and issues raised	Response to issue raised and/or where considered in this chapter
		NRW seek clarification as to whether the monthly abundance estimates presented in Tables A.122-A.128 of Annex 5.2 are actually a mix of design-based and model-based (MRSea) estimates or whether all are model-based (MRSea) or all design-based.	Monthly species abundances are a mix of MRSea and design-based abundances, with MRSea estimates used in instead of design-based estimates wherever possible. Further explanations are provided in section 1.3.
		NRW states that it appears that for the species where MRSea estimates have been generated for some of the surveys, the quantitative impact assessments (for example of displacement and collision risk) have been based on a mix of MRSea estimates for months where these are available and design-based estimates where MRSea estimates are not available. NRW advise that whilst this approach seems sensible and uses the best available data, this hierarchy of approach needs to be clearly stated in the documents.	Monthly species abundances are a mix of MRSea and design-based abundances, with MRSea estimates used instead of design-based estimates wherever possible. Further explanations are provided in section 1.3.
		NRW advise that the guillemot seasonal abundances included for Mona in Table 10.73 are double-checked, as they are not consistent with the seasonal abundances presented in Volume 6, Annex 5.2: Offshore ornithology displacement technical report of the Environmental Statement (Document reference F6.5.2), Table 1.15 Common guillemot bio-season displacement estimates for the Mona Array Area plus 2km buffer during the operations and maintenance phase.	Common guillemot seasonal abundances have been checked in Volume 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1) and in this technical report.
		JNCC seek clarification as to which method(s) have been used to generate the monthly abundance estimates presented in Tables A.122-A.128 of Volume 6 Chapter 5.2 (Document reference F6.5.2).	Monthly species abundances are a mix of MRSea and design-based abundances, with MRSea estimates used in place of design-based estimates wherever possible. Further explanations are provided in section 1.3.

1.3 Methodology

1.3.1.1 As sensitivity to displacement differs considerably between seabird species, species were screened and progressed for the Matrix table approach using 'Disturbance Sensitivity' and 'Habitat Specialization' scores from Bradbury *et al*. (2014) (expanded from Furness *et al*., 2013) as recommended by the Joint SNCB Interim Displacement Advice Note (JNCC *et al.*, 2022) (the SCNB Note). As recommended by the SNCB Note (JNCC *et al.,* 2022), the assessment is based on the mean seasonal peak number of seabirds (average of the highest seasonal value in the two years of survey) in the Mona Array Area with the appropriate buffer zone.

1.3.1.2 Displacement matrices were populated based on the displacement and mortality values recommended by the SNCB Note (JNCC *et al.,* 2022) and the displaced population was assessed against the relevant regional population for each season.

1.3.2 Screening species for displacement assessment

1.3.2.1 A review of all species of seabirds recorded during the two years of Digital Aerial Surveys (DAS) undertaken at the Mona Offshore Ornithology Array Area study area was conducted to identify Valued Ornithological Receptors (VORs) for displacement analysis based on their abundance in surveys and vulnerability to impacts. A further step refined this list of VORs based on whether they are features of nearby designated sites in order to identify species of importance.

1.3.2.2 To inform the identification of VORs the following criteria are defined for each species:

- Known to be vulnerable to displacement impacts (based on Bradbury *et al*., 2014 and Wade *et al.*, 2016).
- Where the population of the species observed is considered to be of importance (i.e. high abundance recorded within the Mona Array Area plus 2 km (or 4 km buffer if appropriate for the species)).
    - Low = <100 birds in all individual surveys
    - Moderate = 100 to 500 birds in at least one survey
    - High = > 500 birds in at least one survey.
- Are a feature of a designated site(s) within that species mean-max foraging range (as shown in Volume 6, Annex 5.1: Offshore Ornithology Baseline Characterisation Technical Report of the Environmental Statement (Document reference F6.5.1)).

1.3.2.3 VORs were identified and progressed to the displacement matrix table stage when the vulnerability of a species was moderate or high and the population importance of a species was also moderate or high. Species identified and taken forward to the collision risk assessment have been highlighted within Table 1.1 below.

1.3.2.4 Species such as Manx shearwater and black-legged kittiwake are considered to have low sensitivity to displacement however at the request of JNCC as part of the Offshore Ornithology EWG (EWG meeting 2, 13 July 2022), displacement for these species has been considered. Red-throated diver were also included within the assessment despite their low presence at the request of the EWG (EWG meeting 3, 30 November 2022).

Table 1.2: Displacement screening based on species abundance within the Mona Array Area plus a 2km to 4km buffer during the site-specific surveys, displacement vulnerability, and connectivity to designated site.

1. Cells highlighted indicate species in yellow has been screened in.

Species	Observed within the Mona Array Area plus 2 km buffer (or 4 km buffer if appropriate for the species)	Population importance	Vulnerability to displacement impacts	Designated site qualifying feature (within range of the Mona Array Area)	Displacement analysis required (Yes/No)
European shag *Phalacrocorax aristotelis*	No	Low	Moderate	Yes	No - species absent from the Mona Array Area plus 2 km buffer
Great cormorant *Phalacrocorax carbo*	Yes - peak average abundance of 6 birds.	Low	High	Yes	No - species recorded in low population numbers in the Mona Array Area plus 2 km buffer
Red-throated diver *Gavia stellata*	No	Low	High	Yes	Yes –assessment carried out following JNCC request to include species in displacement assessment (Second EWG meeting on 13 July 2022).
Common guillemot	Yes - peak average abundance of 5,739 birds.	High	Moderate	Yes	Yes - species recorded in high numbers in the Mona Array Area plus 2 km buffer, species has a moderate level of vulnerability to displacement, species is a qualifying feature of nearby designated sites.
Razorbill	Yes - peak average abundance of 2,305 birds.	High	Moderate	Yes	Yes - species recorded in high numbers in the Mona Array Area plus 2 km buffer, species has a moderate level of vulnerability to displacement, species is a qualifying feature of nearby designated sites.

Species	Observed within the Mona Array Area plus 2 km buffer (or 4 km buffer if appropriate for the species)	Population importance	Vulnerability to displacement impacts	Designated site qualifying feature (within range of the Mona Array Area)	Displacement analysis required (Yes/No)
Atlantic puffin *Fratercula arctica*	Yes - peak average abundance of 44 birds.	Low	Moderate	Yes	Yes - species has a moderate level of vulnerability to displacement, species is a qualifying feature of nearby designated sites.
Northern fulmar	Yes - peak average abundance of 149 birds.	Moderate	Very Low	Yes	No - species has a very low vulnerability to displacement
Manx shearwater	Yes - peak average abundance of 2,173 birds.	High	Very Low	Yes	Yes - assessment carried out following EWG request
Northern gannet	Yes - peak average abundance of 293 birds.	Moderate	Low	Yes	Yes - species recorded in moderate numbers in the Mona Array Area plus 2 km buffer, species is a qualifying feature of nearby designated sites.
Black-legged kittiwake *Rissa tridactyla*	Yes - peak average abundance of 907 birds.	High	Low	Yes	Yes - assessment carried out following JNCC request
Herring gull *Larus argentatus*	Yes - peak average abundance of 68 birds.	Low	Low	Yes	No - species has a low vulnerability to displacement
Lesser black-backed gull *Larus fuscus*	Yes - peak average abundance of 27 birds.	Low	Low	Yes	No - species has a low vulnerability to displacement
Great black-backed gull *Larus marinus*	Yes - peak average abundance of 174 birds.	Moderate	Low	Yes	No - species has a low vulnerability to displacement
Black-headed gull *Chroicocephalus ridibundus*	Yes - peak average abundance of 7 birds.	Low	Low	Yes	No - species has a low vulnerability to displacement

Species	Observed within the Mona Array Area plus 2 km buffer (or 4 km buffer if appropriate for the species)	Population importance	Vulnerability to displacement impacts	Designated site qualifying feature (within range of the Mona Array Area)	Displacement analysis required (Yes/No)
Common gull *Larus canus*	Yes - peak average abundance of 20 birds.	Low	Low	Yes	No - species has a low vulnerability to displacement
Little gull	Yes - peak average abundance of 14 birds.	Low	Low	Yes	No - species has a low vulnerability to displacement
Great skua *Stercorarius skua*	Yes - peak average abundance of 7 birds.	Low	Very Low	No	No - species has a very low vulnerability to displacement
Arctic skua *Stercorarius parasiticus*	Yes - peak average abundance of 11 birds.	Low	Very Low	No	No - species has a very low vulnerability to displacement
Common tern *Sterna hirundo*	Yes - peak average abundance of 7 birds.	Low	Low	Yes	No - species has a low vulnerability to displacement
Sandwich tern	Yes - peak average abundance of 15 birds.	Low	Moderate	Yes	No - species has a low vulnerability to displacement
Arctic tern *Sterna paradisaea*	No	Low	Low	No	No - species has a low vulnerability to displacement

1.3.3 Seasonality

1.3.3.1 Seasons used within the displacement assessment were defined according to the breeding, non-breeding and migratory periods (autumn and spring migration) based on Furness (2015) (Table 1.3) and as per Offshore Ornithology EWG advice (based on the second EWG meeting and Evidence Plan sent to Statutory Nature Conservation Bodies (SNCBs) on 27 May 2022, advice received on 24 June from Natural England and JNCC, and on 7 July 2022 from NRW).

1.3.3.2 If a month fell within two seasons (e.g., March for gannet is included in both the pre-breeding and breeding seasons in Furness (2015)), priority was given to the breeding season. In cases where a peak abundance was estimated during a month spanning two seasons, such as 100 birds observed in March for northern gannets, the peak of 100 birds was attributed to the breeding period. This approach was applied based on advice from JNCC during EWG meeting 2 (held on 13 July 2022), which discouraged the use of the migration-free breeding period in the displacement assessments. Consequently, some months were present in more than one season. To avoid underestimating the impact during the breeding season therefore, a precautionary approach was taken to prioritizing it due to the significant importance of this time and any potential impacts during this period having a profound impact on the regional population. If two months fell across two periods (e.g. March and April for kittiwake overlapping the pre-breeding and breeding season) then the first month was assigned to the pre-breeding and the second assigned to the breeding. This approach was taken as birds are still undergoing migration in March (Furness, 2015) and would likely overestimate impacts if all birds were considered to be breeding during the migration period.

Table 1.3: Seasonal definitions as the basis for assessment, from Furness (2015).

Species	Pre-breeding season/spring migration	Breeding season	Post breeding season/autumn migration	Non-breeding/winter season
Common guillemot	N/A	March to July	N/A	August to February
Razorbill	January to March	April to July	August to October	November to December
Atlantic puffin	N/A	April to August	N/A	September to March
Northern gannet	December to February	March to September	October to November	N/A
Black-legged kittiwake	January to February	March to August	September to December	N/A
Manx shearwater	March	April to August	September to October	N/A
Red-throated diver	February to April	May to August	September to November	December to January

1.3.4 Buffers for displacement

1.3.4.1 For the purpose of the displacement assessment, the monthly abundance of seabirds within the Mona Array Area, the Mona Array Area plus 2 km buffer and, if appropriate for the species, the Mona Array plus 4 km buffer, including upper and lower 95%

confidence limits, were generated from the data collected through the programme of digital aerial surveys carried out in the Mona Offshore Ornithology Array Area study area (Figure 1.1). The Mona Array Area plus 2 km buffer covers 449.59 km^2, and the Mona Array Area plus 4 km buffer covers 622.46 km^2.

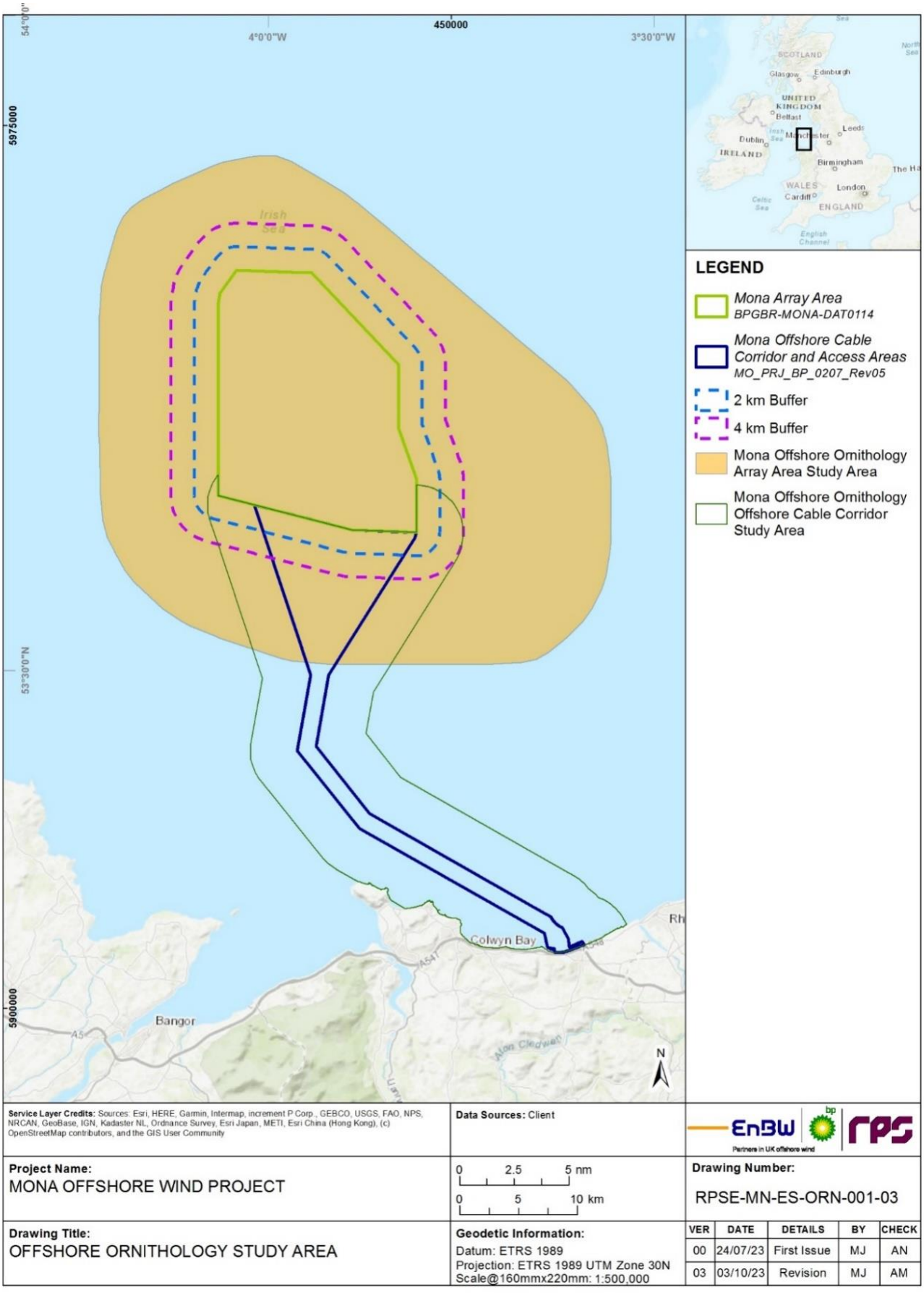

Figure 1.1: The Mona Offshore Ornithology Array Area study area, Mona Array Area plus associated buffers for displacement and the Mona Offshore Ornithology Offshore Cable Corridor

1.3.5 Abundance estimates

1.3.5.1 Density/population estimates were generated from the site specific digital aerial surveys carried out in the Mona Offshore Ornithology Array Area study area, which extended up to 16.5 km outside the Mona Array Area. Full details of the digital aerial survey methods and results are presented in Volume 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1).

