Partners in UK offshore wind

MONA OFFSHORE WIND PROJECT

HRA Stage 1 Screening Report

F01 F02 Tracked

Deadline: 2

Application Reference: EN010137

Document Reference: E1.4 F02

Document Number: MOCNS-J3303-RPS-10025

27 August 2024

F01 F02~~1~~

Image of an offshore wind farm

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	Submission at Deadline 2	RPS	Mona Offshore Wind Ltd	Mona Offshore Wind Ltd	27 Aug 2024

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Glossary

Term	Meaning
Applicant	Mona Offshore Wind Limited.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (NSIP).
Environmental Statement	The document presenting the results of the Environmental Impact Assessment (EIA) process for the Mona Offshore Wind Project.
Evidence Plan Process	The Evidence Plan process is a mechanism to agree upfront what information the Applicant needs to supply to the Planning Inspectorate as part of the Development Consent Order (DCO) application for the Mona Offshore Wind Project.
Evidence Plan Expert Working Group (EWG)	Expert working groups set up with relevant stakeholders as part of the Evidence Plan process.
Inter-array cables	Cables which connect the wind turbines to each other and to the offshore substation platforms. Inter-array cables will carry the electrical current produced by the wind turbines to the offshore substation platforms.
Interconnector cables	Cables that may be required to interconnect the Offshore Substation Platforms in order to provide redundancy in the case of cable failure elsewhere.
Intertidal area	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).
Landfall	The area in which the offshore export cables make contact with land and the transitional area where the offshore cabling connects to the onshore cabling.
Local Authority	A body empowered by law to exercise various statutory functions for a particular area of the United Kingdom. This includes County Councils, District Councils and County Borough Councils.
Marine licence	The Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities. Section 149A of the Planning Act 2008 allows an applicant for a DCO to apply for 'deemed marine licences' as part of the DCO process. In addition, licensable activities within 12nm of the Welsh coast require a separate marine licence from Natural Resources Wales (NRW).
Maximum Design Scenario (MDS)	The scenario within the design envelope with the potential to result in the greatest impact on a particular topic receptor, and therefore the one that should be assessed for that topic receptor.
Mona Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, offshore export cables and offshore substation platforms (OSPs) forming part of the Mona Offshore Wind Project will be located.
Mona Offshore Cable Corridor	The corridor located between the Mona Array Area and the landfall up to Mean High Water Springs (MHWS), in which the offshore export cables will be located.
Mona Onshore Cable Corridor	The corridor located between Mean High Water Springs (MHWS) at the landfall and the Mona onshore substation, in which the onshore cable route will be located.
Mona Offshore Wind Project	The Mona Offshore Wind Project is comprised of both the generation assets and offshore and onshore transmission assets and associated activities.
Mona Offshore Wind Project Boundary	The area containing all aspects of the Mona Offshore Wind Project, both offshore and onshore.

Term	Meaning
Mona Offshore Wind Project Preliminary Environmental Information Report (PEIR)	The Mona Offshore Wind Project PEIR that was submitted to The Planning Inspectorate (on behalf of the Secretary of State) and NRW for the Mona Offshore Wind Project.
Mona Offshore Wind Project Scoping Report	The Mona Scoping Report that was submitted to The Planning Inspectorate (on behalf of the Secretary of State) and NRW for the Mona Offshore Wind Project.
Mona 400kV Grid Connection Cable Corridor	The corridor from the Mona onshore substation to the National Grid substation.
Non-statutory consultee	Organisations that an applicant may choose to consult in relation to a project who are not designated in law but are likely to have an interest in the project.
Relevant Local Planning Authority	The Relevant Local Planning Authority is the Local Authority in respect of an area within which a project is situated, as set out in Section 173 of the Planning Act 2008. Relevant Local Planning Authorities may have responsibility for discharging requirements and some functions pursuant to the Development Consent Order, once made.
Offshore Substation Platform (OSP)	The offshore substation platforms located within the Mona Array Area will transform the electricity generated by the wind turbines to a higher voltage allowing the power to be efficiently transmitted to shore.
Offshore Wind Leasing Round 4	The Crown Estate auction process which allocated developers preferred bidder status on areas of the seabed within Welsh and English waters.
The Planning Inspectorate	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
Site of Community importance (SCI)	SCI means a site which, in the biogeographical region or regions to which it belongs, contributes significantly to the maintenance or restoration at a favourable conservation status of a natural habitat type in Annex I or of a species in Annex II.
Statutory consultee	Organisations that are required to be consulted by an applicant pursuant to the Planning Act 2008 in relation to an application for development consent. Not all consultees will be statutory consultees (see non-statutory consultee definition).
Underwater sound	Sound waves made underwater.
Wind turbines	The wind turbine generators, including the tower, nacelle and rotor.

Acronyms

Term	Meaning
AfL	Agreement for Lease
BDMPS	Biologically Defined Minimum Population Scales
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CRM	Collision Risk Modelling
mCRM	Migratory Collision Risk Modelling
CJEU	The Court of Justice of the European Union
cSAC	Candidate Special Area of Conservation

Term	Meaning
cSPA	Candidate Special Protection Area
CTV	Crew Transfer Vessel
DCO	Development Consent Order
EMF	Electromagnetic Field
EnBW	Energie Baden – Württemberg
FCS	Favourable Conservation Status
HRA	Habitats Regulations Assessment
HVAC	High Voltage Alternating Current
IMO	International Maritime Organisation
IMWWG	The Inter-agency Marine Mammal Working Group
IROPI	Imperative Reasons of Overriding Public Interest
ISAA	Information to Support an Appropriate Assessment
LSE	Likely Significant Effect
MARPOL	International convention for the prevention for the pollution from ships
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MU	Management Unit
NRW	National Resources Wales
NSIP	Nationally Significant Infrastructure Project
OSP	Offshore Substation Platform
OSPAR	Oslo-Paris
PDE	Project Design Envelope
pSAC	Possible Special Area of Conservation
pSPA	Possible Special Protection Area
SAC	Special Area of Conservation
SD	Standard Deviation
SSC	Suspended Sediment Concentration
TCE	The Crown Estate
UXO	Unexploded Ordnance
ZoI	Zone Of Influence

Units

Unit	Description
GW	Gigawatt
MW	Megawatt
nm	Nautical mile
km	Kilometre
km^2	Square kilometre
m	Metre

1 Habitats Regulations Assessment stage 1 screening

1.1 Introduction

1.1.1 Overview

1.1.1.1 Mona Offshore Wind Limited (the Applicant), a joint venture of bp Alternative Energy investments (hereafter referred to as bp) and Energie Baden-Württemberg AG (hereafter referred to as Energie Baden – Württemberg (EnBW)) is developing the Mona Offshore Wind Project. The Mona Offshore Wind Project is a proposed offshore wind farm located in the east Irish Sea.

1.1.1.2 In February 2021, EnBW and bp were selected by The Crown Estate (TCE) as Preferred Bidder for two 60-year leases in Offshore Wind Leasing Round 4 within the Northern Wales and Irish Sea Bidding Area. The Applicant entered into Agreement for Lease (AfL) for the Mona Offshore Wind Project in early 2023. The Mona Offshore Wind Project includes both the offshore and onshore infrastructure required to generate and transmit electricity from the offshore wind turbines to an onshore National Grid substation at Bodelwyddan.

1.1.1.3 This report documents the conclusions of the Habitats Regulations Assessment (HRA) Stage 1 Screening for Likely Significant Effects (LSE) that has been undertaken for the Mona Offshore Wind Project.

1.1.1.4 As the Mona Offshore Wind Project is an offshore generating station with a capacity of greater than 350 MW located in Welsh waters, it is a Nationally Significant Infrastructure Project (NSIP) as defined by Section 15(3) of the Planning Act 2008 (as amended) (the 2008 Act). As such, there is a requirement to submit an application for a Development Consent Order (DCO) to the Planning Inspectorate to be decided by the Secretary of State for the Department for Energy Security and Net Zero.

1.1.1.5 A marine licence is required before carrying out any licensable marine activity under the Marine and Coastal Access Act 2009. Marine licences can be deemed under the DCO for licensable activities in Welsh offshore waters. As agreed with Natural Resources Wales (NRW), the marine licence for all licensable activities related to the offshore wind farm infrastructure located within the Mona Array Area will be deemed under the DCO. However, licensable activities within 12 nm of the Welsh coast require a separate marine licence. A separate application will therefore be made to NRW for a marine licence for the offshore export cables and related works located within the Mona Array Area and the Mona Offshore Cable Corridor.

1.1.1.6 This HRA Stage 1 Screening for LSE has been prepared in support of both the DCO and marine licence applications.

1.1.2 Habitats Regulations Assessment

1.1.2.1 This document has been produced to inform the HRA process for the Mona Offshore Wind Project. It provides information to enable the screening of the Mona Offshore Wind Project with respect to its potential to have an LSE on designated nature conservation sites (hereafter ‘European sites’). The scope of this document covers all relevant European sites and relevant qualifying interest features. European sites are proposed to be ‘screened out’ where no LSE from the Mona Offshore Wind Project is predicted. Where LSE cannot be ruled out at this stage the European sites will be ‘screened in’ and assessed further.

1.1.2.2 The requirement and process for the consideration of potential impacts of plans and projects on European sites have followed the European Union's (EU) Habitats Directive (Directive 92/43/EEC). In terrestrial areas of the UK and territorial waters out to 12 nm, the land and marine aspects of Habitats Directive and certain elements of the Wild Birds Directive (Directive 2009/147/EC) are transposed into UK law through The Conservation of Habitats and Species Regulations 2017 as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. In waters beyond 12 nm, The Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Offshore Habitats Regulations) apply, which transpose the Habitats and Birds Directives into national law. These regulations are together referred to as the Habitats Regulations.

1.1.2.3 The Habitats Regulations require that an HRA must be carried out on all plans and projects that are likely to have significant effects on European sites, which include Special Areas of Conservation (SACs), candidate SACs (cSACs), Sites of Community Importance (SCI), Special Protection Areas (SPAs), candidate SPAs (cSPA) and as a matter of policy, possible SACs (pSACs), possilbe SPAs (pSPAs) and Ramsar Sites (listed under the Ramsar Convention on Wetlands of International Importance – where also designated as a European site).

1.1.2.4 In this report, and in accordance with guidance issued by the UK Government on the changes made by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, the term 'European site' has been retained to refer to the above sites protected in European Member States, England and Wales (Defra, 2021). However, where these sites are located in the UK, they no longer form part of the EU's Natura 2000 ecological network and now form part of the National Site Network. European sites are defined in full in section 1.2.1.

1.1.2.5 The Defra (2021) guidance identifies that the HRA process can have up to three stages as outlined below:

1. Screening - to determine if the proposal is likely to have a significant effect on the site's conservation objectives
2. Appropriate Assessment - to assess the likely significant effects of the proposal on the integrity of the site and its conservation objectives and to consider ways to avoid or minimise any effects
3. Derogation - to consider if proposals that would have an adverse effect on the integrity of a European site qualify for an exemption, subject to three legal tests being satisfied (i.e. alternative solutions, imperative reasons of overriding public interest and compensatory measures).

1.1.3 Purpose of the report

1.1.3.1 This document represents the Applicant's HRA Stage 1 Screening under the Habitats Regulations for the Mona Offshore Wind Project (as described in section 1.1.5). It comprises the screening stage and therefore provides information to enable the screening of the Mona Offshore Wind Project with respect to its potential to have an LSE on European sites.

1.1.3.2 The screening exercise presented in this report is based on the baseline environment, as determined by site-specific surveys undertaken for the Mona Offshore Wind Project, and an understanding of the proposed activities associated with the Mona Offshore Wind Project. This HRA Stage 1 Screening Report has been updated to include refinements to the Mona Offshore Wind Project since the Preliminary Environmental

Information Report (PEIR) was published. It has also been updated with the results of site-specific benthic subtidal surveys of the Mona Offshore Cable Corridor and additional consultation which has been undertaken since PEIR.

1.1.3.3 In summary, the purpose of this report is:

- To identify the relevant European sites which may include features (Annex I habitats, Annex II species and ornithological features) which may be sensitive or vulnerable to potential impacts arising from the construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project and for which there is a pathway for an effect
- To identify the features of the relevant European sites and the potential impacts arising from the Mona Offshore Wind Project which have the potential to result in an LSE, either alone or in combination with other plans or projects, so that they can be taken forward for appropriate assessment.

1.1.4 Structure of the report

1.1.4.1 This structure of this HRA Stage 1 Screening Report is as follows:

- Section 1.1.7 – a brief summary of the HRA process and legislative framework including implications of the UK's departure from the EU
- Section 1.3 – the initial identification of European sites and features which have the potential to be affected by the Mona Offshore Wind Project
- Section 1.4 – HRA Screening tables and the determination of the potential for LSEs to arise with regard to the designated features of the European sites under consideration
- Section 1.5 – a summary of the approach to the in-combination assessment
- Section 1.6 – a summary of the European sites and features for which the screening process has identified potential for LSEs.

1.1.5 Project overview

1.1.5.1 An overview of the Mona Offshore Wind Project is outlined in the paragraphs below, the full project description is provided in Volume 1, Chapter 3: Project description of the Environmental Statement (Document reference F1.3).

1.1.5.2 The Mona Offshore Wind Project will be located in the east Irish Sea, with a landfall on the North Wales coastline and a connection to the existing Bodelwyddan National Grid substation.

1.1.5.3 The Mona Offshore Wind Project will consist of up to 96 wind turbines. The capacity of the Mona Offshore Wind Project is over 350 MW, therefore it is within the Planning Act 2008 thresholds for Welsh offshore schemes. The final capacity of the Mona Offshore Wind Project will be determined based on available technology and constrained by the design envelope of the wind turbines presented in Volume 1, Chapter 3: Project description of the Environmental Statement (Document reference F1.3). The offshore infrastructure will also include up to 360 km of offshore export cables, 50 km of interconnector cables and 325 km of inter-array cables.

1.1.5.4 The onshore infrastructure will consist of up to 12 onshore export cables buried in up to four trenches and an onshore High Voltage Alternating Current (HVAC) substation

to allow the power to be transferred to the National Grid via the existing Bodelwyddan National Grid substation.

1.1.5.5 The key components of the Mona Offshore Wind Project are shown in Figure 1.1~~Figure 1.1~~ and presented in Table 1.1~~Table 1.1~~.

1.1.5.6 The Applicant intends to commence construction of the Mona Offshore Wind Project in 2026 and for it to be fully operational by 2030 in order to help meet UK and Welsh Government renewable energy targets.

1.1.5.7 Although the TCE lease for the Mona Offshore Wind Project is 60 years, the design life of the Mona Offshore Wind Project is likely to be 35 years.

Table 1.1: Key parameters for the Mona Offshore Wind Project.

Parameter	Value
Mona Array Area (km^2)	300
Average water depth (m LAT)	-39.39
Maximum number of wind turbines	96
Maximum blade tip height above LAT (m)	364
Maximum number of Offshore Substation Platforms (OSPs)	4
Maximum number of offshore export cables	4
Maximum number of onshore export cable	12
Maximum length of inter-array cables (km)	325
Maximum length of interconnector cables (km)	50
Maximum length of offshore export cables (km)	360
Maximum length of onshore export cables (km)	15
Maximum length of 400 kv grid connection cables (km)	3

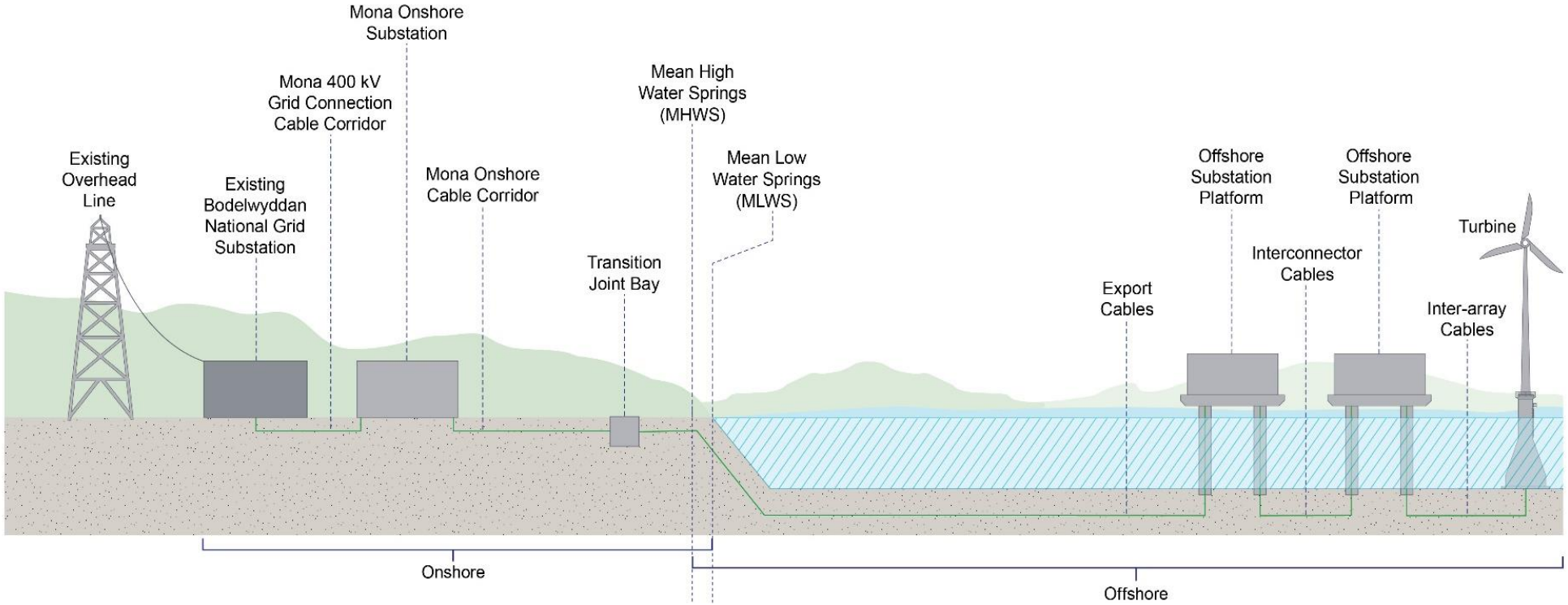


Figure 1.1: Overview of the Mona Offshore Wind Project infrastructure.

1.1.6 Relevant consultations

1.1.6.1 The Applicant facilitated the Evidence Plan Process for the Mona Offshore Wind Project. Evidence plans are formal mechanisms to agree what information the Applicant needs to supply to the Planning Inspectorate as part of an application for development consent. This also helps to ensure compliance with the Habitats Regulations and helps ensure Applicants provide sufficient information as part of their DCO application.

1.1.6.2 An evidence plan steering group was established for the Mona and Morgan Offshore Wind Projects. It was determined appropriate to have a joint evidence plan process across the Mona and Morgan Offshore Wind Projects to ensure common issues and cumulative/in-combination issues are appropriately addressed. The steering group comprised the Applicant, the Planning Inspectorate, NRW, Natural England, the Joint Nature Conservation Committee (JNCC) and the Marine Management Organisation (MMO) as the key regulatory bodies and Statutory Nature Conservation Bodies (SNCBs). The steering group met at key milestones throughout the EIA process.

1.1.6.3 In addition, Expert Working Groups (EWGs) were established to discuss topic specific issues with relevant stakeholders. EWG meetings were held at key stages in the EIA process, to provide the opportunity for stakeholders to provide feedback and advice at an early stage. EWGs were established for the following topics:

- Physical processes, benthic ecology and fish and shellfish ecology
- Marine mammals
- Offshore ornithology
- Onshore ecology.

1.1.6.4 A summary of the details of the key consultation on HRA Screening is presented in Table 1.2~~Table 1.2~~.

Table 1.2: Summary of key consultation on HRA Screening for the Mona Offshore Wind Project.

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
Steering Group				
November 2021	NRW, Natural England, MMO, JNCC and the Planning Inspectorate	Steering Group meeting	• Meeting purpose was to set up and establish the Evidence Plan process and to gain feedback on the EWGs.	The Evidence Plan process is described in paragraphs 1.1.6.1 to 1.1.6.2 and the EWGs are described in paragraph 1.1.6.3.
December 2021	Natural England, NRW, MMO, JNCC, Planning Inspectorate, Environment Agency	Steering Group meeting	• Meeting to introduce the Mona Offshore Cable Corridor route selection process.	The Evidence Plan process is described in paragraphs 1.1.6.1 to 1.1.6.2 and the EWGs are described in paragraph 1.1.6.3
July 2022	NRW, Natural England, MMO, JNCC and Planning Inspectorate	Steering Group meeting	• Meeting to provide an update on the Mona Offshore Cable Corridor route selection process. • LSE Methodology circulated to members of the Steering Group to gain feedback and agreement on the methodology to be used. • Methodology approach presented included the process for identifying European sites and species where there is the potential for a likely significant effect. The process and associated buffers used to screen in sites was presented for Annex I habitats (offshore and coastal), Annex II diadromous fish, Annex II marine mammals, Annex I habitats (onshore), Annex II species (onshore) and ornithology (onshore and offshore). NRW responses: • NRW agreed with the LSE Screening Methodology criteria that have been provided with respect to Marine and Coastal Physical Processes, benthic ecology. • NRW note that with reference to The Crown Estate Round 4 HRA principles, specifically Section 3.6.17 – 3.6.23 Migratory Fish and Freshwater pearl mussel, and Figure 3.1 Proposed regional boundaries for Atlantic salmon *Salmo salar* (from ABPmer (2014), cited in ABPmer (2018)), that a 100 km buffer is used for most diadromous fish except	Feedback received on the methodology has been considered and incorporated into section 1.2.5, and 1.3 of this report.

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			Atlantic Salmon and Fresh Water Pearl Mussel, which use a 'Regional Areas Approach'. • NRW advised that The Crown Estate Round 4 HRA principles are adopted in their original form, or that further justification is provided if they are not. • NRW advised that all designated sites with named features whose foraging ranges fall within the mean maximum foraging range +1 standard deviation (Mean Max +1 standard deviation (SD)) in Woodward *et al.* (2019), should be scoped in and included in the screening process. However, there is the possibility that using this approach could miss out some colonies, therefore a sense check will also need to be done to ensure that all colonies where there is a potential for likely significant effect are included at the screening stage. Assessments should always be based upon the best and most up to date evidence available. Potential impacts on wintering bird features and the potential impacts on birds migrating to and from designated sites, along with estuarine SPA and SSSI features which could be affected by collision risk on migration, should also be included in scoping and screening. Due to the location of the proposed work it is likely that all Welsh SPAs and SSSIs with marine or estuarine bird features should be scoped in at this stage, until surveys are complete and data analysis has been finalised. JNCC responses: • JNCC were content with the LSE Screening Methodology with respect to Annex I habitats offshore and Annex II marine mammals. • JNCC advise the following with regard to species-specific foraging ranges for the identification of SPAs: – Manx shearwater *Puffinus puffinus* foraging range mean max + 1SD is 1346.8 ± 1018.7 km. – Black-headed gull *Chroicocephalus ridibundus* foraging range max is 18.5 km.	

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			– Common tern *Sterna hirundo* foraging range mean max + 1SD is 18 ± 8.9 km. – Roseate tern S*terna dougallii* foraging range max is 24 km. – For razorbill *Alca torda* JNCC advise the use of the foraging range within appendix 1 of Woodward *et al*. (2019) which excludes data from Fair Isle where foraging range may have been unusually high as a result of reduced prey availability during the study year. Razorbill foraging range mean max + 1SD is 73.8 km ± 48.4 km and max is 191 km. – For common guillemot *Uria aalge* JNCC advise the use of the foraging range within appendix 1 of Woodward et al 2019 which excludes data from Fair Isle where foraging range may have been unusually high as a result of reduced prey availability during the study year. Guillemot foraging range mean max + 1SD is 55.5 km ± 39.7 km and max is 135 km. – Black guillemot *Cepphus grylle* foraging range max of 8 km. – In section 1.2.7.15 JNCC note the SNCB advice on the spatial extent of displacement impacts to seaducks and diver species other than red-throated diver *Gavia stellata* is 4 km, and the spatial extent of displacement impacts to red-throated diver is 10 km, making the potential ZoI at least 10 km.	
February 2023	NRW, Natural England, MMO, JNCC and Planning Inspectorate	Steering Group meeting	• Approach to LSE screening for SPAs: – The Applicant presented an updated HRA methodology as a result of feedback on the original approach to screening of SPAs, noting that the approach for PEIR will be as previously set out. – The updated HRA methodology would look to screen SPAs and qualifying features out, where it can be demonstrated that there will be 0 mortalities (i.e. through Collision Risk Modelling (CRM), displacement or	Feedback has been incorporated into section 1.3.7 and 1.4.6 of this report and the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			apportioning e.g. northern fulmar *Fulmarus glacialis* and Manx shearwater and collision risk modelling). – The Applicant proposed to undertake a "two step" integrity test. The first step would be to undertake a high level initial assessment within the Information to Support an Appropriate Assessment (ISAA), using the apportioning paper to present where there is no risk of adverse effects on integrity on an SPA and not including a detailed assessment against the conservation objectives for each low risk SPA (e.g. using a brief, tabulated approach to concluding no adverse effects on integrity). As The Mona and Morgan Generation Offshore Wind Projects have been suitably located; seabirds numbers across the sites area are generally low therefore a large number of SPAs are expected to fall into this low risk category, that is, most if not all of the SPAs and features which were screened out at LSE in the PEIR. – In the second step, a more detailed assessment would then be undertaken on the SPAs where there is a greater risk of adverse effects on integrity (likely to be limited to in-combination effects). • NRW responded that they would consider what has been proposed. Initial thoughts were that this may be is a good way of working through the SPAs but requires further discussion with their ornithologists. NRW also wanted this to be discussed at the offshore ornithology EWG.	
June 2023	NRW, Natural England, MMO, JNCC and the Planning Inspectorate	Steering Group meeting	• LSE screening and ISAA methodology updates to include change in approach to screening for SPAs. The information presented was a repeat of what was presented in the previous steering group meeting. For details see information provided for the February 2023 Steering Group meeting. • Stakeholder responses received:	Feedback has been incorporated into section 1.3.7 and 1.4.6 this report and in the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			– NRW agree with the updated HRA methodology for the project alone assessment. It should be acknowledged that this methodology has been agreed for the Mona and Morgan Generation assets project only and advice may differ for other offshore wind farm projects. The methodology set out in the note sent to the EWG does not address impacts the non-breeding birds. NRW advises the use of Furness (2015) to identify potential connectivity in the non-breeding season. Relevant sites should then be considered in the Appropriate Assessment, which would most likely be at the Step 1 phase. NRW disagree that the updated HRA methodology is appropriate for the in-combination assessment. Sites with less than 1% baseline mortality should still be considered for the in-combination assessment. Step 1 of the integrity test relies on the magnitude of impact. This does not take into account conservation objectives that aren't linked to the magnitude of impact e.g. distribution of features. For these features this approach may not be suitable. Given the project location the approach is considered satisfactory but it is noted that for assessments against conservation objectives that are not linked to the abundance of features (e.g. distribution of features within the site or availability of habitat) this would not be satisfactory. – Natural England had similar comments to NRW, as the projects have high connectivity and low magnitude of effect it would end up screening in a lot of sites with a very small impact so Natural England are broadly content with the updated approach. There are two concerns which are regarding the screening of non-breeding birds and screening out sites with less than 1% mortality for in-combination effects. – JNCC were also aligned with NRW and Natural England's comments and agreed with the HRA methodology with regard to the alone assessment but	

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			disagreed with the methodology for the in-combination assessment. JNCC did not agree that sites are not further considered in-combination where the predicted impact from the project alone is <1% of the baseline mortality. While >1% may be insignificant in the context of a project alone, this additional level of mortality should be included in an assessment of in-combination impacts.	
Expert Working Groups				
Benthic, Fish and Shellfish and Physical Processes				
February 2022	Natural England, NRW, MMO, JNCC, Centre for Environment, Fisheries and Aquaculture Science (Cefas) and The Wildlife Trusts (TWT).	EWG meeting 1	• Meeting to discuss benthic survey feedback, preliminary results and desktop data sources. • Physical Processes baseline characterisation: Site specific data and desktop data sources. • Fish and Shellfish baseline characterisation: Site specific and desktop data sources.	Discussion outputs have been incorporated into this HRA Stage 1 Screening (section 1.3.2, 1.3.3, 1.4.3 and 1.4.4) and the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
April 2022	Natural England, NRW and JNCC	Email	• Benthic subtidal and intertidal survey scope of work was consulted on to gain feedback on the methodology.	Advice was incorporated into Benthic Ecology Survey Scope of Work
November 2022	Natural England, NRW, MMO, Cefas, JNCC, TWT and Isle of Man Government.	EWG meeting 2	• Baseline characterisation • Baseline populations • Approach to HRA Screening	Discussion on benthic ecology, physical processes and fish and shellfish. Discussion outputs have been incorporated into this HRA Stage 1 Screening (section 1.3.2, 1.3.3, 1.4.3 and 1.4.4) and the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
July 2023	Natural England, NRW, MMO, JNCC, TWT and Isle of Man Government	EWG meeting 4	• Project update • Section 42 responses • Benthic updated baseline characterisation for the Mona Offshore Cable Corridor with regard to the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.	Discussion outputs have been incorporated into this HRA Stage 1 Screening (see paragraph 1.4.3.8 to 1.4.3.12) and the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			• Discussion on cable protection. The Applicant explained that they are reviewing the parameters for cable protection within the Menai Strait and Conwy Bay SAC. The Applicant has a commitment to minimise cable protection within the SAC. Cable protection will only be placed on the seabed where trenching depths cannot be achieved.	
October 2023	Natural England, MMO, JNCC, NRW, Cefas, and Isle of Man Government	EWG meeting 5	• This meeting presented the updates to the benthic ecology baseline characterisation to include the incorporation of the site-specific survey data for the Mona Offshore Cable Corridor. Confirmation that no features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC were present within the area of overlap.	A summary of the site-specific surveys within the Mona Offshore Cable Corridor is presented in section 1.4.3.
November 2023	NRW	Letter response following EWG in October 2023	• NRW(A) agree with the applicant that no Annex I features were identified within this section of the export cable corridor • NRW(A) agree there will be no LSE from long term habitat loss and temporary habitat disturbance so these impacts can be screened out of the ISAA • NRW(A) advise that indirect impacts to benthic habitats from changes in physical processes should be screened into the ISAA as these changes can also lead to potential indirect impacts on Annex I features • NRW Advisory agree that resuspension of contaminated sediments can be screened out of the ISAA for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.	A summary of the site-specific surveys, confirming no Annex I habitat features within the Mona Offshore Cable Corridor, is presented in section 1.4.3. Long-term habitat loss, temporary habitat disturbance and resuspension of contaminated sediments have been screened out for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.13~~Table 1.13~~).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
December 2023	Natural England, MMO, JNCC, NRW, Cefas and TWT and Isle of Man Government	EWG meeting 6	• Meeting confirmed that, on the basis of NRW's response agreeing that temporary and long term habitat loss and contaminated sediments can be screened out for no LSE, the following impact pathways have been screened in for LSE and are assessed in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) for Annex I reefs and Annex I sandbanks for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC: – Increases in SSC and associated deposition – Changes in physical processes – Increased risk of introduction and spread of INNS – Accidental pollution.	As outlined in Table 1.13~~Table 1.13~~, only increases in SSC and associated deposition, changes in physical processes, increased risk of introduction and spread of INNS and accidental pollution are screened in for the Annex I reef and Annex I sandbanks features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.
Marine Mammals				
December 2021	NRW, Natural England (NE), MMO, JNCC, Cefas and TWT.	EWG meeting 1	• Meeting to introduce the Mona Offshore Wind Project and to establish the EWG. • Overview of approach to baseline characterisation and study areas and ongoing surveys and preliminary findings. • Position on the use of Marine Mammal Management Units (MUs) for impact assessment or screening, and advice on applying these marine mammal MUs during Appropriate Assessment was provided in NRW's position statement.	Marine mammal MUs have been used when screening for LSE, in section 1.4.5.
July 2022	NRW, Natural England, MMO, JNCC, Cefas and TWT.	EWG meeting 2	• Discussion of actions from first EWG meeting, scoping opinion discussion and underwater sound methodology. • LSE Methodology presented and discussed to the EWG for agreement on the methodology to be used.	Feedback has been incorporated into the HRA Stage 1 Screening Report and the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
November 2022	NRW, Natural England, MMO, JNCC, Cefas and TWT.	EWG meeting 3	• Baseline characterisation • Baseline populations	Discussion outputs have been incorporated into the HRA Stage 1 Screening (section 1.3.4 and 1.4.5) and HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			• Approach to HRA Screening with regard to the process and foraging ranges/management units used to identify relevant sites and species.	
June 2023	NRW, Natural England, MMO, JNCC, Cefas and TWT.	EWG meeting 4	• Reference populations and densities • Approach to and results of the cumulative assessment • iPCod modelling	Discussion outputs have been incorporated into the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
July 2023	NRW, Natural England, MMO, JNCC, Cefas and TWT.	EWG meeting 5	• Summary of the main S42 consultation relevant to marine mammals and how this will be addressed moving from PEIR to the final application. • Discussion on use of the EDR approach and including the unweighted noise threshold of 143 dB re 1µPa (or 103 dB re 1µPa VHF-weighted) to represent the minimum fixed noise threshold at which significant disturbance could occur for Environmental Statement. • Removal of the use of dose response for HRA.	Discussion outputs have been incorporated into the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
September 2023	NRW, Natural England, MMO, JNCC,	Technical note to SNCBs after EWG	RPS produced a technical note to seek feedback on the following topics: • Design of aerial surveys with respect to marine mammals and use of an appropriate buffer around Mona and Morgan Array Areas. • Regional Marine Mammal study area (MMSA) for use in the impact assessment and cumulative impacts assessment. • Consideration of OSPAR (Oslo-Paris) Region III or maximum foraging range for Grey Seal CEA • Species-specific MUs and additional information provided by telemetry studies used for screening of European sites with Annex II marine mammals features for HRA Stage 1 Screening. • The approach was accepted through the EWG process, and therefore the same approach has been carried forward for the final HRA, as follows:	The MUs outlined have been used for the identification of European sites with Annex II marine mammals features in section 1.3.4.

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			– For harbour porpoise all sites within the Celtic and Irish Seas MU will be considered, – For bottlenose dolphin all sites within the Irish Sea MU will be considered. – For grey seal all SACs in the Wales MU, North West England MU, Southwest Scotland and Northern Ireland MU will be screened for LSE. Additional information set out in Carter et al., 2022 and telemetry data presented in the PEIR (Wright and Sinclair, 2022), indicates some potential connectivity with the Isles of Scilly Complex SAC, Lundy SAC, The Maidens SAC and Saltee Islands SAC and are therefore included. – For harbour seal, the Wales and North West England MU was used, alongside consideration of connectivity presented in Carter *et al.* (2022) and telemetry data in the PEIR which screened in Strangford Lough SAC and Murlough SAC. – There are no SACs within Isle of Man waters. • Agreement on noise modelling clarifications. • Use of EDRs for HRA and dose response EIA. • Densities and reference populations. • IPCoD modelling.	
December 2023	NRW, Natural England, Cefas, JNCC and TWT	EWG meeting 5	• Confirmation that for harbour porpoise, screening has been undertaken using the Celtic and Irish Sea MUs. For bottlenose dolphin, screening has been undertaken using the Irish Sea MU. For grey seal, screening has been undertaken using the four seal MUs. Following NRWs S42 advice, OSPAR Region III been considered to identify any additional sites with grey seal as a qualifying feature, which may have connectivity with the Mona Offshore Wind Project. Telemetry data used to screen out additional sites that did not show connectivity. For harbour seal, the screening was undertaken using the typical foraging range of species (50 km) and seal telemetry.	The marine mammal screening criteria, as presented to the EWG, are outlined in section 1.3.4.

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
Offshore Ornithology				
December 2021	NRW, Natural England, MMO, JNCC, TWT, Royal Society for the Protection of Birds (RSPB)	EWG meeting 1	• Meeting to introduce the Mona Offshore Wind Project and to establish the EWG. • Discussion of ongoing surveys, preliminary findings and the approach to baseline characterisation.	Discussion outputs have been incorporated into the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
July 2022	Natural England, NRW, MMO, JNCC, RSPB and TWT.	EWG meeting 2	• Meeting to agree the approach to baseline characterisation, collision risk modelling and displacement. • Opportunity for discussion of the Scoping Opinion. • LSE Methodology presented and discussed to the EWG for agreement on the methodology to be used.	Discussion outputs have been incorporated into this HRA Stage 1 Screening (section 1.3.7 and 1.4.6) and the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
November 2022	Natural England, NRW, MMO, JNCC and TWT.	EWG meeting 3	• Baseline characterisation • Baseline populations • Approach to HRA Screening.	Discussion outputs have been incorporated into this HRA Stage 1 Screening (section 1.3.7 and 1.4.6) and the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).
February 2023	Natural England, NRW, MMO, Isle of Man, RSPB and TWT.	EWG meeting 4	• Further project updates around avian flu in 2023 survey results. • LSE methodology updates as described above under the June 2023 Steering Group Meeting.	Feedback was included within the method note sent to consultees (Natural England, NRW, MMO, Isle of Man, RSPB and TWT) on the LSE methodology.
June 2023	Natural England, JNCC, NRW, MMO, and Isle of Man.	EWG meeting 5	• Discussion on S42 comments and clarifications required • LSE methodology updates.	The S42 comments have been incorporated within this HRA Stage 1 Screening report. An updated HRA methodology note was shared with the consultees post meeting.
August 2023	Natural England	Letter response to the updated HRA methodology note	• Natural England retain concerns regarding the approach to non-breeding season LSE screening. Natural England do not consider it appropriate to consider breeding season foraging ranges to identify sites for consideration in the non-breeding season. • Natural England advise that the Applicant reviews the approach taken in the Morecambe Generation Assets PEIR. In this case, potential connectivity (and thus, LSE if	Comments noted and the approach proposed by Natural England for screening of non-breeding birds has been adopted in section 1.3.7 of this HRA Stage 1 Screening report.

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			there is an impact pathway) has only been assumed for cases where the contribution of an SPA population is thought to represent >1% of the BDMPS population. This provides a proportionate and sensible screening approach to reduce the site/species combinations for consideration, while ensuring those that may be at risk are properly considered.	
August 2023	NRW	Email response to the updated HRA methodology note	• NRW generally advise that for seabird species covered by Furness (2015) all sites within the relevant species-specific BDMPS region are screened in at the LSE stage due to connectivity during the non-breeding season and there being potential impact pathways. • NRW suggest that the Applicant considers the approach taken in the Morecambe Generation Assets PEIR where potential connectivity has been assumed for SPA populations that contribute >1% of the BDMPS population. • In addition, NRW advise that where the Mona Offshore Wind Project sits within the broad migration fronts (as defined in Wright *et al.*, 2012) of non-breeding waterbird features of sites and there is hence potential for collision, these sites should also be screened in for LSE and taken through to the Stage 2 ISAA. The relevant Welsh sites were identified in NRW's response to the PEIR. NRW note that it is likely that once the predicted collision risk impacts have been apportioned to the individual sites, these sites could most likely be considered at Step 1 of the Stage 2 ISAA.	Comments noted and the approach proposed by NRW for screening of non-breeding birds has been adopted in section 1.3.7 of this HRA Stage 1 Screening report. Sites presented within the screening assessment also now include the sites specifically requested by NRW in the S42 response (see section 1.3.7 and Table 1.12~~Table 1.12~~).
September 2023	NRW, Natural England and JNCC	Email response on regional population approach	• NRW request that the regional population during the breeding season is calculated in a different way than was previously presented.	A new approach is presented within this HRA Stage 1 Screening report whereby the proportion of adult and immature birds is calculated from Horswill and Robinson (2015). This proportion is then used to calculate how many immatures are present in the breeding season, relative to the total breeding population (within mean max +1SD foraging range) of the Mona Array Area.

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
October 2023	JNCC, NRW, Isle of Man, MMO, Natural England, RSPB and TWT	EWG meeting 6	• HRA methodology note was presented and discussed. The method note shared is the method presented within this document. • Natural England request their guidance on impacts from old projects be reviewed.	The approached presented to the EWG is included within this assessment (see section 1.4.6). The Applicant is in discussion with Natural England over their guidance note on impacts from old projects as included in the Technical engagement plan (Document Reference E4.1).
December 2023	JNCC, NRW, Isle of Man, MMO, Natural England, RSPB and TWT	EWG meeting 7	• Results of the LSE for in-combination effect was presented for lesser black-backed gull as an example species.	As per the agreed methodology, LSE has been screened out for all SPAs for lesser black-backed gull with the exception of the Ribble and Alt Estuaries SPA (see section 1.4.6).
Onshore Ornithology				
June 2022	NRW, Denbighshire County Council, RSPB.	EWG meeting 1	• Agreement on the remit and inputs to the EWG (as set out in the Evidence Plan Template) • Agreement on Ways of Working Documents, including timescales • As impacts on onshore designated sites (i.e. terrestrial sites) will be avoided, no discussion and consultation on HRA took place with the SNCBs.	As outlined in 1.4.7, no onshore ornithology SPAs have been screened in for consideration in the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).
December 2022	Conwy County Borough Council , NRW, RSPB	EWG meeting 2	• Approach to baseline characterisation, including study areas. • Survey results to date • As impacts on onshore designated sites (i.e. terrestrial sites) will be avoided, no discussion and consultation on HRA took place with the SNCBs.	As outlined in 1.4.7, no onshore ornithology SPAs have been screened in for consideration in the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).
April 2023	NRW, Conwy County Borough Council , RSPB	EWG meeting 3	• Summary field surveys undertaken to date, Valued Ornithological Receptors (VORs) identified, potential impacts considered, mitigation proposed, likely significant effects on VORs, assessment of cumulative effects and next steps between PEIR and ES	As outlined in 1.4.7, no onshore ornithology SPAs have been screened in for consideration in the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			• As impacts on onshore designated sites (i.e. terrestrial sites) will be avoided, no discussion and consultation on HRA took place with the SNCBs.	
July 2023	NRW, Denbighshire County Council, Conway County Borough Council, RSPB	EWG meeting 4	• Update on onshore and intertidal ornithology and key section 42 responses • As impacts on onshore designated sites (i.e. terrestrial sites) will be avoided, no discussion and consultation on HRA took place with the SNCBs.	As outlined in 1.4.7, no onshore ornithology SPAs have been screened in for consideration in the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).
October 2023	NRW, Denbighshire County Council, Conwy County Borough Council, Welsh Government, ARC, Woodland Trust.	EWG meeting 5	• Update on onshore and intertidal ornithology findings and survey progress • As impacts on onshore designated sites (i.e. terrestrial sites) will be avoided, no discussion and consultation on HRA took place with the SNCBs.	As outlined in 1.4.7, no onshore ornithology SPAs have been screened in for consideration in the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).
S42 Consultation				
Annex I Habitats				
June 2023	NRW	S42 consultation	• No survey data has been presented in the PEIR to understand whether there are any potential Annex I features present within the Mona Offshore Cable Corridor. • Information on the potential locations of cable protection along the Mona Offshore Cable Corridor has not been presented. • Without the above information it is not possible to fully assess the potential impacts of the development of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.	Benthic survey data for the Mona Offshore Cable Corridor has been incorporated into this HRA Stage 1 Screening to demonstrate the lack of Annex I features within the Mona Offshore Cable Corridor and to enable quantification of the impact (see paragraphs 1.4.3.8 to 1.4.3.12).
June 2023	NRW	S42 consultation	• A summary of all European sites for which the potential for LSE could not be discounted at the Stage 1 screening stage and for which appropriate assessment is required, on why the Dee Estuary SAC features have been screened into the ISAA and not into the PEIR. If a potential impact pathway is identified here, it is also applicable in the PEIR.	On the basis of the physical processes modelling for the Mona Offshore Wind Project (see section 1.3.2), there is no potential impact pathway for the Dee Estuary SAC and it has been screened out in line with Volume 2, Chapter 2: Benthic Subtidal and Intertidal Ecology of the Environmental Statement (Document reference F2.2) (see section 1.3.2).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
June 2023	NRW	S42 consultation	• Regarding Table 1.3, NRW advise that the potential introduction of Invasive Non-Native Species (INNS) should also be screened in for the relevant qualifying features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The impact should then be taken through to the stage 2 appropriate assessment stage where the relevant mitigation measures i.e. the production and adherence to a Biosecurity Risk Assessment can then be implemented.	Potential introduction of INNS has been screened for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see section 1.4.3).
June 2023	NRW	S42 consultation	• Furthermore in Table 1.3, NRW note that only the Annex I Reef and Annex I Sandbanks which are slightly covered by seawater all the time features have been screened in for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Clarification is sought on whether the potential for increases in Suspended Sediment Concentration (SSC) and sediment deposition could extend to other features of the SAC i.e. Submerged or partially submerged sea caves? It would be useful to see a map with the extent of the plume against the features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and also against the Dee Estuary SAC features to understand any potential overlap.	Additional information has been included to justify screening out the other features (mudflats, shallow inlets and bays and submerged or partially submerged sea caves) of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC on the basis of the physical processes modelling, see section 1.4.3.
Annex II diadromous fish				
June 2023	NRW	S42 consultation	• With reference to Section 1.3.3.6, Initial Identification for Annex II fish, NRW(A) welcomes the adaptation of the regional screening approach for Atlantic salmon (and pearl mussel).	Noted.
June 2023	NRW	S42 consultation	• With reference to Section 1.4.4.3, Dee Estuary/Aber Dyfrdwy SAC, NRW (A) note that although twaite shad *Alosa fallax* have been recorded in a fish trap on Chester weir near the tidal limit of the River Dee, there are no records of a spawning population in the river.	Comment noted, additional information has been added to the European Site information in this HRA Stage 1 Screening (see section 1.4.4).
Annex II marine mammals				
June 2023	NRW	S42 consultation	• NRW (A) recommend that Section 1.9.1.6 Assessment of potential Adverse Effect on Integrity: Annex II marine	The HRA Stage 1 Screening report now considers European sites within the OSPAR Region III

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			mammals, is amended for clarification. For grey seal, NRW (A) previously advised the use of the OSPAR Region III MU as per NRW's Position Statement on the use of marine mammal MUs for screening and assessment in HRA for SACs with marine mammal features. NRW agreed with the proposal to use the combined Wales MU, North West England MU, SW Scotland and Northern Ireland MU for grey seal in parallel with the OSPAR Region III MU. NRW recommended that any similar statements within the document be amended. NRW (A) also agreed that the foraging ranges from Carter *et al.*,(2022) would be a suitable alternative as these also capture the movement ranges of grey seal.	Interim MU designated for grey seal, however telemetry data from Wright and Sinclair (2022) has then been used to identify those SACs with potential connectivity to the Mona Offshore Wind Project.
June 2023	NRW	S42 consultation	• NRW recommend that barrier effects are scoped into the LSE in Section 1.4.5 Assessment of LSE for Annex II marine mammals.	Barrier effects are considered within the underwater sound impact assessment in line with the assessment in Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document reference F2.4). Additional detail has been provided to cover this impact for each SAC assessed in section 1.4.5.
			• NRW tentatively agree to the conclusion of no LSE from vessel collision risk in Section 1.4.5.8 Assessment of LSE for Annex II marine mammals, however we advise that the increase in the number of vessels versus the baseline should be quantified.	Comment noted, a quantitative assessment of the uplift in the number of vessels has been presented in section 1.4.5.
			• NRW disagree with the statement in Section 1.4.5.31 Assessment of LSE for Annex II marine mammals, "Given the highly precautionary method for site selection applied during this Screening assessment". The use of MUs as the appropriate screening distance is due to the fact that marine mammal populations are wide ranging, and MUs appropriately capture the range of such populations.	Comment noted, text has been updated in this HRA Stage 1 Screening (see section 1.4.5.50).
Onshore and offshore ornithology				

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
June 2023	NRW	S42 consultation	• NRW disagree with the overall approach of the LSE screening submitted at PEIR stage. Following EWG meetings an agreed approach of which sites to screen in or out was agreed.	New approach to screening sites in for LSE (as per the updated HRA methodology) has been adopted in section 1.3.7.
			• NRW request several onshore ornithological sites are included within this assessment.	Sites presented within the screening assessment now include the sites specifically requested by NRW (see section 1.3.7 and Table 1.12~~Table 1.12~~).
June 2023	JNCC	S42 consultation	• JNCC disagree with the overall approach of the LSE screening submitted at PEIR stage. Following EWG meetings an agreed approach of which sites to screen in or out was agreed. ~~• JNCC request all SPAs to the north of the Mona Offshore Wind Project within 265.4 km be considered for Atlantic puffin *Fratercula arctica*.~~ ~~• JNCC request all SPAs to the north of the Mona Offshore Wind Project within 153.7 km be considered for common guillemot.~~ ~~• JNCC request all SPAs to the north of the Mona Offshore Wind Project within 164.6 km be considered for razorbill.~~	New approach to screening sites in for LSE (as per the updated HRA methodology) has been adopted in section 1.3.7.
June 2023	Natural England	S42 consultation	• Natural England disagree with the overall approach of the LSE screening submitted at PEIR stage. Following EWG meetings an agreed approach of which sites to screen in or out was agreed.	New approach to screening sites in for LSE (as per the updated HRA methodology) has been adopted in section 1.3.7.

1.1.7 Changes to this HRA Stage 1 Screening Report since PEIR

1.1.7.1 The key changes to this HRA Stage 1 Screening Report for the final application since the draft HRA Stage 1 Screening Report that accompanied the PEIR was published are detailed below:

- Updates to the Project Design Envelope (PDE) for the Mona Offshore Wind Project, including updates to the Mona Offshore Wind Project Boundary and project parameters, outlined in Table 1.1~~Table 1.1~~.
- Inclusion of site-specific survey benthic subtidal data for the Mona Offshore Cable Corridor to further justify screening for LSE for Annex I habitats in section 1.4.3.
- Inclusion of detailed physical processes modelling to facilitate more accurate screening of European sites with Annex I habitat and Annex II fish features.
- Change to the approach for the screening of SPAs as agreed with the Offshore Ornithology EWG:
  - Breeding birds - all sites and features where mortalities associated with collision or displacement are predicted to be more than zero (>0) are now screened in for further assessment in the HRA Stage 2 ISAA Part 3 – SPA assessments (Document Reference E1.3).
  - Non- breeding birds – LSE has been assumed for cases where the contribution of an SPA population is thought to represent >1% of the Biologically Defined Minimum Population Scales (BDMPS) population and the inclusion of the additional Welsh sites NRW identified in their response to the PEIR (see Table 1.2~~Table 1.2~~).

1.2 The Habitats Regulations Assessment Process

1.2.1 Legislative context

1.2.1.1 The Habitats Directive, together with the Birds Directive provide the EU's legal framework for the protection of wild fauna and flora and birds and establishes a network of internationally important sites, designated for their ecological status. This network of designated sites is comprised of the following:

- SACs which are designated under the Habitats Directive and promote the protection of flora, fauna and habitats
- SPAs which are designated under the Birds Directive in order to protect rare, vulnerable and migratory birds.

1.2.1.2 In terrestrial areas of the UK and territorial waters out to 12 nm, the land and marine aspects of the Habitats Directive and certain elements of the Birds Directive are transposed into UK law through The Conservation of Habitats and Species Regulations 2017. In waters beyond 12 nm, The Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Offshore Habitats Regulations) apply, which transpose the Habitats and Birds Directives into national law.

1.2.1.3 The UK is no longer an EU Member State. Notwithstanding, the Habitats Directive as implemented by the Habitats Regulations continue to provide the legislative backdrop for HRA in the UK. The HRA process implemented under the Habitats Regulations continues to apply (subject to minor changes effected by the 2019 (EU Exit)

Regulations) and the UK is bound by HRA judgments handed down by The Court of Justice of the European Union (CJEU) prior to 31 to December 2020[1]. The objective of the Habitats Regulations is to conserve, at a Favourable Conservation Status (FCS), those habitats and species listed in Annexes I and II of the Habitats Directive and Annex I of the Birds Directive. Post EU-Exit, the Habitats Regulations continue to refer to Annexes I and II of the Habitats Directive and Annex I of the Birds Directive and as such, reference is made to the annexes of the Habitats and Birds Directives in this report.

1.2.2 European sites post EU exit

1.2.2.1 The Europe-wide network of nature conservation areas that are the subject of the HRA process was established under the Habitats Directive. The Habitats Directive establishes a network of internationally important sites, designated for their ecological status. European sites located within an EU Member State combine to create a Europe-wide network of designated sites known as the Natura 2000 network. In the UK, since exiting the EU, these are now referred to as European sites and together with other designated sites, these form part of the National Site Network.

1.2.3 The process

1.2.3.1 HRA is generally recognised as a progressive, staged process built around the wording of Article 6(3) of the Habitats Directive, with the outcome at each stage defining the requirement for and scope of the next. Compliance with the requirements of the Directive can be demonstrated if the stages are followed in the correct and particular sequence. These stages are summarised in Figure 1.2~~Figure 1.2~~.

1.2.3.2 Article 6(3) of the Habitats Directive requires that:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public".

1.2.3.3 As outlined in paragraph 1.2.3.1, HRA is a multi-stage process which identifies LSE, assesses any adverse effect on integrity of a European site, and considers the potential for derogation (as required). The Defra (2021) guidance describes that the process can have up to three stages as outlined below:

- Screening – the first stage involves a screening for LSE which is a simple assessment to check or screen if, in the absence of mitigation, a proposal:
  - is directly connected with or necessary for the conservation management of a European site
  - risks having a significant effect on a European site on its own or in combination with other proposals

[1] The UK Supreme Court may depart from binding pre-EU Exit case law if they consider it 'right to do so' and the Inner House of the Court of Session may depart from such case law in certain circumstances

- Appropriate assessment – the second stage is an appropriate assessment, which must be carried out if it is decided that there is a risk of a likely significant effect on a European site or if there is not enough evidence to rule out a risk. The appropriate assessment should assess the likely significant effects of a proposal on the integrity of the site and its conservation objectives and consider ways to avoid or reduce (mitigate) any potential for an 'adverse effect on the integrity of the site'
- Derogations - the third stage is known as a derogation where, in certain circumstances, a proposal that has failed the integrity test may be allowed to go ahead. To decide if the proposal qualifies for a derogation, three legal tests must be applied. All three tests must be passed in sequence for a derogation to be granted:
  - There are no feasible alternative solutions that would be less damaging or avoid damage to the site
  - The proposal needs to be carried out for Imperative Reasons of Overriding Public Interest (IROPI)
  - The necessary compensatory measures can be secured.

1.2.3.4 This report considers the first 'screening for LSE' step in the HRA process which encompasses the 'screening' stage shown in Figure 1.2~~Figure 1.2~~.

1.2.3.5 The Habitats Regulations make it clear that the person applying for the consent of the plan or project must provide such information as the Competent Authority may reasonably require for the purposes of the assessment. It is intended that this report and the subsequent HRA reporting including the HRA Stage 2 ISAA Part 1 Introduction and background, Part 2 – SAC assessments, Part 3 – SPA assessments and Integrity matrices (Document Reference E1.2, E1.3 and E1.5) provides this information.

1.2.3.6 To determine whether an appropriate assessment is required it must first be ascertained whether or not the plan/project is directly connected with or necessary to the management of the European site. As this is not the case for the Mona Offshore Wind Project, it must therefore be determined whether the plan or project, either alone or in-combination with other plans and projects, is likely to have a significant effect on a European site(s). This constitutes the HRA Screening stage which removes from the assessment protected features of European sites which have no connectivity to the Mona Offshore Wind Project or those where the impacts are immaterial or inconsequential and the conservation objectives for the site's qualifying interests would not be undermined (i.e. they are non-significant). All other European sites, including those where there is reasonable doubt as to the magnitude and nature of the relevant impact(s), are passed through to the next stage (appropriate assessment).

1.2.3.7 The Habitats Regulations establish management objectives for the national site network. These are called the network objectives. The objectives in relation to the National Site Network are to:

- Maintain or restore certain habitats and species listed in the Habitats Directive to FCS
- Contribute to ensuring the survival and reproduction of certain species of wild bird in their area of distribution and to maintaining their populations at levels which correspond to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements.

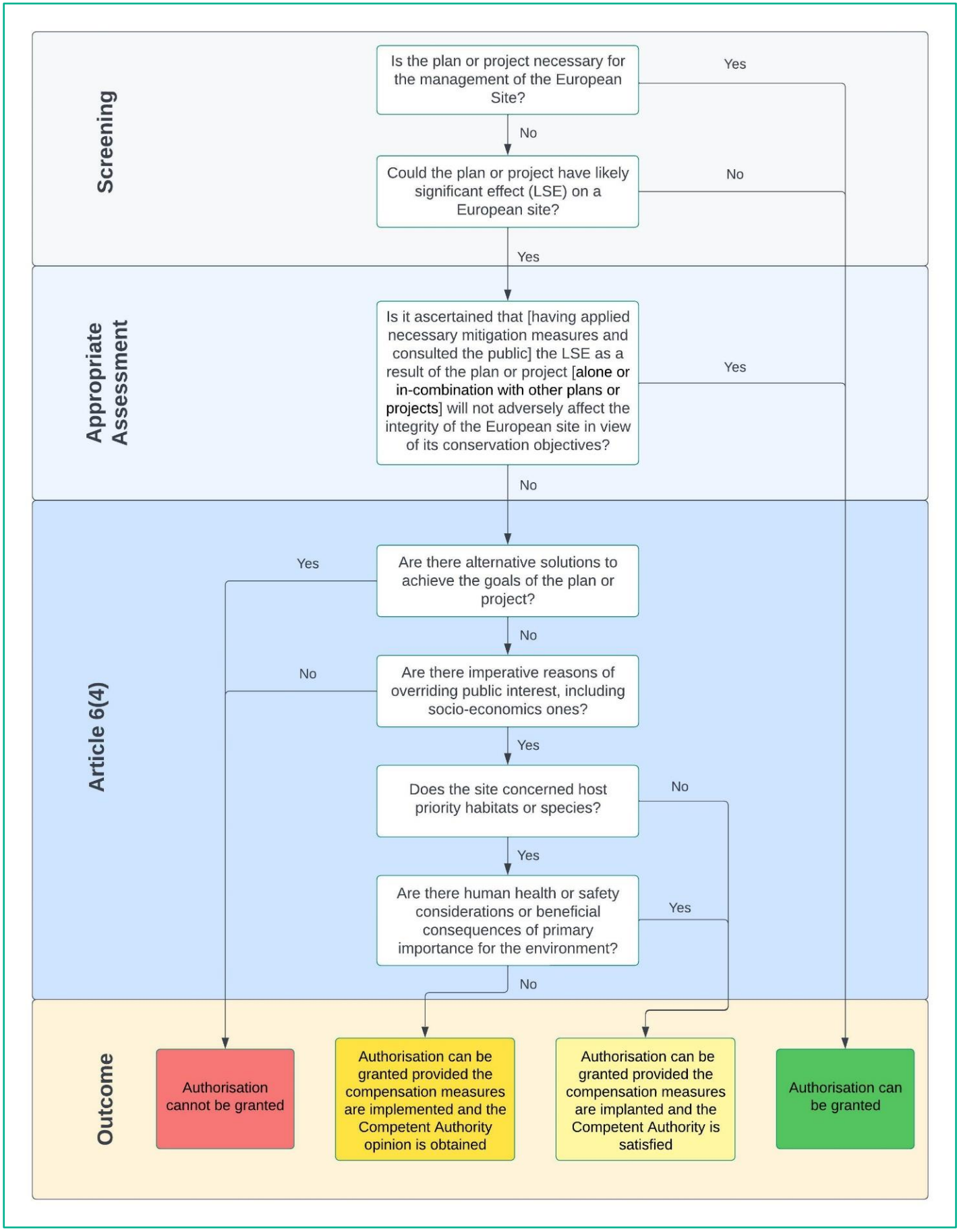


Figure 1.2: Stages in the Habitats Regulations Appraisal Process (Taken from European Commission, 2021).

1.2.4 The Crown Estate Plan-Level HRA

1.2.4.1 The Crown Estate (TCE), in its role as Competent Authority, conducted a Round 4 Plan-Level HRA. The Plan-Level HRA assessed the potential impacts of the six potential offshore wind projects identified through the Round 4 tender process (the "Round 4 plan"), including the Mona Offshore Wind Project, on the National Site Network.

1.2.4.2 The Plan-Level HRA process involved engagement and consultation with an EWG consisting of relevant UK statutory marine planning authorities, SNCBs and relevant non-governmental organisations.

1.2.4.3 TCE's Plan-Level HRA concluded that the possibility of an Adverse Effect on Site Integrity as a result of the Round 4 Plan cannot be ruled out for two protected sites forming part of the National Site Network. The two protected sites, and relevant features, are: 1) sandbank features of the Dogger Bank SAC alone and in-combination; and 2) black-legged kittiwake *Rissa tridactyla* feature of the Flamborough and Filey Coast SPA in-combination only. It should be noted, however, that the Mona Offshore Wind Project was not identified as a preferred project required to be considered in the appropriate assessment for either of these sites. Therefore, no Adverse Effect on Site Integrity was identified for the Mona Offshore Wind Project in the Plan-Level HRA.

1.2.4.4 On the basis of these conclusions, TCE considered derogation and concluded that: a) there are no alternative solutions to deliver the Round 4 objectives; b) there are clear imperative reasons of overriding public interest to proceed under the government's targets for offshore wind and net zero; and c) the Round 4 plan provides a robust framework for the delivery of compensatory measures. TCE therefore considered that the three derogation tests have been met and the Secretary of State has since agreed that TCE can proceed with the plan, and Welsh Ministers have not raised any objection to the notice.

1.2.4.5 The Plan-Level HRA notes that TCE expects developers to undertake project-specific environmental assessments, including a detailed project-level HRA, as part of their application for development consent. This document comprises Stage 1 of the HRA, which carries out the screening of the Mona Offshore Wind Project with respect to its potential to have an LSE on European sites. This HRA Screening document has taken into account the information and approach taken by the Plan Level HRA as set out below.

1.2.4.6 TCE also established a Steering Group including government and SNCBs to oversee the development and delivery of strategic environmental compensation plans for each of the two affected sites. As projects progress before and during the planning process, developers will be required to work with the Steering Group – which will consult with the Round 4 HRA Expert Working Group - to develop detailed individual site compensation plans.

1.2.5 Legislation and guidance

1.2.5.1 This HRA Stage 1 Screening Report has drawn upon a number of information sources, HRA principles, regulations and guidance documents, including:

- The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Offshore Habitats Regulations)

- EC (2006) Nature and Biodiversity Cases Ruling of the European Court of Justice
- EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EE. Clarification on the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission
- EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'
- EC (2020) Guidance document on wind energy developments and EU nature legislation. European Commission Notice Brussels (2020) 7730 final
- EC (2021) Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission Notice Brussels C(2021) 6913 final
- Joint Defra, Welsh Government, Natural England and Natural Resources Wales guidance (2021) 'Habitats regulations assessments: protecting a European site'
- The Planning Inspectorate Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate, 2022)
- The Planning Inspectorate Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (The Planning Inspectorate, 2019)
- The Habitats Regulations Assessment Handbook (DTA Publications Limited, 2016)
- The Crown Estate Plan Level HRA (The Crown Estate, 2021)
- Feedback received from the Mona Evidence Plan Process.

1.2.6 Process for identifying sites and features

1.2.6.1 To facilitate the identification of the European sites and features to be considered in the HRA Screening for the Mona Offshore Wind Project, a pre-screening of sites has been undertaken. This is considered to be appropriate due to the large spatial scale of the Mona Offshore Wind Project, the wide-ranging nature of many of the features of European sites which may be affected (i.e. birds and marine mammals) and therefore the number of European sites which could potentially be affected.

1.2.6.2 The criteria adopted for the initial identification of European sites are outlined in Table 1.3~~Table 1.3~~. This approach takes account of the location of the European sites (including Ramsar sites) in relation to the Mona Offshore Wind Project, the anticipated Zone Of Influence (ZoI) of potential impacts associated with the Mona Offshore Wind Project, and the ecology and distribution of qualifying interest features.

1.2.6.3 Table 1.3~~Table 1.3~~ outlines the order of consideration given to the criteria used for the identification of the list of sites to be taken forward for determination of LSE. Initial consideration is given to whether there is a physical overlap between the Mona Offshore Wind Project and any European sites; all sites with an overlapping boundary are screened in to be taken forward for determination of LSE.

1.2.6.4 Pre-screening criterion 2 next identifies any European sites, not already screened in using criterion 1, where there is an overlap between the Mona Offshore Wind Project

and the range of any qualifying mobile species of the site. All sites where the Mona Offshore Wind Project Boundary overlaps with the range of one (or more) of its features, are taken forward for determination of LSE.

1.2.6.5 Criterion 3 identifies any European sites, not already screened in by criterion 1 or 2, where the potential ZoI of the Mona Offshore Wind Project overlaps with a European site and/or qualifying interests of the site (as per section 1.3). For ornithology receptors, consideration is also given to a range of factors that inform the likely extent to which the different qualifying features will occur at the Mona Offshore Wind Project.

Table 1.3: Criteria for initial identification of relevant European sites.

Order of consideration	Criteria used for initial Identification of relevant European sites
1	The Mona Offshore Wind Project Boundary overlaps with one or more European or Ramsar sites.
2	European or Ramsar site with qualifying mobile features/species (e.g. birds, Annex II marine mammals, migratory fish, otter) whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) overlaps with the Mona Offshore Wind Project Boundary.
3	European or Ramsar sites and/or qualifying interest features located within the potential ZoI of impacts associated with the Mona Offshore Wind Project (e.g. habitat loss/disturbance, sound and risk of collision).

1.2.6.6 The outcome of this initial screening will be that sites where there is no potential for LSEs due to lack of potential overlap of receptor-impact pathway to occur are excluded from further consideration in this report. Sites not excluded on the basis of any of the criteria outlined in Table 1.3~~Table 1.3~~ (i.e. where there is a potential for a receptor-impact pathway to occur) will be taken forward for determination of LSE in section 1.4.

1.2.6.7 It should be noted that this HRA Screening has been updated, as appropriate, during the pre-application phase of the Project to account for site-specific survey data, detailed assessments and stakeholder feedback which has resulted in some features, sites or impacts being excluded from consideration in the Appropriate Assessment, due to a lack of LSE. Any such updates have been discussed and agreed with the Evidence Plan Steering Group and Expert Working Groups (EWGs) as appropriate and are summarised in section 1.1.7.

1.3 Identification of European sites and features

1.3.1 Overview

1.3.1.1 This section provides a list of European sites (including Ramsar sites), and their features, for which there is the potential for connectivity with the Mona Offshore Wind Project, using the criteria outlined in Table 1.3~~Table 1.3~~, and therefore those which should be taken forward for consideration of LSE in section 1.4.

1.3.1.2 Each of the following receptor groups are considered in turn:

- Annex I habitats (offshore and coastal) (see section 1.3.2)
- Annex II diadromous fish species (see section 1.3.3)
- Annex II marine mammals (see section 1.3.4)
- Annex I habitats (onshore) (see section 1.3.5)

- Annex II species (onshore) (see section 1.3.6)
- Offshore ornithological features (see section 1.3.7)
- Onshore ornithological features (see section 1.3.8)

1.3.2 Sites designated for Annex I habitats (offshore and coastal)

1.3.2.1 The following section details the results of the stepwise process to identify the European sites with relevant Annex I habitats (offshore and coastal) to be taken forward for detailed determination of LSE based on the methodology and criteria outlined in section 1.2.4 and Table 1.3~~Table 1.3~~.

1.3.2.2 The approach adopted will focus on the Annex I benthic habitat qualifying interest features for which there is considered to be a potential for impact as a result of the Mona Offshore Wind Project. Whilst only these qualifying interest features will be screened in for further consideration, it is acknowledged that the Competent Authority must undertake the HRA Screening, and any subsequent appropriate assessment, at the site level and not for individual qualifying interest features.

Initial identification for Annex I habitats (offshore and coastal)

Criterion 1

1.3.2.3 Criterion 1 for the identification of European or Ramsar sites to be taken forward for consideration of LSE considers those sites which overlap with the offshore and coastal boundaries of the Mona Offshore Wind Project. There are no European sites with relevant qualifying Annex I habitats, up to Mean High Water Springs (MHWS), which overlap with the Mona Array Area, however one site, the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, overlaps with the Mona Offshore Cable Corridor (Figure 1.3~~Figure 1.3~~).

Criterion 2

1.3.2.4 Criterion 2 considers European or Ramsar sites with qualifying mobile features/species whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) overlaps with the Mona Offshore Wind Project Boundary. There are no European sites which meet this criterion for Annex I (offshore and coastal) benthic habitats and so no sites are screened in for further consideration on this basis.

Criterion 3

1.3.2.5 Criterion 3 considers European or Ramsar sites and/or qualifying interest features which are located within the potential ZoI of impacts associated with the Mona Offshore Wind Project. There is the potential for indirect effects to sites designated for Annex I habitats as a result of impacts associated with increased Suspended Sediment Concentration (SSC) arising from construction activities or from changes to the hydrodynamic regime as a result of the presence of offshore infrastructure associated with the Mona Offshore Wind Project.

1.3.2.6 The extent of these impacts is considered likely to extend beyond the Mona Offshore Wind Project Boundary.

1.3.2.7 The ZoI for such indirect effects associated with the offshore elements of the Mona Offshore Wind Project has been defined from the outputs of physical processes

modelling to determine, for example, the fate of sediments resuspended during the construction process.

1.3.2.8 The ZoI used in the HRA Stage 1 Screening Report submitted alongside PEIR was one mean tidal excursion from the Mona PEIR Array Area and the Mona PEIR Offshore Cable Corridor. Since the Mona HRA Stage 1 Screening Report submitted alongside PEIR was produced, modelling has been undertaken to inform the PEIR and final application and is presented in Volume 6, Annex 1~~6~~.1: Physical processes technical report of the Environmental Statement (Document reference F6.1.1). This has modelled the predicted increases in SSC and associated sediment deposition for construction activities including sandwave clearance, drilling for foundation installation and cable installation, which has refined the ZoI as follows:

- During drilling for foundation installation, plumes of increased SSC with peak concentrations of up to 50 mg/l, but average concentrations of typically one fifth of this, are predicted to extend up to approximately 14 km (east to west, ~7 km in each direction) in the northeast of the Mona Array Area, up to approximately 22 km (east to west, ~11 km in each direction) in the southeast, and 21 km (east to west, ~10.5 km in each direction) in the central north of the Mona Array Area.
- During offshore export cable and inter-array cable sandwave clearance, average increases in SSC of typically less than 300 mg/l along the Mona Offshore Cable Corridor and less than 500 mg/l within the Mona Array Area are predicted, extending a tidal excursion of approximately 20 km (i.e. up to 10 km in any direction from the point of release). Sedimentation associated with the deposition of sandwave clearance material within the Mona Array Area is predicted to be focussed to within 100 m of the site of release, and concentrations of typically less than 30 mm at this distance, with dispersion predicted on successive tides. Sedimentation associated with drilling is predicted to be similarly localised to within 300 m of the site of release for the coarser material, with lower levels of sedimentation redistributed over a wider area.
- During offshore export cable and inter-array cable installation, peak plume concentrations are highest at the release site (up to 500 mg/l for inter-array cable and up to 1,000mg/l for export cables) and sedimentation levels of up to 30 mm (but typically less than this for the export cable) are predicted at the trench site. The predicted SSC levels and sediment depths are predicted to reduce with distance from the trench with the greatest area of increased SSC occurring within a plume envelope width of approximately 20 km (i.e. extending 10 km in each direction from the site), with typical levels of less than 50 mg/l.
- Modelling presented in Volume 6, Annex 1~~6~~.1: Physical processes technical report of the Environmental Statement (Document reference F6.1.1) indicated changes in tidal flows, as a result of the physical presence of foundations, will be limited to, and would be imperceptible beyond, the immediate Mona Array Area. Impacts to sediment transport and sediment transport pathways are predicted to be well within the natural variation and would not be sufficient to disrupt beach and offshore bank morphological processes or destabilise coastal features.
- The greatest increases in SSC were predicted to occur within a plume envelope of approximately 20 km (i.e. 10 km in either direction), which corresponds with the tidal excursion. On the basis of the modelling outlined above, a precautionary buffer of 12 km has been adopted to screen sites within the ZoI of increased SSC, sediment deposition and changes in physical processes. Beyond this distance, any increases in SSC and sediment deposition would be so minimal that they

would be imperceptible from natural background variation and would therefore not be capable of resulting in anything other than insignificant effects on designated features of a SAC.