1.3.5.2 Model-based estimates using the Marine Renewables Strategic environmental assessment (MRSea) package were produced in order to predict numbers across the digital aerial survey area alongside 95% confidence intervals to provide a level of uncertainty. Design-based estimates for bird numbers and densities in each month were also generated and compared to the MRSea estimates to provide additional validation of the MRSea outputs and to provide estimates for months where low raw abundances prevented the use of the MRSea model. Monthly species abundances are therefore a mix of MRSea and design-based abundances, with MRSea estimates used in lieu of design-based estimates wherever possible. For example, MRSea was only able to run for razorbill for the months of March 2020, July 2020, September 2020, December 2020 to April 2021 and December 2021 to February 2022, and so MRSea estimates are used for those months, with design-based estimates only used for April 2020 to June 2020, August 2020, October 2020 to November 2020 and May 2021 to November 2021. The only species that had MRSea estimates used for all months was common guillemot as there were sufficient observations recorded during digital aerial surveys for MRSea models to run.

1.3.5.3 The primary data that informs the basis for the assessment of displacement effects are seasonal mean peak population estimates including seabirds both recorded on the surface (sitting) and in flight. Mean seasonal peak population estimates of each species were calculated using the defined seasons by Furness (2015) to provide the number of seabirds at risk of displacement impacts, including upper and lower 95% confidence intervals. Peak abundances in each season for each species considered within the displacement assessment are outlined in bold within Appendix A.

1.3.5.4 As an example, the mean seasonal peak population calculation for common guillemot which breeds from March to July is presented. The average was taken of the peak count for the breeding season in Year 1 of the digital aerial surveys within the Mona Array Area plus 2 km buffer (which occurred in March) and the peak count in the breeding season of Year 2 (which occurred in April).

1.3.5.5 In accordance with SNCB (2022), displacement was estimated as affecting seabirds present both in flight and sitting on the water (whether foraging or loafing), having accounted for availability bias (seabirds that may be underwater at the time of the survey). Therefore, abundance estimates of seabirds recorded in flight and sitting were combined to derive the mean seasonal peak population at risk of displacement. Where possible, data relating to age classes of each species is also reported, although the values used in the matrices will relate to all individuals. Mean seasonal peak abundances and how they were derived are presented in Table 1.4. For Lower Confidence Intervals (LCI) and Upper Confidence Intervals (UCI), see Appendix B.

Table 1.4: Mean peak abundances for use in the assessment for each season.

Species	Pre-breeding season/spring migration	Breeding season	Post breeding season/autumn migration	Non-breeding/winter season
Common guillemot				
Peak Year 1	N/A	5,739	N/A	4,415
Peak Year 2	N/A	2,702	N/A	3,097
Mean peak	N/A	4,220	N/A	3,756
Razorbill				
Peak Year 1	1,543	35	173	223
Peak Year 2	2,305	130	9	619
Mean peak	1,924	83	91	421
Atlantic puffin				
Peak Year 1	N/A	30	N/A	44
Peak Year 2	N/A	0	N/A	0
Mean peak	N/A	15	N/A	22
Northern gannet				
Peak Year 1	34	209	26	N/A
Peak Year 2	21	293	89	N/A
Mean peak	28	251	58	N/A
Black-legged kittiwake				
Peak Year 1	287	548	242	N/A
Peak Year 2	861	907	879	N/A
Mean peak	574	726	560	N/A

Species	Pre-breeding season/spring migration	Breeding season	Post breeding season/autumn migration	Non-breeding/winter season
Manx shearwater				
Peak Year 1	6	324	25	N/A
Peak Year 2	6	2,173	7	N/A
Mean peak	6	1,249	16	N/A
Red-throated diver				
Peak Year 1	0	N/A	0	0
Peak Year 2	0	N/A	0	0
Mean peak	0	N/A	0	0

1.3.6 Displacement parameters

1.3.6.1 Table 1.5 presents the displacement and mortality ranges for the species considered in the displacement assessment. The most likely displacement and mortality rates during the operational period for common guillemot, razorbill and northern gannet have been obtained from the SNCB Note (JNCC *et al.* 2022). For auk species such as common guillemot, razorbill and Atlantic puffin the SNCBs advise a displacement level of 30 to 70%. Black-legged kittiwake rates have been taken from the relevant literature (Table 1.5).

1.3.6.2 As Manx shearwater have a disturbance susceptibility score of one, the recommended rates of 1 to 10% for displacement and 1 to 10% mortality from the SNCB Note (JNCC *et al.* 2022) guidance were originally considered. However, the Offshore Ornithology EWG (meeting held 13 July 2022) advised that the 30% to 70% rates be applied (the same rates for auk species) instead.

Table 1.5: Displacement and mortality rates for use in the assessment during the operations and maintenance phase.

Species	Displacement rates	Mortality rates	Source
Common guillemot	30 to 70%	1 to 10%	SNCB Note (JNCC et al., 2022)
Razorbill	30 to 70%	1 to 10%	SNCB (JNCC et al., 2022)
Atlantic puffin	30 to 70%	1 to 10%	SNCB (JNCC et al., 2022)
Northern gannet	60 to 80%	1 to 10%	Cook et al. (2018), Skov et al. (2018), Leopold et al. (2011) and Furness & Wade (2012)
Black-legged kittiwake	30 to 70%	1 to 10%	Peschko et al. (2020); Vanermen et al. (2016); Leopold et al. (2013)
Manx shearwater	30 to 70%	1 to 10%	SNCBs (discussed at EWG meeting 2, 13 July 2022)
Red-throated diver	100%	1 to 10%	SNCBs (discussed at EWG meeting 2, 13 July 2022)

1.3.6.3 Disturbance and subsequent displacement of seabirds during the construction phase can also occur due to vessel traffic and construction and piling activities occurring within the site. These activities may displace individuals that would normally reside within and around the Mona Array Area.

1.3.6.4 As actual rates of displacement during the construction phase are difficult to determine, and as recommended by the SNCBs at the Offshore Ornithology EWG, the following methodology is proposed. Given that construction is limited both spatially and temporally and that any potential effects are unlikely to reach the same level as during the operation, the level to be used is half that of the operations and maintenance phase assessments. Table 1.6 shows the displacement and mortality rates used during the construction phase assessment.

1.3.6.5 Decommissioning activities within the Mona Array Area are equal to or less than those carried out during the construction phase within the Mona Array Area. Therefore, for the purpose of this assessment it is assumed that the impacts are likely to be similar.

Table 1.6: Displacement and mortality rates for use in the assessment during the construction and decommissioning phases.

Species	Displacement rates	Mortality rates
Common guillemot	15 to 35%	1 to 10%
Razorbill	15 to 35%	1 to 10%
Atlantic puffin	15 to 35%	1 to 10%
Northern gannet	30 to 40%	1 to 10%
Black-legged kittiwake	15 to 35%	1 to 10%
Manx shearwater	15 to 35%	1 to 10%
Red-throated diver	50%	1 to 10%

1.3.6.6 Data on predicted mortality from displacement of seabirds from the Mona Array Area plus 2 km buffer (and where applicable 4 km buffer), are then presented in the form of a gridded Matrix table (for the mean value and lower and upper confidence intervals). Predicted mortalities are given for each season and each phase. The mean seasonal peak value for the breeding, non-breeding and migratory periods are imputed into a displacement matrix to assess the potential level of impact. The matrix presents a wide range of potential displacement (10 to 100 %) and mortality rates (1 to 100 %), with the most likely displacement levels and mortality scenario cells highlighted in yellow and outlined in red.

1.3.6.7 In addition, cells within each matrix in the following species-specific sections are shaded red to indicate where the displacement mortality would surpass the 1 % threshold of background mortality of the relevant regional or national population for each species. The relevant population against which displacement mortality is compared and the average background mortality for each species (Section 1.4) are presented in each Matrix table.

1.4 Results

1.4.1 Common guillemot

Construction and decommissioning phase

1.4.1.1 Two seasons were defined for common guillemot in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.7 and Table 1.8 for the construction and decommissioning phase. Upper and lower matrices are presented in Appendix C.1.

Table 1.7: Mean predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Guillemot Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	4	8	21	42	84	127	169	211	253	295	338	380	422
15%	6	13	32	63	127	190	253	317	380	443	506	570	633
20%	8	17	42	84	169	253	338	422	506	591	675	760	844
25%	11	21	53	106	211	317	422	528	633	739	844	950	1055
30%	13	25	63	127	253	380	506	633	760	886	1013	1140	1266
35%	15	30	74	148	295	443	591	739	886	1034	1182	1329	1477
40%	17	34	84	169	338	506	675	844	1013	1182	1351	1519	1688
60%	25	51	127	253	506	760	1013	1266	1519	1773	2026	2279	2532
80%	34	68	169	338	675	1013	1351	1688	2026	2363	2701	3039	3376
100%	42	84	211	422	844	1266	1688	2110	2532	2954	3376	3798	4220

Table 1.8: Mean predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Guillemot Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	4	8	19	38	75	113	150	188	225	263	300	338	376
15%	6	11	28	56	113	169	225	282	338	394	451	507	563
20%	8	15	38	75	150	225	300	376	451	526	601	676	751
25%	9	19	47	94	188	282	376	469	563	657	751	845	939
30%	11	23	56	113	225	338	451	563	676	789	901	1014	1127
35%	13	26	66	131	263	394	526	657	789	920	1052	1183	1315
40%	15	30	75	150	300	451	601	751	901	1052	1202	1352	1502
60%	23	45	113	225	451	676	901	1127	1352	1577	1803	2028	2254
80%	30	60	150	300	601	901	1202	1502	1803	2103	2404	2704	3005
100%	38	75	188	376	751	1127	1502	1878	2254	2629	3005	3380	3756

Operation and maintenance phase

1.4.1.2 Two seasons were defined for common guillemot in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.9 and Table 1.10 for the operation and maintenance phase. Upper and lower matrices are presented in Appendix C.1.

Table 1.9: Mean predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Guillemot Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	4	8	21	42	84	127	169	211	253	295	338	380	422
20%	8	17	42	84	169	253	338	422	506	591	675	760	844
30%	13	25	63	127	253	380	506	633	760	886	1013	1140	1266
40%	17	34	84	169	338	506	675	844	1013	1182	1351	1519	1688
50%	21	42	106	211	422	633	844	1055	1266	1477	1688	1899	2110
60%	25	51	127	253	506	760	1013	1266	1519	1773	2026	2279	2532
70%	30	59	148	295	591	886	1182	1477	1773	2068	2363	2659	2954
80%	34	68	169	338	675	1013	1351	1688	2026	2363	2701	3039	3376
90%	38	76	190	380	760	1140	1519	1899	2279	2659	3039	3419	3798
100%	42	84	211	422	844	1266	1688	2110	2532	2954	3376	3798	4220

Table 1.10: Mean predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operations and maintenance phase).

Guillemot Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	4	8	19	38	75	113	150	188	225	263	300	338	376
20%	8	15	38	75	150	225	300	376	451	526	601	676	751
30%	11	23	56	113	225	338	451	563	676	789	901	1014	1127
40%	15	30	75	150	300	451	601	751	901	1052	1202	1352	1502
50%	19	38	94	188	376	563	751	939	1127	1315	1502	1690	1878
60%	23	45	113	225	451	676	901	1127	1352	1577	1803	2028	2254
70%	26	53	131	263	526	789	1052	1315	1577	1840	2103	2366	2629
80%	30	60	150	300	601	901	1202	1502	1803	2103	2404	2704	3005
90%	34	68	169	338	676	1014	1352	1690	2028	2366	2704	3042	3380
100%	38	75	188	376	751	1127	1502	1878	2254	2629	3005	3380	3756

1.4.2 Razorbill

Construction and decommissioning phases

1.4.2.1 Four seasons were defined for razorbill in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.11 to Table 1.14 for the construction and decommissioning phase. Upper and lower matrices are presented in Appendix C.

Table 1.11: Mean predicted razorbill mortality for the Mona Array plus 2 km buffer during Spring migration (construction and decommissioning).

Razorbill Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	2	4	10	19	38	58	77	96	115	135	154	173	192
15%	3	6	14	29	58	87	115	144	173	202	231	260	289
20%	4	8	19	38	77	115	154	192	231	269	308	346	385
25%	5	10	24	48	96	144	192	241	289	337	385	433	481
30%	6	12	29	58	115	173	231	289	346	404	462	520	577
35%	7	13	34	67	135	202	269	337	404	471	539	606	673
40%	8	15	38	77	154	231	308	385	462	539	616	693	770
60%	12	23	58	115	231	346	462	577	693	808	924	1039	1155
80%	15	31	77	154	308	462	616	770	924	1078	1232	1385	1539
100%	19	38	96	192	385	577	770	962	1155	1347	1539	1732	1924

Table 1.12: Mean predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Razorbill Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	2	2	3	4	5	6	7	7	8
15%	0	0	1	1	2	4	5	6	7	9	10	11	12
20%	0	0	1	2	3	5	7	8	10	12	13	15	17
25%	0	0	1	2	4	6	8	10	12	14	17	19	21
30%	0	0	1	2	5	7	10	12	15	17	20	22	25
35%	0	1	1	3	6	9	12	14	17	20	23	26	29
40%	0	1	2	3	7	10	13	17	20	23	26	30	33
60%	0	1	2	5	10	15	20	25	30	35	40	45	50
80%	1	1	3	7	13	20	26	33	40	46	53	59	66
100%	1	2	4	8	17	25	33	41	50	58	66	74	83

Table 1.13: Mean predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Razorbill Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	2	3	4	5	5	6	7	8	9
15%	0	0	1	1	3	4	5	7	8	10	11	12	14
20%	0	0	1	2	4	5	7	9	11	13	15	16	18
25%	0	0	1	2	5	7	9	11	14	16	18	20	23
30%	0	1	1	3	5	8	11	14	16	19	22	25	27
35%	0	1	2	3	6	10	13	16	19	22	25	29	32
40%	0	1	2	4	7	11	15	18	22	25	29	33	36
60%	1	1	3	5	11	16	22	27	33	38	44	49	55
80%	1	1	4	7	15	22	29	36	44	51	58	66	73
100%	1	2	5	9	18	27	36	45	55	64	73	82	91

Table 1.14: Mean predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Razorbill Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	4	8	13	17	21	25	29	34	38	42
15%	1	1	3	6	13	19	25	32	38	44	50	57	63
20%	1	2	4	8	17	25	34	42	50	59	67	76	84
25%	1	2	5	11	21	32	42	53	63	74	84	95	105
30%	1	3	6	13	25	38	50	63	76	88	101	114	126
35%	1	3	7	15	29	44	59	74	88	103	118	133	147
40%	2	3	8	17	34	50	67	84	101	118	135	151	168
60%	3	5	13	25	50	76	101	126	151	177	202	227	252
80%	3	7	17	34	67	101	135	168	202	236	269	303	337
100%	4	8	21	42	84	126	168	210	252	295	337	379	421

Operations and maintenance phase

1.4.2.2 Four seasons were defined for razorbill in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.15 to Table 1.18 for the operations and maintenance phase. Upper and lower matrices are presented in Appendix C.