1.3.2.9 On the basis of the physical processes modelling, only the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (which is already screened in under criterion 1), overlaps with the ZoI for indirect impacts. There are no other European sites within the ZoI and so no additional sites are screened in for further consideration on this basis.

Summary of initial screening of sites for Annex I habitats (offshore and coastal)

1.3.2.10 The initial screening process in section 1.4.3 of this report has identified the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~ and Figure 1.3~~Figure 1.3~~), to be taken forward for determination of LSE. The relevant Annex I habitat features identified in the initial screening are also outlined in Table 1.4~~Table 1.4~~ together with clarification on associated interest features where a designated site has more than one feature listed, but not all were highlighted by the site selection criteria.

1.3.2.11 Effects on benthic habitats from activities within the Mona Array Area across all phases are screened out on the basis of the distance of the Mona Array Area from the site (26.8 km). Effects are only likely to arise from works along the Mona Offshore Cable Corridor.

Table 1.4: European and Ramsar sites designated for Annex I habitats (subtidal and coastal) taken forward for determination of LSE.

European site	Relevant Annex I habitat features identified through initial screening of sites	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features
Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC	Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Reefs Large shallow inlets and bays Submerged or partially submerged sea caves	26.8	0.0	n/a

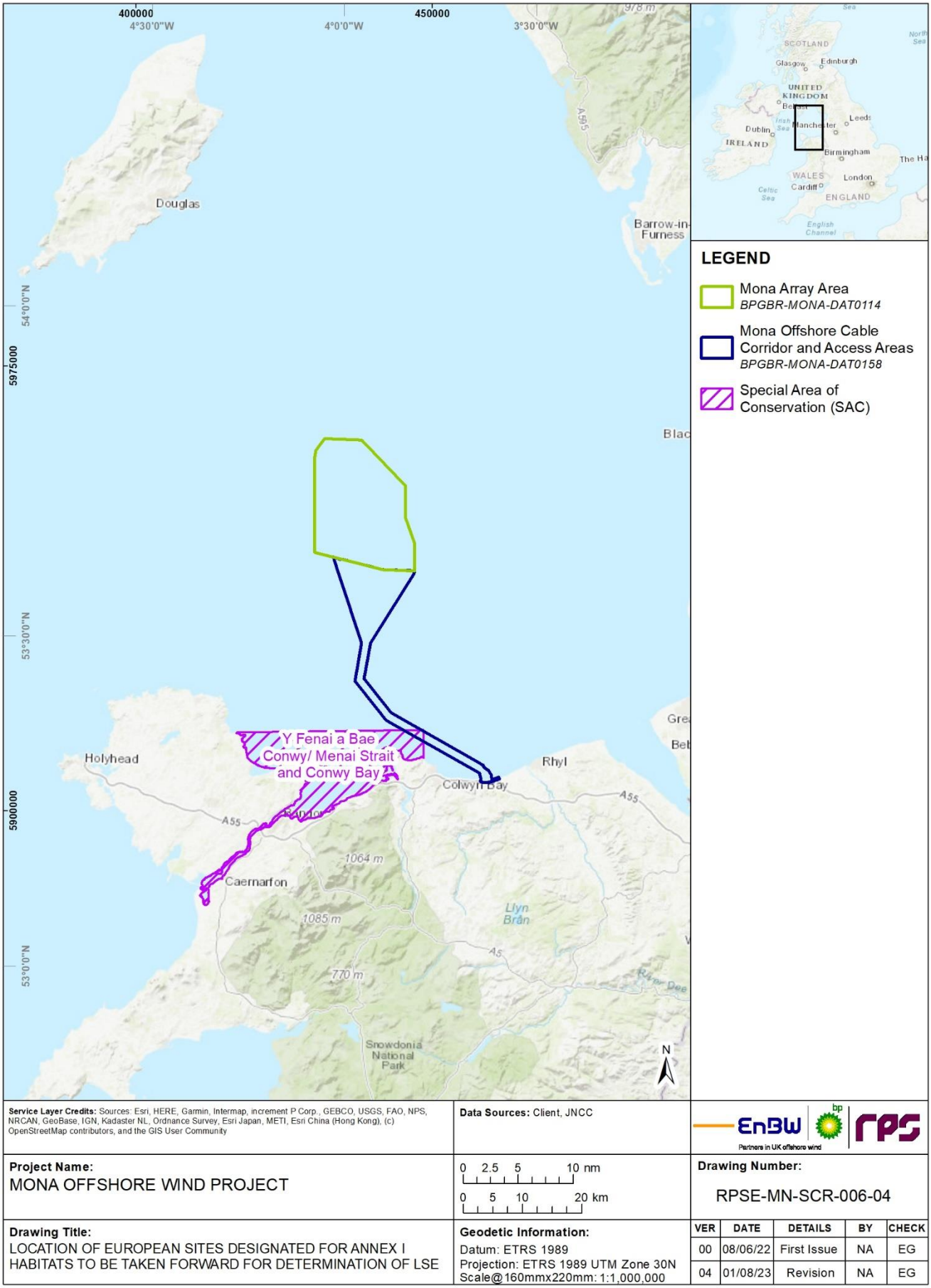


Figure 1.3: Location of European Sites designated for Annex I habitats taken forward for determination of LSE.

1.3.3 Sites designated for Annex II diadromous fish

1.3.3.1 The following sections detail the results of the stepwise process to identify the European sites with relevant Annex II diadromous fish species to be taken forward for detailed determination of LSE based on the methodology and criteria outlined in section 1.2.4 and Table 1.3~~Table 1.3~~.

1.3.3.2 The approach adopted for this HRA Stage 1 Screening report focusses on the Annex II diadromous fish qualifying interest features for which there is considered to be a potential for impact as a result of the Mona Offshore Wind Project. Whilst only these qualifying interest features will be screened in for further consideration, it is acknowledged that the Competent Authority must undertake the HRA Screening, and any subsequent appropriate assessment, at the site level and not for individual qualifying interest features.

Initial identification for Annex II fish

Criterion 1

1.3.3.3 Criterion 1 considers European or Ramsar sites which overlap with the Mona Offshore Wind Project Boundary. As there are no European sites with Annex II diadromous fish species as qualifying features which overlap with the Mona Offshore Wind Project Boundary, no sites are screened in for further consideration for diadromous fish on the basis of this criterion.

Criterion 2

1.3.3.4 Criterion 2 considers European or Ramsar sites with qualifying mobile features/species whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) overlaps with the Mona Offshore Wind Project Boundary.

1.3.3.5 There is the potential for activities associated with the construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project to result in impacts on Annex II diadromous fish species at a distance from the European sites for which they are qualifying interest features on the basis that these species are mobile and utilise both freshwater and marine environments throughout their life cycles.

1.3.3.6 A precautionary approach to the identification of relevant sites has been adopted in order to capture all sites with the potential for connectivity with the Mona Offshore Wind Project, and in particular to consider the potential for disruption to migration (i.e. barriers to migration) of diadromous fish (including but not limited to Atlantic salmon) to/from natal rivers (river of origin). For the purposes of HRA Screening, a precautionary approach has been adopted using a preliminary buffer of 100 km from the Mona Offshore Wind Project Boundary for all Annex II diadromous fish species except Atlantic salmon and freshwater pearl mussel where the regional area has been considered (see Figure 1.4~~Figure 1.4~~). These screening buffers take into account the likely migratory routes and distances for diadromous fish as outlined in ABPmer (2014) (see Figure 1.4~~Figure 1.4~~), and follow the methodology outlined in the Plan Level HRA (The Crown Estate, 2021) and following feedback from stakeholders.

1.3.3.7 Given the location of the Mona Offshore Wind Project within the eastern Irish Sea it is unlikely that any SACs located along the west Irish Sea coast (or further north or south) would be affected by any of the predicted impacts. For example, SACs located on the east coast of Ireland (e.g. River Slaney SAC and River Boyne and River Blackwater SAC), will be unaffected by the Mona Offshore Wind Project due to its location within the eastern Irish Sea not presenting a barrier to migration, as shown in Figure

1.4~~Figure 1.4~~. Similarly, only SACs located along the eastern Irish Sea coast have been included where the Mona Offshore Wind Project has the potential to create a barrier to migration for designated Annex II fish features (Figure 1.5~~Figure 1.5~~).

1.3.3.8 On this basis, a total of nine European sites have been screened in using this criterion and must, therefore, be taken forward for determination of LSE in section 1.4.4. These are:

- Dee Estuary/Aber Dyfrdwy SAC
- River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC
- River Ehen SAC
- River Eden SAC
- River Derwent and Bassenthwaite Lake SAC
- Solway Firth SAC
- River Kent SAC
- River Bladnoch SAC
- Afon Gwyrfai a Llyn Cwellyn SAC.

Criterion 3

1.3.3.9 Criterion 3 considers European or Ramsar sites and/or qualifying interest features which are located within the potential ZoI of impacts associated with the Mona Offshore Wind Project (e.g. habitat loss/disturbance, sound and risk of collision). Given the large buffer proposed for criterion 2 above (100 km), the ZoI for key impacts to migratory fish species (i.e. underwater sound, habitat loss and increased SSC) are anticipated to be well within this range. No additional European sites with Annex II diadromous fish as qualifying features, beyond those already identified for criterion 2, are therefore screened in for further consideration on the basis of criterion 3.

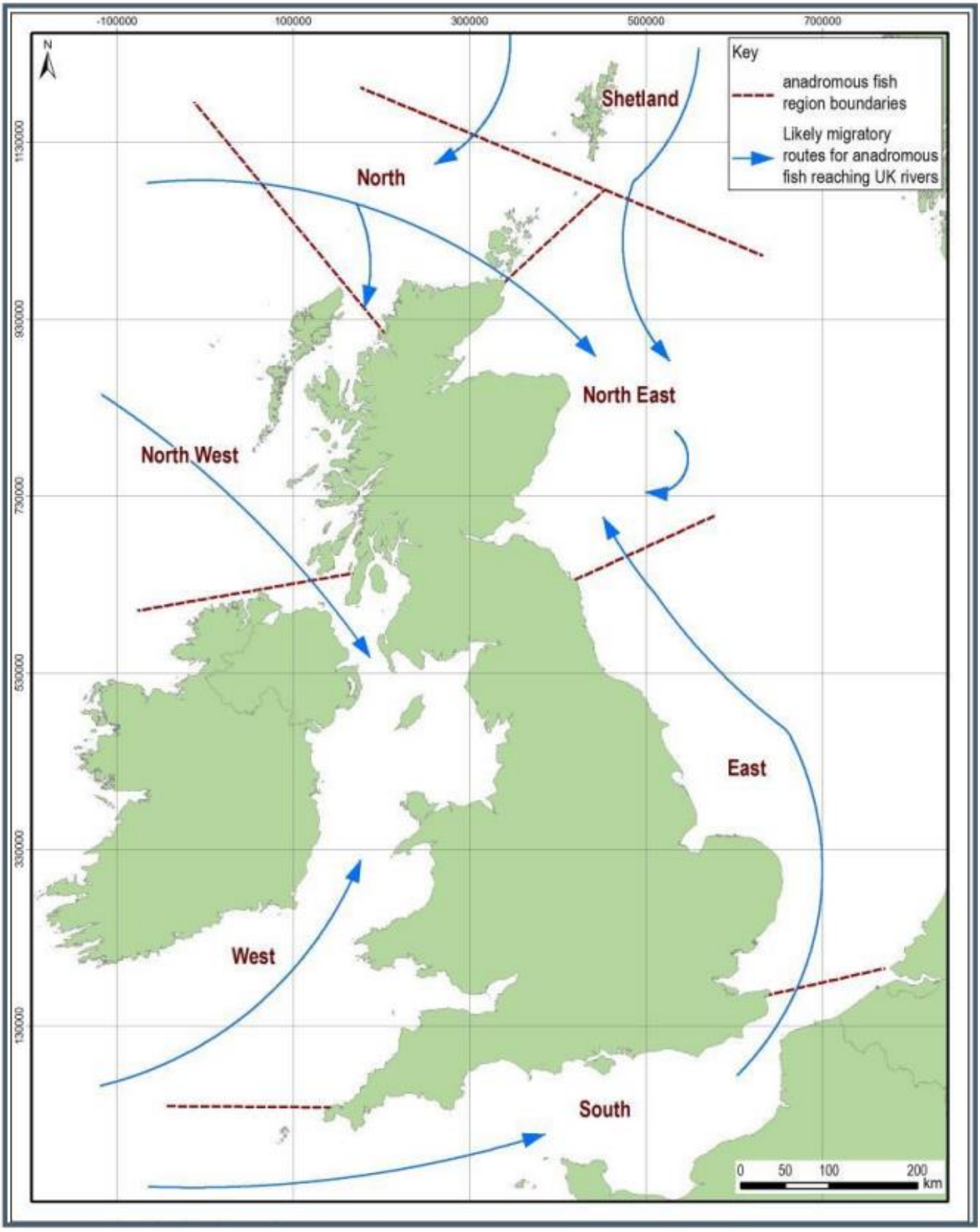


Figure 1.4: Likely migration routes for anadromous fish reaching UK rivers (ABPmer, 2014).

Summary of initial screening of sites for Annex II diadromous fish

1.3.3.10 The initial screening process has identified nine European sites with Annex II diadromous fish species as qualifying features to be taken forward for detailed determination of LSE in section 1.4.4 of this report. The sites are listed in Table 1.5~~Table 1.5~~ and illustrated in Figure 1.5~~Figure 1.5~~.

Table 1.5: European and Ramsar sites designated for Annex II diadromous fish species taken forward for determination of LSE.

Note: All distances are measured as the marine route to the site (i.e. not the distance as the crow flies).

[1] All other Annex I habitats have been screened out of further assessment on the basis that they are outside the ZoI for benthic receptors as determined in criterion 3 of section 1.3.2 and so there will be no receptor-impact pathway.

[2] Site is also designated for brook lamprey *Lampetra planeri*/bullhead *Cottus gobio*/ white-clawed crayfish (or Atlantic stream) crayfish *Austropotamobius pallipes*, but as these are not diadromous fish species (i.e. confined to the freshwater section of the river and do not migrate to the marine environment) there is no potential for connectivity with the Mona Offshore Wind Project and the features are screened out.

[3] Otter *Lutra lutra* is also a feature of this site but has been screened out of assessment based on distance (see section 1.3.6).

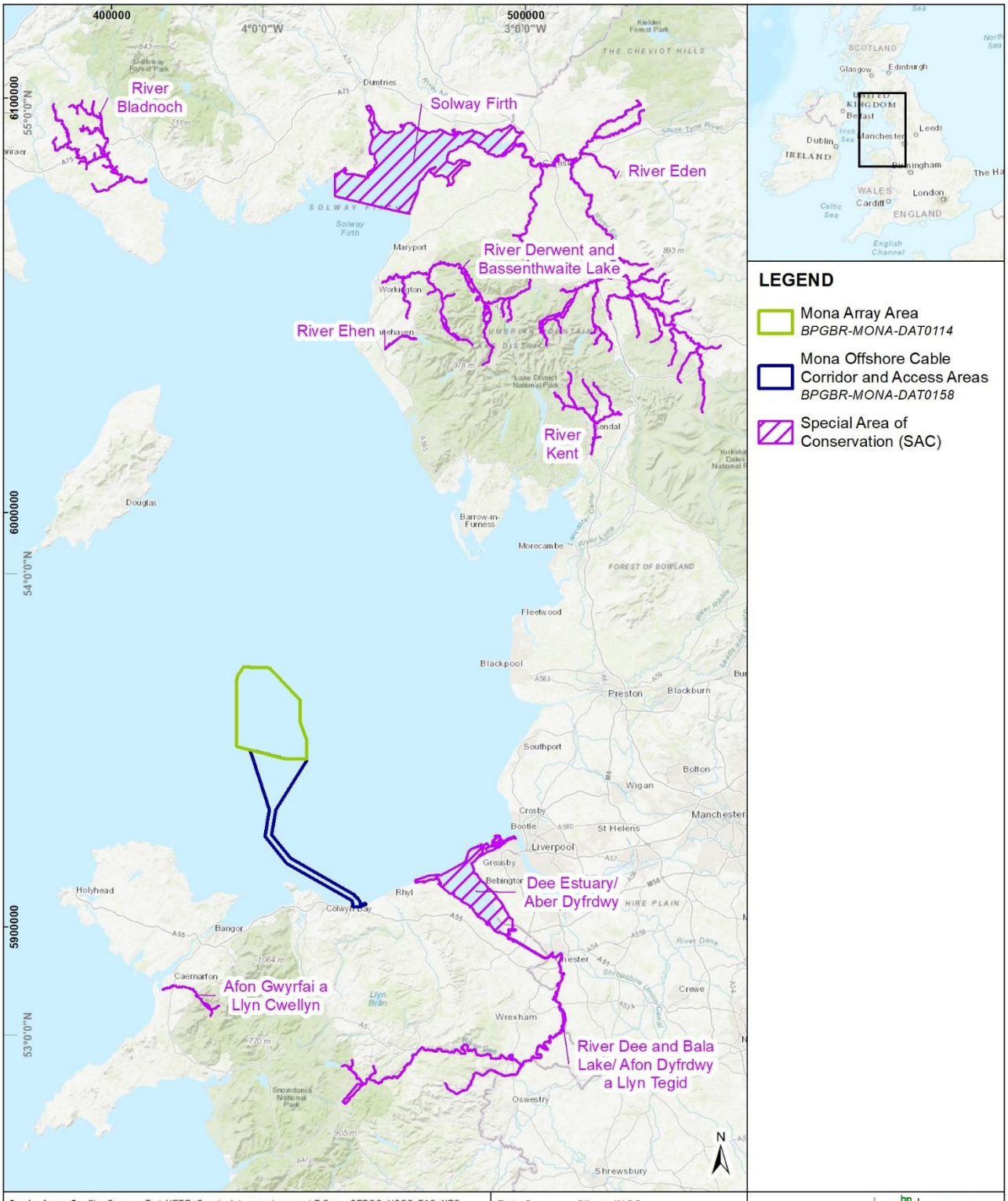
[4] Although the freshwater pearl mussel is not a diadromous fish, Atlantic salmon are host species during a critical parasitic phase of the mussel's lifecycle. There could therefore be an indirect impact upon the freshwater pearl mussel feature of the site if the salmon population is adversely affected.

[5] This site is only designated for freshwater pearl mussel Brown trout *Salmo trutta* is thought to be the host species within the River Kent SAC, however Atlantic salmon are also present within the river (Natural England, 2019c),and the site is therefore screened in.

European site	Relevant Annex II features identified through initial screening of sites	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features
Dee Estuary/Aber Dyfrdwy SAC	Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatilis*	39.3	13.2	Estuaries[1] Mudflats and sandflats not covered by seawater at low tide[1] *Salicornia* and other annuals colonising mud and sand[1] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)[1] Annual vegetation of drift lines[1] Vegetated sea cliffs of the Atlantic and Baltic Coasts[1] Embryonic shifting dunes[1] Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")[1] Fixed coastal dunes with herbaceous vegetation ("grey dunes")[1] Humid dune slacks[1] Petalwort *Petalophyllum ralfsii*[1]
River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC	Sea lamprey *Petromyzon marinus* Atlantic salmon *Salmo salar*	64.4	40.7	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation[1] Floating water-plantain *Luronium natans*[1]

European site	Relevant Annex II features identified through initial screening of sites	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features
	River lamprey *Lampetra fluviatilis*			Brook lamprey *Lampetra planeri*[2] Bullhead *Cottus gobio*[2] Otter *Lutra lutra*[3]
River Ehen SAC	Atlantic salmon *Salmo salar* Freshwater pearl mussel *Margaritifera margaritifera*[4]	83.01	106.4	n/a
River Eden SAC	Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatilis* Atlantic salmon *Salmo salar*	86.5	104.8	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-Nanojuncetea[1] Water courses of plain to montane levels with the *Ranunculion fluitantis* and Callitricho-Batrachion vegetation[1] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) (Priority feature)[1] White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*[2] Brook lamprey *Lampetra planeri*[2] Bullhead *Cottus gobio*[2] Otter *Lutra lutra*[3]
Afon Gwyrfai a Llyn Cwellyn SAC	Atlantic salmon *Salmo salar*	92.3	91.2	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-Nanojuncetea[1] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation[1] Floating water-plantain *Luronium natans*[1] Otter *Lutra lutra*[3]
River Kent SAC	Freshwater pearl mussel *Margaritifera margaritifera*[4]	96.7	105.1	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation[1] White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*[2] Bullhead *Cottus gobio*[2]
River Derwent and Bassenthwaite Lake SAC	Sea lamprey *Petromyzon marinus* Atlantic salmon *Salmo salar* River lamprey *Lampetra fluviatilis*	99.7	119.7	Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the Isoëto-Nanojuncetea[1] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation[1]

European site	Relevant Annex II features identified through initial screening of sites	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features
				Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*[2] Brook lamprey *Lampetra planeri*[2] Otter *Lutra lutra*[3] Floating water-plantain *Luronium natans*[1]
Solway Firth SAC	Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatilis*	114.5	134.8	Sandbanks which are slightly covered by sea water all the time[1] Estuaries[1] Mudflats and sandflats not covered by seawater at low tide[1] *Salicornia* and other annuals colonizing mud and sand[1] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1] Reefs[1] Perennial vegetation of stony banks[1] “Fixed coastal dunes with herbaceous vegetation (“”grey dunes””)[1]
River Bladnoch SAC	Atlantic salmon *Salmo salar*	121.5	141.4	n/a



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community	**Data Sources:** Client, JNCC	EnBW bp RPS Partners in UK offshore wind
Project Name: MONA OFFSHORE WIND PROJECT	0 5 10 20 nm 0 10 20 40 km	**Drawing Number:** RPSE-MN-SCR-007-05
Drawing Title: LOCATION OF EUROPEAN SITES DESIGNATED FOR ANNEX II DIADROMOUS FISH SPECIES TO BE TAKEN FORWARD FOR DETERMINATION OF LSE	**Geodetic Information:** Datum: ETRS 1989 Projection: ETRS 1989 UTM Zone 30N Scale@160mmx220mm: 1:1,550,000	

VER	DATE	DETAILS	BY	CHECK
00	08/06/22	First Issue	NA	EG
04	01/08/23	Revision	NA	EG

Figure 1.5: Location of European sites for Annex II diadromous fish species to be taken forward for determination of LSE.

1.3.4 Sites designated for Annex II marine mammals

1.3.4.1 Based on data collected to date during aerial surveys and information on marine mammal species in the Irish Sea from desk based studies for the Mona Offshore Wind Project, the Annex II marine mammal species likely to occur in the vicinity of the Mona Offshore Wind Project and therefore considered in the HRA Stage 1 Screening are:

- Harbour porpoise *Phocoena phocoena*
- Bottlenose dolphin *Tursiops truncatus*
- Grey seal *Halichoerus grypus*
- Harbour seal *Phoca vitulina*.

1.3.4.2 The following species were included in the Mona Offshore Wind Project Scoping Report and are considered to have the potential to occur within the Mona Offshore Wind Project Boundary, however these species are listed under Annex IV rather than Annex II of the Habitats Directive and therefore do not have SACs designated for them and will be assessed within Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document reference F2.4) and are not considered further within this document:

- Minke whale *Balaenoptera acutorostrata*
- White beaked dolphin *Lagenorhynchus albirostris* (note that these have also been scoped out of the EIA as agreed with the marine mammal EWG)
- Short beaked common dolphin *Delphinus delphis*
- Risso's dolphin *Grampus griseus.*

Initial identification for Annex II marine mammals

1.3.4.3 The following sections detail the results of the stepwise process to identify the European sites with relevant Annex II marine mammals as qualifying features to be taken forward for detailed determination of LSE based on the methodology and criteria outlined in section 1.2.4 and Table 1.3~~Table 1.3~~.

1.3.4.4 The approach adopted for this HRA Stage 1 Screening report focusses on the Annex II marine mammal qualifying interest features for which there is considered to be a potential for impact as a result of the Mona Offshore Wind Project. Whilst only these qualifying interest features have been screened in for further consideration in section 1.4, it is acknowledged that the Competent Authority must undertake the HRA Screening, and any subsequent appropriate assessment, at the site level and not for individual qualifying interest features.

Criterion 1

1.3.4.5 Criterion 1 considers European or Ramsar sites which overlap with the Mona Offshore Wind Project Boundary. There are no sites with Annex II marine mammal species as qualifying features which overlap with the Mona Offshore Wind Project Boundary, therefore no sites are screened in for further consideration for marine mammals on the basis of this criterion.

Criterion 2

1.3.4.6 Criterion 2 considers European or Ramsar sites with qualifying mobile species whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range)

overlaps with the Mona Offshore Wind Project Boundary. There is the potential for activities associated with the construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project to result in impacts on Annex II marine mammal species at distance from the sites for which they are qualifying interest features on the basis that these are highly mobile species which potentially forage over wide areas. The relevant ranges for the different marine mammal receptors are discussed in the following paragraphs.

Harbour porpoise

1.3.4.7 A precautionary approach to the identification of relevant sites for harbour porpoise has been adopted in order to capture all sites with the potential for connectivity with the Mona Offshore Wind Project based on criterion 2. On this basis, it has been considered that sites with harbour porpoise as qualifying interest features which are located within the same Management Unit (MU) defined by The Inter-agency Marine Mammal Working Group (IMWWG) (2015) as the Mona Offshore Wind Project will be screened for LSE (Figure 1.7~~Figure 1.7~~). For harbour porpoise all sites within the Celtic and Irish Seas MU have been considered. Therefore, a total of 24 European sites for harbour porpoise have been identified to be taken forward for determination of LSE in section 1.4.5 (see Table 1.6~~Table 1.6~~ and Figure 1.9~~Figure 1.9~~).

Bottlenose dolphin

1.3.4.8 A precautionary approach to the identification of relevant sites for bottlenose dolphin has been adopted in order to capture all sites with the potential for connectivity with the Mona Offshore Wind Project based on criterion 2. On this basis, it has been considered that sites with bottlenose dolphin as qualifying interest features which are located within the same MU defined by IMWWG (2015) as the Mona Offshore Wind Project will be screened for LSE (Figure 1.7~~Figure 1.7~~). For bottlenose dolphin therefore all sites within the Irish Sea MU have been considered. Therefore, a total of two European sites for bottlenose dolphin have been identified to be taken forward for determination of LSE in section 1.4.5 (see Table 1.6~~Table 1.6~~ and Figure 1.9~~Figure 1.9~~).

Grey seal

1.3.4.9 All SACs designated for grey seal located within the same Seal MUs (SCOS, 2020) as the Mona Offshore Wind Project (i.e. the Wales MU, North West England MU, SW Scotland and Northern Ireland MU) have been screened for LSE (Figure 1.8~~Figure 1.8~~). Following advice received from NRW during the section 42 consultation (Table 1.2~~Table 1.2~~), the OSPAR Region III Interim MU (presented in Figure 1.8~~Figure 1.8~~) has also been considered to identify any additional sites with grey seal as a qualifying feature, which may have connectivity with the Mona Offshore Wind Project. Therefore, a total of 20 European sites for grey seal have been identified to be taken forward for determination of LSE in section 1.4.5(see Table 1.6~~Table 1.6~~ and Figure 1.9~~Figure 1.9~~).

Harbour seal

1.3.4.10 All SACs designated for harbour seal located within the same Seal MUs (SCOS, 2020) as the Mona Offshore Wind Project (the Wales and North West England MU) will be considered by the screening (Figure 1.8~~Figure 1.8~~). In addition, a screening range has been applied to identify sites for inclusion in the assessment of LSE for harbour seal

which is based on the typical foraging range of this species. Harbour seal tend to make relatively short foraging trips from haul out sites and the latest Special Committee on Seal (SCOS) report (SCOS, 2020) states that harbour seal typically forage at distances of 40 to 50 km from haul out sites. However, more recent sources on seal foraging ranges presented in Carter *et al.*, (2022) and telemetry data presented in Appendix B of Volume 2, Chapter ~~9~~4.1: Marine mammals technical report of the Environmental Statement (Document reference F6.4.1), (Wright and Sinclair, 2022) have also been considered.

1.3.4.11 Seal satellite tracking data from tagged harbour and grey seals is presented in Appendix B of Volume 6, Annex ~~9~~4.1: Marine mammal technical report of the Environmental Statement (Document reference F6.4.1). Of the 46 tagged harbour seals that entered the seal telemetry and haul-out study area (which comprised the total area of four seal Mus, namely the Northwest England, Wales, Southwest Scotland and Northern Ireland seal Mus), five had telemetry track data recorded within a 50 km buffer of the Mona Offshore Wind Project (Figure 1.6~~Figure 1.6~~) (Wright and Sinclair, 2022). The telemetry tracks were recorded between 2006 and 2008 and were concentrated within the northwest region of the seal telemetry and haul-out study area. No tracks were recorded within or south of the Mona Offshore Wind Project Boundary (Figure 1.6~~Figure 1.6~~). All 34 harbour seals tagged in the Northern Ireland MU (Figure 1.6~~Figure 1.6~~), including the five which entered the 50 km buffer of the Mona Offshore Wind Project (Figure 1.6~~Figure 1.6~~), showed connectivity to the Strangford Lough SAC (tagging location). Figure 1.6~~Figure 1.6~~ also shows connectivity between the Murlough SAC and the 50 km buffer of the Mona Offshore Wind Project. Based on these sources, there is considered to be potential connectivity with the Strangford Lough SAC and Murlough SAC.

1.3.4.12 The screening process for harbour seal includes any European site where the species is considered as a qualifying feature. Two European sites for harbour seal have been identified to be taken forward for determination of LSE in section 1.4.5 (see Table 1.6~~Table 1.6~~ and Figure 1.9~~Figure 1.9~~).

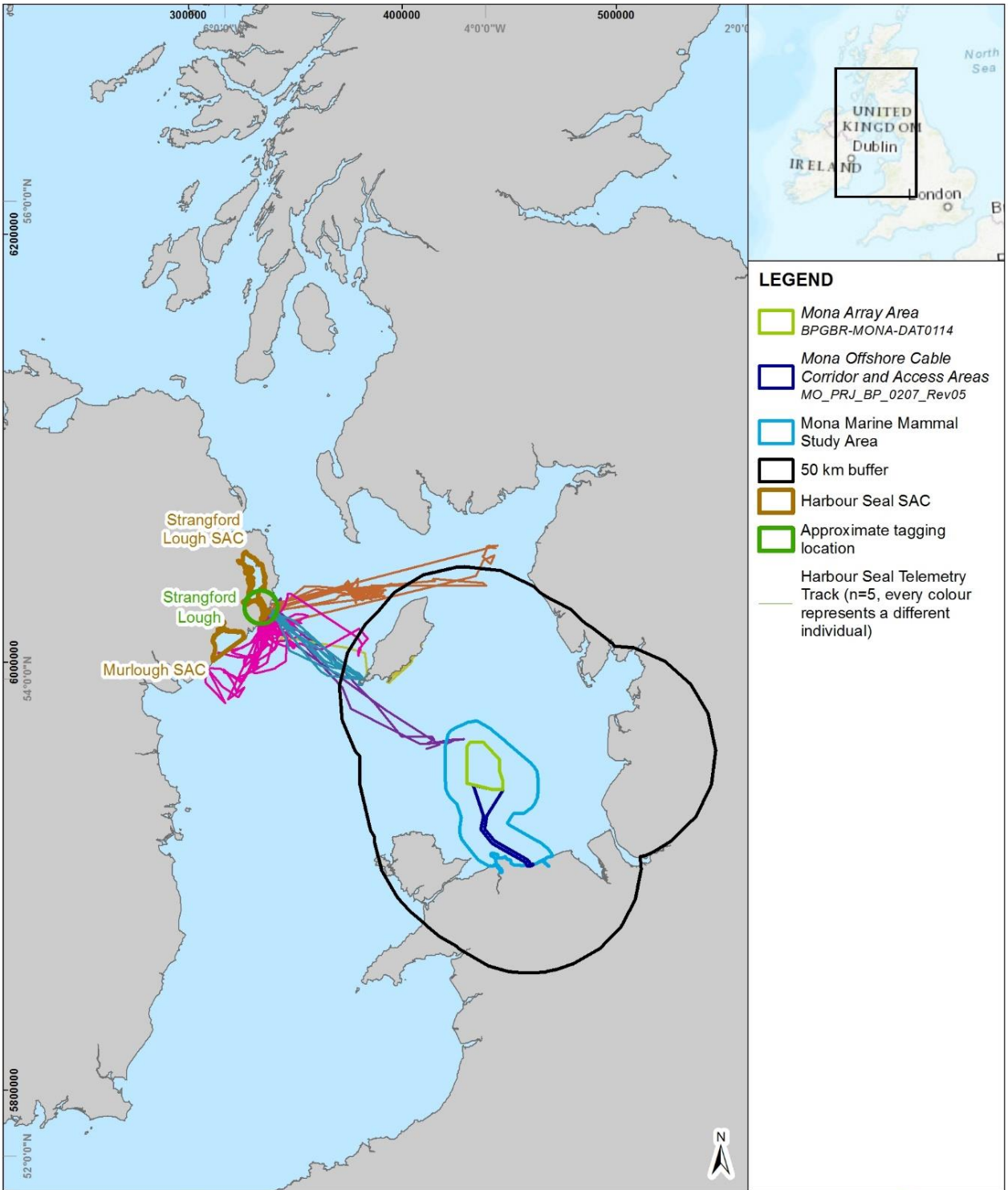


Figure 1.6: Harbour seal telemetry tracks that entered the 50 km buffer and showed connectivity to the surrounding SACs (n=5, all tagged in Northern Ireland MU. Each colour represents an individual animal. Tagging period 2006-2010, tracks recorded 2006-2008).

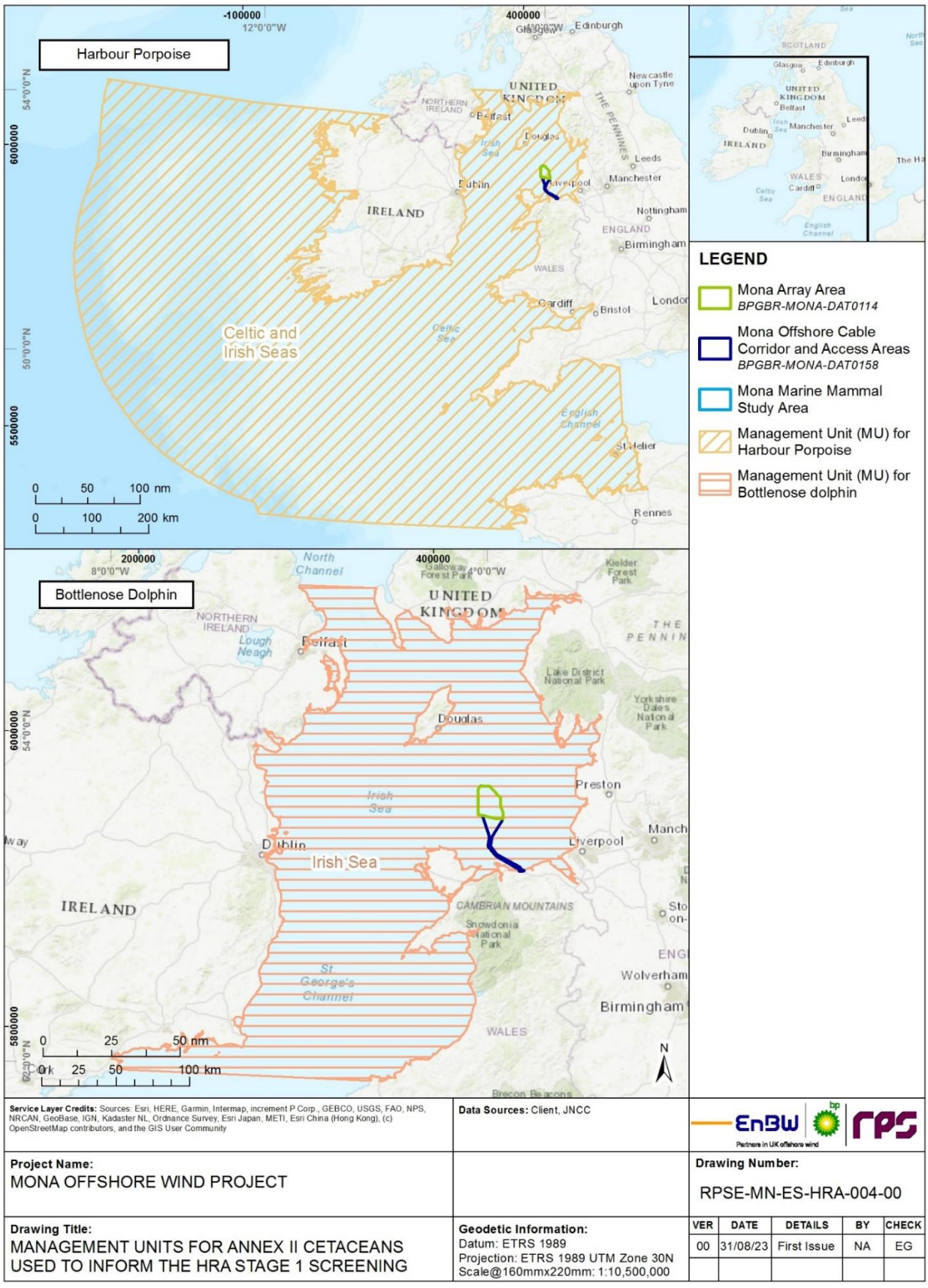


Figure 1.7: Management units for harbour porpoise and bottlenose dolphin used to identify relevant European sites.

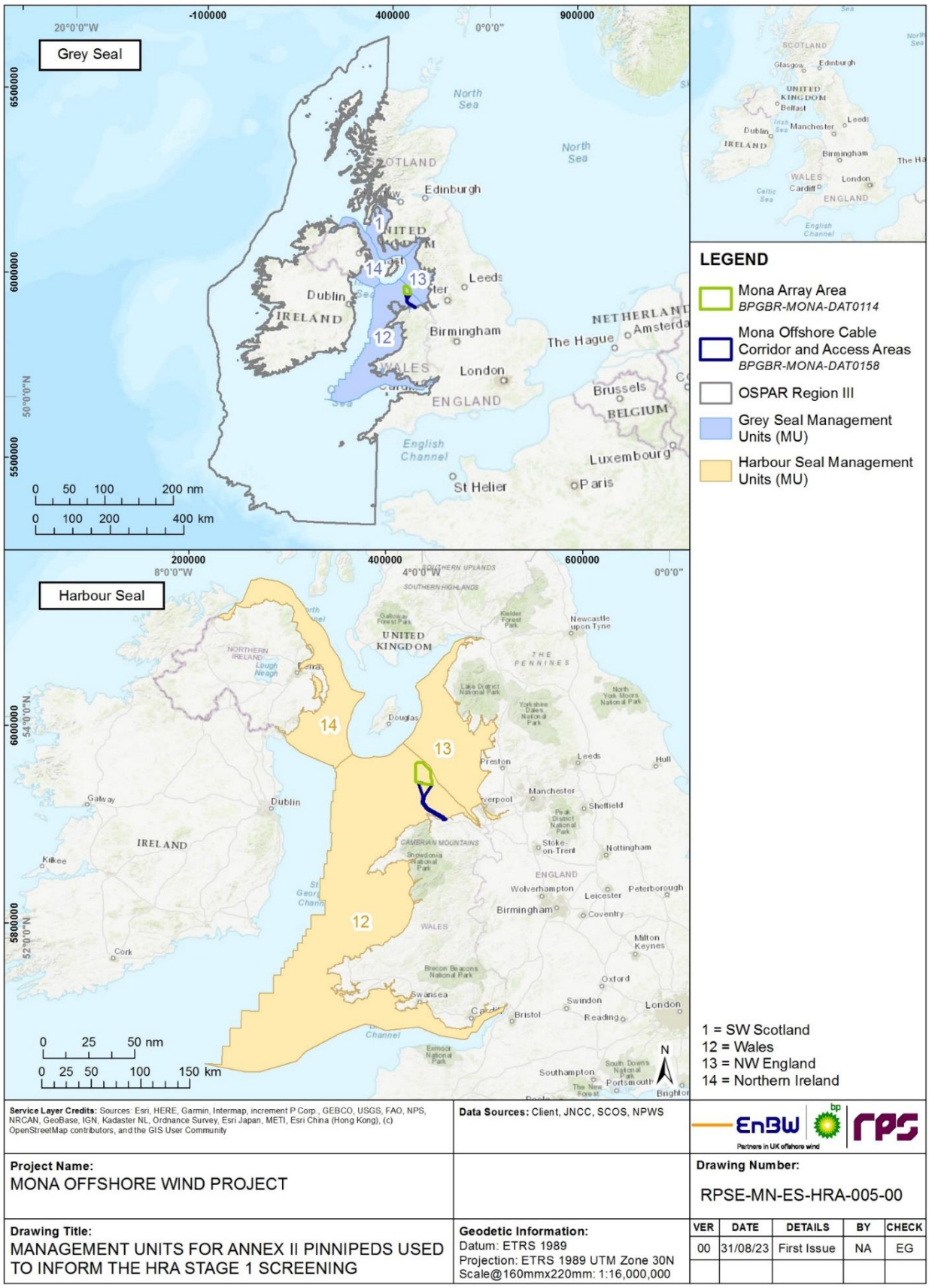


Figure 1.8: Management units for grey seal and harbour seal used to identify relevant European sites.

Criterion 3

1.3.4.13 Criterion 3 considers European sites and/or qualifying interest features which are located within the potential ZoI of impacts associated with the Mona Offshore Wind Project (e.g. habitat loss/disturbance, sound and risk of collision). Given the large buffers proposed above for both cetaceans and pinnipeds in criterion 2, the ZoI for key impacts to marine mammals (i.e. underwater sound and changes to prey species) are anticipated to be well within this area. No additional European sites have marine mammal species as qualifying features, beyond those already identified for criterion 2; therefore no additional sites have been screened in for further consideration on the basis of this criterion.

Summary of initial screening of sites for Annex II marine mammals

1.3.4.14 The initial screening process has identified 43 European sites with Annex II marine mammals as qualifying features to be taken forward for detailed determination of LSE in section 1.4 of this report. The sites are listed in Table 1.6~~Table 1.6~~ and shown in Figure 1.9~~Figure 1.9~~.

Table 1.6: European sites designated for Annex II marine mammal species taken forward for determination of LSE.

Note: All distances are measured as the marine route to the site (i.e. not the distance as the crow flies).

[1] All additional designated features associated with each SAC have been screened out on the basis of distance from the Mona Offshore Wind Project and so there will be no receptor-impact pathway. Additional Annex II marine mammal features have been screened out on the basis that the SAC is not located within the relevant MU for that species and so there will be no receptor-impact pathway.

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
UK					
1	North Anglesey Marine/Gogledd Môn Forol SAC	Harbour porpoise *Phocoena phocoena*	22.58	17.5	N/A
2	North Channel SAC	Harbour porpoise *Phocoena phocoena*	81.5	94.5	N/A
3	Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus*	94.1	93.0	Sandbanks which are slightly covered by sea water all the time Estuaries Coastal lagoons Large shallow inlets and bays Reefs Mudflats and sandflats not covered by seawater at low tide *Salicornia* and other annuals colonising mud and sand Atlantic salt meadows *Glauco-Puccinellietalia maritimae* Submerged or partially submerged sea caves Otter *Lutra lutra*
4	West Wales Marine/Gorllewin Cymru Forol SAC	Harbour porpoise *Phocoena phocoena*	95.4	94.4	N/A
5	Strangford Lough SAC	Harbour seal *Phoca vitulina*	112.2	125.1	Mudflats and sandflats not covered by seawater at low tide Coastal lagoons

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Large shallow inlets and bays Reefs Annual vegetation of drift lines Perennial vegetation of stony banks *Salicornia* and other annuals colonising mud and sand Atlantic salt meadows *Glauco-Puccinellietalia maritima*e
6	Murlough SAC	Harbour seal *Phoca vitulina*	115.9	127.1	Fixed coastal dunes with herbaceous vegetation (‘grey dunes’) Atlantic decalcified fixed dunes *Calluno-Ulicetea* Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Atlantic salt meadows *Glauco-Puccinellietalia maritimae* Embryonic shifting dunes Shifting dunes along the shoreline with *Ammophila arenaria* (‘white dunes’) Dunes with *Salix repens ssp. argentea* (*Salicion arenariae*) Marsh fritillary butterfly *Euphydryas aurinia*
7	Cardigan Bay/Bae Ceredigion SAC	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus*	162.5	161.5	Sandbanks which are slightly covered by sea water all the time Reefs Submerged or partially submerged sea caves Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatilis*
8	The Maidens SAC	Grey seal *Halichoerus grypus*	166.8	179.8	Sandbanks which are slightly covered by sea water all the time

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Reefs
9	Pembrokeshire Marine/Sir Benfro Forol SAC	Grey seal *Halichoerus grypus*	211.7	210.7	Estuaries Large shallow inlets and bays Reefs Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Coastal lagoons Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Submerged or partially submerged sea caves Shore dock *Rumex rupestris* Sea lamprey *Petromyzon marinus* River lamprey *Lampetra fluviatilis* Allis shad *Alosa alosa* Twaite shad *Alosa fallax*
10	Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC	Harbour porpoise *Phocoena phocoena*	274.8	273.8	N/A
11	Lundy SAC	Grey seal *Halichoerus grypus*	309.5	308.5	Reefs Sandbanks which are slightly covered by sea water all the time Submerged or partially submerged sea caves
12	Treshnish Isles SAC	Grey seal *Halichoerus grypus*	332.8	351.6	Submerged or partially submerged sea caves
13	Isles of Scilly Complex SAC	Grey seal *Halichoerus grypus*	439.3	438.3	Sandbanks which are slightly covered by sea water all the time

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Mudflats and sandflats not covered by seawater at low tide Reefs Shore dock *Rumex rupestris*
14	Monach Islands SAC	Grey seal *Halichoerus grypus*	467.3	486.0	Machairs Shifting dunes along the shoreline with Ammophila arenaria (‘white dunes’) Fixed coastal dunes with herbaceous vegetation (‘grey dunes’)
15	North Rona SAC	Grey seal *Halichoerus grypus*	601.7	620.5	Reefs Vegetated sea cliffs of the Atlantic and Baltic coasts Submerged or partially submerged sea caves
Republic of Ireland					
16	Rockabill to Dalkey Island SAC	Harbour porpoise *Phocoena phocoena*	126.1	129.3	Reefs
17	Lambay Island SAC	Grey seal *Halichoerus grypus*	129.2	132.2	Reefs Vegetated sea cliffs of the Atlantic and Baltic coasts Harbour seal *Phoca vitulina*
18	Saltee Islands SAC	Grey seal *Halichoerus grypus*	235.4	234.4	Mudflats and sandflats not covered by seawater at low tide Large shallow inlets and bays Reefs Vegetated sea cliffs of the Atlantic and Baltic coasts Submerged or partially submerged sea caves
19	Horn Head and Rinclevan SAC	Grey seal *Halichoerus grypus*	296.2	308.9	Embryonic shifting dunes

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Shifting dunes along the shoreline with *Ammophila arenaria* (‘white dunes’’) Fixed coastal dunes with herbaceous vegetation (‘grey dunes’) Dunes with Salix repens ssp. argentea (*Salicion arenariae*) Humid dune slacks Machairs Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/*or Isoeto-Nanojuncetea* Geyer-'s whorl snail *Vertigo geyeri* Grey seal *Halichoerus grypus* Petalwort *Petalophyllum ralfsii* Slender Naiad *Najas flexilis*
20	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC	Grey seal *Halichoerus grypus*	304.2	314.1	Vegetated sea cliffs of the Atlantic and Baltic coasts Atlantic salt meadows *Glauco-Puccinellietalia maritimae* Mediterranean salt meadows *Juncetalia ~~maritimi~~53ercuria* Embryonic shifting dunes Shifting dunes along the shoreline with *Ammophila arenaria* (‘white dunes’) Fixed coastal dunes with herbaceous vegetation (‘grey dunes’) Decalcified fixed dunes with *Empetrum nigrum* Atlantic decalcified fixed dunes *Calluno-Ulicetea* Dunes with *Salix repens* ssp. argentea (*Salicion arenariae*) Humid dune slacks Alpine and Boreal heaths

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Blanket bogs Narrow-mouthed whorl snail *Vertigo angustior* Otter *Lutra lutra*
21	Duvillaun Islands SAC	Grey seal *Halichoerus grypus*	399.9	405.7	Bottlenose dolphin *Tursiops truncatus*
22	Inishbofin and Inishshark SAC	Grey seal *Halichoerus grypus*	400.9	403.9	Coastal lagoons Oligotrophic waters containing very few minerals of sandy plains *Littorelletalia uniflorae* Northern Atlantic wet heaths with *Erica tetralix* European dry heaths
23	Inishkea Islands SAC	Grey seal *Halichoerus grypus*	402.5	408.6	Machairs Petalwort *Petalophyllum ralfsii*
24	Slyne Head Islands SAC	Grey seal *Halichoerus grypus*	403.6	406.8	Reefs Bottlenose dolphin *Tursiops truncates*
25	Roaringwater Bay and Islands SAC	Harbour porpoise *Phocoena phocoena* Grey seal *Halichoerus grypus*	448.8	447.8	Large shallow inlets and bays Reefs Vegetated sea cliffs of the Atlantic and Baltic coasts European dry heaths Submerged or partially submerged sea caves Otter *Lutra lutra*
26	Blasket Islands SAC	Harbour porpoise *Phocoena phocoena*	565.5	564.5	Reefs Vegetated sea cliffs of the Atlantic and Baltic coasts

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
		Grey seal *Halichoerus grypus*			European dry heaths Submerged or partially submerged sea caves
France					
27	Mers Celtiques – Talus du golfe de Gascogne SCI	Harbour porpoise *Phocoena phocoena*	533.2	532.1	Bottlenose dolphin *Tursiops truncatus* Fen orchid *Liparis loeselii* Southern damsel fly *Coenagrion mercurial* Jersey tiger *Euplagia quadripunctaria*
28	Abers – Côte des legends SCI	Harbour porpoise *Phocoena phocoena*	600.1	599	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina*
29	Ouessant-Molène SCI	Harbour porpoise *Phocoena phocoena*	601.3	600.3	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Otter *Lutra lutra* Killarney Fern *Trichomanes speciosum* Shore dock *Rumex rupestris*
30	Côte de Granit rose-Sept-Iles SCI	Harbour porpoise *Phocoena phocoena*	607.7	606.6	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal Phoca vitulina Greater horseshoe bat *Rhinolophus ferrumequinum* Allis shad *Alosa* Twaite shad *Alosa falax* Atlantic salmon *Salmo salar* Sea lamprey *Petromyzon marinus*

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Quimper snail *Elona quimperiana* European *Lucanus cervus* Killarney Fern *Trichomanes speciosum* Shore dock *Rumex rupestris*
31	Anse de Goulven, dunes de Keremma SCI	Harbour porpoise *Phocoena phocoena*	610.2	609.1	Grey seal *Halichoerus grypus* Fen orchid *Liparis loeselii* Southern *Coenagrion ~~mercuriale~~56ercurial* Jersey tiger *Euplagia quadripunctaria*
32	Tregor Goëlo SCI	Harbour porpoise *Phocoena phocoena*	630.6	629.6	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina* Lesser horseshoe bat *Rhinolophus hipposideros* Greater horseshoe bat *Rhinolophus ferrumequinum* Western barbastelle *Barbastella barbastellus* Geoffroy's bat *Myotis emarginatus* Bechstein's bat *Myotis bechsteinii* Greater mouse-eared bat *Myotis* Otter *Lutra lutra* Sea lamprey *Petromyzon marinus* River lamprey *Lampetra planeri* Allis shad *Alosa alosa* Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* Chabot bullhead *Cottus perifretum* Qumiper snail *Elona quimperiana*

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Southern damselfly *Coenagrion ~~mercuriale~~57ercurial* European stag beetle *Lucanus cervus* Killarney Fern *Trichomanes speciosum* Shore dock *Rumex rupestris*
33	Côtes de Crozon SCI	Harbour porpoise *Phocoena phocoena*	638.8	637.8	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Otter *Lutra lutra*
34	Chaussée de Sein SCI	Harbour porpoise *Phocoena phocoena* Grey seal *Halichoerus grypus*	650	649	Bottlenose dolphin *Tursiops truncatus* Greater horseshoe bat *Rhinolophus ferrumequinum* Western barbastelle *Barbastella barbastellus* Qumiper snail *Elona quimperiana* Southern damselfly *Coenagrion mercurial* Marsh fritillary *Euphydryas aurinia* Killarney Fern *Trichomanes speciosum* Shore dock *Rumex rupestris*
35	Cap Sizun SCI	Harbour porpoise *Phocoena phocoena*	658.9	657.8	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina* Greater horseshoe bat *Rhinolophus ferrumequinum* Western barbastelle *Barbastella barbastellus* Qumiper snail *Elona quimperiana* Southern damselfly *Coenagrion mercurial* Marsh fritillary *Euphydryas aurinia* Killarney fern *Trichomanes speciosum*

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Shore dock *Rumex rupestris*
36	Récifs du talus du golfe de Gascogne SCI	Harbour porpoise *Phocoena phocoena*	687.1	686.0	Bottlenose dolphin *Tursiops truncatus*
37	Anse de Vauville SCI	Harbour porpoise *Phocoena phocoena*	697.2	696.1	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina*
38	Cap d'Erquy-Cap Fréhel SCI	Harbour porpoise *Phocoena phocoena*	698.5	697.5	Bottlenose dolphin *Tursiops truncatus* Harbour seal *Halichoerus grypus* Lesser horseshoe bat *Rhinolophus hipposideros* Greater horseshoe bat *Rhinolophus ferrumequinum* Western barbastelle *Barbastella barbastellus* Geoffroy's bat *Myotis emarginatus* Bechstein's bat *Myotis bechsteinii* Greater mouse-eared bat *Myotis myotis* Northern crested newt *Triturus cristatus* European stag beetle *Lucanus cervus* Shore dock *Rumex rupestris*
39	Baie de Saint-Brieuc – Est SCI	Harbour porpoise *Phocoena phocoena*	699.2	698.1	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina* Lesser horseshoe bat *Rhinolophus hipposideros* Greater horseshoe bat *Rhinolophus ferrumequinum* Western barbastelle *Barbastella barbastellus*

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Bechstein's bat *Myotis bechsteinii* Otter *Lutra lutra* Allis shad *Alosa alosa* Twaite shad *Alosa fallax* Shore dock *Rumex rupestris* Moss grass *Coleanthus subtilis*
40	Banc et récifs de Surtainville SCI	Harbour porpoise *Phocoena phocoena*	701.3	700.2	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina*
41	Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SCI	Harbour porpoise *Phocoena phocoena*	724.6	723.5	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina* Lesser horseshoe bat *Rhinolophus hipposideros* Greater horseshoe bat *Rhinolophus ferrumequinum* Western barbastelle *Barbastella barbastellus* Geoffroy's bat *Myotis emarginatus* Bechstein's bat *Myotis bechsteinii* Greater mouse-eared bat *Myotis myotis* Otter *Lutra lutra* Allis shad *Alosa alosa* Twaite shad *Alosa fallax* European stag beetle *Lucanus cervus* Shore dock *Rumex rupestris*

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
42	Estuaire de la Rance SCI	Harbour porpoise *Phocoena phocoena*	737.8	736.7	Harbour seal *Phoca vitulina* Lesser horseshoe bat *Rhinolophus hipposideros* Western barbastelle *Barbastella barbastellus* Common bent-winged bat *Miniopterus schreibersii* Geoffroy's bat *Myotis emarginatus* Bechstein's bat *Myotis bechsteinii* Greater mouse-eared bat *Myotis myotis* Otter *Lutra lutra* Allis shad *Alosa alosa* Twaite shad *Alosa fallax* European stag beetle *Lucanus cervus*
43	Baie du Mont Saint-Michel SCI	Harbour porpoise *Phocoena phocoena*	743.4	742.4	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus* Harbour seal *Phoca vitulina* Lesser horseshoe bat *Rhinolophus hipposideros* Greater horseshoe bat *Rhinolophus ferrumequinum* Western barbastelle *Barbastella barbastellus* Geoffroy's bat *Myotis emarginatus* Bechstein's bat *Myotis bechsteinii* Greater mouse-eared bat *Myotis myotis* Otter *Lutra lutra* Northern crested newt *Triturus cristatus* Sea lamprey *Petromyzon marinus* River lamprey *Lampetra planeri* Brook lamprey *Lampetra fluviatilis* Allis shad *Alosa alosa*

ID	European site	Relevant Annex II features	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor (km)	Additional designated features[1]
					Twaite shad *Alosa fallax* Atlantic salmon *Salmo salar* European bullhead *Cottus gobio*

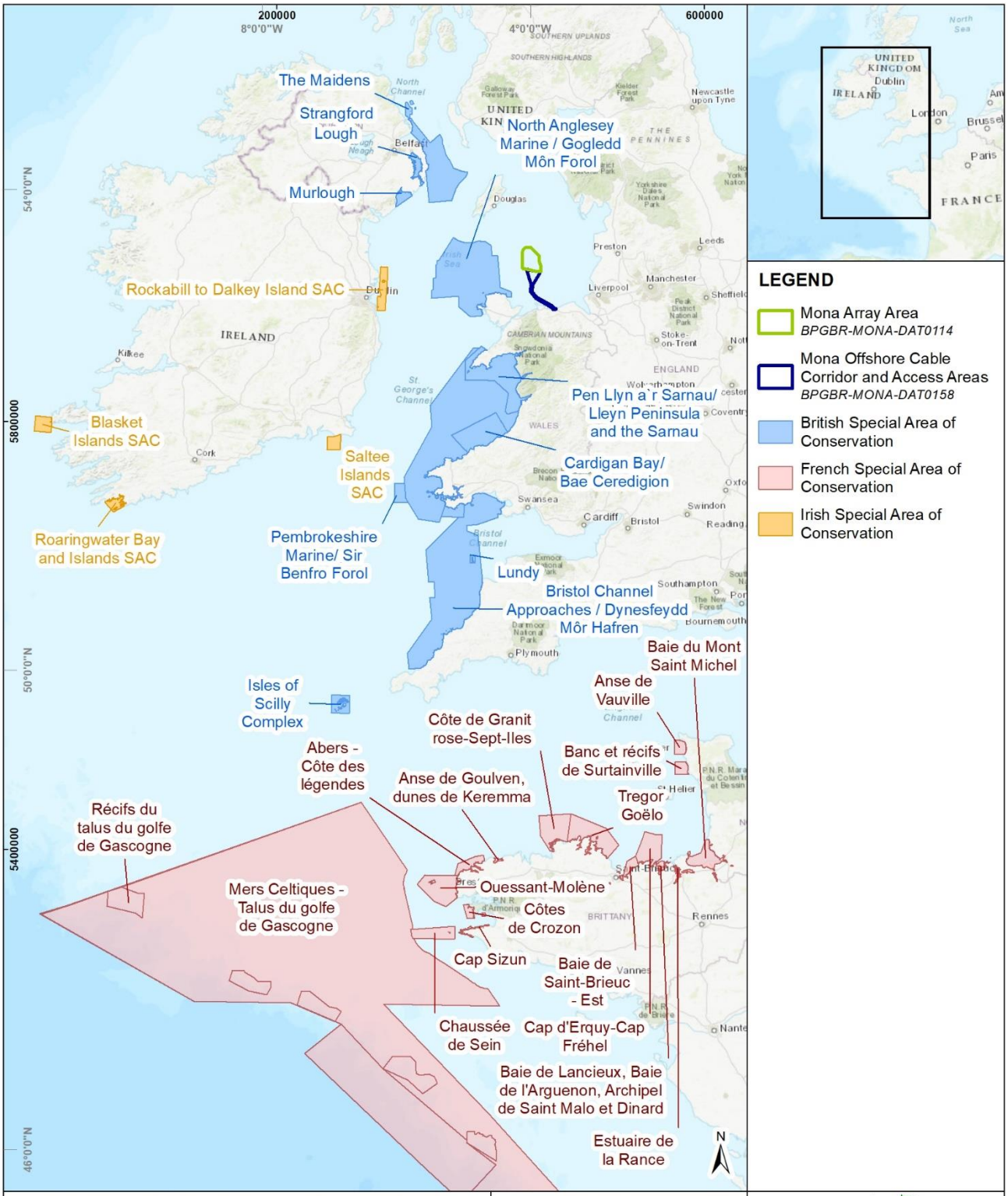


Figure 1.9: Location of European Sites designated for Annex II marine mammal species to be taken forward for the determination of LSE.

1.3.5 Sites designated for Annex I habitats (onshore)

1.3.5.1 The following section details the results of the stepwise process to identify the European sites with relevant onshore Annex I habitats, above MHWS, to be taken forward for detailed determination of LSE based on the methodology and criteria outlined in section 1.2.4 and Table 1.3~~Table 1.3~~.

1.3.5.2 The approach adopted for this HRA Stage 1 Screening report focusses on the Annex I habitat qualifying interest features for which there is considered to be a potential for impact as a result of the Mona Offshore Wind Project. Whilst pathways to individual features are identified, the consideration for the HRA is acknowledged to be for the integrity of the European site as a whole.

Initial identification for Annex I habitats (onshore)

Criterion 1

1.3.5.3 Criterion 1 for the identification of European or Ramsar sites to be taken forward for consideration of LSE considers those sites which overlap with the Mona Offshore Wind Project Boundary. There are no European sites with relevant onshore qualifying Annex I habitats which overlap with the Mona Offshore Wind Project Boundary.

Criterion 2

1.3.5.4 Criterion 2 considers European or Ramsar sites with qualifying mobile features/species whose range (e.g. foraging, migratory, overwintering, breeding, or natural habitat range) overlaps with the Mona Offshore Wind Project Boundary. There are no European sites which meet this criterion for Annex I habitats (onshore) and so no sites are screened in for further consideration on this basis.

Criterion 3

1.3.5.5 Criterion 3 considers European or Ramsar sites and/or qualifying interest features which are located within the potential ZoI of impacts associated with the Mona Offshore Wind Project. There is the potential for indirect effects to sites designated for onshore Annex I habitats as a result of airborne pollutants associated with construction, operations and maintenance or decommissioning activities.

1.3.5.6 The ZoI for such indirect effects associated with the Onshore Cable Corridor Search Area of the Mona Offshore Wind Project is defined as 350 m. According to guidance from the Institute of Air Quality Management (IAQM) (IAQM, 2020), an assessment of air pollutant impacts is required where there are sensitive receptors within 350 m of the Mona Offshore Wind Project Boundary. The guidance also states an assessment for ecological receptors should consider an impact zone of up to 50 m from the site boundary. The Highways Agency (2007) refers to a 200 m impact zone for ecological receptors in internationally (and nationally) designated sites. Therefore, a precautionary approach of 350 m has been adopted, which is considered large enough to encompass all direct and indirect impacts associated with the Mona Offshore Wind Project.

1.3.5.7 The closest SAC to the Mona Offshore Wind Project with relevant onshore Annex I habitats is the Coedwigoedd Dyffryn Elwy/Elwy Valley Woods SAC, which is 649 m from the site. Therefore, on the basis of this criterion, no sites are identified and screened in for consideration of LSE in section 1.4.

Summary of initial screening of sites for Annex I habitats (onshore)

1.3.5.8 The initial screening process has identified no European sites with Annex I habitats above MHWS as qualifying features to be taken forward for determination of LSE in section 1.4 of this report.

1.3.6 Sites designated for Annex II species (onshore)

1.3.6.1 The following section details the results of the stepwise process to identify the European sites with Annex II species (onshore) as a feature, to be taken forward for detailed determination of LSE based on the methodology and criteria outlined in section 1.2.4 and Table 1.3~~Table 1.3~~.

1.3.6.2 With regard to Annex II terrestrial species, only SACs for otter are located within species-relevant ZoI, and therefore only otter will be considered further. For bats, a ZoI of 10 km is considered appropriate, based on a 5 to 10 km typical home range (between summer and winter roosts) (Collins *et al.,* 2016 cited: Bat Conservation Trust/BMT Cordah Ltd, 2005). The closest SAC for lesser horseshoe bat *Rhinolophus hipposideros* is located approximately 20 km away and therefore outside of the ZoI. For great-crested newt *Triturus cristatus* 2 km is considered an appropriate buffer due to most great-crested newt activity being recorded within 250 m of a breeding pond, and dispersal distances being up to around 1.3 km (e.g. English Nature, 2001), the closest SAC located is approximately 23 km from Mona Offshore Wind Project Boundary. As such, only otter are considered further.

1.3.6.3 The approach adopted for this HRA Stage 1 Screening Report focusses on the Annex II otter qualifying interest features for which there is considered to be a potential for impact as a result of the Mona Offshore Wind Project. Whilst only these qualifying interest features will be screened in for further consideration, it is acknowledged that the Competent Authority must undertake the HRA Screening, and any subsequent appropriate assessment, at the site level and not for individual qualifying interest features.

Initial identification for Annex II otter

Criterion 1

1.3.6.4 Criterion 1 considers European or Ramsar sites which overlap with the Mona Offshore Wind Project Boundary. As there are no European sites with Annex II otter as qualifying features which overlap with the Mona Offshore Wind Project Boundary, no sites are screened in for further consideration for otter on the basis of this criterion.

Criterion 2

1.3.6.5 Criterion 2 considers European or Ramsar sites with qualifying mobile features/species whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) overlaps with the Mona Offshore Wind Project Boundary.

1.3.6.6 Otter occupy a home range, which is a well-defined area where otter feed, rest and reproduce (Woodroffe, 2001). The size of an otter's range depends on the quality of the habitat and food supply (Kruuk, 1995). A typical home range may include a river, burns, ponds and adjacent woodlands and wetlands. Radio-tracking showed that in the Dee catchment, male home range sizes averaged 32 km, but may be as long as 80 km, with female ranges averaging 20 km (Kruuk, 1995). Whilst UK Government (2023) states that males can range along rivers for 35 km.

1.3.6.7 However, based on the lack of suitable watercourses within the Mona Onshore Cable Corridor and that there are no records of otter presence found in site-specific surveys (see Volume 7, Chapter 3.11: Onshore Ecology of the Environmental Statement (Document reference F7.3.11)), the Mona Onshore Cable Corridor and surrounding area is deemed suboptimal habitat to support large populations of otter. Therefore, Annex II otter features will not be adversely impacted by the Mona Offshore Wind Project and no sites are screened in for further consideration on the basis of criterion 2.

Criterion 3

1.3.6.8 Criterion 3 considers European or Ramsar sites and/or qualifying interest features which are located within the potential ZoI of impacts associated with the Mona Offshore Wind Project (e.g. habitat loss/disturbance). Given the large buffer associated with criterion 2 above, the ZoI for key impacts to otter are anticipated to be well within this range. No European sites with Annex II otter as qualifying features, are therefore screened in for further consideration on the basis of criterion 3.

Summary of initial screening of sites for Annex II otter

1.3.6.9 The initial screening process has identified no European sites with Annex II otter as qualifying features to be taken forward for determination of LSE in section 1.4 of this report.

1.3.7 Sites designated for offshore ornithological features

Initial identification for offshore ornithological features

1.3.7.1 The following sections detail the results of the stepwise process to identify the European sites which have offshore ornithology, relevant to this assessment, as a qualifying feature. These sites are taken forward for detailed determination of LSE based on the methodology and criteria outlined in section 1.2.6 and Table 1.3~~Table 1.3~~.

1.3.7.2 The offshore ornithology section considers any seabirds that are present at some point in their life cycle in the offshore ornithology study areas. The overarching term ‘seabird’ is used to refer to species that depend on the marine environment for survival at some point in their life cycle. Therefore, in addition to the true seabirds, seaducks, divers and grebes are also included because of their additional reliance on marine areas, especially in the non-breeding season.

1.3.7.3 The approach adopted for this HRA Stage 1 Screening report focusses on the offshore ornithology qualifying interest features for which there is considered to be a potential for impact as a result of the Mona Offshore Wind Project. Whilst only these qualifying interest features have been screened in for further consideration in section 1.4, it is acknowledged that the Competent Authority must undertake the HRA Screening, and any subsequent appropriate assessment, at the site level and not for individual qualifying interest features.

Criterion 1

1.3.7.4 Criterion 1 considers European or Ramsar sites which overlap with the Mona Offshore Wind Project Boundary. There is one site with offshore ornithology species as qualifying features which overlap with the Mona Offshore Wind Project Boundary (i.e. the Liverpool Bay/Bae Lerpwl SPA), therefore one site is screened in for further consideration for offshore ornithology on the basis of this criterion.

Criterion 2

1.3.7.5 European or Ramsar site with qualifying mobile features/species range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) which overlaps with the Mona Offshore Wind Project Boundary. A total of 59 sites have been screened in based on this criterion as outlined in the following sections.

Defining the qualifying features and sites: broad-scale considerations

1.3.7.6 Birds present in offshore waters and potentially affected by the construction, operation and decommissioning of the Mona Offshore Wind Project will be predominantly seabird species (defined for this report as auks, gulls, terns, gannets, skuas, shearwaters, petrels, cormorants and divers) and seaduck species. These species have the potential to be present in the vicinity of the Mona Offshore Wind Project during the breeding and non-breeding seasons (including the spring and autumn passage periods). Waterbird species may be also affected by the Mona Offshore Wind Project include those which may fly through the area of the Mona Offshore Wind Project during their spring and/or autumn migration (or passage) periods, and any other waterbird species which may use the intertidal habitats or the inshore or offshore waters which are potentially affected by the Mona Offshore Wind Project.

1.3.7.7 Based on the above, it is considered that (in relation to offshore ornithology) the European sites which have the potential to be affected by the Mona Offshore Wind Project are those which:

- Overlap with the location of the Mona Offshore Wind Project Boundary, or with the area in which potential effects from the Mona Offshore Wind Project could extend (e.g. displacement effects extending beyond the boundary of the Mona Array Area)
- Include seabird qualifying features that use the waters in and around the Mona Array Area (e.g. for foraging)
- Include qualifying features which may fly through the area of the Mona Array Area during migration.