Table 1.15: Mean predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Spring migration (operations and maintenance phase).

Razorbill Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	2	4	10	19	38	58	77	96	115	135	154	173	192
20%	4	8	19	38	77	115	154	192	231	269	308	346	385
30%	6	12	29	58	115	173	231	289	346	404	462	520	577
40%	8	15	38	77	154	231	308	385	462	539	616	693	770
50%	10	19	48	96	192	289	385	481	577	673	770	866	962
60%	12	23	58	115	231	346	462	577	693	808	924	1039	1155
70%	13	27	67	135	269	404	539	673	808	943	1078	1212	1347
80%	15	31	77	154	308	462	616	770	924	1078	1232	1385	1539
90%	17	35	87	173	346	520	693	866	1039	1212	1385	1559	1732
100%	19	38	96	192	385	577	770	962	1155	1347	1539	1732	1924

Table 1.16: Mean predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Razorbill Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	2	2	3	4	5	6	7	7	8
20%	0	0	1	2	3	5	7	8	10	12	13	15	17
30%	0	0	1	2	5	7	10	12	15	17	20	22	25
40%	0	1	2	3	7	10	13	17	20	23	26	30	33
50%	0	1	2	4	8	12	17	21	25	29	33	37	41
60%	0	1	2	5	10	15	20	25	30	35	40	45	50
70%	1	1	3	6	12	17	23	29	35	40	46	52	58
80%	1	1	3	7	13	20	26	33	40	46	53	59	66
90%	1	1	4	7	15	22	30	37	45	52	59	67	74
100%	1	2	4	8	17	25	33	41	50	58	66	74	83

Table 1.17: Mean predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operations and maintenance phase).

Razorbill Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	2	3	4	5	5	6	7	8	9
20%	0	0	1	2	4	5	7	9	11	13	15	16	18
30%	0	1	1	3	5	8	11	14	16	19	22	25	27
40%	0	1	2	4	7	11	15	18	22	25	29	33	36
50%	0	1	2	5	9	14	18	23	27	32	36	41	45
60%	1	1	3	5	11	16	22	27	33	38	44	49	55
70%	1	1	3	6	13	19	25	32	38	45	51	57	64
80%	1	1	4	7	15	22	29	36	44	51	58	66	73
90%	1	2	4	8	16	25	33	41	49	57	66	74	82
100%	1	2	5	9	18	27	36	45	55	64	73	82	91

Table 1.18: Mean predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operations and maintenance phase).

Razorbill Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	4	8	13	17	21	25	29	34	38	42
20%	1	2	4	8	17	25	34	42	50	59	67	76	84
30%	1	3	6	13	25	38	50	63	76	88	101	114	126
40%	2	3	8	17	34	50	67	84	101	118	135	151	168
50%	2	4	11	21	42	63	84	105	126	147	168	189	210
60%	3	5	13	25	50	76	101	126	151	177	202	227	252
70%	3	6	15	29	59	88	118	147	177	206	236	265	295
80%	3	7	17	34	67	101	135	168	202	236	269	303	337
90%	4	8	19	38	76	114	151	189	227	265	303	341	379
100%	4	8	21	42	84	126	168	210	252	295	337	379	421

1.4.3 Atlantic puffin

Construction and decommissioning phases

1.4.3.1 Two seasons were defined for puffin in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.19 and Table 1.20 for the construction and decommissioning phase. Upper and lower matrices are presented in Appendix C.3.

Table 1.19: Mean predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Puffin Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	1	1	1	1	1	1	2
15%	0	0	0	0	0	1	1	1	1	2	2	2	2
20%	0	0	0	0	1	1	1	2	2	2	2	3	3
25%	0	0	0	0	1	1	2	2	2	3	3	3	4
30%	0	0	0	0	1	1	2	2	3	3	4	4	5
35%	0	0	0	1	1	2	2	3	3	4	4	5	5
40%	0	0	0	1	1	2	2	3	4	4	5	5	6
60%	0	0	0	1	2	3	4	5	5	6	7	8	9
80%	0	0	1	1	2	4	5	6	7	8	10	11	12
100%	0	0	1	2	3	5	6	8	9	11	12	14	15

Table 1.20: Mean predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Puffin Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	1	1	1	1	2	2	2	2
15%	0	0	0	0	1	1	1	2	2	2	3	3	3
20%	0	0	0	0	1	1	2	2	3	3	4	4	4
25%	0	0	0	1	1	2	2	3	3	4	4	5	6
30%	0	0	0	1	1	2	3	3	4	5	5	6	7
35%	0	0	0	1	2	2	3	4	5	5	6	7	8
40%	0	0	0	1	2	3	4	4	5	6	7	8	9
60%	0	0	1	1	3	4	5	7	8	9	11	12	13
80%	0	0	1	2	4	5	7	9	11	12	14	16	18
100%	0	0	1	2	4	7	9	11	13	15	18	20	22

Operations and maintenance phase

1.4.3.2 Two seasons were defined for puffin in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.21 and Table 1.22 for the operations and maintenance phase. Upper and lower matrices are presented in Appendix C.3.

Table 1.21: Mean predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Puffin Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	1	1	1	1	1	1	2
20%	0	0	0	0	1	1	1	2	2	2	2	3	3
30%	0	0	0	0	1	1	2	2	3	3	4	4	5
40%	0	0	0	1	1	2	2	3	4	4	5	5	6
50%	0	0	0	1	2	2	3	4	5	5	6	7	8
60%	0	0	0	1	2	3	4	5	5	6	7	8	9
70%	0	0	1	1	2	3	4	5	6	7	8	10	11
80%	0	0	1	1	2	4	5	6	7	8	10	11	12
90%	0	0	1	1	3	4	5	7	8	10	11	12	14
100%	0	0	1	2	3	5	6	8	9	11	12	14	15

Table 1.22: Mean predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operations and maintenance phase).

Puffin Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	1	1	1	1	2	2	2	2
20%	0	0	0	0	1	1	2	2	3	3	4	4	4
30%	0	0	0	1	1	2	3	3	4	5	5	6	7
40%	0	0	0	1	2	3	4	4	5	6	7	8	9
50%	0	0	1	1	2	3	4	6	7	8	9	10	11
60%	0	0	1	1	3	4	5	7	8	9	11	12	13
70%	0	0	1	2	3	5	6	8	9	11	12	14	15
80%	0	0	1	2	4	5	7	9	11	12	14	16	18
90%	0	0	1	2	4	6	8	10	12	14	16	18	20
100%	0	0	1	2	4	7	9	11	13	15	18	20	22

1.4.4 Northern gannet

Construction and decommissioning phases

1.4.4.1 Three seasons were defined for gannet in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.23 to Table 1.25 for the construction and decommissioning phase. Upper and lower matrices are presented in Appendix C.4.

Table 1.23: Mean predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Gannet Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	1	2	2	2	2	3
15%	0	0	0	0	1	1	2	2	2	3	3	4	4
20%	0	0	0	1	1	2	2	3	3	4	4	5	6
25%	0	0	0	1	1	2	3	3	4	5	6	6	7
30%	0	0	0	1	2	2	3	4	5	6	7	7	8
35%	0	0	0	1	2	3	4	5	6	7	8	9	10
40%	0	0	1	1	2	3	4	6	7	8	9	10	11
60%	0	0	1	2	3	5	7	8	10	12	13	15	17
80%	0	0	1	2	4	7	9	11	13	15	18	20	22
100%	0	1	1	3	6	8	11	14	17	19	22	25	28

Table 1.24: Mean predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Gannet Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	1	3	5	8	10	13	15	18	20	23	25
15%	0	1	2	4	8	11	15	19	23	26	30	34	38
20%	1	1	3	5	10	15	20	25	30	35	40	45	50
25%	1	1	3	6	13	19	25	31	38	44	50	56	63
30%	1	2	4	8	15	23	30	38	45	53	60	68	75
35%	1	2	4	9	18	26	35	44	53	61	70	79	88
40%	1	2	5	10	20	30	40	50	60	70	80	90	100
60%	2	3	8	15	30	45	60	75	90	105	120	135	150
80%	2	4	10	20	40	60	80	100	120	140	160	180	200
100%	3	5	13	25	50	75	100	125	150	175	200	226	251

Table 1.25: Mean predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Gannet	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	1	2	2	3	3	4	5	5	6
15%	0	0	0	1	2	3	3	4	5	6	7	8	9
20%	0	0	1	1	2	3	5	6	7	8	9	10	12
25%	0	0	1	1	3	4	6	7	9	10	12	13	14
30%	0	0	1	2	3	5	7	9	10	12	14	16	17
35%	0	0	1	2	4	6	8	10	12	14	16	18	20
40%	0	0	1	2	5	7	9	12	14	16	18	21	23
60%	0	1	2	3	7	10	14	17	21	24	28	31	35
80%	0	1	2	5	9	14	18	23	28	32	37	41	46
100%	1	1	3	6	12	17	23	29	35	40	46	52	58

Operations and maintenance phase

1.4.4.2 Three seasons were defined for gannet in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.26 to Table 1.28 for the operations and maintenance phase. Upper and lower matrices are presented in Appendix C.4.

Table 1.26: Mean predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Spring migration (operations and maintenance phase).

Gannet	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	1	2	2	2	2	3
20%	0	0	0	1	1	2	2	3	3	4	4	5	6
30%	0	0	0	1	2	2	3	4	5	6	7	7	8
40%	0	0	1	1	2	3	4	6	7	8	9	10	11
50%	0	0	1	1	3	4	6	7	8	10	11	12	14
60%	0	0	1	2	3	5	7	8	10	12	13	15	17
70%	0	0	1	2	4	6	8	10	12	13	15	17	19
80%	0	0	1	2	4	7	9	11	13	15	18	20	22
90%	0	0	1	2	5	7	10	12	15	17	20	22	25
100%	0	1	1	3	6	8	11	14	17	19	22	25	28

Table 1.27: Mean predicted northern gannet mortality for the Mona Array Area 2 km buffer during the breeding season (operations and maintenance phase).

Gannet Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	1	3	5	8	10	13	15	18	20	23	25
20%	1	1	3	5	10	15	20	25	30	35	40	45	50
30%	1	2	4	8	15	23	30	38	45	53	60	68	75
40%	1	2	5	10	20	30	40	50	60	70	80	90	100
50%	1	3	6	13	25	38	50	63	75	88	100	113	125
60%	2	3	8	15	30	45	60	75	90	105	120	135	150
70%	2	4	9	18	35	53	70	88	105	123	140	158	175
80%	2	4	10	20	40	60	80	100	120	140	160	180	200
90%	2	5	11	23	45	68	90	113	135	158	180	203	226
100%	3	5	13	25	50	75	100	125	150	175	200	226	251

Table 1.28: Mean predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operations and maintenance phase).

Gannet Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	1	2	2	3	3	4	5	5	6
20%	0	0	1	1	2	3	5	6	7	8	9	10	12
30%	0	0	1	2	3	5	7	9	10	12	14	16	17
40%	0	0	1	2	5	7	9	12	14	16	18	21	23
50%	0	1	1	3	6	9	12	14	17	20	23	26	29
60%	0	1	2	3	7	10	14	17	21	24	28	31	35
70%	0	1	2	4	8	12	16	20	24	28	32	36	40
80%	0	1	2	5	9	14	18	23	28	32	37	41	46
90%	1	1	3	5	10	16	21	26	31	36	41	47	52
100%	1	1	3	6	12	17	23	29	35	40	46	52	58

1.4.5 Black-legged kittiwake

Construction and decommissioning phases

1.4.5.1 Three seasons were defined for black-legged kittiwake in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.29 to Table 1.31 for the construction and decommissioning phase. Upper and lower matrices are presented in Appendix C.5.

Table 1.29: Mean predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Black-legged kittiwake Pre-breeding		Mortality level (% of displaced birds at risk of mortality)												
		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Displacement level	10%	1	1	3	6	11	17	23	29	34	40	46	52	57
	15%	1	2	4	9	17	26	34	43	52	60	69	77	86
	20%	1	2	6	11	23	34	46	57	69	80	92	103	115
	25%	1	3	7	14	29	43	57	72	86	100	115	129	144
	30%	2	3	9	17	34	52	69	86	103	121	138	155	172
	35%	2	4	10	20	40	60	80	100	121	141	161	181	201
	40%	2	5	11	23	46	69	92	115	138	161	184	207	230
	60%	3	7	17	34	69	103	138	172	207	241	276	310	344
	80%	5	9	23	46	92	138	184	230	276	321	367	413	459
	100%	6	11	29	57	115	172	230	287	344	402	459	517	574

Table 1.30: Mean predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Black-legged kittiwake Breeding		Mortality level (% of displaced birds at risk of mortality)												
		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Displacement level	10%	1	1	4	7	15	22	29	36	44	51	58	65	73
	15%	1	2	5	11	22	33	44	54	65	76	87	98	109
	20%	1	3	7	15	29	44	58	73	87	102	116	131	145
	25%	2	4	9	18	36	54	73	91	109	127	145	163	182
	30%	2	4	11	22	44	65	87	109	131	152	174	196	218
	35%	3	5	13	25	51	76	102	127	152	178	203	229	254
	40%	3	6	15	29	58	87	116	145	174	203	232	261	290
	60%	4	9	22	44	87	131	174	218	261	305	348	392	436
	80%	6	12	29	58	116	174	232	290	348	407	465	523	581
	100%	7	15	36	73	145	218	290	363	436	508	581	653	726

Table 1.31: Mean predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Kittiwake Autumn migration		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	1	1	3	6	11	17	22	28	34	39	45	50	56
	15%	1	2	4	8	17	25	34	42	50	59	67	76	84
	20%	1	2	6	11	22	34	45	56	67	78	90	101	112
	25%	1	3	7	14	28	42	56	70	84	98	112	126	140
	30%	2	3	8	17	34	50	67	84	101	118	134	151	168
	35%	2	4	10	20	39	59	78	98	118	137	157	176	196
	40%	2	4	11	22	45	67	90	112	134	157	179	202	224
	60%	3	7	17	34	67	101	134	168	202	235	269	302	336
	80%	4	9	22	45	90	134	179	224	269	314	358	403	448
	100%	6	11	28	56	112	168	224	280	336	392	448	504	560

Operations and maintenance phase

1.4.5.2 Three seasons were defined for black-legged kittiwake in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.32 to Table 1.34 for the operations and maintenance phase. Upper and lower matrices are presented in Appendix C.5.

Table 1.32: Mean predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Spring migration (operations and maintenance phase).