1.3.7.8 The European sites which meet these different criteria are outlined below under the categories of:

- Marine SPAs
- Breeding seabird colony SPAs (and Ramsar sites)
- Non-breeding seabird colony SPAs (and Ramsar sites)
- SPA colonies of migratory seabirds.

Marine SPAs

1.3.7.9 The Liverpool Bay/Bae Lerpwl SPA is located 15.9 km away from the Mona Array Area with the Mona Offshore Cable Corridor running through the SPA. Consequently, all qualifying features of this SPA (as detailed in Table 1.8~~Table 1.8~~, subject to the various exclusions outlined in the text below) are considered for determination of LSE in section 1.4.6.

1.3.7.10 The Irish Sea Front SPA is also located ~57 km away from the Mona Array Area and is therefore also considered for LSE in section 1.4.6. There is potential that the designated feature (i.e. Manx shearwater) is likely to be present near the Mona Array

Area while moving between breeding colonies and the Irish Sea Front SPA for foraging.

1.3.7.11 The North-west Irish Sea SPA is located ~95 km away from the Mona Array Area and is therefore also considered for LSE in section 1.4.6. It's a candidate for designation by the National Parks and Wildlide Service to protect the foraging range of multiple seabird species. Most of the species breed within six coastal SPAs (breeding seabird colony SPAs). In addition to the breeding species, several species are also designated during the winter period. Only relevant qualifying features are presented within Table 1.8~~Table 1.8~~. Relevant species are considered when there is a known connection between the Mona Array Area and the North-west Irish Sea SPA (i.e. when a species is within foraging range during the breeding season). Non-breeding season features are not considered relevant due to ~100 km between the Mona Array Area and the site.

Breeding seabird colony SPAs

1.3.7.12 Seabird species may have large foraging ranges during the breeding season (Table 1.7~~Table 1.7~~, Woodward *et al.*, 2019). Therefore, the Mona Offshore Wind Project could potentially have an effect on the seabird qualifying features outlined above from a large number of SPA breeding colonies. The area within which the Mona Offshore Wind Project is located may be used by these qualifying features when foraging or when commuting between the colony and foraging areas. Furthermore, seabird qualifying features from SPA breeding colonies may use, or fly through, the area occupied by the Mona Offshore Wind Project during the non-breeding and migratory seasons, when these populations are widely distributed and not constrained by the need to return to the colony.

1.3.7.13 To determine the breeding seabird colony SPAs which may have connectivity with the Mona Offshore Wind Project, those SPAs located within a species mean maximum foraging range + 1 SD (unless otherwise specified within Table 1.7~~Table 1.7~~) were considered. Species (e.g. terns) which have no designated site within connectivity range of the site are not included within Table 1.7~~Table 1.7~~.

Table 1.7: Mean maximum foraging ranges of breeding seabirds and exceptions for sites identified for potential LSE.

Notes:

[1] Excluding data from Fair Isle where foraging range may have been unusually high as a result of reduced prey availability during the study year.

[2] No SD available for mean maximum foraging range as only one study included within the estimate.

Species	Mean maximum foraging range (km) ± 1 SD	Exceptions
Arctic tern *Sterna paradisaea*	25.7 ± 14.8	-
Atlantic puffin[1]	~~119.6 ± 131.2~~137.1 ± 128.3	~~JNCC requested (via their S42 response) that all SPAs to the north of the Mona Offshore Wind Project within 265.4 km be considered for Atlantic puffin.~~
Black-legged kittiwake	156.1 ± 144.5	-

Species	Mean maximum foraging range (km) ± 1 SD	Exceptions
Common guillemot[1]	55.5 ± 39.7	~~JNCC requested via their S42 response all SPAs to the north of the Mona Offshore Wind Project within 153.7 km be considered for common guillemot.~~
Common tern	18.0 ± 8.9	-
Cormorant P*halacrocorax carbo*	25.6 ± 8.3	-
European shag *Phalacrocorax aristotelis*	13.2 ± 10.5	-
European storm petrel *Hydrobates pelagicus*	336[2]	-
Great black-backed gull L*arus marinus*	73.0[2]	-
Herring gull *Larus argentatus*	58.8 ± 26.8	-
Lesser black-backed gull *Larus fuscus*	127.0 ± 109	-
Little tern *Sternula albifrons*	5[2]	-
Northern fulmar	542.3 ± 657.9	-
Northern gannet *Morus bassanus*	315.2 ± 194.2	Grassholm SPA and St Kilda SPA have specific maximum foraging ranges (516.7 and 709 km, respectively) which are greater than the mean maximum (+ 1 SD) and therefore are also included.
Manx shearwater	1,346.8 ± 1018.7	Only sites designated from the UK and Ireland have been included due to the largest potential impact occurring upon these sites. All other sites (e.g. within France) have not been included.
Razorbill[1]	73.8 ± 48.4	~~JNCC requested via their S42 response all SPAs to the north of the Mona Offshore Wind Project within 164.6 km be considered for razorbill~~.
Sandwich tern	34.3 ± 23.2	-

Connectivity in the breeding season

1.3.7.14 The initial stage in establishing potential connectivity during the breeding season involved determining whether either the Mona Array Area or Mona Offshore Cable Corridor are within the mean maximum foraging range plus 1 SD of each qualifying feature from each of the SPAs (Table 1.7~~Table 1.7~~, Woodward *et al*., 2019). The exceptions to the use of mean maximum foraging range plus 1 SD, as requested by the SNCBs during S42 consultation and outlined in Table 1.7~~Table 1.7~~, have also been considered.

1.3.7.15 Given the above, it is considered that 27 SPAs, identified in Table 1.9~~Table 1.9~~, have potential connectivity with the Mona Offshore Wind Project during the breeding season.

Non-breeding seabird colony SPAs

1.3.7.16 All SPAs which are included in the breeding season assessment are included within the non-breeding season assessment, however additional seabird colonies outwith a species breeding season foraging range have the potential to be affected during the non-breeding season. Species are not spatially restricted within the non-breeding season and therefore undertake much larger movements. To account for the increase in movement, sites which are outwith a species foraging range (Table 1.7~~Table 1.7~~) but identified in Furness (2015) have been included.

1.3.7.17 During the winter period seabirds from colonies around the UK and Europe will aggregate within separate areas of sea, and these areas have spatially distinct populations. Furness (2015) defined these as BDMPS populations. Each BDMPS population has seabirds within it during winter and passage periods from different colonies.

1.3.7.18 For each of the species included within Table 1.7~~Table 1.7~~, the relevant BDMPS population is presented alongside all SPAs (identified by Furness (2015)) which contribute at least 1% of birds to the relevant BDMPS population.

1.3.7.19 In addition to the 29 SPAs mentioned above (two marine SPAs and 27 breeding colony SPA), an additional 18 sites are included as they represent at least 1% of the BDMPS population which is relevant to the Mona Array Area (Table 1.10~~Table 1.10~~).

SPA colonies of migratory seabirds

1.3.7.20 Wildfowl and Wetlands Trust (WWT) Consulting and MacArthur Green developed an approach for the Scottish Government to assess the impact on migratory seabirds which follow the coastline (but at some distance offshore) during migration such as petrels, skuas, gulls and terns (WWT Consultant and MacArthur Green, 2014). The approach assumed that seabirds followed broad migratory corridors that hugged the coastline. These corridors were categorised in different migratory distance bands from the coast: 0 to 10 km, 0 to 20 km, 0 to 40 km, 0 to 60 km.

1.3.7.21 As the Mona Array Area is 28.2 km from the Anglesey coastline, species that travel in distance bands 0 to 10 km and 0 to 20 km were excluded from any analysis. A total of seven species were therefore included within Volume 6, Annex 5.4: Offshore ornithology migratory bird collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4), namely European storm-petrel, Leach's storm-petrel, great skua, pomarine skua and long-tailed skua. However there are no SPAs designated within the UK or Ireland for either pomarine skua or long-tailed skua and therefore these two species are not included within this LSE screening assessment (

~~1.3.7.21~~ Table 1.11

1.3.7.22 ~~Table 1.11~~).

1.3.7.23 Great skua was included within Furness' BDMPS review (Furness, 2015) and therefore the identification of important SPAs is the same as the non-breeding period. All SPAs which contribute at least 1% of birds to the BDMPS will be screened in for LSE assessment.

1.3.7.24 Neither European storm petrel or Leach's storm petrel were included within Furness (2015) and therefore important European sites were identified as those which contribute at least 1% to the UK and Ireland population. The UK population and SPAs which contribute to this total were taken from JNCC's third review of UK SPAs (Stroud *et al*., 2016). Irish population estimates were taken from Cummins *et al.* (2019) and the individual SPA counts were from the standard data forms for each SPA.

Table 1.8: Marine SPAs for offshore ornithological features with potential connectivity to the Mona Offshore Wind Project.

Notes:

[1] Measured as the closest, straight line, distance from the SPA (irrespective of the presence of land masses).

European Site	Site Code	Distance to Mona Array Area (km)[1]	Distance to Mona Offshore Cable Corridor (km)[1]	Relevant Qualifying Features
Liverpool Bay/Bae Lerpwl SPA	UK9020294	15.9	0.0	Red-throated diver Little gull *Hydrocoloeus minutus* Common scoter *Melanitta nigra* Little tern Common tern Waterbird assemblage
Irish Seafront SPA	UK9020328	57.2	60.5	Manx shearwater
North-west Irish Sea cSPA	004236	95.5	100.9	Manx shearwater (considered under Aberdaron Coast and Bardsey Island SPA, Copeland Islands SPA, and Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA) Lesser black-backed gull (considered under Lambay Island SPA) Black-legged kittiwake (considered under Lambay Island SPA, Ireland's Eye SPA, Howth Head SPA)

Table 1.9: Breeding seabird colony SPAs (and Ramsar sites) for offshore ornithological features with potential connectivity to the Mona Offshore Wind Project.

Notes:

[1] Measured as the closest, straight line, distance from the SPA (irrespective of the presence of land masses).

[2] Relevant qualifying features are seabird species which are within the mean max (+1 SD) foraging range. Foraging range is taken from Table 1.7~~Table 1.7~~.

European Site	Site Code	Distance to Mona Array Area (km)[1]	Distance to Mona Offshore Cable Corridor (km)[1]	Relevant Qualifying Features[2]
Ribble and Alt Estuaries SPA	UK9005103	43.6	38.9	Lesser black-backed gull
Ribble and Alt Estuaries Ramsar site	Ramsar site number - 325	43.6	38.9	Lesser black-backed gull
Morecambe Bay and Duddon Estuary SPA	UK9020326	54.6	60.1	Lesser black-backed gull
				Herring gull
Bowland Fells SPA	UK9005103	76.9	80.4	Lesser black-backed gull
Aberdaron Coast and Bardsey Island SPA	UK9013121	99.3	84.7	Manx shearwater
Lambay Island SPA	004069	128.9	131.9	Atlantic puffin
				Lesser black-backed gull
				Black-legged kittiwake
Howth Head Coast SPA	004113	134.4	137.3	Black-legged kittiwake
Ireland's Eye SPA	004117	134.7	137.7	Black-legged kittiwake
Copeland Islands SPA	UK9020291	136.5	152	Manx shearwater
Wicklow Head SPA	004127	148.8	146.2	Black-legged kittiwake
Ailsa Craig SPA	UK9003091	174.5	190.9	Northern gannet
				Black-legged kittiwake
				Lesser black-backed gull
Rathlin Island SPA	UK0030055	211.9	228.3	Atlantic puffin
				Black-legged kittiwake
				Lesser black-backed gull
Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	UK9014051	221.6	201.1	Atlantic puffin
				European storm petrel
				Lesser black-backed gull
				Manx shearwater
				Seabird assemblage (breeding) including the components:
				~~Atlantic puffin~~
				Black-legged kittiwake

European Site	Site Code	Distance to Mona Array Area (km)[1]	Distance to Mona Offshore Cable Corridor (km)[1]	Relevant Qualifying Features[2]
				~~Lesser black-backed gull~~
Grassholm SPA	UK9014041	230.3	211.4	Northern gannet
				Northern fulmar
Saltee Islands SPA	004002	236.8	228.2	Atlantic puffin
				Northern gannet
				Northern fulmar
				Black-legged kittiwake
North Colonsay and Western Cliffs SPA	UK9003171	281.7	305.6	Black-legged kittiwake
Helvick Head to Ballyquin SPA	004192	292.4	286.6	Black-legged kittiwake
Rum SPA	UK9001341	370.6	390.1	Manx shearwater
Cruagh Island SPA	4170	407.3	410.9	Manx shearwater
Blasket Islands SPA	4008	465.3	465.6	Northern fulmar
				Manx shearwater
Deenish Island and Scariff Island SPA	4175	466.3	464.3	Northern fulmar
				Manx shearwater
Puffin Island SPA	4003	472.3	471.1	Northern fulmar
				Manx shearwater
Shiant Isles SPA	UK9001041	472.7	492.5	Northern fulmar
Skelligs SPA	4007	481.9	480.5	Northern gannet
				Northern fulmar
				Manx shearwater
Handa SPA	UK9001241	510.5	530.6	Northern fulmar
St Kilda SPA	UK9001031	519.2	537.2	Northern gannet
				Northern fulmar
				Manx shearwater
Cape Wrath SPA	UK9001231	532.8	553.4	Northern fulmar
Flannan Isles SPA	UK9001021	540.6	559.8	Northern fulmar

Table 1.10: SPAs for offshore ornithological features with potential connectivity to the Mona Offshore Wind Project during the non-breeding season.

Species	BDMPS and Population	European Site	% of BDMPS which originates from the European site	Considered within the breeding and/or non-breeding assessment
Atlantic puffin	UK Western Waters – 304,557 birds	Hermaness, Saxa Vord and Valla Field SPA	1.6	Non-breeding assessment only
		Foula SPA	1.5	Non-breeding assessment only
		Forth Islands SPA	3.7	Non-breeding assessment only
		Farne Islands SPA	2.4	Non-breeding assessment only
		Sule Skerry and Sule Stack SPA	7.8	Non-breeding assessment only
		St Kilda SPA	18.8	Non-breeding assessment only
		Shiant Isles SPA	8.6	Non-breeding assessment only
		Flannan Isles SPA	2.1	Non-breeding assessment only
		Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA	3.2	Both
Black-legged kittiwake	UK Western Waters & Channel – 753,126 birds	West Westray SPA	1.5	Non-breeding assessment only
		North Caithness Cliffs SPA	1.3	Non-breeding assessment only
		East Caithness Cliffs SPA	5.1	Non-breeding assessment only
		Troup, Pennan and Lions Heads SPA	1.9	Non-breeding assessment only
		Buchan Ness to Collieston SPA	1.6	Non-breeding assessment only
		Fowlsheugh SPA	1.2	Non-breeding assessment only
		Flamborough and Filey Coast SPA	4.8	Non-breeding assessment only
		Cape Wrath SPA	3.2	Non-breeding assessment only
		North Colonsay and Western Cliffs SPA	1.7	Both
		Rathlin Island SPA	2.4	Both

Species	BDMPS and Population	European Site	% of BDMPS which originates from the European site	Considered within the breeding and/or non-breeding assessment
Common guillemot	UK Western Waters – 1,139,220 birds	Sule Skerry and Sule Stack SPA	2.2	Non-breeding assessment only
		North Rona and Sula Sgeir SPA	1.4	Non-breeding assessment only
		Cape Wrath SPA	7.8	Non-breeding assessment only
		Handa SPA	10.8	Non-breeding assessment only
		Shiant Isles SPA	1.5	Non-breeding assessment only
		Flannan Isles SPA	2.8	Non-breeding assessment only
		St Kilda SPA	4.5	Non-breeding assessment only
		Canna and Sanday SPA	1.1	Non-breeding assessment only
		Mingulay and Berneray SPA	3.8	Non-breeding assessment only
		North Colonsay and Western Cliffs SPA	4.0	Non-breeding assessment only
		Ailsa Craig SPA	1.6	Non-breeding assessment only
		Rathlin Island SPA	26.1	Non-breeding assessment only
		Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA – seabird assemblage species	4.3	Non-breeding assessment only
Great black-backed gull	UK south-west & Channel waters combined – 17,742 birds	Isles of Scilly SPA	28.9	Non-breeding assessment only
Herring gull	UK Western Waters - 173,299 birds	Morecambe Bay and Duddon Estuary SPA	3.1	Both
Lesser black-backed gull	UK Western Waters – 163,304 birds	Bowland Fells SPA	4.3	Both
		Morecambe Bay and Duddon Estuary SPA	4.7	Both
		Ribble and Alt Estuaries SPA (and Ramsar site)	7.8	Both
		Skomer, Skokholm and the Seas off Pembrokeshire /	11.5	Both

Species	BDMPS and Population	European Site	% of BDMPS which originates from the European site	Considered within the breeding and/or non-breeding assessment
		Sgomer, Sgogwm a Moroedd Penfro SPA		
		Isles of Scilly SPA	5.4	Non-breeding assessment only
Northern fulmar	UK Western Waters & Channel – 828,194 birds	Fair Isle SPA	1.2	Non-breeding assessment only
		Flannan Isles SPA	2.6	Both
		North Rona and Sula Sgeir SPA	1.8	Non-breeding assessment only
		Shiant Isles SPA	1.6	Both
		St Kilda SPA	23.9	Both
		Mingulay and Berneray SPA	3.3	Non-breeding assessment only
Northern gannet	UK Western Waters – 545,954 birds	Hermaness, Saxa Vord and Valla Field SPA	3.1	Non-breeding assessment only
		Noss SPA	1.2	Non-breeding assessment only
		Sule Skerry and Sule Stack SPA	2.6	Non-breeding assessment only
		North Rona and Sula Sgeir SPA	5.2	Non-breeding assessment only
Manx shearwater	UK Western Waters & Channel – 1,580,895 birds	Rum SPA	24.1	Both
		Aberdaron Coast and Bardsey Island SPA	3.3	Both
		Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA	70.3	Both
Razorbill	UK Western Waters – 606,914 birds	Cape Wrath SPA	1.1	Non-breeding assessment only
		Handa SPA	2.8	Non-breeding assessment only
		Shiant Isles SPA	2.3	Non-breeding assessment only
		Mingulay and Berneray SPA	5.5	Non-breeding assessment only
		Rathlin Island SPA	8.4	Non-breeding assessment only
		Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd	3.3	Non-breeding assessment only

Species	BDMPS and Population	European Site	% of BDMPS which originates from the European site	Considered within the breeding and/or non-breeding assessment
		Penfro SPA – seabird assemblage species		

Table 1.11: SPAs for migratory seabird offshore ornithological features with potential connectivity to the Mona Offshore Wind Project.

Species	BDMPS or UK and Ireland population	European Site	% of BDMPS or UK and Ireland population which originates from the European site
European storm-petrel	UK and Ireland population – 83,110 pairs (57,110 in Ireland and 26,000 in UK)	Auskerry SPA	1.2
		Deenish Island and Scariff Island SPA	1.7
		Duvillaun Islands SPA	1.4
		Illanmaster SPA	9.0
		Inishglora and Inishkeeragh SPA	4.1
		Isles of Scilly SPA	1.7
		Mousa SPA	14.2
		Puffin Island SPA	6.2
		Priest Island (Summer Isles) SPA	2.6
		Skelligs SPA	12.0
		Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	3.1
		Stags of Broad Haven SPA	2.3
		St Kilda SPA	1.5
		The Bull and The Cow Rocks SPA	4.2
		Treshnish Isles SPA	6.1
Leach's storm-petrel	UK and Ireland population – 48,310 pairs (48,000 in UK and 310 in Ireland)	Flanna Isles SPA	2.9
		North Rona and Sula Sgeir SPA	1.5
		St Kilda SPA	94.0
Great skua	UK Western Waters BDMPS population – 16,336 birds	Hermaness, Saxa Vord and Valla Field SPA	8.2
		Fetlar SPA	4.9
		Ronas Hill - North Roe and Tingon SPA	1.6

Species	BDMPS or UK and Ireland population	European Site	% of BDMPS or UK and Ireland population which originates from the European site
		Foula SPA	13.9
		Noss SPA	3.9
		Fair Isle SPA	2.2
		Hoy SPA	11.3
		Handa SPA	2.6
		St Kilda SPA	3.5

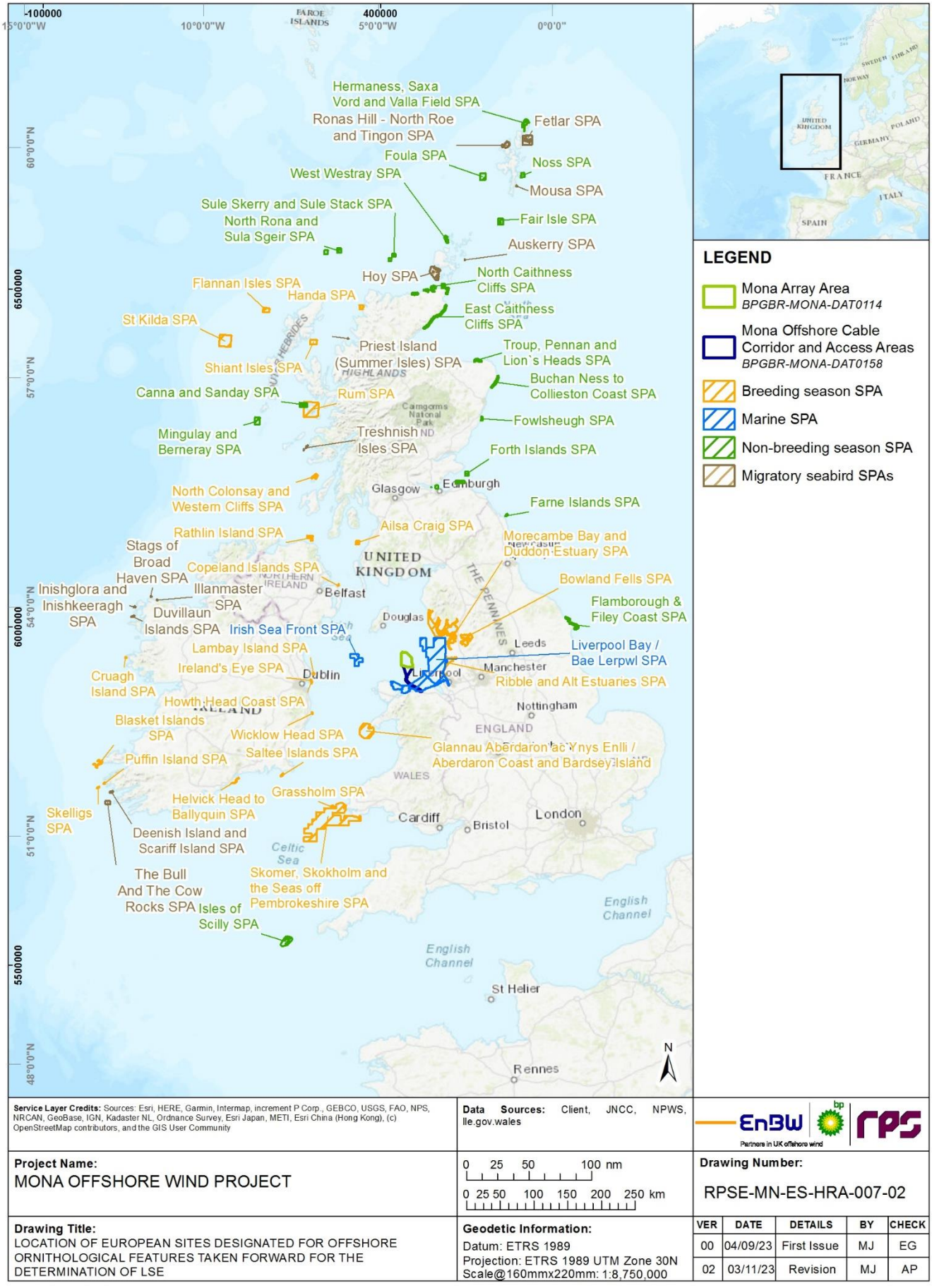


Figure 1.10: Location of European sites designated for offshore ornithological features to be taken forward for the determination of LSE.

Summary of initial screening of sites for offshore ornithological features

1.3.7.25 As detailed above, the initial screening process identified European sites with seabirds as qualifying features to be taken forward for detailed determination of LSE. These sites are identified, together with their distance to the Mona Offshore Wind Project and the qualifying features of relevance in Table 1.8~~Table 1.8~~ (marine SPAs), Table 1.9~~Table 1.9~~ (breeding colony SPAs), Table 1.10~~Table 1.10~~ (breeding colony SPAs during the non-breeding season) and

~~1.3.7.25~~ Table 1.11

1.3.7.26 ~~Table 1.11~~ (migratory seabird SPAs). The locations of these offshore ornithological sites are shown in Figure 1.11~~Figure 1.11~~, alongside onshore ornithological sites.

1.3.8 Sites designated for onshore ornithological features

Initial identification for onshore ornithological features

1.3.8.1 The following sections detail the results of the stepwise process to identify the European sites with relevant onshore ornithology as qualifying features to be taken forward for detailed determination of LSE based on the methodology and criteria outlined in section 1.2.6 and Table 1.3~~Table 1.3~~.

1.3.8.2 The onshore ornithology section considers species which depend on the intertidal and terrestrial environments for the majority of their life (e.g. waterbirds (waders, geese, swans and ducks, egrets and herons) and raptors).

1.3.8.3 The approach adopted for this HRA Stage 1 Screening report focusses on the onshore ornithology qualifying interest features for which there is considered to be a potential for impact as a result of the Mona Offshore Wind Project. Whilst only these qualifying interest features have been screened in for further consideration in section 1.4, it is acknowledged that the Competent Authority must undertake the HRA Screening, and any subsequent appropriate assessment, at the site level and not for individual qualifying interest features.

Criterion 1

1.3.8.4 Criterion 1 considers European or Ramsar sites which overlap with the Mona Offshore Wind Project Boundary. There are no sites with onshore ornithology species as qualifying features which overlap with the Mona Offshore Wind Project Boundary, therefore no sites are screened in for further consideration for onshore ornithology on the basis of this criterion.

Criterion 2

1.3.8.5 European or Ramsar site with qualifying mobile features/species range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) which overlaps with the Mona Offshore Wind Project Boundary. A total of eight sites are screened in based on this criterion as discussed below.

SPAs designated for wintering and passage waterbirds

1.3.8.6 There are two main ways in which European sites with onshore ornithology qualifying features could be impacted, via indirect and direct impact to the habitats and associated prey resource and via direct collisions with the turbines while on migration.

1.3.8.7 Two distinct habitats may be impacted whereby onshore ornithological features may be present. The intertidal area where the Mona Offshore Cable Corridor makes landfall and agricultural habitats above the high-water mark, (i.e. arable fields and pasture with hedgerows) which dominate the Mona Onshore Cable Corridor to the substation.

1.3.8.8 The intertidal habitats and coastal habitats of the Mona Onshore Cable Corridor do not overlap with any SPAs or Ramsar sites designated for wintering or passage waterbirds. There is potential for waders and wildfowl from adjacent SPAs or Ramsar sites to use the intertidal area at the landfall and/or the Mona Onshore Cable Corridor during the passage and wintering periods. Waders are known to be faithful to feeding and roosting sites in winter (Van de kam, 2004; Mander *et al*., 2022). There is however some variability between species (e.g. roosting sites, Rehfisch *et al*., 2003) and some inter-individual variability (e.g. territorial versus non-territorial birds). As competition increases and resources are being depleted on the intertidal habitats, waterbirds might need to forage outside their preferred areas to maintain their daily energy requirement. As a result, there is potential for less favoured areas (e.g. outside the SPAs or Ramsar sites) to be used by birds in winter.

1.3.8.9 To account for species which are outwith an SPA and/or Ramsar, but still using the area functionally linked to the site a 10 km radius of search was used. The Dee Estuary SPA and Ramsar site is 10.53 km from the landfall, so for precaution, it has been screened in for assessment.

SPAs designated for wintering and passage waters – migratory collisions

1.3.8.10 The British Isles are located along the East Atlantic Flyway - a migration route that connects bird species' breeding sites to wintering sites (Boere *et al*., 2006; Wright *et al*., 2012). Therefore, the British Isles are of key importance for many over-wintering and migrating birds that move through the area in large numbers during the spring and autumn passage periods. Whilst some bird species will follow the coastline during their migration journey, other groups of species (e.g. waders) will undertake long journeys across open seas, often flying at high altitudes depending on the weather conditions. Wildfowl species are known to follow a coastal route during their migration (when in sight of the land). However, many wildfowl species do undertake open-sea movements to reach their wintering or moulting grounds (e.g. common shelduck *Tadorna tardorna* (Green *et al*., 2019), whooper swan *Cygnus cygnus* (Griffin *et al*., 2011) and Eurasian curlew *Numenius arquata* (Schwemmer *et al*., 2023)).

1.3.8.11 Waterbirds (e.g. wildfowl and waders) may therefore pass through the Mona Array Area periodically in spring and autumn. Many of these migrants will originate from the Arctic and sub-Arctic regions (e.g., Iceland and Scandinavia) and winter at SPA sites in the UK. Although migration occurs over a broad front and often at high altitude at sea, there is a potential for migratory waterbirds to cross the Mona Array Area twice per year. The connectivity is more likely to occur with SPA sites nearest to the Mona Array Area, as it is assumed that migration routes will be broader and more dispersed with increased distance to/from the wintering sites.

1.3.8.12 Following the migratory collision risk assessment (Volume 6, Annex 5.4: Offshore ornithology migratory bird collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), and in consultation with the EWG a selection of Welsh sites were specifically requested to be included by NRW for the potential impact on onshore ornithology qualifying features which migrate through the Mona Array Area.

1.3.8.13 On this basis, the following European sites are considered for determination of LSE for onshore ornithology (see Table 1.12~~Table 1.12~~ and Figure 1.11~~Figure 1.11~~):

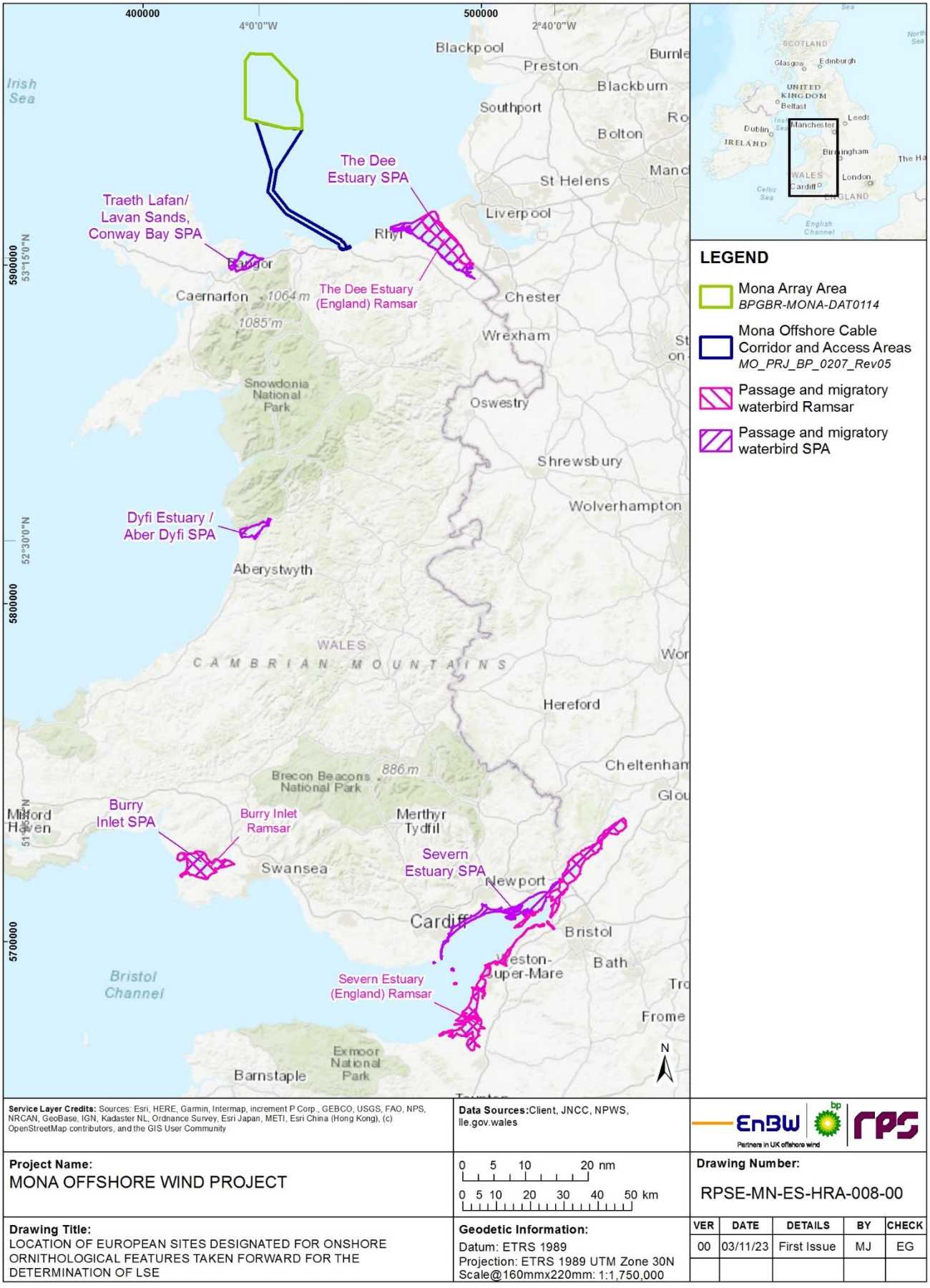
- The Dee Estuary SPA
- The Dee Estuary Ramsar site
- Lavan Sands, Conway Bay/Traeth Lafan SPA
- Dyfi Estuary/Aber Dyfi SPA
- Burry Inlet SPA
- Burry Inlet Ramsar site
- Severn Estuary SPA
- Severn Estuary Ramsar site.

Table 1.12: European Sites designated for passage and wintering waterbird features with potential connectivity to the Mona Offshore Wind Project.

ID	European Site	Site Code	Distance to Mona Proposed Onshore Development Area (km)	Relevant Qualifying Features
1	The Dee Estuary SPA	UK0030131	10.53	Northern pintail *Anas acuta*
				Eurasian teal *Anas crecca*
				Dunlin *Calidris alpina alpina*
				Red knot *Calidris canutus*
				Eurasian oystercatcher *Haematopus ostralegus*
				Bar-tailed godwit *Limosa lapponica*
				Black-tailed godwit *Limosa limosa islandica*
				Eurasian curlew
				Grey plover *Pluvialis squatarola*
				Common shelduck
				Common redshank *Tringa totanus*
				Northern lapwing *Vanellus vanellus*
2	The Dee Estuary Ramsar site	UK11082	10.53	Common redshank
				Eurasian Teal
				Common shelduck
				Eurasian oystercatcher
				Eurasian curlew
				Northern pintail
				Grey plover
				Red knot

ID	European Site	Site Code	Distance to Mona Proposed Onshore Development Area (km)	Relevant Qualifying Features
				Black-tailed godwit
				Bar-tailed godwit
3	Traeth Lafan/Lavan Sands, Conway Bay SPA	UK9013031	Outwith 20 km but included at the request of NRW for collision assessment.	Eurasian oystercatcher
				Red-breasted merganser *Mergus serrator*
				Eurasian curlew
				Great crested grebe *Podiceps cristatus*
				Common redshank
4	Dyfi Estuary/Aber Dyfi SPA	UK9020284	Outwith 20 km but included at the request of NRW for collision assessment.	Greenland white-fronted goose *Anser albifrons flavirostris*
5	Burry Inlet SPA	UK9015011	Outwith 20 km but included at the request of NRW for collision assessment.	Northern pintail
				Northern shoveler *Anas clypeata*
				Eurasian teal
				Eurasian wigeon *Mareca penelope*
				Turnstone *Arenaria interpres*
				Dunlin
				Red knot
				Eurasian oystercatcher
				Eurasian curlew
				Eurasian golden plover
				Common sheduck
				Common redshank
6	Burry Inlet Ramsar site	Ramsar site number: 562	Outwith 20 km but included at the request of NRW for collision assessment.	Northern pintail
				Northern shoveler
				Eurasian oystercatcher
7	Severn Estuary SPA	UK9015022	Outwith 20 km but included at the request of NRW for collision assessment.	Gadwall *Anas strepera*
				European white-fronted goose *Anser albifrons albifrons*
				Dunlin
				Bewick's swan *Cygnus columbianus*
				Common shelduck
				Common redshank
8	Severn Estuary Ramsar site	Ramsar site number: 67	Outwith 20 km but included at the request of NRW for collision assessment.	Gadwall
				European white-fronted goose
				Dunlin

ID	European Site	Site Code	Distance to Mona Proposed Onshore Development Area (km)	Relevant Qualifying Features
				Bewick's swan
				Common shelduck
				Common redshank



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Data Sources: Client, JNCC, NPWS, lle.gov.wales

Partners in UK offshore wind

Project Name:
MONA OFFSHORE WIND PROJECT

0 5 10 20 nm
0 5 10 20 30 40 50 km

Drawing Number:
RPSE-MN-ES-HRA-008-00

Drawing Title:
LOCATION OF EUROPEAN SITES DESIGNATED FOR ONSHORE ORNITHOLOGICAL FEATURES TAKEN FORWARD FOR THE DETERMINATION OF LSE

Geodetic Information:
Datum: ETRS 1989
Projection: ETRS 1989 UTM Zone 30N
Scale@160mmx220mm: 1:1,750,000

VER	DATE	DETAILS	BY	CHECK
00	03/11/23	First Issue	MJ	EG

Figure 1.11: Location of European sites designated for onshore ornithological features to be taken forward for the determination of LSE.

1.4 Determination of likely significant effect

1.4.1 Overview

1.4.1.1 The initial screening process documented in section 1.3, generated a list of designated sites and qualifying interest features (Table 1.4~~Table 1.4~~ to Table 1.12~~Table 1.12~~) for further determination of LSE as a result of the Mona Offshore Wind Project. This section of the HRA Screening process therefore documents the determination of LSE for those European sites which have been identified for further consideration through section 1.4.

1.4.2 Methodology

1.4.2.1 The assessment of LSE in the following sections is presented as a series of matrices setting out whether no LSE can be concluded for the relevant features of the European sites identified in section 1.3. The matrix approach used is considered to be a pragmatic approach and useful in defining the extent of impacts from the Mona Offshore Wind Project on identified designated sites' qualifying interest features, in relation to the sites' conservation objectives. It also provides a clear audit trail for agreement with the statutory consultees on the scope of the HRA and the features and impacts to be taken forward into the appropriate assessment for each site.

1.4.2.2 The following matrix key is applicable to the matrices presented in the subsequent sections:

- ✓= Potential for a LSE/ LSE cannot be excluded
- ~~×~~ = No potential for an LSE
- C = Construction
- O&M = Operations and maintenance
- D = Decommissioning.

1.4.2.3 With respect to the consideration of mitigation at the HRA Screening stage, in April 2018, the European Court of Justice issued a judgement in the People Over Wind and Sweetman case (Case C323/17) clarifying the stage in a HRA process when mitigation measures can be taken into account when assessing impacts on a European site. The ruling stated that "…*in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*."

1.4.3 Assessment of LSE for Annex I habitats (offshore and coastal)

1.4.3.1 One European site, the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC has been identified in the initial screening process (section 1.3) to be taken forward for the determination of LSE for Annex I habitats.

Site overviews

Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC

1.4.3.2 The Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC is located in northwest Wales. The physical and environmental conditions including characteristics such as sediment type, aspect, water clarity and exposure to tidal currents vary extensively throughout the site and give rise to a diverse range of habitats and associated marine species and communities. The varying physical geography of areas such as the narrows of the Menai Strait to the more open waters of Conwy Bay and the moderately wave-exposed Great and Little Ormes results in the establishment of contrasting and in many cases rare marine communities.

1.4.3.3 The qualifying interest features of this site are detailed in Table 1.4~~Table 1.4~~ and described below.

1.4.3.4 NRW present the SAC boundary and the general location of the Annex I habitat features within the SAC, see Figure 1.12~~Figure 1.12~~. It is noted that these are indicative maps as the extent of most features is not known precisely and some features, such as sandbanks, are dynamic and can be highly mobile.

1.4.3.5 The Annex I reef feature occurs throughout the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, with the most significant areas of intertidal reef occurring at Menai Bridge between Beaumaris and Penmon and between Penmon and Red Wharf Bay. At Great and Little Orme the feature extends out into the subtidal. At the eastern area of Conwy Bay the reef feature occurs as cobble skears (areas of cobbles protruding just above sediment deposits) and mussel beds in the Morfa Conwy area for small areas of biogenic reef (NRW, 2018).

1.4.3.6 The indicative locations of the Annex I reef features, as mapped by NRW (2018), are presented in Figure 1.12~~Figure 1.12~~, alongside the infaunal biotopes present within the Mona Offshore Cable Corridor as identified from the site-specific surveys (see paragraph 1.4.3.8 to 1.4.3.12 and Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1) for more information on the infaunal biotopes present). The purple dots correspond to point sample locations where biological records exist for reef habitats from subtidal survey work. The turquoise and green shaded areas correspond to polygons for definite and potential reef as identified from Countryside Council for Wales (CCW; now NRW) Phase 1 Intertidal Habitat Map (intertidal reef areas), admiralty charts and NRW expert knowledge (NRW, 2018).

1.4.3.7 The Annex I sandbank feature occurs in three main locations within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC: the Menai Strait Sandbanks, Conwy Bay Bank and Red Wharf Bay Bank (NRW, 2018). The Menai Strait Sandbanks are located at the northern and southern entrances to the Menai Strait. The Conwy Bay Bank is situated to the west of Great Orme and extends approximately 6 km southwards into Conwy Bay. The Red Wharf Bay Bank is located north of the Red Wharf Bay and encompasses Ten Feet Bank near Puffin Island. The bank extends approximately 12 km in a northwest/southeast direction from the west side of Puffin Island (NRW, 2018). The indicative locations of the Annex I sandbank features, as mapped by NRW (2018), are presented in Figure 1.12~~Figure 1.12~~.

Site-specific surveys

1.4.3.8 A benthic subtidal survey of the Mona Offshore Cable Corridor, including the area of overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, was undertaken in summer 2022. Full details of these surveys are outlined in Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1) and a summary is presented below.

1.4.3.9 The subtidal site-specific surveys within the Mona Offshore Cable Corridor consisted of infaunal grab samples and DDV surveys. Five stations were sampled in the area of the Mona Offshore Cable Corridor which overlaps with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Where the Mona Offshore Cable Corridor overlaps with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC the sediments were classified as either sandy gravel or gravelly sand.

1.4.3.10 In the area of overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, and also the part of the Mona Offshore Cable Corridor to the south of the SAC, the benthic communities were characterised by the *Kurtiella bidentata* and *Thyasira* spp. in circalittoral muddy mixed sediment (SS.SMx.CMx.KurThyMx), *Nephtys ~~cirrosa~~88irrose* and *Bathyporeia* spp. in infralittoral sand (SS.SSa.IfiSa.NcirBat) and circalittoral coarse sediment (SS.SCS.CCS) biotopes (Figure 1.12~~Figure 1.12~~). Full details on the communities and biotopes present are provided in Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1).

1.4.3.11 Two sample stations within the area of overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC were subject to a stony reef assessment but neither were found to have any resemblance to Annex I stony reef. No Annex I sandbanks were recorded in the area of overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during the site-specific surveys. An assessment for sponge dominated habitat was also undertaken for the Mona Offshore Cable Corridor but no stations were found to represent this habitat.

1.4.3.12 On the basis of the site-specific survey results, no Annex I habitats were recorded within the area of overlap between the Mona Offshore Cable Corridor and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The site-specific survey data correlates with the NRW (2016) mapped distribution of Annex I habitat features which also indicate no presence of Annex I features within the Mona Offshore Cable Corridor.

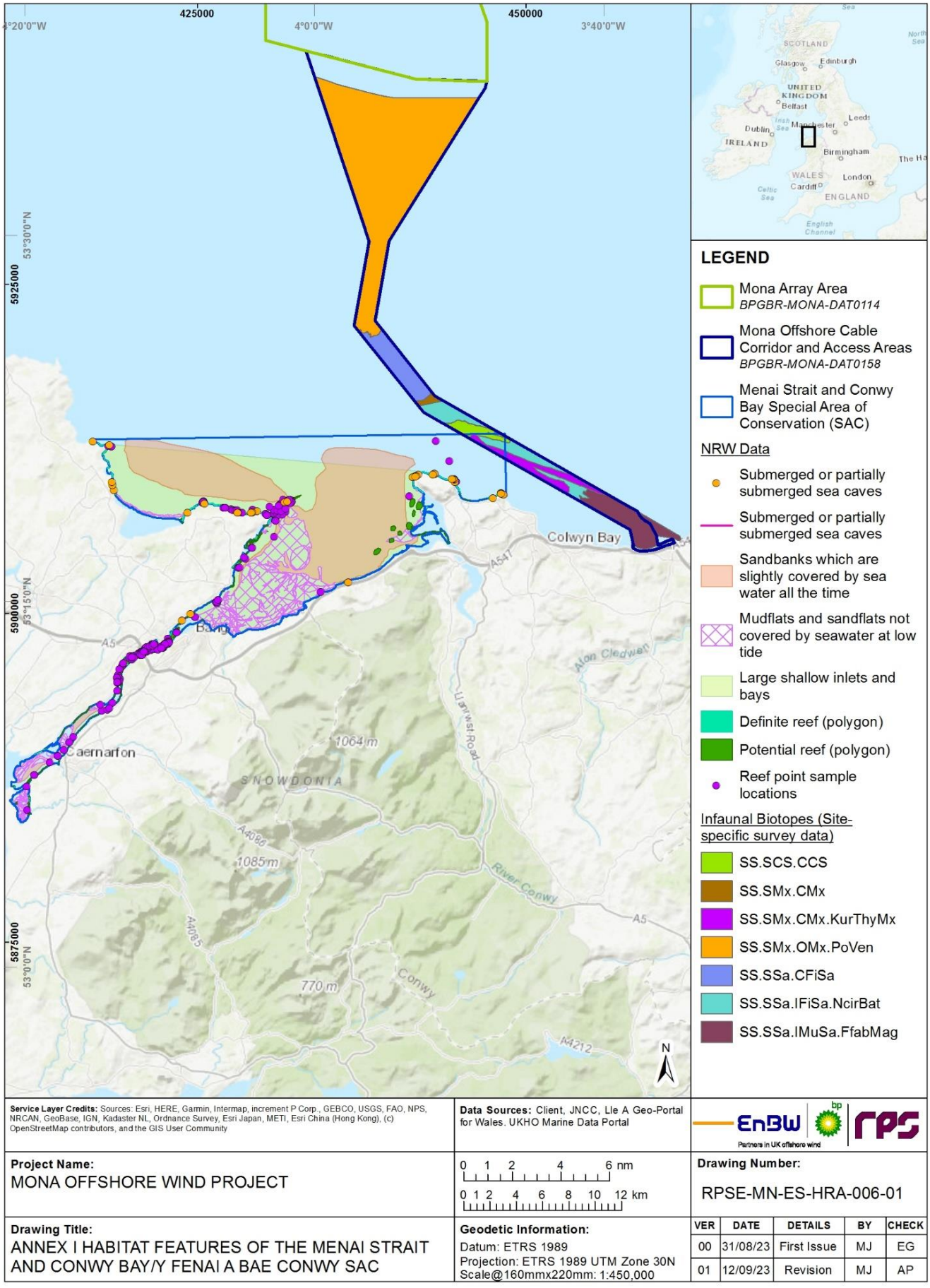

Figure 1.12: Annex I habitat distribution within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (NRW, 2018)

Pathways for LSE: potential impacts on Annex I habitats

1.4.3.13 There is considerable knowledge from previous offshore wind farm projects on the potential effects that the construction, operations and maintenance and decommissioning of an offshore wind farm may have on benthic receptors. In addition, the 'Advice on Operations' document for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC has also been consulted. The 'Advice on Operations' document details the type of impacts that the Annex I features are sensitive to. From this, a list of impacts that may result from the Mona Offshore Wind Project has been developed, and that need to be taken into account when determining the potential for LSE for the identified SAC. This is discussed in paragraphs 1.4.3.14 to 1.4.3.62.

Construction phase

Temporary habitat loss/disturbance

1.4.3.14 There is potential for temporary, direct habitat loss and disturbance as a result of site preparation activities in advance of installation activities, cable installation activities (including Unexploded Ordnance (UXO) detonation, pre-cabling seabed clearance and anchor placements), and placement of spud-can legs from jack-up operations. This impact will be spatially restricted to within the Mona Offshore Wind Project Boundary, there is no spatial overlap with the Mona Array Area and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Therefore, there is no potential for LSE on Annex I habitats of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as a result of temporary habitat loss/disturbance associated with the Mona Array Area activities.

1.4.3.15 There is a small spatial overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and the Mona Offshore Cable Corridor (see Table 1.4~~Table 1.4~~ and Figure 1.3~~Figure 1.3~~) and the Maximum Design Scenario (MDS) assumes that up to 8.1 km of export cables may be installed within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. A measure has been adopted as part of the Mona Offshore Wind Project to not undertake seabed preparation activities (sandwave clearance or boulder clearance) within the area of overlap between the Mona Offshore Cable Corridor and the SAC. As a result only cable burial to a width of 20 m will be undertaken in the Y Fenai a Bae Conwy/Menai Strait and Conwy Bay SAC which may result in up to 0.162 km^2 of temporary habitat loss/disturbance within the SAC equating to 0.06% of the total area of the SAC.

1.4.3.16 On the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12, there are no Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC present within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports the NRW's mapped distribution of designated features within the SAC, see Figure 1.12~~Figure 1.12~~ (NRW, 2016). The Mona Offshore Cable Corridor does not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and therefore, as agreed with the EWG (see Table 1.2~~Table 1.2~~), it is concluded that there is no potential for LSE from temporary habitat loss/disturbance on any of the Annex I habitat features of the SAC during the construction phase of the Mona Offshore Wind Project.

Increases in SSC and associated deposition

1.4.3.17 Sediment disturbance arising from construction activities (e.g. foundation and cable installation – including drilling and any deposits arising) UXO detonation and seabed preparation) may result in indirect impacts on benthic communities as a result of temporary increases in SSC and associated sediment deposition (i.e. smothering effects). Modelled scenarios outlined in Volume 2, Chapter 1: Physical Processes of the Environmental Statement (Document reference F2.1) showed that during drilling for the installation of the foundations in the Mona Array Area, plumes are anticipated to be generated with SSCs of <50 mg/l. These levels would be localised and sediment plumes would not persist or result in discernible sedimentation and would not extend as far south as Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.

1.4.3.18 Sediment plumes associated with the inter-array cable and inter-connector cable installation create plumes on average <100-300 mg/l, highest during the release (of material) phase however these plume concentrations would not persist in the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Sedimentation is typically <0.5 mm beyond the immediate vicinity of the installation and less than one tenth of this value in the wider domain. These plumes would therefore not extend to the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and sediment concentrations would settle to background levels within the Mona Array Area.

1.4.3.19 On the basis of the modelling outputs detailed above in paragraph 1.4.3.17 and 1.4.3.18 and previously in paragraphs 1.3.2.6 to 1.3.2.9, effects associated with increases in SSC and associated deposition arising from construction activities within the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI of SSC and sediment deposition.

1.4.3.20 During offshore export cable installation, average levels of SSC of <300 mg/l are noted along the cable path (see Figure 1.13~~Figure 1.13~~), with the level dropping to background levels on the slack tide. Tidal patterns indicate that although the released material migrates both east and west by settling and being re-suspended on successive tides, the sedimentation level is small, typically <0.5 mm, and the greatest levels of deposition occur along the trenching route as coarser material settles. The suspended sediment plume envelope for the offshore export cable installation has a width of approximately 20 km which corresponds with the tidal excursion (see Figure 1.14~~Figure 1.14~~ and Figure 1.15~~Figure 1.15~~). The physical processes modelling of offshore export cable installation along the Mona Offshore Cable Corridor was undertaken with tidal forcing. In nearshore regions the tidal flows are oriented parallel to the coastline and the plume is not predicted to encroach on the shoreline of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Figure 1.13~~Figure 1.13~~). This would therefore also be the case for any seabed preparation activities. Under the additional influence of wind and wave driven currents the plume may be driven towards the shoreline when installation is taking place inshore of the Constable Bank and during ebb tides. However, it is noted that for the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC coastal features to be affected the principal wind direction would need to be from the northeast. Winds from this sector typically have a 6% occurrence and waves are fetch limited. Additionally, the influence of wind and wave action perpendicular to tidal flow will also increase dispersion and reduce SSC and any related deposition to levels indiscernible from background levels.

1.4.3.21 On the basis of the physical processes modelling outputs described above in paragraph 1.4.3.20 and the coastal location of the features within the SAC (see Figure

1.12~~Figure 1.12~~), potential impacts from increased SSC and deposition to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) are not predicted and it is, therefore, concluded that there is no potential for LSE on these features.

1.4.3.22 The Mona Offshore Cable Corridor does not overlap with the Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs, however on the basis of the site-specific surveys and data presented in Figure 1.12~~Figure 1.12~~, the Annex I sandbank and Annex I reef features are located 3.5 km and 2.4 km from the Mona Offshore Cable Corridor and are therefore within the ZoI of activities associated with the installation of export cables within the Mona Offshore Cable Corridor. There is therefore the potential for LSE on Annex I reef and sandbank features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as a result of increases in SSC and sediment deposition during the construction phase for the Mona Offshore Cable Corridor only.

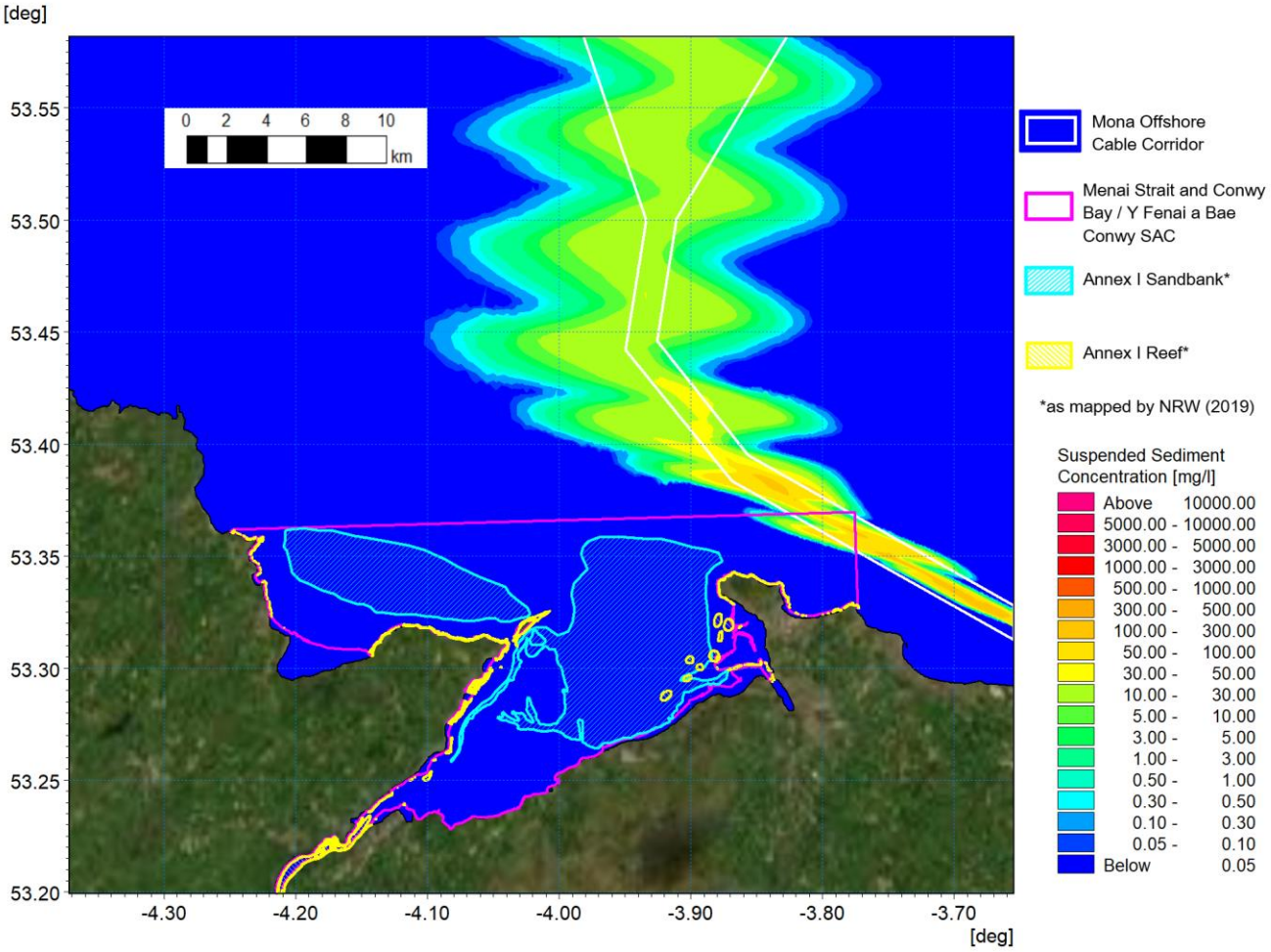

Figure 1.13: Average SSCs during offshore export cable trenching.

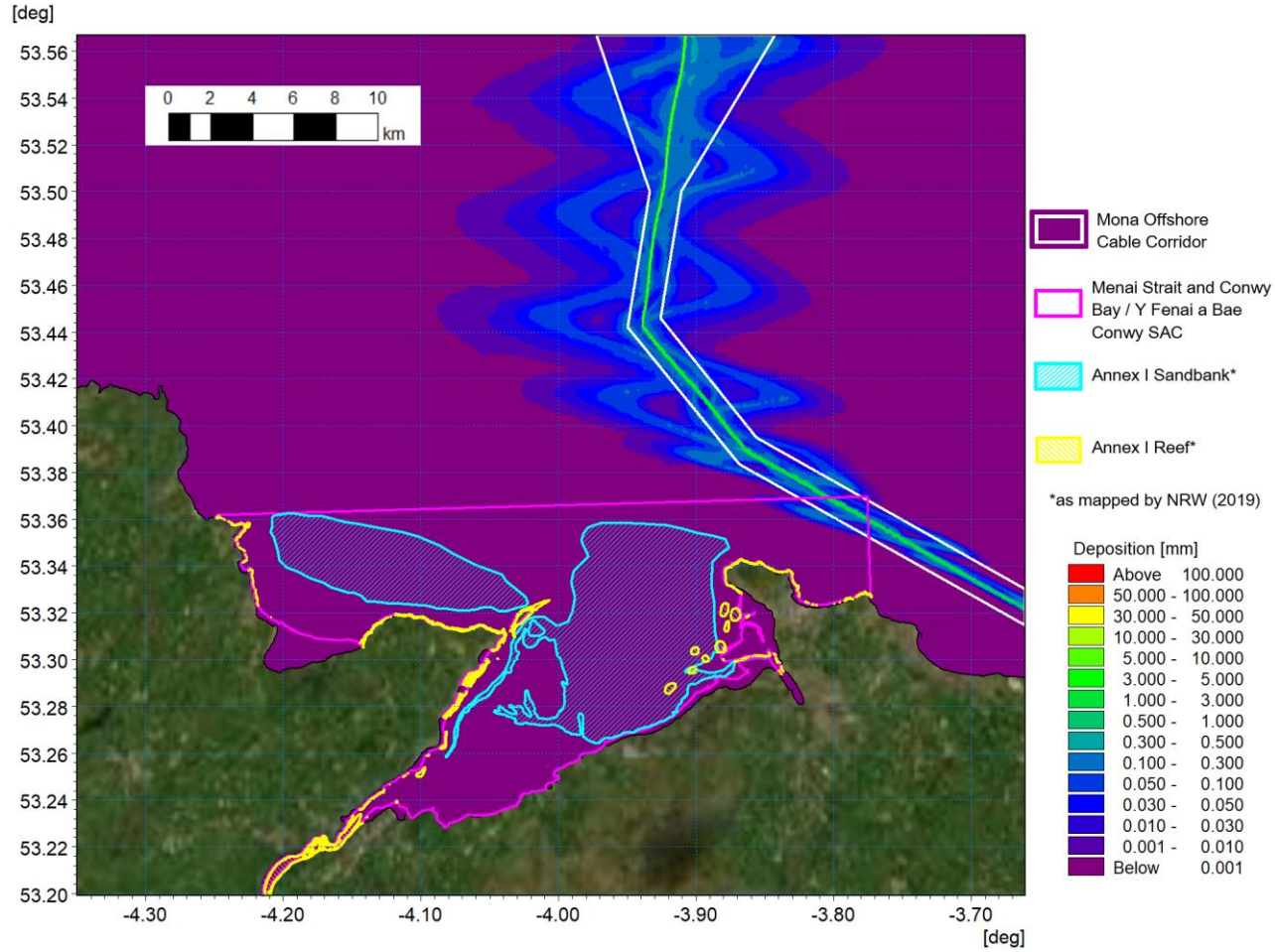

Figure 1.14: Average sedimentation during offshore export cable installation.

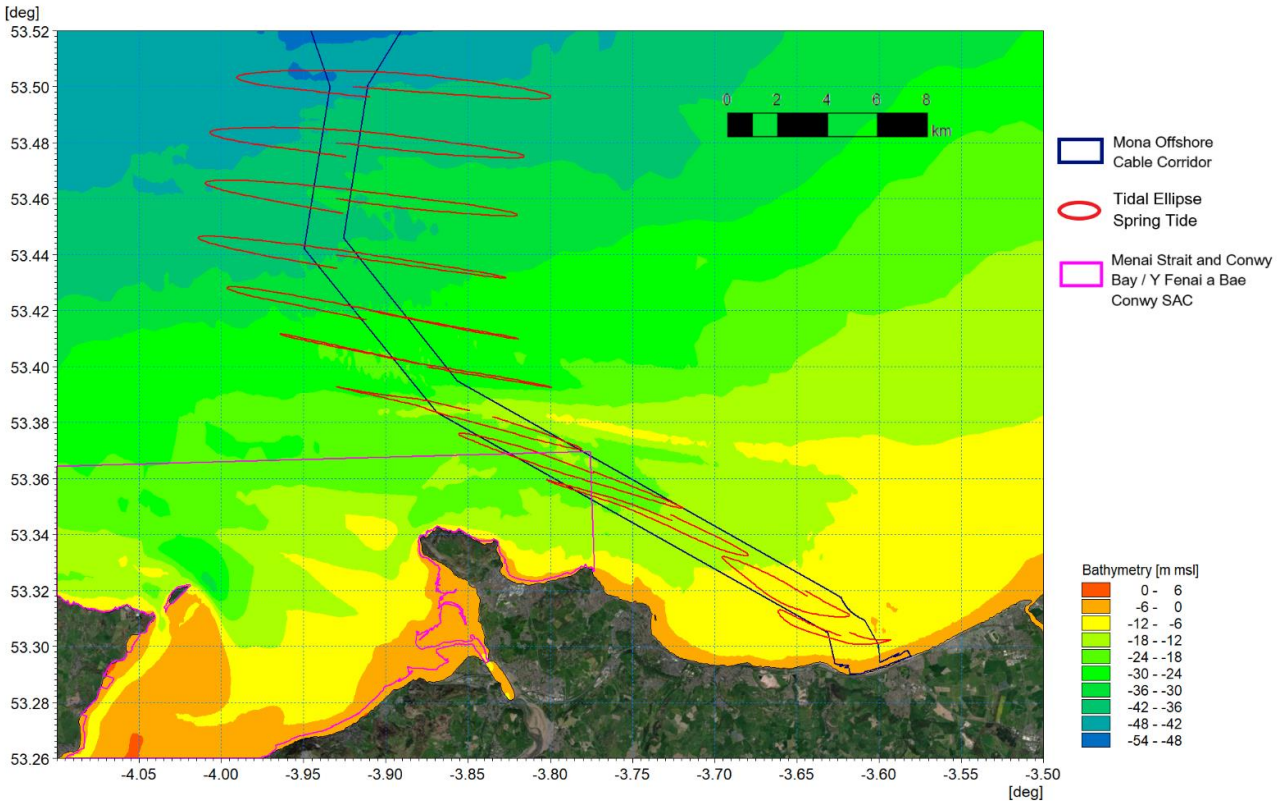

Figure 1.15: Tidal excursion relating to the Mona Offshore Cable Corridor: tidal ellipse spring tide.

Disturbance/remobilisation of sediment-bound contaminants

1.4.3.23 Seabed disturbance associated with construction (e.g. foundation and cable installation) could lead to the remobilisation of sediment-bound contaminants that may result in harmful and adverse effects on benthic communities.

1.4.3.24 Effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI of sediment plumes arising from Mona Array Area.

1.4.3.25 The Mona Offshore Cable Corridor has a small area of overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and is therefore within the ZoI. However, site-specific surveys conducted within the Mona Offshore Cable Corridor reported that levels of cadmium, chromium, copper, nickel, lead, mercury and zinc did not exceed the relevant Cefas Action Level 1 (AL1) or the Canadian Threshold Effect Level (TEL) in any of the samples. Concentrations of arsenic did however exceed Cefas AL1 at three sample stations in the Mona Offshore Cable Corridor and 17 stations were above the Canadian TEL. Levels at all stations were, however, below Cefas Action Level 2 (AL2) and the Canadian Probable Effect Level (PEL). No samples exceeded the relevant Cefas ALs or the Canadian TEL or PEL for Polychlorinated biphenyls (PCBs). Levels of Polycyclic Aromatic Hydrocarbons (PAHs) were below the relevant Canadian TEL and PEL levels, or Effects Range Median (ERM) and Effects Range Low (ERL) thresholds. Concentrations of organotins were below the Limits of Determination (LOD) at all stations. Two samples in the area of the Mona Offshore Cable Corridor overlapping with the Menai Strait and Conwy Bay/ Y Fenai a Bae Conwy SAC were analysed for sediment chemistry. The levels for both stations were below all the relevant thresholds (Cefas AL1 and AL2 and Canadian PEL and TEL) for all metals with the exception of arsenic which exceeded the Canadian TEL for both stations.

1.4.3.26 Considering the results of the surveys and that there is no spatial overlap between the Annex I features and the Mona Offshore Cable Corridor impacts to the designated features are considered unlikely. There is no potential for LSE on any Annex I habitats of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during any phases of the Mona Offshore Wind Project.

Increased risk of introduction and spread of invasive non-native species (INNS)

1.4.3.27 The installation of hard substrates (such as foundations, associated scour protection and cable protection) and the presence of construction vessels may lead to an increased risk of introduction and spread of INNS.

1.4.3.28 The environmental risk associated with invasive species is considered to be relative to the capacity for a new species to enter a new environment and spread. The greatest risk exists where new opportunities are provided for novel invasive species. There will be new infrastructure placed on the seabed as a result of the Mona Offshore Wind Project, this could present a new route to impact for the introduction/spread of INNS. It is considered that the addition of hard substratum in the Mona Offshore Cable Corridor could create new connectivity routes or ‘stepping-stones’ that were previously absent.

1.4.3.29 Effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a

Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI. As outlined in paragraph 1.4.3.8 to 1.4.3.12 no Annex I features are located within the small area of overlap with the Mona Offshore Cable Corridor, however due to the small overlap between the Mona Offshore Cable Corridor and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC it is possible that cable protection associated with the export cable could be installed within the boundary of the SAC leading to the potential for a 'stepping stone' effect. On the basis of the site-specific surveys and data presented in Figure 1.12~~Figure 1.12~~, the Annex I sandbank and Annex I reef features are located 3.5 km and 2.4 km from the Mona Offshore Cable Corridor and therefore the potential for an LSE cannot be ruled out for these features.

Accidental pollution

1.4.3.30 There is a risk of pollution being accidentally released during the construction phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind developments). On this basis, effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI. As noted above, any indirect effects on Annex I habitat qualifying interests from accidental release of pollutants would be unlikely and should they occur, these would be unlikely to lead to a significant effect on the ~~conserv~~96onserveation objectives of the site. Potential impacts to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) are screened out. Due to the location of the Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as shown in Figure 1.12~~Figure 1.12~~, the potential for LSE for these features cannot be discounted.

1.4.3.31 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an Environmental Management Plan (EMP) including a Marine Pollution Contingency Plan (MPCP)) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans include planning for accidental spills, address all potential contaminant releases and include key emergency contact details. They will also set out industry good practice and OSPAR (Oslo-Paris), IMO (International Maritime Organization) and MARPOL (International Convention for the Prevention of Pollution from Ships) guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

1.4.3.32 As outlined above, the Mona Offshore Cable Corridor overlaps the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, therefore there is the potential for LSE as a result of accidental pollution.

Operations and maintenance phase

Long-term subtidal habitat loss

1.4.3.33 There is the potential for long-term habitat loss to occur directly under all foundation structures and associated scour protection, and under any cable protection required along the inter-array, inter-connector and Mona Offshore Cable Corridor for the duration of the operations and maintenance phase. This impact will be spatially restricted to within the footprint of the Mona Offshore Wind Project Boundary. On this basis, effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore there is no pathway for an impact to occur.

1.4.3.34 There is a small spatial overlap of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and the Mona Offshore Cable Corridor, and the MDS assumes that up to 8.1 km of export cables may be installed within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and that cable protection would be required for up to 10% of export cables (i.e. 810 m) and a width of 10 m. This may result in long term habitat loss/habitat alteration of 8,100 m^2, which represents 0.003% of the total area of the SAC.

1.4.3.35 On the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12 there are no Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC present within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports NRW's mapped distribution of designated features within the SAC (NRW, 2016). The Mona Offshore Cable Corridor does not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and it is, therefore, concluded that there is no potential for LSE from long-term habitat loss on any of the Annex I habitat features of the SAC during the operations and maintenance phase of the Mona Offshore Wind Project.

Temporary habitat loss/disturbance

1.4.3.36 Temporary habitat disturbance may occur during the operations and maintenance phase as a result of maintenance operations (e.g. cable repair/reburial, use of jack-up vessels to facilitate wind turbine component repairs etc.). This impact will be spatially restricted to within the footprint of the Mona Offshore Wind Project and, therefore, there is no potential for spatial overlap between activities occurring within the Mona Array Area and any Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.

1.4.3.37 There is a small spatial overlap with the Menai Strait and Conwy Bay /Y Fenai a Bae Conwy SAC and the Mona Offshore Cable Corridor (see Table 1.4~~Table 1.4~~ and Figure 1.3~~Figure 1.3~~) and the MDS assumes the repair and/or reburial of up to 8.1 km of export cables per repair/reburial event (assuming all four cables are repair/reburied), with a disturbance width of 20 m within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. This may result in the temporary habitat disturbance of up to 162,000 m^2 per repair/reburial event (each event equating to 0.06% of the SAC). Over the 35 year lifetime of the Mona Offshore Wind Project there may be repeat habitat disturbance twice every five years per export cable for repair events and once every five years for reburial events. This approach is considered highly precautionary as only 16 km of the total 360 km of offshore export cables are expected to require repair every five years and only 15 km of all offshore export cables will require reburial every five years

therefore the actual extent of repair/reburial in the SAC is likely to be much less than assessed, if any is required at all.