Black-legged kittiwake Pre-breeding		Mortality level (% of displaced birds at risk of mortality)												
Displacement level		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	1	1	3	6	11	17	23	29	34	40	46	52	57
	20%	1	2	6	11	23	34	46	57	69	80	92	103	115
	30%	2	3	9	17	34	52	69	86	103	121	138	155	172
	40%	2	5	11	23	46	69	92	115	138	161	184	207	230
	50%	3	6	14	29	57	86	115	144	172	201	230	258	287
	60%	3	7	17	34	69	103	138	172	207	241	276	310	344
	70%	4	8	20	40	80	121	161	201	241	281	321	362	402
	80%	5	9	23	46	92	138	184	230	276	321	367	413	459
	90%	5	10	26	52	103	155	207	258	310	362	413	465	517
	100%	6	11	29	57	115	172	230	287	344	402	459	517	574

Table 1.33: Mean predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Black-legged kittiwake Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	1	4	7	15	22	29	36	44	51	58	65	73
20%	1	3	7	15	29	44	58	73	87	102	116	131	145
30%	2	4	11	22	44	65	87	109	131	152	174	196	218
40%	3	6	15	29	58	87	116	145	174	203	232	261	290
50%	4	7	18	36	73	109	145	182	218	254	290	327	363
60%	4	9	22	44	87	131	174	218	261	305	348	392	436
70%	5	10	25	51	102	152	203	254	305	356	407	457	508
80%	6	12	29	58	116	174	232	290	348	407	465	523	581
90%	7	13	33	65	131	196	261	327	392	457	523	588	653
100%	7	15	36	73	145	218	290	363	436	508	581	653	726

Table 1.34: Mean predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operations and maintenance phase).

Kittiwake Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	1	3	6	11	17	22	28	34	39	45	50	56
20%	1	2	6	11	22	34	45	56	67	78	90	101	112
30%	2	3	8	17	34	50	67	84	101	118	134	151	168
40%	2	4	11	22	45	67	90	112	134	157	179	202	224
50%	3	6	14	28	56	84	112	140	168	196	224	252	280
60%	3	7	17	34	67	101	134	168	202	235	269	302	336
70%	4	8	20	39	78	118	157	196	235	274	314	353	392
80%	4	9	22	45	90	134	179	224	269	314	358	403	448
90%	5	10	25	50	101	151	202	252	302	353	403	454	504
100%	6	11	28	56	112	168	224	280	336	392	448	504	560

1.4.6 Manx shearwater

Construction and decommissioning phases

1.4.6.1 Three seasons were defined for Manx shearwater in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.35 and Table 1.37 for the construction and decommissioning phase. Upper and lower matrices are presented in Appendix C.6.

Table 1.35: Mean predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during the Spring migration (construction and decommissioning).

Manx shearwa	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	1	1
15%	0	0	0	0	0	0	0	0	1	1	1	1	1
20%	0	0	0	0	0	0	0	1	1	1	1	1	1
25%	0	0	0	0	0	0	1	1	1	1	1	1	2
30%	0	0	0	0	0	1	1	1	1	1	1	2	2
35%	0	0	0	0	0	1	1	1	1	1	2	2	2
40%	0	0	0	0	0	1	1	1	1	2	2	2	2
60%	0	0	0	0	1	1	1	2	2	3	3	3	4
80%	0	0	0	0	1	1	2	2	3	3	4	4	5
100%	0	0	0	1	1	2	2	3	4	4	5	5	6

Table 1.36: Mean predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Manx Shearwater	Mortality level (% of displaced birds at risk of mortality)												
Breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	6	12	25	37	50	62	75	87	100	112	125
15%	2	4	9	19	37	56	75	94	112	131	150	169	187
20%	2	5	12	25	50	75	100	125	150	175	200	225	250
25%	3	6	16	31	62	94	125	156	187	219	250	281	312
30%	4	7	19	37	75	112	150	187	225	262	300	337	375
35%	4	9	22	44	87	131	175	219	262	306	350	393	437
40%	5	10	25	50	100	150	200	250	300	350	400	450	500
60%	7	15	37	75	150	225	300	375	450	524	599	674	749
80%	10	20	50	100	200	300	400	500	599	699	799	899	999
100%	12	25	62	125	250	375	500	624	749	874	999	1124	1249

Table 1.37: Mean predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during the Autumn migration (construction and decommissioning).

Manx shearwa	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	1	1	1	1	1	1	2
15%	0	0	0	0	0	1	1	1	1	2	2	2	2
20%	0	0	0	0	1	1	1	2	2	2	3	3	3
25%	0	0	0	0	1	1	2	2	2	3	3	4	4
30%	0	0	0	0	1	1	2	2	3	3	4	4	5
35%	0	0	0	1	1	2	2	3	3	4	4	5	6
40%	0	0	0	1	1	2	3	3	4	4	5	6	6
60%	0	0	0	1	2	3	4	5	6	7	8	9	10
80%	0	0	1	1	3	4	5	6	8	9	10	12	13
100%	0	0	1	2	3	5	6	8	10	11	13	14	16

Operations and maintenance phase

1.4.6.2 Three seasons were defined for Manx shearwater in in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.38 and Table 1.40 for the operations and maintenance phase. Upper and lower matrices are presented in Appendix C.6.

Table 1.38: Mean predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during the Spring migration (operations and maintenance phase).

Manx shearwater Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	1	1
20%	0	0	0	0	0	0	0	1	1	1	1	1	1
30%	0	0	0	0	0	1	1	1	1	1	1	2	2
40%	0	0	0	0	0	1	1	1	1	2	2	2	2
50%	0	0	0	0	1	1	1	2	2	2	2	3	3
60%	0	0	0	0	1	1	1	2	2	3	3	3	4
70%	0	0	0	0	1	1	2	2	3	3	3	4	4
80%	0	0	0	0	1	1	2	2	3	3	4	4	5
90%	0	0	0	1	1	2	2	3	3	4	4	5	5
100%	0	0	0	1	1	2	2	3	4	4	5	5	6

Table 1.39: Mean predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Manx Shearwater Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	6	12	25	37	50	62	75	87	100	112	125
20%	2	5	12	25	50	75	100	125	150	175	200	225	250
30%	4	7	19	37	75	112	150	187	225	262	300	337	375
40%	5	10	25	50	100	150	200	250	300	350	400	450	500
50%	6	12	31	62	125	187	250	312	375	437	500	562	624
60%	7	15	37	75	150	225	300	375	450	524	599	674	749
70%	9	17	44	87	175	262	350	437	524	612	699	787	874
80%	10	20	50	100	200	300	400	500	599	699	799	899	999
90%	11	22	56	112	225	337	450	562	674	787	899	1012	1124
100%	12	25	62	125	250	375	500	624	749	874	999	1124	1249

Table 1.40: Mean predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during the Autumn migration (operation and maintenance phase).

Manx shearwater Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	1	1	1	1	1	1	2
20%	0	0	0	0	1	1	1	2	2	2	3	3	3
30%	0	0	0	0	1	1	2	2	3	3	4	4	5
40%	0	0	0	1	1	2	3	3	4	4	5	6	6
50%	0	0	0	1	2	2	3	4	5	6	6	7	8
60%	0	0	0	1	2	3	4	5	6	7	8	9	10
70%	0	0	1	1	2	3	4	6	7	8	9	10	11
80%	0	0	1	1	3	4	5	6	8	9	10	12	13
90%	0	0	1	1	3	4	6	7	9	10	12	13	14
100%	0	0	1	2	3	5	6	8	10	11	13	14	16

1.4.7 Red-throated diver

Construction and decommissioning phases

1.4.7.1 Three seasons were defined for red-throated diver in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.41 to Table 1.43 for the construction and decommissioning phase. Upper and lower matrices are presented in Appendix C.7.

Table 1.41: Mean predicted red-throated diver mortality for the Mona Array Area plus 4 km buffer during the Spring migration (construction and decommissioning). All entries are zero.

Red-throated diver Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
15%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
25%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
35%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
45%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1.42: Mean predicted red-throated diver mortality for the Mona Array Area plus 4 km buffer during the Autumn migration (construction and decommissioning). All entries are zero.

Red-throated diver		Mortality level (% of displaced birds at risk of mortality)												
Autumn migration														
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	15%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	25%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	35%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	45%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1.43: Mean predicted red-throated diver mortality for the Mona Array Area plus 4 km buffer during non-breeding season (construction and decommissioning). All entries are zero.

Red-throated diver		Mortality level (% of displaced birds at risk of mortality)												
Non-breeding														
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	15%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	25%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	35%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	45%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

1.4.7.2 Operations and maintenance phase Table 1.44Three seasons were defined for red-throated diver in Chapter 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document reference F6.5.1). Displacement matrices for each of these seasons, using the mean-peak populations presented in Table 1.4 are presented in Table 1.44 to Table 1.46 for the operations and maintenance phase. Upper and lower matrices are presented in Appendix C.7.

Table 1.44: Mean predicted red-throated diver mortality for the Mona Array Area plus 4 km buffer during Spring migration (operations and maintenance phase). All entries are zero.

Red-throated diver Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1.45: Mean predicted red-throated diver mortality for the Mona Array Area plus 4 km buffer during Autumn migration (operations and maintenance phase). All entries are zero.

Red-throated diver Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1.46: Mean predicted red-throated diver mortality for the Mona Array Area plus 4 km buffer during non-breeding period (operations and maintenance phase). All entries are zero.

Red-throated diver Non-breeding		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	70%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	90%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

1.5 Summary Tables

1.5.1.1 Results from the matrix tables in section 1.3 are summarised below for the construction and decommissioning phases (Table 1.47) and for the operations and maintenance phase (Table 1.48).

Table 1.47: Seasonal displacement estimates for the Mona Array Area plus 2 km buffer (or Mona Array Area plus 4 km buffer if appropriate for the species) during construction and decommissioning

Species	Season	Seasonal mean peak population (Mona Array Area plus 2 km buffer or Mona Array plus 4 km if appropriate for the species)	Displacement rates (%)	Mortality rates(%)	Number of birds subject to mortality (individuals)
Common guillemot	Breeding	4,220	15%	1%	6
			30%	10%	148
	Non-breeding	3,756	15%	1%	6
			30%	10%	131
Razorbill	Pre-breeding season/spring migration	1,924	15%	1%	3
			30%	10%	67
	Breeding	83	15%	1%	0
			30%	10%	3
	Post breeding season/autumn migration	91	15%	1%	0
			30%	10%	3
	Non-breeding/winter season	421	15%	1%	1
			30%	10%	15
Atlantic puffin	Breeding	15	15%	1%	0
			30%	10%	1

Species	Season	Seasonal mean peak population (Mona Array Area plus 2 km buffer or Mona Array plus 4 km if appropriate for the species)	Displacement rates (%)	Mortality rates(%)	Number of birds subject to mortality (individuals)
	Non-breeding/winter season	22	15%	1%	0
			30%	10%	1
Northern gannet	Pre-breeding season/spring migration	28	30%	1%	0
			40%	10%	1
	Non-breeding/winter season	251	30%	1%	1
			40%	10%	10
	Post breeding season/autumn migration	58	30%	1%	0
			40%	10%	2
Black-legged kittiwake	Pre-breeding season/spring migration	574	15%	1%	1
			35%	10%	20
	Breeding	726	15%	1%	1
			35%	10%	25
	Post breeding season/autumn migration	560	15%	1%	1
			35%	10%	20
Manx shearwater	Pre-breeding season/spring migration	6	15%	1%	0
			35%	10%	0
	Breeding	1,249	15%	1%	2
			35%	10%	44
		16	15%	1%	0

Species	Season	Seasonal mean peak population (Mona Array Area plus 2 km buffer or Mona Array plus 4 km if appropriate for the species)	Displacement rates (%)	Mortality rates(%)	Number of birds subject to mortality (individuals)
	Post breeding season/autumn migration				
			35%	10%	1
Red-throated diver	Pre-breeding season/spring migration	0	50%	1%	0
			50%	10%	0
	Post breeding season/autumn migration	0	50%	1%	0
			50%	10%	0
	Non-breeding/winter season	0	50%	1%	0
			50%	10%	0

Table 1.48: Seasonal displacement estimates for the Mona Array Area plus 2 km buffer (or Mona Array Area plus 4 km buffer if appropriate for the species) during operation and maintenance

Species	Season	Seasonal mean peak population (Mona Array Area plus 2 km buffer or Mona Array plus 4 km if appropriate for the species)	Displacement rates (%)	Mortality rates(%)	Number of birds subject to mortality (individuals)
Common guillemot	Breeding	4,220	30%	1%	13
			70%	10%	295
	Non-breeding	3,756	30%	1%	11
			70%	10%	263
Razorbill	Pre-breeding season/spring migration	1,924	30%	1%	6
			70%	10%	135
	Breeding	83	30%	1%	0
			70%	10%	6
	Post breeding season/autumn migration	91	30%	1%	0
			70%	10%	6
	Non-breeding/winter season	421	30%	1%	1
			70%	10%	29
Atlantic puffin	Breeding	15	30%	1%	0
			70%	10%	1
	Non-breeding/winter season	22	30%	1%	0
			70%	10%	2
Northern gannet		28	60%	1%	0

Species	Season	Seasonal mean peak population (Mona Array Area plus 2 km buffer or Mona Array plus 4 km if appropriate for the species)	Displacement rates (%)	Mortality rates(%)	Number of birds subject to mortality (individuals)
	Pre-breeding season/spring migration		80%	10%	2
	Non-breeding/winter season	251	60%	1%	2
			80%	10%	20
	Post breeding season/autumn migration	58	60%	1%	0
			80%	10%	5
Black-legged kittiwake	Pre-breeding season/spring migration	574	30%	1%	2
			70%	10%	40
	Breeding	726	30%	1%	2
			70%	10%	51
	Post breeding season/autumn migration	560	30%	1%	2
			70%	10%	39
Manx shearwater	Pre-breeding season/spring migration	6	30%	1%	0
			70%	10%	0
	Breeding	1,249	30%	1%	4
			70%	10%	87
	Post breeding season/autumn migration	16	30%	1%	0
			70%	10%	1
Red-throated diver		0	100%	1%	0

Species	Season	Seasonal mean peak population (Mona Array Area plus 2 km buffer or Mona Array plus 4 km if appropriate for the species)	Displacement rates (%)	Mortality rates(%)	Number of birds subject to mortality (individuals)
	Pre-breeding season/spring migration		100%	10%	0
	Post breeding season/autumn migration	0	100%	1%	0
			100%	10%	0
	Non-breeding/winter season	0	100%	1%	0
			100%	10%	0

1.6 References

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Appendix A: Bird data for displacement