1.4.3.38 On the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12, there are no Annex I habitat features present within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports the NRW's mapped distribution of designated features within the SAC (NRW, 2016). The Mona Offshore Cable Corridor does not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay /Y Fenai a Bae Conwy SAC and it is, therefore, concluded that there is no potential for LSE from temporary habitat loss/disturbance on any of the Annex I habitat features of the SAC during the operations and maintenance phase of the Mona Offshore Wind Project.

Increases in SSC and associated deposition

1.4.3.39 Temporary increases in SSC and associated sediment deposition may arise during maintenance activities (e.g. cable reburial or replacement works) and may affect benthic communities. The magnitude of this impact will be substantially less than that during construction as no seabed preparation will be required.

1.4.3.40 Effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI. There is only considered to be LSE from the activities along the Mona Offshore Cable Corridor as there is a small area of overlap with the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore within the ZoI.

1.4.3.41 On the basis of the information outlined above in paragraph 1.4.3.20, potential impacts to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) are screened out. Due to the location of the Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as shown in Figure 1.12~~Figure 1.12~~, the potential for LSE for these features cannot be discounted.

Disturbance/remobilisation of sediment-bound contaminants

1.4.3.42 Seabed disturbance associated with maintenance activities (e.g. cable reburial or replacement works) could lead to the remobilisation of sediment-bound contaminants that may result in harmful and adverse effects on benthic communities. Due to the highly localised nature of maintenance activities associated with the operations and maintenance phase and the low levels of sediment contamination shown in the results of the site-specific surveys (see paragraph 1.4.3.25) there is considered to be no potential for LSE on Annex I habitats of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as a result of disturbance/remobilisation of sediment-bound contaminants.

Changes in physical processes

1.4.3.43 The presence of foundation structures, associated scour protection and cable protection may introduce localised changes to the tidal flow and wave climate, resulting in potential changes to the sediment transport pathways and associated effects on benthic ecology. The extent of the impact will be spatially restricted to within the Mona

Offshore Wind Project Boundary and the surrounding area (which is outlined in paragraph 1.3.2.8). On this basis, effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI.

1.4.3.44 On the basis of the NRW mapped distribution of Annex I habitat features (Figure 1.12~~Figure 1.12~~), potential impacts to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) are screened out. Due to the location of the Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as shown in Figure 1.12~~Figure 1.12~~, the potential for LSE for these features cannot be discounted.

Introduction of artificial structures

1.4.3.45 Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) in the offshore environment are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and changes in community composition. This impact focuses on the colonisation of hard structures only, the potential introduction/spread of marine INNS is discussed separately in paragraph 1.4.3.27 to 1.4.3.29.

1.4.3.46 There is only a small spatial overlap between the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and the Mona Offshore Cable Corridor associated with the Mona Offshore Wind Project and the MDS assumes that up to 8.1 km of export cables may be installed within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and that cable protection would be required for up to 10% of export cables (i.e. 800 m) and a width of 10 m. This may result in up to 8,100 m^2 of cable protection available for colonisation, which represents 0.003% of the total area of the SAC.

1.4.3.47 On the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12, there are no Annex I habitat features present within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports the NRW's mapped distribution of designated features within the SAC (NRW, 2016). The Mona Offshore Cable Corridor does not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay /Y Fenai a Bae Conwy SAC and it is, therefore, concluded that there is no potential for LSE from the introduction of artificial structures on any of the Annex I habitat features of the SAC during the operations and maintenance phase of the Mona Offshore Wind Project.

EMF from subsea electric cables

1.4.3.48 Electromagnetic fields (EMF) generated through the subsea electrical cabling may affect benthic subtidal and intertidal ecology by inhibiting/interfering with behaviours of the relevant benthic receptors. Research has demonstrated that even when buried, emission of EMF can impact the behaviour of invertebrates (Hutchison *et al.*, 2020). Any impacts associated with EMF will, however, be spatially restricted to within the footprint of the Mona Offshore Wind Project Boundary. On this basis, effects associated with the Mona Array Area are screened out as there is no spatial overlap between the Mona Array Area and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~).There is, however, a small spatial overlap

between the Mona Offshore Cable Corridor and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. However, on the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12 there are no Annex I habitat features of the Menai Strait and Conwy Bay /Y Fenai a Bae Conwy SAC within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports the NRW's mapped distribution of designated features within the SAC, see Figure 1.12~~Figure 1.12~~ (NRW, 2016). The Mona Offshore Cable Corridor does not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and it is, therefore, concluded that there is no potential for LSE from EMF on any of the Annex I habitat features of the SAC for the operations and maintenance phase of the Mona Offshore Wind Project.

Heat from subsea electrical cables

1.4.3.49 The presence and operation of inter-array, interconnector and export cables within the Mona Array Area and Mona Offshore Cable Corridor may lead to localised heating of seabed affecting benthic subtidal and intertidal receptors.

1.4.3.50 Any impacts associated with heat will, however, be spatially restricted to within the footprint of the Mona Offshore Wind Project Boundary. On this basis, effects associated with the Mona Array Area are screened out as there is no spatial overlap between the Mona Array Area and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~).

1.4.3.51 There is, however, a small spatial overlap between the Mona Offshore Cable Corridor and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. However, on the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12 there are no Annex I habitat features of the Menai Strait and Conwy Bay /Y Fenai a Bae Conwy SAC within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports the NRW's mapped distribution of designated features within the SAC, see Figure 1.12~~Figure 1.12~~ (NRW, 2016). The Mona Offshore Cable Corridor does not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and it is, therefore, concluded that there is no potential for LSE from heat on any of the Annex I habitat features of the SAC for the operations and maintenance phase of the Mona Offshore Wind Project.

Increased risk of introduction and spread of INNS

1.4.3.52 The long term introduction of hard substrates (in the form of foundations, associated scour protection and cable protection/crossings) and the presence of operations and maintenance vessels has the potential to contribute to the introduction and spread of INNS. Further information on the potential introduction/spread of INNS is outlined in paragraph 1.4.3.28.

1.4.3.53 Effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI. As outlined in paragraph 1.4.3.8 to 1.4.3.12 no Annex I features are located within the area of overlap with the Mona Offshore Cable Corridor, however due to the small area of overlap between the Mona Offshore Cable Corridor and the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC it is possible that cable protection associated with the

export cable could be installed within the boundary of the SAC and there is therefore the potential for a 'stepping stone' effect. On the basis of the site-specific surveys and data presented in Figure 1.12~~Figure 1.12~~, the Annex I sandbank and Annex I reef features are located 3.5 km and 2.4 km from the Mona Offshore Cable Corridor and therefore the potential for an LSE cannot be ruled out for these features.

Accidental pollution

1.4.3.54 There is a risk of pollution being accidentally released during the operations and maintenance phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery.

1.4.3.55 Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind developments). On this basis, effects associated with the Mona Array Area are screened out as the Mona Array Area is located 25.5 km from the boundary of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (see Table 1.4~~Table 1.4~~) and therefore outside the ZoI. As noted above, any indirect effects on Annex I habitat qualifying interests from accidental release of pollutants would be unlikely and should they occur, these would be unlikely to lead to a significant effect on conservation objectives of the site. There is only considered to be LSE from the activities along the Mona Offshore Cable Corridor as this overlaps the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. Potential impacts to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) are screened out. Due to the location of the Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as shown in Figure 1.12~~Figure 1.12~~, the potential for LSE for these features cannot be discounted.

1.4.3.56 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an Environmental Management Plan (EMP) including a Marine Pollution Contingency Plan (MPCP)) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans include planning for accidental spills, address all potential contaminant releases and include key emergency contact details. They will also set out industry good practice and OSPAR (Oslo-Paris), IMO (International Maritime Organization) and MARPOL (International Convention for the Prevention of Pollution from Ships) guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

Decommissioning phase

1.4.3.57 The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined in the construction phase. The only additional impacts, unique to the decommissioning phase, is the removal of hard substrates and long-term/permanent habitat loss which are considered below.

Long term habitat loss

1.4.3.58 The MDS for the decommissioning phase assumes that all cable protection will remain *in situ*. As outlined in paragraph 1.4.3.34 there is a small spatial overlap of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and the Mona Offshore Cable Corridor, however on the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12 there are no Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC present within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports the NRW's mapped distribution of designated features within the SAC (NRW, 2016). The Mona Offshore Cable Corridor does not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC, and it is, therefore, concluded that there is no potential for LSE from long-term habitat loss persisting post-decommissioning on any of the Annex I habitat features of the SAC during the operations and maintenance phase of the Mona Offshore Wind Project.

Changes in physical processes

1.4.3.59 The MDS for the decommissioning phase assumes that any cable protection installed within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC may remain *in situ* post-decommissioning.

1.4.3.60 On the basis of the NRW mapped distribution of Annex I habitat features (Figure 1.12~~Figure 1.12~~), potential impacts to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) are screened out. Due to the location of the Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as shown in Figure 1.12~~Figure 1.12~~, the potential for LSE for these features cannot be discounted.

Removal of hard substrates

1.4.3.61 The removal of foundations during decommissioning has the potential to lead to loss of species/habitats colonising these structures. Such effects will be highly localised and small scale and limited to where there is physical overlap between the Mona Offshore Wind Project Boundary and a site.

1.4.3.62 The Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC has a small area of overlap with the Mona Offshore Cable Corridor, on the basis of the site-specific surveys described in paragraph 1.4.3.8 to 1.4.3.12 there are no Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC present within the overlap with the Mona Offshore Cable Corridor (also see Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). This supports the NRW's mapped distribution of designated features within the SAC (NRW, 2016). The MDS for this impact pathway assumes that cable protection may remain *in situ*. However, decommissioning best practice will be followed at the time and, therefore, there is the potential that hard structures, which may have become colonised by reef-associated species, could be removed from the SAC during decommissioning resulting in the loss of reef habitat. It is therefore concluded that there is the potential for LSE on the Annex I reef habitat

feature of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as a result of the removal of hard structures.

Determination of LSE for Annex I Habitats

1.4.3.63 Table 1.13~~Table 1.13~~ presents the results of the LSE determination assessment as a result of the Mona Offshore Wind Project on relevant qualifying interest features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC in the absence of mitigation measures. The footnotes to these tables provide a brief assessment to support the screening in or out of each of these likely significant effects on the identified SACs features.

LSE in combination

1.4.3.64 The LSE test requires consideration of the Mona Offshore Wind Project alone and in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE 'alone' has already been identified, as in-combination effects will be considered at the Appropriate Assessment. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but there is potential for an LSE in-combination with other plans and projects (e.g. where contributions are made by a number of external projects as well as the Mona Offshore Wind Project).

1.4.3.65 Given the highly precautionary method for site selection applied during this Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional LSEs being identified for the Screening assessment.

1.4.3.66 For Annex I habitats, the potential for LSE alone is identified for all sites within the widest ranging effect, therefore effects in-combination will be considered at Appropriate Assessment. For effects discounted for LSE alone, there is either no pathway to effect, or the Mona Offshore Wind Project would result in only negligible or inconsequential effects that would not contribute (even collectively) in a material way to in-combination effects and therefore, no additional in-combination issues are identified.

Table 1.13: LSE Matrix for Annex I Habitats of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC.

Qualifying features	Temporary habitat loss/disturbance			Increases in SSC and associated deposition			Release of sediment bound contaminants			Long-term subtidal habitat loss			Introduction of artifical structures			Changes in physical processes			EMF			Heat from subsea electrical cables			Increased risk of introduction and spread of invasive non-native species			Removal of hard substrates			Accidental pollution			In-combination effects		
	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D
Mudflats and sandflats not covered by seawater at low tide	×a	×a	×a	×b	×b	×b	×c	×c	×c		×d	×d		×e			×f	×f		×g			×h		×i	×i	×i			×j	×k	×k	×k	×l	×l	×l
Reefs	×a	×a	×a	✓b	✓b	✓b	×c	×c	×c		×d	×d		×e			✓f	✓f		×g			×h		✓i	✓i	✓i			✓j	✓k	✓k	✓k	✓l	✓l	✓ l
Sandbanks which are slightly covered by seawater all the time	×a	×a	×a	✓b	✓b	✓b	×c	×c	×c		×d	×d		×e			✓f	✓f		×g			×h		✓i	✓i	✓i			×j	✓k	✓k	✓k	✓l	✓l	✓ l
Large shallow inlets and bays	×a	×a	×a	×b	×b	×b	×c	×c	×c		×d	×d		×e			×f	×f		×g			×h		×i	×i	×i			×j	×k	×k	×k	×l	×l	×l

Qualifying features	Temporary habitat loss/disturbance			Increases in SSC and associated deposition			Release of sediment bound contaminants			Long-term subtidal habitat loss			Introduction of artifical structures			Changes in physical processes			EMF			Heat from subsea electrical cables			Increased risk of introduction and spread of invasive non-native species			Removal of hard substrates			Accidental pollution			In-combination effects		
Submerged or partially submerged sea caves	×a	×a	×a	×b	×b	×b	×c	×c	×c		×d	×d		×e			×f	×f		×g			×h		×i	×i	×i			×j	×k	×k	×k	×l	×l	×l

1.4.3.67 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where an LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** – The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and there will be no direct physical overlap between the Mona Array Area and the site, impacts associated with the Mona Array Area are therefore screened out. However, there is potential overlap between the Mona Offshore Cable Corridor and the SAC. As outlined in paragraphs 1.4.3.8 to 1.4.3.12, the Mona Offshore Cable Corridor does not, however, spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. It is, therefore, concluded that there is no potential for LSE as a result of temporary habitat disturbance on any of the Annex I habitat features of the SAC for all phases of the Mona Offshore Wind Project.

b. **Increases in SSC and associated deposition** - All features of the SAC are outside the ZoI of increases in SSC and sediment deposition resulting from activities within the Mona Array Area, impacts associated with the Mona Array Area are therefore screened out. With respect to the Mona Offshore Cable Corridor, on the basis of the information outlined above in paragraph 1.4.3.20, potential impacts to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) from increases in SSC and sediment deposition associated with the Mona Offshore Cable Corridor are also screened out as they are outside the ZoI. Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC may fall within the ZoI of increases in SSC and sediment deposition associated with the Mona Offshore Cable Corridor. There is therefore a potential for LSE on the Annex I reef and Annex I sandbanks which are slightly covered by seawater all the time features of the SAC during the construction, operations and maintenance and decommissioning phases of the Mona Offshore Cable Corridor.

c. **Disturbance/remobilisation of sediment-bound contaminants**– All features of the SAC are outside the ZoI for the release of sediment bound contaminants resulting from activities within the Mona Array Area, impacts associated with the Mona Array Area are therefore screened out. With respect to the Mona Offshore Cable Corridor, on the basis of the information outlined above in paragraph 1.4.3.20, potential impacts to coastal features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC (mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays and submerged or partially submerged sea caves) from increases in SSC and sediment deposition associated with the Mona Offshore Cable Corridor are also screened out as they are outside the ZoI. Annex I sandbanks which are slightly covered by seawater all the time and Annex I reefs within the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC may fall within the ZoI associated with the Mona Offshore Cable Corridor. However, site-specific surveys conducted within the Mona Offshore Cable Corridor found that levels of contamination were low (paragraph 1.4.3.25). Considering the results of the surveys and that there is no spatial overlap between the Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC and the Mona Offshore Cable Corridor (paragraph 1.4.3.8 to 1.4.3.12) impacts to the designated features are not anticipated. There is

no potential for LSE on any Annex I habitats of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC during any phases of the Mona Offshore Wind Project.

d. **Long-term subtidal habitat loss** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary. There will be no direct physical overlap between the Mona Array Area and the SAC, impacts associated with the Mona Array Area are therefore screened out. However, there is overlap between the Mona Offshore Cable Corridor and the SAC. As outlined in paragraphs 1.4.3.8 to 1.4.3.12, the Mona Offshore Cable Corridor does, however, not spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. It is, therefore, concluded that there is no potential for LSE on any of the Annex I habitat features of the SAC for the operations and maintenance and decommissioning phase of the Mona Offshore Wind Project.

e. **Introduction of artificial structures** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary. There will be no direct physical overlap between the Mona Array Area and the SAC, impacts associated with the Mona Array Area are therefore screened out. However, there is overlap between the Mona Offshore Cable Corridor and the SAC. As outlined in paragraphs 1.4.3.8 to 1.4.3.12, the Mona Offshore Cable Corridor does not, however, spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. It is, therefore, concluded that there is no potential for LSE as a result of the introduction of artificial structures on any of the Annex I habitat features of the SAC for all phases of the Mona Offshore Wind Project.

f. **Changes in physical processes -** Effects associated with the Mona Array Area are screened out as the SAC is located outwith the ZoI of changes in physical processes as a result of the presence of infrastructure within the Mona Array Area (see paragraph 1.3.2.6). There is considered to be potential for LSE on the Annex I reef and Annex I sandbanks which are slightly covered by seawater all the time features of the site during the operations and maintenance phase and during the decommissioning phase (on the basis that cable protection may remain *in situ* post-decommissioning) associated with the Mona Offshore Cable Corridor only. There is no potential for LSE on the other Annex I habitat features (mudflats, large shallow inlets and bays and submerged or partially submerged sea caves) of the SAC as these features are coastal and, on the basis of NRW's mapped distribution of designated features within the SAC (NRW, 2016), will not overlap with the Mona Offshore Wind Project ZoI.

g. **EMF -** The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary. There will be no direct physical overlap between the Mona Array Area and the SAC, impacts associated with the Mona Array Area are therefore screened out. However, there is overlap between the Mona Offshore Cable Corridor and the SAC. On the basis of the site-specific surveys there is, however, no presence of Annex I features within the Mona Offshore Cable Corridor (see paragraphs 1.4.3.8 to 1.4.3.12 and Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). Therefore, no potential LSE is concluded for all Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as a result of EMF from subsea electrical cables.

h. **Heat from subsea electrical cables –** The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary. There will be no direct physical overlap between the Mona Array Area and the SAC, impacts associated with the Mona Array Area are therefore screened out. However, there is overlap

between the Mona Offshore Cable Corridor and the SAC. On the basis of the site-specific surveys there is, however, no presence of Annex I features within the Mona Offshore Cable Corridor (see paragraphs 1.4.3.8 to 1.4.3.12 and Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the Environmental Statement (Document reference F6.2.1)). In addition, the Annex I habitats of the SAC which are located within the closest proximity to the Mona Offshore Cable Corridor (i.e. Annex I sandbanks and reefs) are considered to have low sensitivity to temperature increase and the spatial extent of any increase in seabed sediment temperature would be highly limited in extent. Therefore, no potential LSE is concluded for all Annex I habitat features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as a result of heat from subsea cabling.

i. **Increased risk of introduction and spread of INNS -** There is the potential for the increased risk of introduction and spread of INNS during all phases of the Mona Offshore Wind Project from the installation of hard substrates and the presence of vessels. There is only considered to be LSE from the activities along the Mona Offshore Cable Corridor as this overlaps the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The Mona Array Area is located 25.6 km from the SAC and is therefore not considered further. It is possible that cable protection associated with the Mona Offshore Cable Corridor could be installed within the boundary of the SAC and there is therefore the potential for a 'stepping stone' effect. On the basis of the NRW data presented in Figure 1.12~~Figure 1.12~~, the Annex I sandbank and Annex I reef features are located 3.5 km and 2.4 km from the Mona Offshore Cable Corridor and therefore the potential for an LSE cannot be ruled out for these features.

j. **Removal of hard substrates –** The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary but there will be no direct physical overlap between the Mona Array Area and the SAC, impacts associated with the Mona Array Area are therefore screened out. Only the Mona Offshore Cable Corridor overlaps the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. As outlined in paragraphs 1.4.3.8 to 1.4.3.12, the Mona Offshore Cable Corridor does not, however, spatially overlap with any designated Annex I features of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The MDS for this impact pathway assumes that cable protection may remain *in situ*. However, decommissioning best practice will be followed at the time and, therefore, there is the potential that hard structures, which may have become colonised by reef-associated species, could be removed from the SAC during decommissioning resulting in the loss of reef habitat. It is therefore concluded that there is the potential for LSE on the Annex I reef habitat feature of the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC as a result of the removal of hard structures. There is no potential for LSE on any other Annex I habitat features of the site as a result of the removal of hard structures during the decommissioning phase.

k. **Accidental Pollution -** There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. There is only considered to be LSE from the activities along the Mona Offshore Cable Corridor as this overlaps the Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC. The Mona Array Area is located 25.6 km from the SAC and is therefore not considered further. There is a potential for LSE on the Annex I reef and Annex I sandbanks which are slightly covered by seawater all the time features of the site. There is no potential for LSE on the other Annex I habitat features (mudflats, large shallow inlets and bays and submerged or partially submerged sea caves) of the SAC as these features are coastal and, due to the distance, will not overlap with the Mona Offshore Wind Project ZoI.

I. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex I habitat features of the SAC as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination. For effects discounted for LSE alone, there is either no pathway to effect, or the Mona Offshore Wind Project would result in only negligible or inconsequential effects that would not contribute (even collectively) a materially to in-combination effects and therefore, no additional in-combination issues are identified.

1.4.4 Assessment of LSE for Annex II diadromous fish

1.4.4.1 A total of nine European sites were identified in the initial screening process (section 1.3.3) to be taken forward for determination of LSE for Annex II diadromous fish species. These sites are:

- Dee Estuary/Aber Dyfrdwy SAC
- River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC
- River Ehen SAC
- River Eden SAC
- Derwent and Bassenthwaite Lake SAC
- Solway Firth SAC
- River Kent SAC
- River Bladnoch SAC
- Afon Gwyrfai a Llyn Cwellyn SAC.

Site overviews

1.4.4.2 The following sections provide a brief overview of each of the sites brought forward for consideration of LSE and a summary of their designated features.

Dee Estuary/Aber Dyfrdwy SAC

1.4.4.3 The overview relating to Annex I features of this SAC is detailed in section 1.3.3. The subtidal area of the SAC provides important breeding and nursery areas for coastal fish species, the Dee is also used as a migratory passage for species such as migratory fish species including river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus*, Atlantic salmon *Salmo salmar*, sea trout *S. trutta*, twaite shad *Alosa fallax*, smelt *Osmerus eperlanus*, and eels *Anguilla anguilla* to and from their spawning and nursery grounds in the River Dee upstream of the estuary or open sea. Although twaite shad have been recorded in a fish trap on Chester weir near the tidal limit of the River Dee, there are no records of a spawning population in the river (Countryside Council for Wales, 2010).

River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC

1.4.4.4 The SAC extends from Llyn Tegid encompassing the Bala lake and its banks and outfalls into the River Dee. The site extends downstream to where it joins the Dee Estuary SSSI. Several Dee tributaries are also included within the site, specifically the Ceiriog, Meloch, Tryweryn, and Mynach. The River Dee is designated for Atlantic salmon *Salmo salar*, with the Mynach, Meloch and Ceiriog tributaries being the most

prevalent salmon spawning tributaries in the Dee catchment. Other diadromous fish species present as qualifying features of the site are river lamprey *Lampetra fluviatilus* and sea lamprey *Petromyzon marinus*. The Dee also supports populations of bullhead *Cottus gobio*, brook lamprey *Lampetra planeri* and otter *Lutra lutra*.

River Ehen SAC

1.4.4.5 The River Ehen forms the outfall from Ennerdale Water and flows some 20 km to Sellafield where it meets the Irish Sea. The SAC is located between Ennerdale Water and the convergence with the River Keekle. This part of the river supports outstanding populations of the freshwater pearl mussel *Margaritifera margaritifera* for which the SAC is designated, likely resulting from high amount of tree shade along the banks, which is thought to be of importance for mussel habitat. The SAC is also designated for Atlantic salmon which plays an important role in the lifecycle of the freshwater pearl mussel.

River Eden SAC

1.4.4.6 Designated fish species of the River Eden includes Atlantic salmon *Salmo salar*, bullhead *Cottus gobio*, sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis* and brook lamprey *Lampetra planeri*. The Eden maintains a large population of salmon owing to the extensive suitable habitat available including areas of gravel and finer silt owing to the highly erodible nature of the rock within the river, which provide conditions for spawning and nursery areas. The river Eden also supports brook and river lampreys and a large population of sea lamprey in the middle to lower regions of the river. The extensive areas of gravel and generally good quality water provides habitat for bullhead *Cottus gobio* and the tributaries, specifically those flowing over limestone, also hold high numbers of bullhead.

River Derwent and Bassenthwaite Lake SAC

1.4.4.7 The SAC consists of the River Derwent, a large oligotrophic river system with high water quality and a natural channel. The Derwent flows through two lakes Derwentwater and Bassenthwaite, with presence of aquatic flora is typical of oligotrophic/mesotrophic lake. Designated fish species present within the SAC include salmon *Salmo salar,* sea lamprey *Petromyzon marinus*, river lamprey *Lampetra fluviatilis* and brook lamprey *Lampetra planeri*. The site encompasses various important salmon spawning areas as well as extensive sea and river lamprey nursery grounds.

Solway Firth SAC

1.4.4.8 The Solway is a large, complex estuary with moderately strong tidal streams and wave action. The sediment habitats present throughout the estuary consist mainly of dynamic sandflats and subtidal reefs. There are unusually large areas of upper marsh which is predominantly characterised by saltmarsh rush *Juncus gerardii* community with smaller areas of the saltmarsh-grass/fescue *Puccinellia/Festuca* communities. The sublittoral sediment communities are typically sparse in the inner estuary, due to high levels of sediment mobility coupled with low and variable salinity whilst intertidal sediments are characterised by flats of fine sands, rather than muds. The estuary also provides a migratory passage for sea lamprey *Petromyzon marinus* and river lamprey *Lampetra fluviatilis* to and from their spawning and nursery grounds.

River Kent SAC

1.4.4.9 The River Kent's main tributaries have their catchments in the south eastern Lake District fells which provide natural mineral enrichment in the form the calcium

necessary for growth. Due to high water quality, heavy rainfall on the catchment fells and a short distance from the headwaters to the mouth of the river, a high degree of flushing occurs throughout the river which maintains the river bed free of silt and algal growth. This provides suitable habitat for populations of bullhead *Cottus gobio*. This headwater also provides the moderate, fast flow regime, cool temperatures and suitable areas of stable river channel, also provide sufficient habitat for freshwater pearl mussels *Margaritifera margaritifera* found primarily in one of the upper tributaries.

River Bladnoch SAC

1.4.4.10 The River Bladnoch flows from Mayberry Loch in South Ayrshire for seven miles to Wigtown Bay. The River Bladnoch is designated for Atlantic salmon and the site supports a high-quality salmon population and a spring run of salmon. The river's ecological and water quality characteristics are influenced by a moderate-sized catchment with diverse upland and lowland areas.

Afon Gwyrfai a Llyn Cwellyn SAC

1.4.4.11 This SAC encompasses the Afon Gwyrfai and Llyn Cwellyn. The Gwyrfai flows out of Llyn y Gader near Rhyd Ddu and passes through Llyn Cwellyn before reaching the sea at, Caernarfon Bay. The lake Llyn Cwellyn is a deep oligotrophic lake, recognised for its conservation importance. The Gwyrfai river system is recognised for outstanding ecological and water quality and is designated for an extensive salmon population, one of the best supporting rivers in the United Kingdom.

Pathways for LSE: Potential Impacts on Annex II Fish

1.4.4.12 A list of potential impacts and effects on diadromous fish that may result from the Mona Offshore Wind Project has been provided below. These are the impacts which must be taken into account when determining the potential for LSE on the designated sites and qualifying fish features identified in section 1.3.3. The list of potential impacts has been compiled using the experience and knowledge gained from previous offshore wind farm projects and Natural England's 'Advice on Operations' (NRW (2010), Countryside Council For Wales (2008a), Countryside Council For Wales (2008b), Natural England (2019a), Natural England (2019b), Natural England (2019c), NatureScot (2022a) and NatureScot (2022b) for individual features of sites. Consideration of the potential impacts identified for Annex II diadromous fish species is presented in the following sections to inform the determination of LSE below.

Construction phase

Temporary habitat loss/disturbance

1.4.4.13 There is potential for temporary, direct habitat loss and disturbance as a result of seabed preparation activities in advance of foundation installation, cable installation activities (including pre-cabling seabed clearance and anchor placements), and placement of spud-can legs during jack-up operations during the construction phase of the Mona Offshore Wind Project. This impact will be spatially restricted to within the footprint of the Mona Offshore Wind Project Boundary. No European sites with Annex II diadromous fish species physically overlap with the Mona Offshore Wind Project Boundary (see Figure 1.5~~Figure 1.5~~) and so there is no potential for direct impacts to supporting habitats for Annex II diadromous fish species within any site. There is the potential for migratory fish to be present in the waters in and around the Mona Offshore Wind Project Boundary, and to be affected by temporary habitat loss/disturbance (e.g. effects on feeding grounds). Similar habitats are however widespread within the wider

Irish Sea region and it is considered that there would be no barrier effects to migratory fish reaching the designated sites as a result of this impact. Furthermore, any impacts to supporting habitats such as foraging grounds outside the designated sites would be temporary and would not be expected to result in any long-term effects on the availability of food in the area. On this basis there is considered to be no potential for LSE on any Annex II fish species of any of the European sites screened in as a result of temporary habitat loss/disturbance. This impact is screened out for all European sites.

Increases in SSC and associated deposition

1.4.4.14 Sediment disturbance arising from construction activities (e.g. foundation and cable installation, and seabed preparation works) may result in temporary, indirect impacts on diadromous fish as a result of temporary increases in SSC. The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching any of the European sites listed in Table 1.5~~Table 1.5~~.

1.4.4.15 On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as all European sites lie outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). This impact is screened out for all European sites.

Underwater sound affecting fish and shellfish receptors

1.4.4.16 There is potential for mortality, injury and/or disturbance to migratory fish as a result of construction activities including pile-driving to install foundations and clearance of UXOs, as well as construction/installation vessel sound. The greatest potential for sound to be generated will occur within the Mona Array Area as a result of piling activities and UXO clearance. It is acknowledged that there will be stages when fish do not move, for example salmon are likely to aggregate in the open sea near river mouths, prior to the upriver migration (e.g., Matz, 2014). The nearest European site to the Mona Array Area with Annex II diadromous fish qualifying interest features is the Dee Estuary/Aber Dyfrdwy SAC which is located 39.3 km from the Mona Array Area (see Figure 1.5~~Figure 1.5~~), but there is potential for migratory species to be present within, or transiting through, the Mona Array Area and potential area of impact. The zone of impact has been determined for the EIA through sound modelling. Based on the sound modelling and contours presented in Volume 2, Chapter 3~~8~~: Fish and Shellfish Ecology of the Environmental Statement (Document reference F2.3) the potential for LSE on Annex II features of European sites as a result of underwater sound arising from construction activities cannot be excluded for all European sites Underwater sound is therefore screened in for further consideration for diadromous fish for all European sites.

Disturbance/remobilisation of sediment-bound contaminants

1.4.4.17 Seabed disturbance associated with construction (e.g. foundation and cable installation) could lead to the remobilisation of sediment-bound contaminants that may result in harmful and adverse effects on fish and shellfish communities.

1.4.4.18 Effects associated with the Mona Array Area are screened out as the Mona Array Area is located over 39 km from all sites (see Table 1.5~~Table 1.5~~) and therefore outside the

ZoI (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is only considered to be LSE from the activities along the Mona Offshore Cable Corridor. However, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). On this basis, this impact is screened out for all European sites.

Accidental pollution

1.4.4.19 There is a risk of pollution being accidentally released during the construction phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind developments). Furthermore, considering the large distances to the SACs identified, (the nearest site being the SAC Dee Estuary/Aber Dyfrdwy SAC which is located 39.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SACs. As noted above, any indirect effects on Annex II diadromous fish qualifying interests from accidental release of pollutants would be unlikely and should they occur, these would be unlikely to lead to a significant effect on conservation objectives of the site (e.g. disruption to/from migration to SACs). On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of European sites as a result of accidental pollution and so this impact is screened out from further consideration.

1.4.4.20 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans include planning for accidental spills, address all potential contaminant releases and include key emergency contact details. They will also set out industry good practice and OSPAR, IMO and MARPOL guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

Operations and maintenance phase

Temporary habitat disturbance

1.4.4.21 Temporary habitat disturbance may occur during the operations and maintenance phase of the Mona Offshore Wind Project as a result of maintenance operations (e.g. cable repair/reburial, use of jack-up vessels to facilitate wind turbine component repairs etc.). This impact will be spatially restricted to within the footprint of the Mona Offshore Wind Project and there is no physical overlap with the Mona Offshore Wind Project Boundary and any European sites and so there is no potential for direct impacts to supporting habitats for Annex II diadromous fish species within any site. There is the potential for migratory fish to be present in the waters in and around the Mona Offshore Wind Project Boundary, and to be affected by temporary habitat loss/disturbance (e.g. effects on feeding grounds). Similar habitats are however widespread within this part of the Irish Sea and it is considered that there would be no barrier effects to migratory fish reaching the designated sites as a result of this impact. Furthermore, any impacts to supporting habitats such as foraging grounds outside the

designated sites would be temporary and would not be expected to result in any long-term effects on the availability of food in the area. On this basis, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of European sites as a result of temporary habitat loss/disturbance and so this impact is screened out from further consideration.

Increases in SSC and associated deposition

1.4.4.22 Temporary increases in SSC and associated sediment deposition may arise during maintenance activities (e.g. cable reburial or replacement works). The magnitude of this impact will be substantially less than that during construction as no seabed preparation will be required for these activities. The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching any of the European sites listed in Table 1.5~~Table 1.5~~.

1.4.4.23 On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as all European sites lie outwith the ZoI as determined by the physical processes modelling ((see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). This impact is screened out for all European sites.

Underwater sound affecting fish and shellfish receptors

1.4.4.24 During the operations and maintenance phase there is the potential for sound generated by the operational wind turbines, and from vessels undertaking operations and maintenance activities to result in disturbance to migratory fish as they pass through the Mona Offshore Wind Project. The operational sound from wind turbines is however of a very low frequency and low sound pressure level (Andersson *et al.*, 2011). Studies have found that sound levels are only high enough to have the potential to cause a behavioural reaction within metres from a wind turbine (Sigray and Andersson 2011; Andersson *et al.,* 2011) and therefore such levels are not considered likely to result in significant effects on diadromous fish species. Similarly, underwater sound generated from operations and maintenance vessels is likely to be at a low level and effects would only occur if fish remain within the immediate vicinity of the vessel (i.e. within metres) for a number of hours which is unlikely given the likely movements that the majority of vessels (e.g. crew transfer vessels etc.) will be making within the Mona Offshore Wind Project. It is therefore considered that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of European sites as a result of underwater sound during the operations and maintenance phase and this impact is screened out of further consideration for all sites.

Long-term habitat loss

1.4.4.25 There is the potential for long-term habitat loss to occur directly under all foundation structures and associated scour protection, and under any cable protection required along the inter-array and offshore Mona Offshore Cable Corridor for the duration of the operations and maintenance phase. This impact will be spatially restricted to within the footprint of the Mona Offshore Wind Project Boundary and there is no physical overlap between the Mona Offshore Wind Project Boundary and any European sites (see Figure 1.5~~Figure 1.5~~). As such, there is no potential for direct impacts to supporting habitats for Annex II diadromous fish species within any site.

1.4.4.26 There is the potential for migratory fish to be present in the waters in and around the Mona Offshore Wind Project Boundary, and to be affected by long-term habitat loss (e.g. loss of feeding grounds). Similar habitats are however widespread within this region of the Irish Sea and the areas of seabed impacted by long-term loss will be discreet and small in the content of the habitats present in the wider area. Furthermore, it is considered that there would be no barrier effects to migratory fish reaching the designated sites as a result of this impact. Any impacts to supporting habitats such as foraging grounds outside the designated sites would be localised and would not be expected to result in any long-term effects on the availability of food in the area. On this basis, there is no potential for LSE on any Annex II diadromous fish qualifying interest features of European sites as a result of long-term habitat loss, and this impact is screened out from further consideration.