A.1 Monthly abundance estimates

Table A. 1: Common guillemot modelled abundance (all behaviours and all ages classes) within the Mona Array Area plus associated buffer. Calendar Years 1, 2 and 3 for surveys: March 2020 to February 2022. Peak figures used in displacement assessment in each season are outlined in bold.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mona Array Area plus 2 km												
Year 1	N/A	N/A	**5,739**	519	154	713	436	200	215	20	**1,171**	642
LCI	N/A	N/A	**4,895**	375	88	477	301	121	144	1	**815**	466
UCI	N/A	N/A	**6,657**	683	247	1,000	601	306	313	124	**1,569**	839
Year 2	1,162	**4,415**	**2,702**	1,919	203	458	836	50	14	408	41	1,763
LCI	791	**3,738**	**1,953**	1,605	118	338	664	18	3	291	12	1,464
UCI	1,569	**5,201**	**3,570**	2,261	309	599	1,026	113	44	552	98	2,091
Year 3	**3,097**	1,648	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LCI	**2,565**	1,352	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UCI	**3,665**	1,978	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table A. 2: Razorbill modelled abundance (all behaviours and all ages classes) within the Mona Array Area plus associated buffer. Calendar Years 1, 2 and 3 for surveys: March 2020 to February 2022. Peak figures used in displacement assessment in each season are outlined in bold.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mona Array Area plus 2 km												
Year 1	N/A	N/A	**1,543**	8	**35**	11	23	55	**173**	0	**223**	60
LCI	N/A	N/A	**1,104**	0	**0**	0	6	15	**58**	0	**94**	10
UCI	N/A	N/A	**2,078**	26	**72**	34	79	103	**413**	0	350	**793**
Year 2	387	**2,305**	1,097	**130**	10	17	41	**9**	0	0	0	**619**
LCI	172	**1,547**	769	**57**	0	0	0	**0**	0	0	0	**409**
UCI	735	**3,219**	1,484	**256**	28	36	99	**26**	0	0	0	**870**
Year 3	619	**960**	515	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LCI	409	**623**	357	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UCI	870	**1,391**	721	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table A. 3: Atlantic puffin modelled abundance (all behaviours and all ages classes) within the Mona Array Area plus associated buffer. Calendar Years 1, 2 and 3 for surveys: March 2020 to February 2022. Peak figures used in displacement assessment in each season are outlined in bold.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mona Array Area plus 2 km												
Year 1	N/A	N/A	**44**	8	0	0	**30**	0	0	0	0	**0**
LCI	N/A	N/A	**7**	0	0	0	**0**	0	0	0	0	**0**
UCI	N/A	N/A	**80**	23	0	0	**63**	0	0	0	0	**0**
Year 2	0	0	**0**	0	0	0	**0**	0	0	0	0	**0**
LCI	0	0	**0**	0	0	0	**0**	0	0	0	0	**0**
UCI	0	0	**0**	0	0	0	**0**	0	0	0	0	**0**
Year 3	**0**	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LCI	**0**	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UCI	**0**	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table A. 4: Northern gannet modelled abundance (all behaviours and all ages classes) within the Mona Array Area plus associated buffer. Calendar Years 1, 2 and 3 for surveys: March 2020 to February 2022. Peak figures used in displacement assessment in each season are outlined in bold.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mona Array Area plus 2 km												
Year 1	N/A	N/A	77	52	11	13	**209**	144	26	26	**26**	0
LCI	N/A	N/A	31	19	0	0	**142**	91	6	6	**6**	0
UCI	N/A	N/A	124	83	27	32	**282**	221	50	52	**53**	0
Year 2	**34**	0	117	212	59	13	34	66	**293**	**89**	13	12
LCI	**6**	0	64	138	26	0	15	30	**188**	**59**	0	0
UCI	**61**	0	191	302	95	32	64	121	**422**	**131**	27	38
Year 3	6	**21**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LCI	0	**0**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UCI	20	**42**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table A. 5: Black-legged kittiwake modelled abundance (all behaviours and all ages classes) within the Mona Array Area plus associated buffer. Calendar Years 1, 2 and 3 for surveys: March 2020 to February 2022. Peak figures used in displacement assessment in each season are outlined in bold.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mona Array Area plus 2 km												
Year 1	N/A	N/A	**548**	132	5	264	127	55	0	0	**242**	214
LCI	N/A	N/A	**337**	85	0	176	80	20	0	0	**146**	126
UCI	N/A	N/A	**822**	190	16	374	188	92	0	0	**367**	326
Year 2	**287**	258	**907**	391	199	124	445	0	0	28	112	**879**
LCI	**204**	175	**644**	274	51	73	240	0	0	7	65	**574**
UCI	**385**	356	**1,239**	526	167	195	744	0	0	56	179	**1,285**
Year 3	676	**861**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LCI	428	**592**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UCI	1,014	**1,208**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table A. 6: Manx shearwater modelled abundance (all behaviours and all ages classes) within the Mona Array Area plus associated buffer. Calendar Years 1, 2 and 3 for surveys: March 2020 to February 2022. Peak figures used in displacement assessment in each season are outlined in bold.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mona Array Area plus 2 km												
Year 1	N/A	N/A	**6**	0	0	7	**324**	32	**25**	0	0	0
LCI	N/A	N/A	**0**	0	0	0	**80**	6	**0**	0	0	0
UCI	N/A	N/A	**18**	0	0	20	**820**	57	**55**	0	0	0
Year 2	0	0	0	**6**	0	**2,173**	1,355	331	**7**	0	0	0
LCI	0	0	0	**0**	0	**589**	550	115	**0**	0	0	0
UCI	0	0	0	**20**	0	**5,538**	2,575	685	**22**	0	0	0
Year 3	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LCI	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UCI	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table A. 7: Red-throated diver modelled abundance (all behaviours and all ages classes) within the Mona Array Area plus associated buffer. Calendar Years 1, 2 and 3 for surveys: March 2020 to February 2022. Peak figures used in displacement assessment in each season are outlined in bold.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mona Array Area plus 4 km												
Year 1	N/A	N/A	**0**	0	0	**0**	0	0	0	**0**	0	**0**
LCI	N/A	N/A	**0**	0	0	**0**	0	0	0	**0**	0	**0**
UCI	N/A	N/A	**0**	0	0	**0**	0	0	0	**0**	0	**0**
Year 2	0	0	**0**	0	0	**0**	0	0	0	**0**	0	**0**
LCI	0	0	**0**	0	0	**0**	0	0	0	**0**	0	**0**
UCI	0	0	**0**	0	0	**0**	0	0	0	**0**	0	**0**
Year 3	**0**	**0**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LCI	**0**	**0**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UCI	**0**	**0**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix B: Upper and lower confidence interval abundance estimates

B.1 Upper peak abundance estimates

Table B. 1: Upper confidence limit peak abundances for use in the assessment for each season.

Species	Pre-breeding season/spring migration	Breeding season	Post breeding season/autumn migration	Non-breeding/winter season
Common guillemot				
Peak Year 1	N/A	6,657	N/A	5,201
Peak Year 2	N/A	3,570	N/A	3,665
Mean peak	N/A	5,113	N/A	4,433
Razorbill				
Peak Year 1	2,078	72	413	793
Peak Year 2	3,219	256	26	870
Mean peak	2,649	164	220	831
Atlantic puffin				
Peak Year 1	N/A	63	N/A	80
Peak Year 2	N/A	0	N/A	0
Mean peak	N/A	31	N/A	40
Northern gannet				
Peak Year 1	61	282	53	N/A
Peak Year 2	42	422	131	N/A
Mean peak	52	351	110	N/A

Species	Pre-breeding season/spring migration	Breeding season	Post breeding season/autumn migration	Non-breeding/winter season
Black-legged kittiwake				
Peak Year 1	385	822	367	N/A
Peak Year 2	1,208	1,239	1,285	N/A
Mean peak	797	1,031	826	N/A
Manx shearwater				
Peak Year 1	18	820	55	N/A
Peak Year 2	20	5,538	22	N/A
Mean peak	19	3,179	39	N/A
Red-throated diver				
Peak Year 1	0	N/A	0	0
Peak Year 2	0	N/A	0	0
Mean peak	0	N/A	0	0

B.2 Lower peak abundance estimates

Table B. 2: Lower confidence limit peak abundances for use in the assessment for each season.

Species	Pre-Breeding season/spring migration	Breeding season	Post Breeding season/autumn migration	Non-breeding/winter season
Common guillemot				
Peak Year 1	N/A	4,895	N/A	3,738
Peak Year 2	N/A	1,953	N/A	2,565
Mean peak	N/A	3,424	N/A	3,151
Razorbill				
Peak Year 1	1,104	15	58	94
Peak Year 2	1,547	57	0	409
Mean peak	1,326	36	29	252
Atlantic puffin				
Peak Year 1	N/A	0	N/A	7
Peak Year 2	N/A	0	N/A	0
Mean peak	N/A	0	N/A	4
Northern gannet				
Peak Year 1	6	142	6	N/A
Peak Year 2	0	188	59	N/A
Mean peak	3	165	32	N/A
Black-legged kittiwake				
Peak Year 1	204	337	146	N/A

Species	Pre-Breeding season/spring migration	Breeding season	Post Breeding season/autumn migration	Non-breeding/winter season
Peak Year 2	592	644	574	N/A
Mean peak	398	491	360	N/A
Manx shearwater				
Peak Year 1	0	80	0	N/A
Peak Year 2	0	589	0	N/A
Mean peak	0	334	0	N/A
Red-throated diver				
Peak Year 1	0	N/A	0	0
Peak Year 2	0	N/A	0	0
Mean peak	0	N/A	0	0

Appendix C: Upper and lower confidence interval matrices

C.1 Common guillemot

Table C. 1: LCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Guillemot Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	7	17	34	68	103	137	171	205	240	274	308	342
15%	5	10	26	51	103	154	205	257	308	359	411	462	514
20%	7	14	34	68	137	205	274	342	411	479	548	616	685
25%	9	17	43	86	171	257	342	428	514	599	685	770	856
30%	10	21	51	103	205	308	411	514	616	719	822	924	1027
35%	12	24	60	120	240	359	479	599	719	839	959	1078	1198
40%	14	27	68	137	274	411	548	685	822	959	1096	1233	1369
60%	21	41	103	205	411	616	822	1027	1233	1438	1643	1849	2054
80%	27	55	137	274	548	822	1096	1369	1643	1917	2191	2465	2739
100%	34	68	171	342	685	1027	1369	1712	2054	2397	2739	3081	3424

Table C. 2: UCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Guillemot Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	5	10	26	51	102	153	205	256	307	358	409	460	511
15%	8	15	38	77	153	230	307	383	460	537	614	690	767
20%	10	20	51	102	205	307	409	511	614	716	818	920	1023
25%	13	26	64	128	256	383	511	639	767	895	1023	1150	1278
30%	15	31	77	153	307	460	614	767	920	1074	1227	1381	1534
35%	18	36	89	179	358	537	716	895	1074	1253	1432	1611	1790
40%	20	41	102	205	409	614	818	1023	1227	1432	1636	1841	2045
60%	31	61	153	307	614	920	1227	1534	1841	2147	2454	2761	3068
80%	41	82	205	409	818	1227	1636	2045	2454	2863	3272	3681	4090
100%	51	102	256	511	1023	1534	2045	2557	3068	3579	4090	4602	5113

Table C. 3: LCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Guillemot	Mortality level (% of displaced birds at risk of mortality)												
Non-breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	6	16	32	63	95	126	158	189	221	252	284	315
15%	5	9	24	47	95	142	189	236	284	331	378	425	473
20%	6	13	32	63	126	189	252	315	378	441	504	567	630
25%	8	16	39	79	158	236	315	394	473	551	630	709	788
30%	9	19	47	95	189	284	378	473	567	662	756	851	945
35%	11	22	55	110	221	331	441	551	662	772	882	993	1103
40%	13	25	63	126	252	378	504	630	756	882	1008	1135	1261
60%	19	38	95	189	378	567	756	945	1135	1324	1513	1702	1891
80%	25	50	126	252	504	756	1008	1261	1513	1765	2017	2269	2521
100%	32	63	158	315	630	945	1261	1576	1891	2206	2521	2836	3151

Table C. 4: UCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Guillemot	Mortality level (% of displaced birds at risk of mortality)												
Non-breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	4	9	22	44	89	133	177	222	266	310	355	399	443
15%	7	13	33	66	133	199	266	332	399	465	532	598	665
20%	9	18	44	89	177	266	355	443	532	621	709	798	887
25%	11	22	55	111	222	332	443	554	665	776	887	997	1108
30%	13	27	66	133	266	399	532	665	798	931	1064	1197	1330
35%	16	31	78	155	310	465	621	776	931	1086	1241	1396	1551
40%	18	35	89	177	355	532	709	887	1064	1241	1418	1596	1773
60%	27	53	133	266	532	798	1064	1330	1596	1862	2128	2394	2660
80%	35	71	177	355	709	1064	1418	1773	2128	2482	2837	3192	3546
100%	44	89	222	443	887	1330	1773	2216	2660	3103	3546	3989	4433

Table C. 5: LCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the breeding season (operation).

Guillemot	Mortality level (% of displaced birds at risk of mortality)												
Breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	7	17	34	68	103	137	171	205	240	274	308	342
20%	7	14	34	68	137	205	274	342	411	479	548	616	685
30%	10	21	51	103	205	308	411	514	616	719	822	924	1027
40%	14	27	68	137	274	411	548	685	822	959	1096	1233	1369
50%	17	34	86	171	342	514	685	856	1027	1198	1369	1541	1712
60%	21	41	103	205	411	616	822	1027	1233	1438	1643	1849	2054
70%	24	48	120	240	479	719	959	1198	1438	1678	1917	2157	2397
80%	27	55	137	274	548	822	1096	1369	1643	1917	2191	2465	2739
90%	31	62	154	308	616	924	1233	1541	1849	2157	2465	2773	3081
100%	34	68	171	342	685	1027	1369	1712	2054	2397	2739	3081	3424

Table C. 6: UCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the breeding season (operation).

Guillemot Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	5	10	26	51	102	153	205	256	307	358	409	460	511
20%	10	20	51	102	205	307	409	511	614	716	818	920	1023
30%	15	31	77	153	307	460	614	767	920	1074	1227	1381	1534
40%	20	41	102	205	409	614	818	1023	1227	1432	1636	1841	2045
50%	26	51	128	256	511	767	1023	1278	1534	1790	2045	2301	2557
60%	31	61	153	307	614	920	1227	1534	1841	2147	2454	2761	3068
70%	36	72	179	358	716	1074	1432	1790	2147	2505	2863	3221	3579
80%	41	82	205	409	818	1227	1636	2045	2454	2863	3272	3681	4090
90%	46	92	230	460	920	1381	1841	2301	2761	3221	3681	4142	4602
100%	51	102	256	511	1023	1534	2045	2557	3068	3579	4090	4602	5113

Table C. 7: LCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operation).

Guillemot Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	6	16	32	63	95	126	158	189	221	252	284	315
20%	6	13	32	63	126	189	252	315	378	441	504	567	630
30%	9	19	47	95	189	284	378	473	567	662	756	851	945
40%	13	25	63	126	252	378	504	630	756	882	1008	1135	1261
50%	16	32	79	158	315	473	630	788	945	1103	1261	1418	1576
60%	19	38	95	189	378	567	756	945	1135	1324	1513	1702	1891
70%	22	44	110	221	441	662	882	1103	1324	1544	1765	1985	2206
80%	25	50	126	252	504	756	1008	1261	1513	1765	2017	2269	2521
90%	28	57	142	284	567	851	1135	1418	1702	1985	2269	2553	2836
100%	32	63	158	315	630	945	1261	1576	1891	2206	2521	2836	3151

Table C. 8: UCI predicted common guillemot mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operation).

Guillemot Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	4	9	22	44	89	133	177	222	266	310	355	399	443
20%	9	18	44	89	177	266	355	443	532	621	709	798	887
30%	13	27	66	133	266	399	532	665	798	931	1064	1197	1330
40%	18	35	89	177	355	532	709	887	1064	1241	1418	1596	1773
50%	22	44	111	222	443	665	887	1108	1330	1551	1773	1995	2216
60%	27	53	133	266	532	798	1064	1330	1596	1862	2128	2394	2660
70%	31	62	155	310	621	931	1241	1551	1862	2172	2482	2793	3103
80%	35	71	177	355	709	1064	1418	1773	2128	2482	2837	3192	3546
90%	40	80	199	399	798	1197	1596	1995	2394	2793	3192	3590	3989
100%	44	89	222	443	887	1330	1773	2216	2660	3103	3546	3989	4433

C.2 Razorbill

Table C. 9: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	3	7	13	27	40	53	66	80	93	106	119	133
15%	2	4	10	20	40	60	80	99	119	139	159	179	199
20%	3	5	13	27	53	80	106	133	159	186	212	239	265
25%	3	7	17	33	66	99	133	166	199	232	265	298	331
30%	4	8	20	40	80	119	159	199	239	278	318	358	398
35%	5	9	23	46	93	139	186	232	278	325	371	418	464
40%	5	11	27	53	106	159	212	265	318	371	424	477	530
60%	8	16	40	80	159	239	318	398	477	557	636	716	795
80%	11	21	53	106	212	318	424	530	636	742	848	954	1060
100%	13	27	66	133	265	398	530	663	795	928	1060	1193	1326

Table C. 10: UCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	5	13	26	53	79	106	132	159	185	212	238	265
15%	4	8	20	40	79	119	159	199	238	278	318	358	397
20%	5	11	26	53	106	159	212	265	318	371	424	477	530
25%	7	13	33	66	132	199	265	331	397	463	530	596	662
30%	8	16	40	79	159	238	318	397	477	556	636	715	795
35%	9	19	46	93	185	278	371	463	556	649	742	834	927
40%	11	21	53	106	212	318	424	530	636	742	848	953	1059
60%	16	32	79	159	318	477	636	795	953	1112	1271	1430	1589
80%	21	42	106	212	424	636	848	1059	1271	1483	1695	1907	2119
100%	26	53	132	265	530	795	1059	1324	1589	1854	2119	2384	2649

Table C. 11: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Razorbill Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	1	2	2	2	3	3
15%	0	0	0	0	1	1	2	2	3	3	3	4	4
20%	0	0	0	1	1	2	2	3	3	4	5	5	6
25%	0	0	0	1	1	2	3	4	4	5	6	6	7
30%	0	0	0	1	2	3	3	4	5	6	7	8	9
35%	0	0	0	1	2	3	4	5	6	7	8	9	10
40%	0	0	1	1	2	3	5	6	7	8	9	10	11
60%	0	0	1	2	3	5	7	9	10	12	14	15	17
80%	0	0	1	2	5	7	9	11	14	16	18	20	23
100%	0	1	1	3	6	9	11	14	17	20	23	26	28

Table C. 12: UCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Razorbill Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	1	2	3	5	7	8	10	11	13	15	16
15%	0	0	1	2	5	7	10	12	15	17	20	22	25
20%	0	1	2	3	7	10	13	16	20	23	26	30	33
25%	0	1	2	4	8	12	16	20	25	29	33	37	41
30%	0	1	2	5	10	15	20	25	30	34	39	44	49
35%	1	1	3	6	11	17	23	29	34	40	46	52	57
40%	1	1	3	7	13	20	26	33	39	46	52	59	66
60%	1	2	5	10	20	30	39	49	59	69	79	89	98
80%	1	3	7	13	26	39	52	66	79	92	105	118	131
100%	2	3	8	16	33	49	66	82	98	115	131	148	164

Table C. 13: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	1	2	2	2	3	3
15%	0	0	0	0	1	1	2	2	3	3	4	4	4
20%	0	0	0	1	1	2	2	3	4	4	5	5	6
25%	0	0	0	1	1	2	3	4	4	5	6	7	7
30%	0	0	0	1	2	3	4	4	5	6	7	8	9
35%	0	0	1	1	2	3	4	5	6	7	8	9	10
40%	0	0	1	1	2	4	5	6	7	8	9	11	12
60%	0	0	1	2	4	5	7	9	11	12	14	16	18
80%	0	0	1	2	5	7	9	12	14	16	19	21	23
100%	0	1	1	3	6	9	12	15	18	20	23	26	29

Table C. 14: UCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	1	2	4	7	9	11	13	15	18	20	22
15%	0	1	2	3	7	10	13	16	20	23	26	30	33
20%	0	1	2	4	9	13	18	22	26	31	35	40	44
25%	1	1	3	5	11	16	22	27	33	38	44	49	55
30%	1	1	3	7	13	20	26	33	40	46	53	59	66
35%	1	2	4	8	15	23	31	38	46	54	61	69	77
40%	1	2	4	9	18	26	35	44	53	61	70	79	88
60%	1	3	7	13	26	40	53	66	79	92	105	119	132
80%	2	4	9	18	35	53	70	88	105	123	141	158	176
100%	2	4	11	22	44	66	88	110	132	154	176	198	220

Table C. 15: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Non-breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	1	3	5	8	10	13	15	18	20	23	25
15%	0	1	2	4	8	11	15	19	23	26	30	34	38
20%	1	1	3	5	10	15	20	25	30	35	40	45	50
25%	1	1	3	6	13	19	25	31	38	44	50	57	63
30%	1	2	4	8	15	23	30	38	45	53	60	68	75
35%	1	2	4	9	18	26	35	44	53	62	70	79	88
40%	1	2	5	10	20	30	40	50	60	70	80	91	101
60%	2	3	8	15	30	45	60	75	91	106	121	136	151
80%	2	4	10	20	40	60	80	101	121	141	161	181	201
100%	3	5	13	25	50	75	101	126	151	176	201	226	252

Table C. 16: UCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Non-breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	4	8	17	25	33	42	50	58	67	75	83
15%	1	2	6	12	25	37	50	62	75	87	100	112	125
20%	2	3	8	17	33	50	67	83	100	116	133	150	166
25%	2	4	10	21	42	62	83	104	125	145	166	187	208
30%	2	5	12	25	50	75	100	125	150	175	200	224	249
35%	3	6	15	29	58	87	116	145	175	204	233	262	291
40%	3	7	17	33	67	100	133	166	200	233	266	299	333
60%	5	10	25	50	100	150	200	249	299	349	399	449	499
80%	7	13	33	67	133	200	266	333	399	466	532	599	665
100%	8	17	42	83	166	249	333	416	499	582	665	748	831

Table C. 17: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Spring migration (operation).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	3	7	13	27	40	53	66	80	93	106	119	133
20%	3	5	13	27	53	80	106	133	159	186	212	239	265
30%	4	8	20	40	80	119	159	199	239	278	318	358	398
40%	5	11	27	53	106	159	212	265	318	371	424	477	530
50%	7	13	33	66	133	199	265	331	398	464	530	597	663
60%	8	16	40	80	159	239	318	398	477	557	636	716	795
70%	9	19	46	93	186	278	371	464	557	650	742	835	928
80%	11	21	53	106	212	318	424	530	636	742	848	954	1060
90%	12	24	60	119	239	358	477	597	716	835	954	1074	1193
100%	13	27	66	133	265	398	530	663	795	928	1060	1193	1326

Table C. 18: UCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Spring migration (operation).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	5	13	26	53	79	106	132	159	185	212	238	265
20%	5	11	26	53	106	159	212	265	318	371	424	477	530
30%	8	16	40	79	159	238	318	397	477	556	636	715	795
40%	11	21	53	106	212	318	424	530	636	742	848	953	1059
50%	13	26	66	132	265	397	530	662	795	927	1059	1192	1324
60%	16	32	79	159	318	477	636	795	953	1112	1271	1430	1589
70%	19	37	93	185	371	556	742	927	1112	1298	1483	1669	1854
80%	21	42	106	212	424	636	848	1059	1271	1483	1695	1907	2119
90%	24	48	119	238	477	715	953	1192	1430	1669	1907	2145	2384
100%	26	53	132	265	530	795	1059	1324	1589	1854	2119	2384	2649

Table C. 19: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the breeding season (operation).

Razorbill Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	1	2	2	2	3	3
20%	0	0	0	1	1	2	2	3	3	4	5	5	6
30%	0	0	0	1	2	3	3	4	5	6	7	8	9
40%	0	0	1	1	2	3	5	6	7	8	9	10	11
50%	0	0	1	1	3	4	6	7	9	10	11	13	14
60%	0	0	1	2	3	5	7	9	10	12	14	15	17
70%	0	0	1	2	4	6	8	10	12	14	16	18	20
80%	0	0	1	2	5	7	9	11	14	16	18	20	23
90%	0	1	1	3	5	8	10	13	15	18	20	23	26
100%	0	1	1	3	6	9	11	14	17	20	23	26	28

Table C. 20: UCI predicted razorbill mortality for the Mona Array Area 2 km buffer during the breeding season (operation).

Razorbill Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	1	2	3	5	7	8	10	11	13	15	16
20%	0	1	2	3	7	10	13	16	20	23	26	30	33
30%	0	1	2	5	10	15	20	25	30	34	39	44	49
40%	1	1	3	7	13	20	26	33	39	46	52	59	66
50%	1	2	4	8	16	25	33	41	49	57	66	74	82
60%	1	2	5	10	20	30	39	49	59	69	79	89	98
70%	1	2	6	11	23	34	46	57	69	80	92	103	115
80%	1	3	7	13	26	39	52	66	79	92	105	118	131
90%	1	3	7	15	30	44	59	74	89	103	118	133	148
100%	2	3	8	16	33	49	66	82	98	115	131	148	164

Table C. 21: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operation).

Razorbill Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	1	2	2	2	3	3
20%	0	0	0	1	1	2	2	3	4	4	5	5	6
30%	0	0	0	1	2	3	4	4	5	6	7	8	9
40%	0	0	1	1	2	4	5	6	7	8	9	11	12
50%	0	0	1	1	3	4	6	7	9	10	12	13	15
60%	0	0	1	2	4	5	7	9	11	12	14	16	18
70%	0	0	1	2	4	6	8	10	12	14	16	18	20
80%	0	0	1	2	5	7	9	12	14	16	19	21	23
90%	0	1	1	3	5	8	11	13	16	18	21	24	26
100%	0	1	1	3	6	9	12	15	18	20	23	26	29

Table C. 22: UCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operation).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	1	2	4	7	9	11	13	15	18	20	22
20%	0	1	2	4	9	13	18	22	26	31	35	40	44
30%	1	1	3	7	13	20	26	33	40	46	53	59	66
40%	1	2	4	9	18	26	35	44	53	61	70	79	88
50%	1	2	5	11	22	33	44	55	66	77	88	99	110
60%	1	3	7	13	26	40	53	66	79	92	105	119	132
70%	2	3	8	15	31	46	61	77	92	108	123	138	154
80%	2	4	9	18	35	53	70	88	105	123	141	158	176
90%	2	4	10	20	40	59	79	99	119	138	158	178	198
100%	2	4	11	22	44	66	88	110	132	154	176	198	220

Table C. 23: LCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operation).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Non-breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	1	3	5	8	10	13	15	18	20	23	25
20%	1	1	3	5	10	15	20	25	30	35	40	45	50
30%	1	2	4	8	15	23	30	38	45	53	60	68	75
40%	1	2	5	10	20	30	40	50	60	70	80	91	101
50%	1	3	6	13	25	38	50	63	75	88	101	113	126
60%	2	3	8	15	30	45	60	75	91	106	121	136	151
70%	2	4	9	18	35	53	70	88	106	123	141	158	176
80%	2	4	10	20	40	60	80	101	121	141	161	181	201
90%	2	5	11	23	45	68	91	113	136	158	181	204	226
100%	3	5	13	25	50	75	101	126	151	176	201	226	252

Table C. 24: UCI predicted razorbill mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operation).

Razorbill	Mortality level (% of displaced birds at risk of mortality)												
Non-breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	4	8	17	25	33	42	50	58	67	75	83
20%	2	3	8	17	33	50	67	83	100	116	133	150	166
30%	2	5	12	25	50	75	100	125	150	175	200	224	249
40%	3	7	17	33	67	100	133	166	200	233	266	299	333
50%	4	8	21	42	83	125	166	208	249	291	333	374	416
60%	5	10	25	50	100	150	200	249	299	349	399	449	499
70%	6	12	29	58	116	175	233	291	349	407	466	524	582
80%	7	13	33	67	133	200	266	333	399	466	532	599	665
90%	7	15	37	75	150	224	299	374	449	524	599	673	748
100%	8	17	42	83	166	249	333	416	499	582	665	748	831

C.3 Atlantic puffin

Table C. 25: LCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Puffin Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
15%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
25%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
35%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 26: UCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Puffin Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	2	2	2	3	3	3
15%	0	0	0	0	1	1	2	2	3	3	4	4	5
20%	0	0	0	1	1	2	3	3	4	4	5	6	6
25%	0	0	0	1	2	2	3	4	5	5	6	7	8
30%	0	0	0	1	2	3	4	5	6	7	8	8	9
35%	0	0	1	1	2	3	4	5	7	8	9	10	11
40%	0	0	1	1	3	4	5	6	8	9	10	11	13
60%	0	0	1	2	4	6	8	9	11	13	15	17	19
80%	0	1	1	3	5	8	10	13	15	18	20	23	25
100%	0	1	2	3	6	9	13	16	19	22	25	28	31

Table C. 27: LCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Puffin Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
15%	0	0	0	0	0	0	0	0	0	0	0	1	1
20%	0	0	0	0	0	0	0	0	0	1	1	1	1
25%	0	0	0	0	0	0	0	1	1	1	1	1	1
30%	0	0	0	0	0	0	0	1	1	1	1	1	1
35%	0	0	0	0	0	0	1	1	1	1	1	1	1
40%	0	0	0	0	0	0	1	1	1	1	1	1	2
60%	0	0	0	0	0	1	1	1	1	2	2	2	2
80%	0	0	0	0	1	1	1	2	2	2	3	3	3
100%	0	0	0	0	1	1	2	2	2	3	3	4	4

Table C. 28: UCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (construction and decommissioning).

Puffin Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	2	2	2	3	3	4	4
15%	0	0	0	1	1	2	2	3	4	4	5	5	6
20%	0	0	0	1	2	2	3	4	5	6	6	7	8
25%	0	0	1	1	2	3	4	5	6	7	8	9	10
30%	0	0	1	1	2	4	5	6	7	8	10	11	12
35%	0	0	1	1	3	4	6	7	8	10	11	13	14
40%	0	0	1	2	3	5	6	8	10	11	13	14	16
60%	0	0	1	2	5	7	10	12	14	17	19	22	24
80%	0	1	2	3	6	10	13	16	19	22	26	29	32
100%	0	1	2	4	8	12	16	20	24	28	32	36	40

Table C. 29: LCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Puffin Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 30: UCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Puffin Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	2	2	2	3	3	3
20%	0	0	0	1	1	2	3	3	4	4	5	6	6
30%	0	0	0	1	2	3	4	5	6	7	8	8	9
40%	0	0	1	1	3	4	5	6	8	9	10	11	13
50%	0	0	1	2	3	5	6	8	9	11	13	14	16
60%	0	0	1	2	4	6	8	9	11	13	15	17	19
70%	0	0	1	2	4	7	9	11	13	15	18	20	22
80%	0	1	1	3	5	8	10	13	15	18	20	23	25
90%	0	1	1	3	6	8	11	14	17	20	23	25	28
100%	0	1	2	3	6	9	13	16	19	22	25	28	31

Table C. 31: LCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operations and maintenance phase).

Puffin Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	1	1	1	1
30%	0	0	0	0	0	0	0	1	1	1	1	1	1
40%	0	0	0	0	0	0	1	1	1	1	1	1	2
50%	0	0	0	0	0	1	1	1	1	1	2	2	2
60%	0	0	0	0	0	1	1	1	1	2	2	2	2
70%	0	0	0	0	1	1	1	1	2	2	2	3	3
80%	0	0	0	0	1	1	1	2	2	2	3	3	3
90%	0	0	0	0	1	1	1	2	2	3	3	3	4
100%	0	0	0	0	1	1	2	2	2	3	3	4	4

Table C. 32: UCI predicted Atlantic puffin mortality for the Mona Array Area plus 2 km buffer during the non-breeding season (operations and maintenance phase).

Puffin Non-breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	2	2	2	3	3	4	4
20%	0	0	0	1	2	2	3	4	5	6	6	7	8
30%	0	0	1	1	2	4	5	6	7	8	10	11	12
40%	0	0	1	2	3	5	6	8	10	11	13	14	16
50%	0	0	1	2	4	6	8	10	12	14	16	18	20
60%	0	0	1	2	5	7	10	12	14	17	19	22	24
70%	0	1	1	3	6	8	11	14	17	20	22	25	28
80%	0	1	2	3	6	10	13	16	19	22	26	29	32
90%	0	1	2	4	7	11	14	18	22	25	29	32	36
100%	0	1	2	4	8	12	16	20	24	28	32	36	40

C.4 Northern gannet

Table C. 33: LCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Gannet Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
15%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	1	1	1
25%	0	0	0	0	0	0	0	0	0	1	1	1	1
30%	0	0	0	0	0	0	0	0	1	1	1	1	1
35%	0	0	0	0	0	0	0	1	1	1	1	1	1
40%	0	0	0	0	0	0	1	1	1	1	1	1	1
60%	0	0	0	0	0	1	1	1	1	1	2	2	2
80%	0	0	0	0	1	1	1	1	2	2	2	2	3
100%	0	0	0	0	1	1	1	2	2	2	3	3	3

Table C. 34: UCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Gannet Spring migrati	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	1	2	2	3	3	4	4	5	5
15%	0	0	0	1	2	2	3	4	5	5	6	7	8
20%	0	0	1	1	2	3	4	5	6	7	8	9	10
25%	0	0	1	1	3	4	5	7	8	9	10	12	13
30%	0	0	1	2	3	5	6	8	9	11	12	14	16
35%	0	0	1	2	4	5	7	9	11	13	15	16	18
40%	0	0	1	2	4	6	8	10	12	15	17	19	21
60%	0	1	2	3	6	9	12	16	19	22	25	28	31
80%	0	1	2	4	8	12	17	21	25	29	33	37	42
100%	1	1	3	5	10	16	21	26	31	36	42	47	52

Table C. 35: LCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Gannet Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	1	2	3	5	7	8	10	12	13	15	17
15%	0	0	1	2	5	7	10	12	15	17	20	22	25
20%	0	1	2	3	7	10	13	17	20	23	26	30	33
25%	0	1	2	4	8	12	17	21	25	29	33	37	41
30%	0	1	2	5	10	15	20	25	30	35	40	45	50
35%	1	1	3	6	12	17	23	29	35	40	46	52	58
40%	1	1	3	7	13	20	26	33	40	46	53	59	66
60%	1	2	5	10	20	30	40	50	59	69	79	89	99
80%	1	3	7	13	26	40	53	66	79	93	106	119	132
100%	2	3	8	17	33	50	66	83	99	116	132	149	165

Table C. 36: UCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Gannet Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	4	7	11	14	18	21	25	28	32	35
15%	1	1	3	5	11	16	21	26	32	37	42	47	53
20%	1	1	4	7	14	21	28	35	42	49	56	63	70
25%	1	2	4	9	18	26	35	44	53	61	70	79	88
30%	1	2	5	11	21	32	42	53	63	74	84	95	105
35%	1	2	6	12	25	37	49	61	74	86	98	111	123
40%	1	3	7	14	28	42	56	70	84	98	112	126	140
60%	2	4	11	21	42	63	84	105	126	147	168	190	211
80%	3	6	14	28	56	84	112	140	168	197	225	253	281
100%	4	7	18	35	70	105	140	176	211	246	281	316	351

Table C. 37: LCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Gannet Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	2	2	2	3	3	3
15%	0	0	0	0	1	1	2	2	3	3	4	4	5
20%	0	0	0	1	1	2	3	3	4	5	5	6	6
25%	0	0	0	1	2	2	3	4	5	6	6	7	8
30%	0	0	0	1	2	3	4	5	6	7	8	9	10
35%	0	0	1	1	2	3	5	6	7	8	9	10	11
40%	0	0	1	1	3	4	5	6	8	9	10	12	13
60%	0	0	1	2	4	6	8	10	12	14	16	18	19
80%	0	1	1	3	5	8	10	13	16	18	21	23	26
100%	0	1	2	3	6	10	13	16	19	23	26	29	32

Table C. 38: UCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Gannet Autumn migrat	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	1	1	2	3	4	6	7	8	9	10	11
15%	0	0	1	2	3	5	7	8	10	12	13	15	17
20%	0	0	1	2	4	7	9	11	13	15	18	20	22
25%	0	1	1	3	6	8	11	14	17	19	22	25	28
30%	0	1	2	3	7	10	13	17	20	23	26	30	33
35%	0	1	2	4	8	12	15	19	23	27	31	35	39
40%	0	1	2	4	9	13	18	22	26	31	35	40	44
60%	1	1	3	7	13	20	26	33	40	46	53	59	66
80%	1	2	4	9	18	26	35	44	53	62	70	79	88
100%	1	2	6	11	22	33	44	55	66	77	88	99	110

Table C. 39: LCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Spring migration (operations and maintenance phase).

Gannet Spring migratio	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	1	1	1
30%	0	0	0	0	0	0	0	0	1	1	1	1	1
40%	0	0	0	0	0	0	1	1	1	1	1	1	1
50%	0	0	0	0	0	0	1	1	1	1	1	1	2
60%	0	0	0	0	0	1	1	1	1	1	2	2	2
70%	0	0	0	0	0	1	1	1	1	2	2	2	2
80%	0	0	0	0	1	1	1	1	2	2	2	2	3
90%	0	0	0	0	1	1	1	1	2	2	2	3	3
100%	0	0	0	0	1	1	1	2	2	2	3	3	3

Table C. 40: UCI predicted northern gannet mortality for the Mona Array Area 2 km buffer during Spring migration (operations and maintenance phase).

Gannet Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	1	2	2	3	3	4	4	5	5
20%	0	0	1	1	2	3	4	5	6	7	8	9	10
30%	0	0	1	2	3	5	6	8	9	11	12	14	16
40%	0	0	1	2	4	6	8	10	12	15	17	19	21
50%	0	1	1	3	5	8	10	13	16	18	21	23	26
60%	0	1	2	3	6	9	12	16	19	22	25	28	31
70%	0	1	2	4	7	11	15	18	22	25	29	33	36
80%	0	1	2	4	8	12	17	21	25	29	33	37	42
90%	0	1	2	5	9	14	19	23	28	33	37	42	47
100%	1	1	3	5	10	16	21	26	31	36	42	47	52

Table C. 41: LCI predicted northern gannet mortality for the Mona Array Area 2 km buffer during the breeding season (operations and maintenance phase).

Gannet Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	1	2	3	5	7	8	10	12	13	15	17
20%	0	1	2	3	7	10	13	17	20	23	26	30	33
30%	0	1	2	5	10	15	20	25	30	35	40	45	50
40%	1	1	3	7	13	20	26	33	40	46	53	59	66
50%	1	2	4	8	17	25	33	41	50	58	66	74	83
60%	1	2	5	10	20	30	40	50	59	69	79	89	99
70%	1	2	6	12	23	35	46	58	69	81	93	104	116
80%	1	3	7	13	26	40	53	66	79	93	106	119	132
90%	1	3	7	15	30	45	59	74	89	104	119	134	149
100%	2	3	8	17	33	50	66	83	99	116	132	149	165

Table C. 42: UCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Gannet Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	4	7	11	14	18	21	25	28	32	35
20%	1	1	4	7	14	21	28	35	42	49	56	63	70
30%	1	2	5	11	21	32	42	53	63	74	84	95	105
40%	1	3	7	14	28	42	56	70	84	98	112	126	140
50%	2	4	9	18	35	53	70	88	105	123	140	158	176
60%	2	4	11	21	42	63	84	105	126	147	168	190	211
70%	2	5	12	25	49	74	98	123	147	172	197	221	246
80%	3	6	14	28	56	84	112	140	168	197	225	253	281
90%	3	6	16	32	63	95	126	158	190	221	253	284	316
100%	4	7	18	35	70	105	140	176	211	246	281	316	351

Table C. 43: LCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operations and maintenance phase).

Gannet Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	1	2	2	2	3	3	3
20%	0	0	0	1	1	2	3	3	4	5	5	6	6
30%	0	0	0	1	2	3	4	5	6	7	8	9	10
40%	0	0	1	1	3	4	5	6	8	9	10	12	13
50%	0	0	1	2	3	5	6	8	10	11	13	15	16
60%	0	0	1	2	4	6	8	10	12	14	16	18	19
70%	0	0	1	2	5	7	9	11	14	16	18	20	23
80%	0	1	1	3	5	8	10	13	16	18	21	23	26
90%	0	1	1	3	6	9	12	15	18	20	23	26	29
100%	0	1	2	3	6	10	13	16	19	23	26	29	32

Table C. 44: UCI predicted northern gannet mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operations and maintenance phase).

Gannet		Mortality level (% of displaced birds at risk of mortality)												
Spring migration														
Displacement level		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	1	1	2	3	4	6	7	8	9	10	11
	20%	0	0	1	2	4	7	9	11	13	15	18	20	22
	30%	0	1	2	3	7	10	13	17	20	23	26	30	33
	40%	0	1	2	4	9	13	18	22	26	31	35	40	44
	50%	1	1	3	6	11	17	22	28	33	39	44	50	55
	60%	1	1	3	7	13	20	26	33	40	46	53	59	66
	70%	1	2	4	8	15	23	31	39	46	54	62	69	77
	80%	1	2	4	9	18	26	35	44	53	62	70	79	88
	90%	1	2	5	10	20	30	40	50	59	69	79	89	99
	100%	1	2	6	11	22	33	44	55	66	77	88	99	110

C.5 Black-legged kittiwake

Table C. 45: LCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Black-legged kittiwake		Mortality level (% of displaced birds at risk of mortality)												
Spring migration														
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	1	2	4	8	12	16	20	24	28	32	36	40
	15%	1	1	3	6	12	18	24	30	36	42	48	54	60
	20%	1	2	4	8	16	24	32	40	48	56	64	72	80
	25%	1	2	5	10	20	30	40	50	60	70	80	90	100
	30%	1	2	6	12	24	36	48	60	72	84	96	107	119
	35%	1	3	7	14	28	42	56	70	84	98	111	125	139
	40%	2	3	8	16	32	48	64	80	96	111	127	143	159
	60%	2	5	12	24	48	72	96	119	143	167	191	215	239
	80%	3	6	16	32	64	96	127	159	191	223	255	287	318
	100%	4	8	20	40	80	119	159	199	239	279	318	358	398

Table C. 46: UCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Black-legged kittiwake Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	4	8	16	24	32	40	48	56	64	72	80
15%	1	2	6	12	24	36	48	60	72	84	96	108	120
20%	2	3	8	16	32	48	64	80	96	112	128	143	159
25%	2	4	10	20	40	60	80	100	120	139	159	179	199
30%	2	5	12	24	48	72	96	120	143	167	191	215	239
35%	3	6	14	28	56	84	112	139	167	195	223	251	279
40%	3	6	16	32	64	96	128	159	191	223	255	287	319
60%	5	10	24	48	96	143	191	239	287	335	383	430	478
80%	6	13	32	64	128	191	255	319	383	446	510	574	638
100%	8	16	40	80	159	239	319	399	478	558	638	717	797

Table C. 47: LCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Black-legged kittiwake Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	5	10	15	20	25	29	34	39	44	49
15%	1	1	4	7	15	22	29	37	44	52	59	66	74
20%	1	2	5	10	20	29	39	49	59	69	79	88	98
25%	1	2	6	12	25	37	49	61	74	86	98	110	123
30%	1	3	7	15	29	44	59	74	88	103	118	133	147
35%	2	3	9	17	34	52	69	86	103	120	137	155	172
40%	2	4	10	20	39	59	79	98	118	137	157	177	196
60%	3	6	15	29	59	88	118	147	177	206	236	265	295
80%	4	8	20	39	79	118	157	196	236	275	314	354	393
100%	5	10	25	49	98	147	196	246	295	344	393	442	491

Table C. 48: UCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Black-legged kittiwake Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	5	10	21	31	41	52	62	72	82	93	103
15%	2	3	8	15	31	46	62	77	93	108	124	139	155
20%	2	4	10	21	41	62	82	103	124	144	165	186	206
25%	3	5	13	26	52	77	103	129	155	180	206	232	258
30%	3	6	15	31	62	93	124	155	186	217	247	278	309
35%	4	7	18	36	72	108	144	180	217	253	289	325	361
40%	4	8	21	41	82	124	165	206	247	289	330	371	412
60%	6	12	31	62	124	186	247	309	371	433	495	557	619
80%	8	16	41	82	165	247	330	412	495	577	660	742	825
100%	10	21	52	103	206	309	412	516	619	722	825	928	1,031

Table C. 49: LCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Kittiwake Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	4	7	11	14	18	22	25	29	32	36
15%	1	1	3	5	11	16	22	27	32	38	43	49	54
20%	1	1	4	7	14	22	29	36	43	50	58	65	72
25%	1	2	4	9	18	27	36	45	54	63	72	81	90
30%	1	2	5	11	22	32	43	54	65	76	86	97	108
35%	1	3	6	13	25	38	50	63	76	88	101	113	126
40%	1	3	7	14	29	43	58	72	86	101	115	130	144
60%	2	4	11	22	43	65	86	108	130	151	173	194	216
80%	3	6	14	29	58	86	115	144	173	201	230	259	288
100%	4	7	18	36	72	108	144	180	216	252	288	324	360

Table C. 50: UCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Kittiwake Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	4	8	17	25	33	41	50	58	66	74	83
15%	1	2	6	12	25	37	50	62	74	87	99	112	124
20%	2	3	8	17	33	50	66	83	99	116	132	149	165
25%	2	4	10	21	41	62	83	103	124	145	165	186	207
30%	2	5	12	25	50	74	99	124	149	173	198	223	248
35%	3	6	14	29	58	87	116	145	173	202	231	260	289
40%	3	7	17	33	66	99	132	165	198	231	264	297	330
60%	5	10	25	50	99	149	198	248	297	347	397	446	496
80%	7	13	33	66	132	198	264	330	397	463	529	595	661
100%	8	17	41	83	165	248	330	413	496	578	661	744	826

Table C. 51: LCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Spring migration (operations and maintenance phase).

Black-legged kittiwake	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	4	8	12	16	20	24	28	32	36	40
20%	1	2	4	8	16	24	32	40	48	56	64	72	80
30%	1	2	6	12	24	36	48	60	72	84	96	107	119
40%	2	3	8	16	32	48	64	80	96	111	127	143	159
50%	2	4	10	20	40	60	80	100	119	139	159	179	199
60%	2	5	12	24	48	72	96	119	143	167	191	215	239
70%	3	6	14	28	56	84	111	139	167	195	223	251	279
80%	3	6	16	32	64	96	127	159	191	223	255	287	318
90%	4	7	18	36	72	107	143	179	215	251	287	322	358
100%	4	8	20	40	80	119	159	199	239	279	318	358	398

Table C. 52: UCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Spring migration (operations and maintenance phase).

Black-legged kittiwake	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	4	8	16	24	32	40	48	56	64	72	80
20%	2	3	8	16	32	48	64	80	96	112	128	143	159
30%	2	5	12	24	48	72	96	120	143	167	191	215	239
40%	3	6	16	32	64	96	128	159	191	223	255	287	319
50%	4	8	20	40	80	120	159	199	239	279	319	359	399
60%	5	10	24	48	96	143	191	239	287	335	383	430	478
70%	6	11	28	56	112	167	223	279	335	391	446	502	558
80%	6	13	32	64	128	191	255	319	383	446	510	574	638
90%	7	14	36	72	143	215	287	359	430	502	574	646	717
100%	8	16	40	80	159	239	319	399	478	558	638	717	797

Table C. 53: LCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Black-legged kittiwake Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	5	10	15	20	25	29	34	39	44	49
20%	1	2	5	10	20	29	39	49	59	69	79	88	98
30%	1	3	7	15	29	44	59	74	88	103	118	133	147
40%	2	4	10	20	39	59	79	98	118	137	157	177	196
50%	2	5	12	25	49	74	98	123	147	172	196	221	246
60%	3	6	15	29	59	88	118	147	177	206	236	265	295
70%	3	7	17	34	69	103	137	172	206	241	275	309	344
80%	4	8	20	39	79	118	157	196	236	275	314	354	393
90%	4	9	22	44	88	133	177	221	265	309	354	398	442
100%	5	10	25	49	98	147	196	246	295	344	393	442	491

Table C. 54: UCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during the breeding season (operations and maintenance phase).

Black-legged kittiwake Breeding	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	5	10	21	31	41	52	62	72	82	93	103
20%	2	4	10	21	41	62	82	103	124	144	165	186	206
30%	3	6	15	31	62	93	124	155	186	217	247	278	309
40%	4	8	21	41	82	124	165	206	247	289	330	371	412
50%	5	10	26	52	103	155	206	258	309	361	412	464	516
60%	6	12	31	62	124	186	247	309	371	433	495	557	619
70%	7	14	36	72	144	217	289	361	433	505	577	650	722
80%	8	16	41	82	165	247	330	412	495	577	660	742	825
90%	9	19	46	93	186	278	371	464	557	650	742	835	928
100%	10	21	52	103	206	309	412	516	619	722	825	928	1,031

Table C. 55: LCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operations and maintenance phase).

Kittiwake	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	4	7	11	14	18	22	25	29	32	36
20%	1	1	4	7	14	22	29	36	43	50	58	65	72
30%	1	2	5	11	22	32	43	54	65	76	86	97	108
40%	1	3	7	14	29	43	58	72	86	101	115	130	144
50%	2	4	9	18	36	54	72	90	108	126	144	162	180
60%	2	4	11	22	43	65	86	108	130	151	173	194	216
70%	3	5	13	25	50	76	101	126	151	176	201	227	252
80%	3	6	14	29	58	86	115	144	173	201	230	259	288
90%	3	6	16	32	65	97	130	162	194	227	259	291	324
100%	4	7	18	36	72	108	144	180	216	252	288	324	360

Table C. 56: UCI predicted black-legged kittiwake mortality for the Mona Array Area plus 2 km buffer during Autumn migration (operations and maintenance phase).

Kittiwake	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	1	2	4	8	17	25	33	41	50	58	66	74	83
20%	2	3	8	17	33	50	66	83	99	116	132	149	165
30%	2	5	12	25	50	74	99	124	149	173	198	223	248
40%	3	7	17	33	66	99	132	165	198	231	264	297	330
50%	4	8	21	41	83	124	165	207	248	289	330	372	413
60%	5	10	25	50	99	149	198	248	297	347	397	446	496
70%	6	12	29	58	116	173	231	289	347	405	463	520	578
80%	7	13	33	66	132	198	264	330	397	463	529	595	661
90%	7	15	37	74	149	223	297	372	446	520	595	669	744
100%	8	17	41	83	165	248	330	413	496	578	661	744	826

C.6 Manx shearwater

Table C. 57: LCI predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Manx Shearwater Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
15%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
25%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
35%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 58 UCI predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during Spring migration (construction and decommissioning).

Manx shearwater Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	1	1	1	1	1	2	2	2
15%	0	0	0	0	1	1	1	1	2	2	2	3	3
20%	0	0	0	0	1	1	2	2	2	3	3	3	4
25%	0	0	0	0	1	1	2	2	3	3	4	4	5
30%	0	0	0	1	1	2	2	3	3	4	5	5	6
35%	0	0	0	1	1	2	3	3	4	5	5	6	7
40%	0	0	0	1	2	2	3	4	5	5	6	7	8
60%	0	0	1	1	2	3	5	6	7	8	9	10	11
80%	0	0	1	2	3	5	6	8	9	11	12	14	15
100%	0	0	1	2	4	6	8	10	11	13	15	17	19

Table C. 59 LCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Manx Shearwater	Mortality level (% of displaced birds at risk of mortality)												
Breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	3	7	10	13	17	20	23	27	30	33
15%	1	1	3	5	10	15	20	25	30	35	40	45	50
20%	1	1	3	7	13	20	27	33	40	47	53	60	67
25%	1	2	4	8	17	25	33	42	50	58	67	75	84
30%	1	2	5	10	20	30	40	50	60	70	80	90	100
35%	1	2	6	12	23	35	47	58	70	82	94	105	117
40%	1	3	7	13	27	40	53	67	80	94	107	120	134
60%	2	4	10	20	40	60	80	100	120	140	160	180	201
80%	3	5	13	27	53	80	107	134	160	187	214	241	267
100%	3	7	17	33	67	100	134	167	201	234	267	301	334

Table C. 60: UCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer during the breeding season (construction and decommissioning).

Manx Shearwater	Mortality level (% of displaced birds at risk of mortality)												
Breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	6	16	32	64	95	127	159	191	223	254	286	318
15%	5	10	24	48	95	143	191	238	286	334	381	429	477
20%	6	13	32	64	127	191	254	318	381	445	509	572	636
25%	8	16	40	79	159	238	318	397	477	556	636	715	795
30%	10	19	48	95	191	286	381	477	572	668	763	858	954
35%	11	22	56	111	223	334	445	556	668	779	890	1001	1113
40%	13	25	64	127	254	381	509	636	763	890	1017	1144	1272
60%	19	38	95	191	381	572	763	954	1144	1335	1526	1717	1907
80%	25	51	127	254	509	763	1017	1272	1526	1780	2034	2289	2543
100%	32	64	159	318	636	954	1272	1589	1907	2225	2543	2861	3179

Table C. 61: LCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer during Autumn migration (construction and decommissioning).

Manx Shearwater	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	1	1	2	2	3	4	4	5	5	6
15%	0	0	0	1	2	3	4	5	5	6	7	8	9
20%	0	0	1	1	2	4	5	6	7	8	10	11	12
25%	0	0	1	2	3	5	6	8	9	11	12	14	15
30%	0	0	1	2	4	5	7	9	11	13	15	16	18
35%	0	0	1	2	4	6	8	11	13	15	17	19	21
40%	0	0	1	2	5	7	10	12	15	17	19	22	24
60%	0	1	2	4	7	11	15	18	22	25	29	33	36
80%	0	1	2	5	10	15	19	24	29	34	39	44	48
100%	1	1	3	6	12	18	24	30	36	42	48	55	61

Table C. 62: UCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer Autumn migration (construction and decommissioning).

Manx shearwater	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	1	1	2	2	2	3	3	4	4
15%	0	0	0	1	1	2	2	3	4	4	5	5	6
20%	0	0	0	1	2	2	3	4	5	5	6	7	8
25%	0	0	0	1	2	3	4	5	6	7	8	9	10
30%	0	0	1	1	2	4	5	6	7	8	9	11	12
35%	0	0	1	1	3	4	5	7	8	10	11	12	14
40%	0	0	1	2	3	5	6	8	9	11	12	14	16
60%	0	0	1	2	5	7	9	12	14	16	19	21	23
80%	0	1	2	3	6	9	12	16	19	22	25	28	31
100%	0	1	2	4	8	12	16	20	23	27	31	35	39

Table C. 63: LCI predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during Spring migration (operation).

Manx Shearwater	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 64: UCI predicted Manx shearwater mortality for the Mona Array Area plus 2 km buffer during Spring migration (operation).

Manx shearwater	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	1	1	1	1	1	2	2	2
20%	0	0	0	0	1	1	2	2	2	3	3	3	4
30%	0	0	0	1	1	2	2	3	3	4	5	5	6
40%	0	0	0	1	2	2	3	4	5	5	6	7	8
50%	0	0	0	1	2	3	4	5	6	7	8	9	10
60%	0	0	1	1	2	3	5	6	7	8	9	10	11
70%	0	0	1	1	3	4	5	7	8	9	11	12	13
80%	0	0	1	2	3	5	6	8	9	11	12	14	15
90%	0	0	1	2	3	5	7	9	10	12	14	15	17
100%	0	0	1	2	4	6	8	10	11	13	15	17	19

Table C. 65: LCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer during breeding (operation).

Manx Shearwater	Mortality level (% of displaced birds at risk of mortality)												
Breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	1	2	3	7	10	13	17	20	23	27	30	33
20%	1	1	3	7	13	20	27	33	40	47	53	60	67
30%	1	2	5	10	20	30	40	50	60	70	80	90	100
40%	1	3	7	13	27	40	53	67	80	94	107	120	134
50%	2	3	8	17	33	50	67	84	100	117	134	150	167
60%	2	4	10	20	40	60	80	100	120	140	160	180	201
70%	2	5	12	23	47	70	94	117	140	164	187	211	234
80%	3	5	13	27	53	80	107	134	160	187	214	241	267
90%	3	6	15	30	60	90	120	150	180	211	241	271	301
100%	3	7	17	33	67	100	134	167	201	234	267	301	334

Table C. 66: UCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer during breeding (operation).

Manx Shearwater	Mortality level (% of displaced birds at risk of mortality)												
Breeding													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	3	6	16	32	64	95	127	159	191	223	254	286	318
20%	6	13	32	64	127	191	254	318	381	445	509	572	636
30%	10	19	48	95	191	286	381	477	572	668	763	858	954
40%	13	25	64	127	254	381	509	636	763	890	1017	1144	1272
50%	16	32	79	159	318	477	636	795	954	1113	1272	1430	1589
60%	19	38	95	191	381	572	763	954	1144	1335	1526	1717	1907
70%	22	45	111	223	445	668	890	1113	1335	1558	1780	2003	2225
80%	25	51	127	254	509	763	1017	1272	1526	1780	2034	2289	2543
90%	29	57	143	286	572	858	1144	1430	1717	2003	2289	2575	2861
100%	32	64	159	318	636	954	1272	1589	1907	2225	2543	2861	3179

Table C. 67 LCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer during Autumn migration (operation). All results are zero

Manx shearwater	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 68 UCI predicted Manx shearwater mortality for the Morgan Array Area plus 2 km buffer during Autumn migration (operation).

Manx shearwater		Mortality level (% of displaced birds at risk of mortality)												
Autumn migration														
Displacement level		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	1	1	2	2	2	3	3	4	4
	20%	0	0	0	1	2	2	3	4	5	5	6	7	8
	30%	0	0	1	1	2	4	5	6	7	8	9	11	12
	40%	0	0	1	2	3	5	6	8	9	11	12	14	16
	50%	0	0	1	2	4	6	8	10	12	14	16	18	20
	60%	0	0	1	2	5	7	9	12	14	16	19	21	23
	70%	0	1	1	3	5	8	11	14	16	19	22	25	27
	80%	0	1	2	3	6	9	12	16	19	22	25	28	31
	90%	0	1	2	4	7	11	14	18	21	25	28	32	35
	100%	0	1	2	4	8	12	16	20	23	27	31	35	39

C.7 Red-throated diver

Table C. 69: LCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Autumn migration (construction and decommissioning).

Red-throated diver		Mortality level (% of displaced birds at risk of mortality)												
Autumn migration														
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	15%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	25%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	35%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	45%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 70: UCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Autumn migration (construction and decommissioning).

Red-throated diver Autumn migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
15%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
25%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
35%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
45%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 71: LCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Spring migration (construction and decommissioning).

Red-throated diver Spring migration	Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
15%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
25%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
35%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
45%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 72: UCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Spring migration (construction and decommissioning).

Red-throated diver Spring migration		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	15%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	25%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	35%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	45%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 73: LCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the non-breeding season (construction and decommissioning).

Red-throated diver Non-breeding		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	15%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	25%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	35%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	45%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 74: UCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the non-breeding season (construction and decommissioning).

Red-throated diver Non-breeding		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	15%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	25%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	35%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	45%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 75: LCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Autumn migration (operations phase).

Red-throated diver Autumn migration		Mortality level (% of displaced birds at risk of mortality)												
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	70%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	90%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 76: UCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Autumn migration (operations phase).

Red-throated diver	Mortality level (% of displaced birds at risk of mortality)												
Autumn migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 77: LCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Spring migration (operations phase).

Red-throated diver	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 78: UCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the Spring migration (operations phase).

Red-throated diver	Mortality level (% of displaced birds at risk of mortality)												
Spring migration													
Displacement level (% at risk of displacement)	1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	0	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0	0
100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 79: LCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the non-breeding season (operations phase).

Red-throated diver		Mortality level (% of displaced birds at risk of mortality)												
Non-breeding														
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	70%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	90%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0

Table C. 80: UCI predicted red-throated diver mortality for the Morgan Array Area plus 4 km buffer during the non-breeding season (operations phase).

Red-throated diver		Mortality level (% of displaced birds at risk of mortality)												
Non-breeding														
Displacement level (% at risk of displacement)		1%	2%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
	10%	0	0	0	0	0	0	0	0	0	0	0	0	0
	20%	0	0	0	0	0	0	0	0	0	0	0	0	0
	30%	0	0	0	0	0	0	0	0	0	0	0	0	0
	40%	0	0	0	0	0	0	0	0	0	0	0	0	0
	50%	0	0	0	0	0	0	0	0	0	0	0	0	0
	60%	0	0	0	0	0	0	0	0	0	0	0	0	0
	70%	0	0	0	0	0	0	0	0	0	0	0	0	0
	80%	0	0	0	0	0	0	0	0	0	0	0	0	0
	90%	0	0	0	0	0	0	0	0	0	0	0	0	0
	100%	0	0	0	0	0	0	0	0	0	0	0	0	0