Electromagnetic Fields (EMF) from subsea electrical cabling

1.4.4.27 The presence of subsea electrical cabling has the potential to emit a localised EMF which may interfere with the navigation of migratory fish, particularly in shallow nearshore waters (Gill and Bartlett, 2010). The potential for LSE on Annex II features of European sites as a result of EMF from subsea electrical cables cannot be excluded.

Introduction of artificial structures and colonisation of hard structures

1.4.4.28 Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) in the offshore environment are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. These structures may also facilitate the spread of INNS. Further, the introduction of hard substrate into the marine environment could increase the time fish spend in the vicinity of the structures (known as the fish aggregation (or reef) effect). It is anticipated that colonisation of hard substrates will lead to limited effects on fish and shellfish populations (as set out in the discussion of the risk to Annex I habitats, paragraph 1.4.3.45 to 1.4.3.47). Further, effects on migratory fish are expected to be highly limited, given offshore areas coinciding with the Mona Offshore Wind Project are unlikely to be particularly important for diadromous fish species. On this basis, there is no potential for LSE on any Annex II diadromous fish qualifying interest features of European sites as a result of colonisation of hard substrates, and this impact is screened out from further consideration.

Disturbance/remobilisation of sediment-bound contaminants

1.4.4.29 Seabed disturbance associated with maintenance activities (e.g. cable reburial or replacement works) could lead to the remobilisation of sediment-bound contaminants that may result in harmful and adverse effects on benthic communities. However, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Due to the highly localised nature of maintenance activities associated with the operation and maintenance phase and the low levels of sediment contamination reported in site-specific surveys there is considered to be no potential for LSE on Annex II diadromous fish features of any of the SACs identified and this impact is screened out.

Accidental pollution

1.4.4.30 There is a risk of pollution being accidentally released during the operations and maintenance phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind). Furthermore, considering the large distances to the SACs identified, (the nearest site being the Dee Estuary/Aber Dyfrdwy SAC which is located 35 km from the Mona Array Area) any effects should they occur, will not directly affect the SACs. As noted above, any indirect effects on Annex II diadromous fish qualifying interests from accidental release of pollutants would be unlikely and should they occur, these would be unlikely to lead to a significant effect on conservation objectives of the site (e.g. disruption to/from migration to SACs). On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of European sites as a result of accidental pollution and so this impact is screened out from further consideration.

1.4.4.31 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans include planning for accidental spills, address all potential contaminant releases and include key emergency contact details. They will also set out industry good practice and OSPAR, IMO and MARPOL guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

Decommissioning phase

1.4.4.32 The potential for impacts during the decommissioning phase are considered to be similar and potentially less than those outlined above in the construction phase and have not been reiterated.

Determination of LSE for Annex II Fish

1.4.4.33 Table 1.14~~Table 1.14~~ to Table 1.22~~Table 1.22~~ present the results of the LSE determination assessment as a result of the Mona Offshore Wind Project on relevant qualifying interest features of the Dee Estuary/Aber Dyfrdwy SAC, River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC, River Ehen SAC, River Eden, River Derwent and Bassenthwaite SAC, Solway Firth SAC, River Kent SAC, River Bladnoch SAC and the Afon Gwyrfai a Llyn Cwellyn SAC, respectively. These assessments are made in the absence of mitigation measures. The footnotes to Table 1.14~~Table 1.14~~ to Table 1.22~~Table 1.22~~ provide a brief assessment to support the screening in or out of each of the likely significant effects on the identified SAC features.

LSE In-combination

1.4.4.34 The LSE test requires consideration of the Mona Offshore Wind Project alone and/ or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE 'alone' has already been identified, as in-combination effects will be considered at the Appropriate Assessment. The focus at this stage should be to identify sites/features for which no LSE alone was concluded,

but there is potential for an LSE in-combination with other plans and projects (e.g. due to wide foraging ranges resulting in a species interacting with a large number of projects).

1.4.4.35 Given the highly precautionary method for site selection applied during this Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional European sites or new effect pathways being identified for the Screening assessment.

1.4.4.36 For diadromous fish species, the potential for LSE alone is identified for all sites with the potential to be affected, therefore effects in-combination will be considered at Appropriate Assessment.

Table 1.14: LSE matrix for Annex II diadromous fish species of the Dee Estuary/Aber Dyfrdwy SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of hard structures			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Sea lamprey *Petromyzon marinus*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
River lamprey *Lampetra fluviatilis*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.37 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where an LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** – There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** – The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the SAC lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** – There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** – There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** – Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling –** EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants –** Effects associated with the Mona Array Area are screened out as the Mona Array Area is located over 39 km from all sites (see Table 1.5~~Table 1.5~~) and therefore outside the

ZoI (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is only considered to be the potential for LSE from the activities along the Mona Offshore Cable Corridor. However, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore, it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from disturbance/remobilisation of sediment bound contaminants construction and operation and maintenance phase.

h. **Accidental pollution** – There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (39 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.15: LSE matrix for Annex II diadromous fish species of the River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of hard structures			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic salmon *Salmo salar*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
Sea lamprey *Petromyzon marinus*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
River lamprey *Lampetra fluviatilis*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.38 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the SAC lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** – Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants** - The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding

area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore, it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (65 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.16: LSE matrix for Annex II diadromous fish species of the River Ehen SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of hard structures			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic salmon *Salmo salar*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
Freshwater pearl mussel *Margaritifera margaritifera*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.39 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project Boundary and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish and freshwater pearl mussel qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the site lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish and freshwater pearl mussel qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** - Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish and freshwater pearl mussel qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants** - The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (86.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. In the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.17: LSE matrix for Annex II diadromous fish species of the River Eden SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of hard structures			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic salmon *Salmo salar*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
Sea lamprey *Petromyzon marinus*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
River lamprey *Lampetra fluviatilis*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.40 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the site lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** - Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants** - The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The

impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (154 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.18: LSE matrix for Annex II fish species of the Afon Gwyrfai a Llyn Cwellyn SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of hard structures			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic salmon *Salmo salar*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.41 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the site lies outwith the ZoI as determined by the physical processes modelling ((see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** - Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants** - The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The

impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Therefore, it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (92 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.19: LSE matrix for Annex II diadromous fish species of the River Derwent and Bassenthwaite SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of hard structures			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic salmon *Salmo salar*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
Sea lamprey *Petromyzon marinus*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
River lamprey *Lampetra fluviatilis*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.42 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the site lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** - Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants -** The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The

impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore, it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (100 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.20: LSE Matrix for Annex II diadromous fish species of the River Kent SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of hard structures			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D	C	O & M	D
Freshwater pearl mussel *Margaritifera margaritifera*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.43 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

1.4.4.44 **Note:** This site is only designated for freshwater pearl mussel and no diadromous fish species, however brown trout *Salmo trutta* is thought to be the host species within the River Kent SAC and Atlantic salmon are also present within the river (Natural England, 2019). There therefore may be an indirect effect to freshwater pearl mussel through effects on host species.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the site lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for host species of the freshwater pearl mussel (brown trout and Atlantic salmon) to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex features of the site indirectly through potential impacts to host species during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for impact on the host species of the freshwater pearl mussel and therefore no LSE on the freshwater pearl mussel qualifying feature of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** - Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish host species of the freshwater pearl mussel. It is considered that there is potential for LSE on the Annex II qualifying interest feature of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants -** The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (97 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.21: LSE matrix for Annex II diadromous fish species of the Solway Firth SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of [illegible]			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Sea lamprey *Petromyzon marinus*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i
River lamprey *Lampetra fluviatilis*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.45 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the site lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** - Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants -** The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The

impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (115 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.22: LSE matrix for Annex II diadromous fish species of the River Bladnoch SAC.

European Qualifying Features	Temporary Habitat Loss/Disturbance			Increases in SSC and Sediment Deposition			Underwater sound impacting fish and shellfish receptors			Long-term Habitat Loss			Introduction of artificial structures and colonisation of [illegible]			EMF from subsea electrical cabling			Disturbance/remobilisation of Sediment Bound Contaminants			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic salmon *Salmo salar*	×a	×a	×a	×b	×b	×b	✓c	×c	✓c		×d			×e			✓f		×g	×g	×g	×h	×h	×h	✓i	✓i	✓i

1.4.4.46 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance** - There is no potential for any direct physical overlap between the activities associated with all phases of the Mona Offshore Wind Project and the boundary of the European site. It can, therefore, be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from temporary habitat loss/disturbance.

b. **Increases in SSC and associated deposition** - The extent of this impact will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). Increases in SSC and associated deposition will not result in barrier effects for Annex II fish features reaching the site. On this basis, effects associated with both the Mona Array Area and Mona Offshore Cable Corridor are screened out as the sites lies outwith the ZoI as determined by the physical processes modelling (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). There is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site.

c. **Underwater sound impacting fish and shellfish receptors** - There is potential for migratory species to be present within or transiting through the Mona Array Area and potential area of impact (injury and behavioural) from underwater sound during construction and decommissioning. There is therefore considered to be the potential for LSE on Annex II diadromous fish features of the site during the construction and decommissioning phases. Sound levels will be substantially lower during the operations and maintenance phase and, as such, it is concluded that there is no potential for LSE on Annex II diadromous fish qualifying interest features of the site during the operations and maintenance phase.

d. **Long-term habitat loss** - There is no direct physical overlap between the footprint of the Mona Offshore Wind Project Boundary and the SAC. It can therefore be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from long-term habitat loss.

e. **Introduction of artificial structures and colonisation of hard structures** - Artificial structures placed on the seabed (i.e. foundations and scour/cable protection) are expected to be colonised by a range of marine organisms leading to localised increases in biodiversity and potential changes in prey-predator interactions. However, effects on fish populations during the operations and maintenance phase are expected to be limited and therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the site from the colonisation of hard structures during the operations and maintenance phase.

f. **EMF from subsea electrical cabling** - EMF emitted from subsea electrical cabling has the potential to interfere with the navigation of migratory fish. It is considered that there is potential for LSE on the Annex II diadromous fish qualifying interest features of the site from EMF during the operations and maintenance phase.

g. **Disturbance/remobilisation of sediment bound contaminants -** The extent of this impact, across all phases of the Mona Offshore Wind Project, will be spatially restricted to within the Mona Offshore Wind Project Boundary and the surrounding

area (see section 1.3.2 and detail outlined in paragraph 1.4.3.17 and 1.4.3.18). The impact is screened out for the and Mona Array Area and Offshore Cable Corridor due to the site being located beyond the ZoI determined by the physical processes modelling. In addition, site-specific surveys undertaken to assess the levels of sediment contaminants within the Mona Offshore Cable Corridor reported low levels of sediment contamination (see paragraph 1.4.3.25). Impacts during the operations and maintenance phase are screened out due to the very low magnitude of effects associated with the disturbance/remobilisation of sediment bound contaminants during this phase. Therefore it can be concluded that there is no potential for LSE on any Annex II diadromous fish qualifying interest features of the European site from disturbance/remobilisation of sediment bound contaminants during the construction and operation and maintenance phase.

h. **Accidental pollution** - There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (122 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II diadromous fish qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II diadromous fish qualifying interest features of the site as a result of in-combination effects across all phases. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

1.4.5 Assessment of LSE for Annex II marine mammals

1.4.5.1 A total of 43 European sites were identified in the initial screening process (section 1.3.4 to be taken forward for determination of LSE for Annex II marine mammals. These sites are listed below, broken down by country:

- Fifteen sites in the United Kingdom:
  - North Anglesey Marine/Gogledd Môn Forol SAC
  - North Channel SAC
  - Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC
  - West Wales Marine/Gorllewin Cymru Forol SAC
  - Cardigan Bay/Bae Ceredigion SAC
  - Pembrokeshire Marine/Sir Benfro Forol SAC
  - Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC
  - Isles of Scilly Complex SAC

  - The Maidens SAC
  - Strangford Lough
  - Murlough SAC
  - Lundy SAC
  - Monach Islands SAC
  - North Rona SAC
  - Treshnish Isles SAC
- Eleven sites in Ireland:
  - Rockabill to Dalkey Island SAC
  - Roaringwater Bay and Islands SAC
  - Blasket Islands SAC
  - Saltee Islands SAC
  - Duvillaun Islands SAC
  - Horn Head and Rinclevan SAC
  - Inishbofin and Inishshark SAC
  - Inishkea Islands SAC
  - Lambay Island SAC
  - Slieve Tooey/Tormore Island/Loughros Beg Bay SAC
  - Slyne Head Islands SAC
- 17 sites in France: (see Table 1.6~~Table 1.6~~).

Site overviews

1.4.5.2 As outlined in section 1.3.4, a total of 43 European sites were identified in the initial screening process to be taken forward for determination of LSE. These sites and the associated qualifying features are set out in Table 1.23~~Table 1.23~~ below.

Table 1.23: The SACs and Ramsar sites taken forward for determination of LSE, with details of associated marine mammal qualifying features.

ID	European Site	Relevant Annex II Features
UK		
1	North Anglesey Marine/Gogledd Môn Forol SAC	Harbour porpoise *Phocoena phocoena*
2	North Channel SAC	Harbour porpoise *Phocoena phocoena*
3	Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC	Bottlenose dolphin *Tursiops truncatus* Grey seal *Halichoerus grypus*
4	West Wales Marine/Gorllewin Cymru Forol SAC	Harbour porpoise *Phocoena phocoena*
5	Strangford Lough SAC	Harbour seal *Phoca vitulina*
6	Murlough SAC	Harbour seal *Phoca vitulina*
7	Cardigan Bay/Bae Ceredigion SAC	Bottlenose dolphin *Tursiops truncatus*
8	The Maidens SAC	Grey seal *Halichoerus grypus*

ID	European Site	Relevant Annex II Features
9	Pembrokeshire Marine/Sir Benfro Forol SAC	Grey seal *Halichoerus grypus*
10	Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC	Harbour porpoise *Phocoena phocoena*
11	Lundy SAC	Grey seal *Halichoerus grypus*
12	Treshnish Isles SAC	Grey seal *Halichoerus grypus*
13	Isles of Scilly Complex SAC	Grey seal *Halichoerus grypus*
14	Monach Islands SAC	Grey seal *Halichoerus grypus*
15	North Rona SAC	Grey seal *Halichoerus grypus*
Republic of Ireland		
16	Rockabill to Dalkey Island SAC	Harbour porpoise *Phocoena phocoena*
17	Lambay Island SAC	Grey seal *Halichoerus grypus*
18	Saltee Islands SAC	Grey seal *Halichoerus grypus*
19	Horn Head and Rinclevan SAC	Grey seal *Halichoerus grypus*
20	Slieve Tooey/Tormore Island/Loughros Beg Bay SAC	Grey seal *Halichoerus grypus*
21	Duvillaun Islands SAC	Grey seal *Halichoerus grypus*
22	Inishbofin and Inishshark SAC	Grey seal *Halichoerus grypus*
23	Inishkea Islands SAC	Grey seal *Halichoerus grypus*
24	Slyne Head Islands SAC	Grey seal *Halichoerus grypus*
25	Roaringwater Bay and Islands SAC	Harbour porpoise *Phocoena phocoena* Grey seal *Halichoerus grypus*
26	Blasket Islands SAC	Harbour porpoise *Phocoena phocoena* Grey seal *Halichoerus grypus*
France		
27	Mers Celtiques - Talus du golfe de Gascogne SCI	Harbour porpoise *Phocoena phocoena*
28	Abers - Côte des légendes SCI	Harbour porpoise *Phocoena phocoena*
29	Ouessant-Molène SCI	Harbour porpoise *Phocoena phocoena*
30	Côte de Granit rose-Sept-Iles SCI	Harbour porpoise *Phocoena phocoena*
31	Anse de Goulven, dunes de Keremma SCI	Harbour porpoise *Phocoena phocoena*
32	Tregor Goëlo SCI	Harbour porpoise *Phocoena phocoena*
33	Côtes de Crozon SCI	Harbour porpoise *Phocoena phocoena*
34	Chaussée de Sein SCI	Harbour porpoise *Phocoena phocoena* Grey seal *Halichoerus grypus*
35	Cap Sizun SCI	Harbour porpoise *Phocoena phocoena*
36	Récifs du talus du golfe de Gascogne SCI	Harbour porpoise *Phocoena phocoena*
37	Anse de Vauville SCI	Harbour porpoise *Phocoena phocoena*
38	Cap d'Erquy-Cap Fréhel SCI	Harbour porpoise *Phocoena phocoena*
39	Baie de Saint-Brieuc - Est SCI	Harbour porpoise *Phocoena phocoena*

ID	European Site	Relevant Annex II Features
40	Banc et récifs de Surtainville SCI	Harbour porpoise *Phocoena phocoena*
41	Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SCI	Harbour porpoise *Phocoena phocoena*
42	Estuaire de la Rance SCI	Harbour porpoise *Phocoena phocoena*
43	Baie du Mont Saint Michel SCI	Harbour porpoise *Phocoena phocoena*

Pathways for LSE: potential impacts on Annex II marine mammals

1.4.5.3 A list of potential impacts and effects on marine mammals that may result from the Mona Offshore Wind Project has been provided below. These are the impacts which must be taken into account when determining the potential for LSE on the designated sites and marine mammal qualifying interest features identified. The list of potential impacts on marine mammals has been compiled using the experience and knowledge gained from previous offshore wind farm projects and the Natural England and Natural Resources Wales 'Advice on Operations' (JNCC, 2019; JNCC and DAERA, 2019; Natural Resources Wales, 2018) for individual features of sites. Consideration of the potential impacts identified for Annex II marine mammals is presented in the following sections to inform the determination of LSE below.

Construction phase

Injury and disturbance from underwater sound generated from piling

1.4.5.4 Impact piling during construction may result in hearing damage/auditory injury or behavioural disturbance/displacement (including barrier effects, whereby marine mammals may be excluded from the area) of marine mammals. As agreed with the marine mammal EWG (see Table 1.2~~Table 1.2~~), a precautionary approach has been adopted to the determination of LSE which assumes that there is the potential for connectivity with Annex II harbour porpoise, bottlenose dolphin and harbour seal features of all sites located within the relevant MU for each species.

1.4.5.5 For grey seal, the OSPAR Region III Interim MU has been used to identify European sites to be taken forward for determination of LSE in this section. Telemetry data from Wright and Sinclair (2022) has then been used to identify European sites with connectivity with the Mona Offshore Wind Project and therefore, for which there may be an LSE. Seal satellite tracking data from tagged grey seals is presented in Appendix B of Volume 6, Annex 4~~9~~.1: Marine mammal technical report of the Environmental Statement (Document reference F6.4.1). The satellite tracking data presented all grey seals which crossed the seal telemetry and haul-out study area (which comprised the total area of four seal MUs, namely the Northwest England, Wales, Southwest Scotland and Northern Ireland seal MUs). The results of the seal telemetry data for adult and pup grey seals is presented in Table 1.24~~Table 1.24~~.

Table 1.24: Results of seal telemetry data and connectivity to Annex II grey seal SACs.

European site	Adult grey seals recorded within the seal telemetry and haul-out study area	Adult grey seals within a 100 km buffer of the Mona Offshore Wind Project	Pup grey seals recorded within the seal telemetry and haul-out study area	Pup grey seals within a 10 km buffer of the Mona Offshore Wind Project
Pen Llŷn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC	17	17	10	10
Pembrokeshire Marine/Sir Benfro Forol SAC	14	8	11	6
Cardigan Bay/Bae Ceredigion SAC	10	8	4	3
Saltee Islands SAC	4	3	4	3
The Maidens SAC	1	1	-	-
Lundy SAC	1	-	-	-
Saltee Islands	-	3	-	-
Isles of Scilly Complex SAC	-	-	2	-

1.4.5.6 On the basis of the telemetry data summarised in Table 1.24~~Table 1.24~~ and Figure 1.16~~Figure 1.16~~, it can be concluded that there is a high level of connectivity between the seal telemetry and haul-out study area and the Pen Llŷn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC (i.e. 17 adult grey seals recorded within a 100 km buffer of the Mona Offshore Wind Project showed connectivity with this SAC), the Pembrokeshire Marine/Sir Benfro Forol SAC (i.e. eight adult grey seals recorded within a 100 km buffer of the Mona Offshore Wind Project showed connectivity with this SAC) and the Cardigan Bay/Bae Ceredigion SAC (i.e. eight adult grey seals recorded within a 100 km buffer of the Mona Offshore Wind Project showed connectivity with this SAC). On the basis of the telemetry data summarised in Table 1.24~~Table 1.24~~, it can be concluded that there is, and comparatively lower levels of connectivity with grey seal SACs at greater distances from the Mona Offshore Wind Project, for example Saltee Islands SAC, The Maidens SAC, Lundy SAC and Isles of Scilly Complex SAC.

1.4.5.7 On this basis there is considered to be potential connectivity between the Mona Offshore Wind Project and the following SACs with grey seal features and therefore the potential for LSE can not be discounted:

- Pen Llŷn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC
- Pembrokeshire Marine/Sir Benfro Forol SAC

- Cardigan Bay/Bae Ceredigion SAC
- The Maidens SAC
- Lundy SAC
- Isles of Scilly Complex SAC.

1.4.5.8 It can therefore be concluded that there is no potential connectivity between the Mona Offshore Wind Project and the following SACs with grey seal features and therefore the potential for LSE can be discounted:

- Treshnish Isles SAC
- Monach Islands SAC
- North Rona SAC
- Lambay Island SAC
- Saltee Islands SAC
- Horn Head and Rinclevan SAC
- Slieve Tooey/Tormore Island/Loughros Beg Bay SAC
- Duvillaun Islands SAC
- Inishbofin and Inishshark SAC
- Inishkea Islands SAC
- Slyne Head Islands SAC
- Roaringwater Bay and Islands SAC
- Blasket Islands SAC
- Chaussée de Sein SCI.

1.4.5.9 In summary, it is concluded that LSE from underwater sound resulting from piling activities on marine mammals cannot be excluded for all SACs included in Table 1.23~~Table 1.23~~, with the exception of the Annex II grey seal SACs outlined in paragraph 1.4.5.8 above. This impact is therefore screened in for further consideration in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) for Annex II marine mammal features of sites within the relevant MUs outlined in section 1.3.4 (except for those Annex II grey seal SACs with no potential connectivity to the Mona Offshore Wind Project (paragraph 1.4.5.8)). The HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) will include consideration of site-specific underwater sound modelling and assessments and the distribution and abundances of the relevant Annex II marine mammal features outlined above.

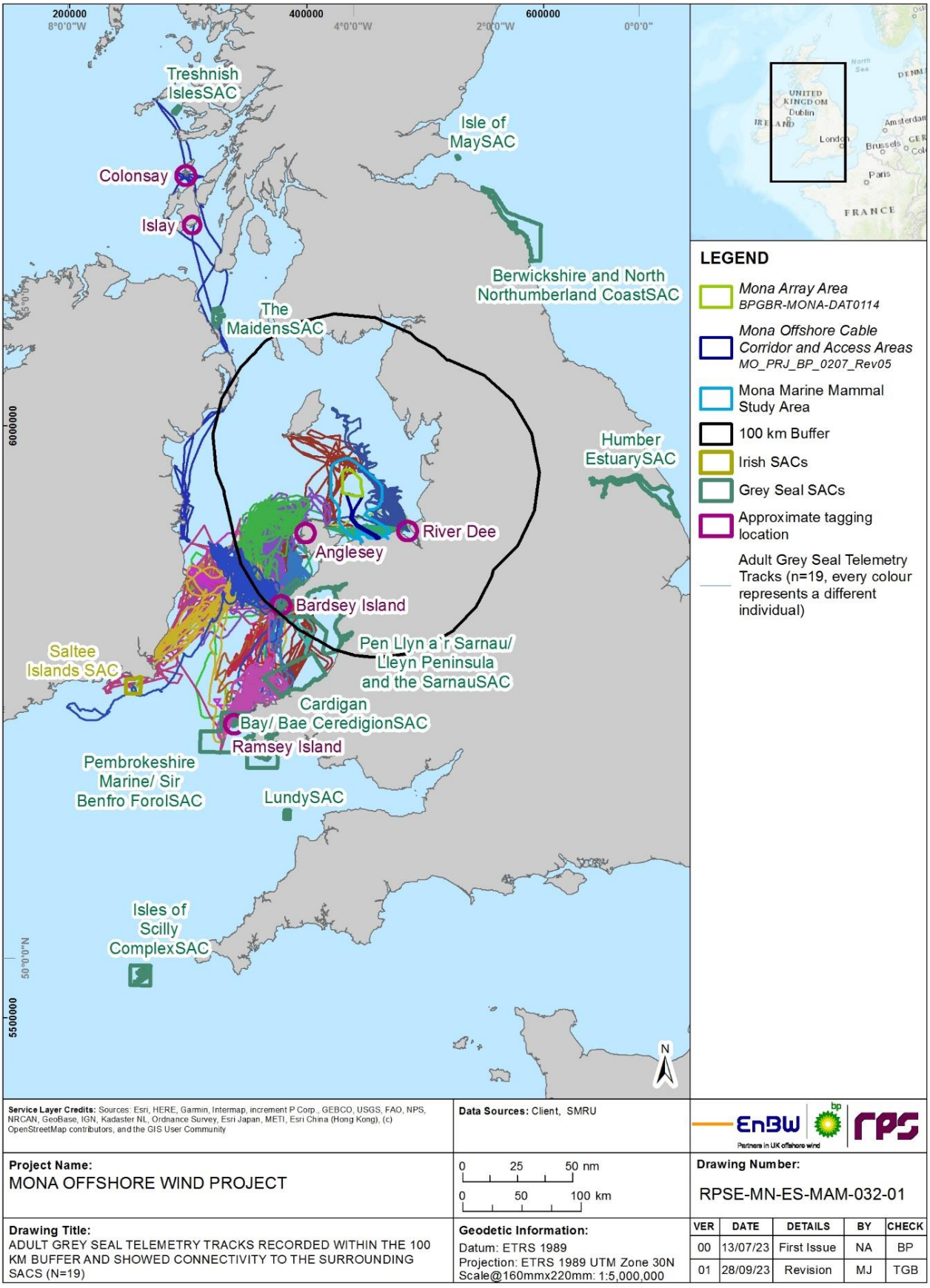

Figure 1.16: Adult grey seal telemetry tracks recorded within the 100 km buffer of the Mona Offshore Wind Project with connectivity to the surrounding SACs (n=19, each colour represents an individual animal).

Injury and disturbance from underwater sound generation from unexploded ordnance (UXO) detonation

1.4.5.10 There may be a requirement for the clearance of UXOs from the Mona Offshore Wind Project. The detonation of small charges as part of this process has the potential to result in hearing damage/auditory injury or behavioural disturbance/displacement (including barrier effects, whereby marine mammals may be excluded from the area) of marine mammals. As agreed with the marine mammal EWG (see Table 1.2~~Table 1.2~~), a precautionary approach has been adopted to the determination of LSE which assumes that there is the potential for connectivity with Annex II harbour porpoise, bottlenose dolphin and harbour seal features of all sites located within the relevant MU for each species.

1.4.5.11 For grey seal, the OSPAR Region III Interim MU has been used to identify European sites to be taken forward for determination of LSEi in this section. Telemetry data from Wright and Sinclair (2022) has then been used to identify European sites with connectivity to the Mona Offshore Wind Project and therefore those with the potential for LSE (see paragraph 1.4.5.5 to 1.4.5.9, Figure 1.16~~Figure 1.16~~ and Table 1.24~~Table 1.24~~.

1.4.5.12 On this basis, it is concluded that LSE from underwater sound resulting from UXO detonation on marine mammals cannot be excluded for all of the SACs included in Table 1.23~~Table 1.23~~, with the exception of the Annex II grey seal SACs outlined in paragraph 1.4.5.8 above. This impact is therefore screened in for further consideration in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) for Annex II marine mammal features of sites within the relevant Mus outlined in section 1.3.4 (except for those Annex II grey seal SACs with no potential connectivity to the Mona Offshore Wind Project (paragraph 1.4.5.8)). The HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) will include consideration of site-specific underwater sound modelling and assessments and the distribution and abundances of the relevant Annex II marine mammal features outlined above.

Injury and disturbance from underwater sound during site investigation surveys

1.4.5.13 The impact of pre-construction related activities, and in particular geophysical surveys, may result in behavioural disturbance/displacement (including barrier effects, whereby marine mammals may be excluded from the area) of marine mammals. As agreed with the marine mammal EWG (see Table 1.2~~Table 1.2~~), a precautionary approach has been adopted to the determination of LSE which assumes that there is the potential for connectivity with Annex II harbour porpoise, bottlenose dolphin and harbour seal features of all sites located within the relevant MU for each species.

1.4.5.14 For grey seal, the OSPAR Region III Interim MU has been used to identify European sites to be taken forward for determination of LSE in this section. Telemetry data from Wright and Sinclair (2022) has then been used to identify European sites with connectivity with the Mona Offshore Wind Project and therefore, for which there may be an LSE.

1.4.5.15 On this basis it is concluded that LSE from underwater sound resulting from site investigation surveys on marine mammals cannot be excluded for all of the SACs included in Table 1.23~~Table 1.23~~, with the exception of the Annex II grey seal SACs outlined in paragraph 1.4.5.8 above. This impact is therefore screened in for further consideration in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) for Annex II marine mammal features of sites within the relevant MUs

outlined in section 1.3.4 (except for those Annex II grey seal SACs with no potential connectivity to the Mona Offshore Wind Project (paragraph 1.4.5.8)). The HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) will include consideration of site-specific underwater sound assessments and the distribution and abundances of the relevant Annex II marine mammal features outlined above.

Injury and disturbance to marine mammals from elevated underwater sound due to vessel use and other activities

1.4.5.16 Disturbance of marine mammals may also arise during the construction phase from vessel use and other construction related activities (e.g. dredging, trenching, rock placement). The extent of this potential disturbance will be spatially restricted to within the Mona Offshore Wind Project Boundary and along vessel routes to ports used in support of the Mona Offshore Wind Project during the construction phase. Beyond this, the movements of vessels using already established vessel routes will be dispersed and will become part of the background vessel traffic. There is the potential for connectivity with Annex II harbour porpoise, bottlenose dolphin and harbour seal features of all sites located within the relevant MU for each species.

1.4.5.17 For grey seal, the OSPAR Region III Interim MU has been used to identify European sites to be taken forward for determination of LSE in this section. Telemetry data from Wright and Sinclair (2022) has then been used to identify European sites with connectivity to the Mona Offshore Wind Project and therefore, for which there may be an LSE.

1.4.5.18 On this basis it is concluded that LSE from underwater sound resulting from vessels and other sound sources on marine mammals cannot be excluded for all SACs included in Table 1.23~~Table 1.23~~, except the Annex II grey seal SACs outlined in paragraph 1.4.5.8 above. This impact is therefore screened in for further consideration in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) for Annex II marine mammal features of sites within the relevant MUs outlined in section 1.3.4 (except for those Annex II grey seal SACs with no potential connectivity to the Mona Offshore Wind Project (paragraph 1.4.5.8)).

Increased risk of injury due to collision with vessels

1.4.5.19 An increase in vessel activity, compared to baseline levels, during the construction phase, may result in increased vessel collisions with marine mammals. The extent of this potential disturbance will be spatially restricted to within the Mona Offshore Wind Project Boundary and along routes to local ports. Beyond this, the movements of vessels using already established vessel routes will be dispersed and will become part of the background vessel traffic.

1.4.5.20 During any given year of the construction phase, there could be a maximum increase of 2,055 construction vessel movements within the Mona Array Area and Mona Offshore Cable Corridor on the current baseline of 3,166 vessel movements per year within the Mona Array Area (as presented in Volume 6, Annex 7~~12~~.1: Navigation Risk Assessment of the Environmental Statement (Document reference F6.7.1)). Whilst a broad range of vessel types are involved in collisions with marine mammals (Laist *et al*., 2001), vessels travelling at higher speeds pose a higher risk because of the potential for a stronger impact (Schoeman *et al*., 2020). Vessels travelling at 7 m/s (or 14 knots) or faster are those most likely to cause death or serious injury to marine mammals (Laist *et al*., 2001; Wilson *et al*., 2007). With the exception of crew transfer vessel (CTVs), most vessels involved in the construction phase of offshore wind farms

typically travel at speeds slower than 14 knots. Whilst some vessels will be required to potentially move faster (i.e. CTVs) they will, however, be limited in number with only up to a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time.

1.4.5.21 There is also no overlap between the Mona Offshore Wind Project and any SAC designated for Annex II marine mammals (the closest SAC being the North Anglesey Marine/Gogledd Môn Forol SAC which is located at a distance of 22.8 km from the Mona Array Area, all other SACs are located >80 km from the Mona Array Area). Therefore, the likelihood of collisions occurring between vessels and marine mammal features of SACs is further reduced and is considered to be low. Marine mammals are also likely to maintain their distance if foraging within the Mona Offshore Wind Project Red Line Boundary.

1.4.5.22 There is therefore considered to be no potential for the short-term increased vessel activity during the construction phase to result in a significant effect to Annex II marine mammal features in terms of collision risk with vessels. As such, no LSEs are anticipated to occur to Annex II marine mammal features of any European site and the impact of vessel collision risk is therefore screened out of further consideration for all sites.

1.4.5.23 In addition, it is anticipated that the risk of such collision events occurring will be minimised and managed by the implementation of measures set out in the offshore EMP which will outline instructions for vessel behaviour and vessel operators, including advice to operators to not deliberately approach marine mammals and to avoid sudden changes in course or speed. W These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an collision event occurring.

Changes in prey availability

1.4.5.24 There is the potential for changes in marine mammal prey (e.g. fish species) abundance and distribution to arise as a result of construction activities which physically disturb the seabed, result in increased SSC or which generate underwater sound. Potential impacts to prey species may result in changes in the ability/success of marine mammals to forage in the area of the Mona Offshore Wind Project Boundary. The risk of effects on prey species is expected to be greatest during the construction phase (e.g. due to seabed disturbance and/or underwater sound during construction) with effects during operations and maintenance expected to be much reduced.

1.4.5.25 There is the potential for connectivity with Annex II marine mammal features of all sites located within the relevant MU for each species. Any potential temporary changes to the fish community in the vicinity of the Mona Array Area as a result of construction impacts such as underwater sound, are unlikely to result in significant effects to Annex II marine mammal features given that the majority of impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. As such, no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of the majority of European sites with the exception of the North Anglesey Marine/Gogledd Môn Forol SAC which has been screened in on a precautionary basis, due to its proximity to the Mona Offshore Wind Project Boundary.

Increased SSC and associated sediment deposition

1.4.5.26 Disturbance to water quality as a result of construction activities (e.g. foundation and cable installation, and site preparation activities) can have both direct and indirect impacts on marine mammals. Indirect impacts would include effects on prey species (this impact is screened in under 'changes in prey availability' above). Direct impacts include the impairment of visibility and therefore foraging ability which might be expected to reduce foraging success. Marine mammals are well known to forage in tidal areas where water conditions are turbid and visibility conditions poor. For example, harbour porpoise and harbour seal in the UK have been documented foraging in areas with high tidal flows (e.g. Pierpoint, 2008; Marubini *et al*., 2009; Hastie *et al*., 2016); therefore, low light levels, turbid waters and suspended sediments are unlikely to negatively impact marine mammal foraging success. When the visual sensory systems of marine mammals are compromised, they are able to sense the environment in other ways, for example, seals can detect water movements and hydrodynamic trails with their mystacial vibrissae; while odontocetes primarily use echolocation to navigate and find food in darkness.

1.4.5.27 Whilst elevated levels of SSC arising during construction of the Mona Offshore Wind Project may temporarily decrease light availability in the water column and produce turbid conditions, the maximum impact range is expected to be localised with sediments rapidly dissipating over one tidal excursion. In addition, there is a large natural variability in the SSC within the Irish Sea, so marine mammals present here will be tolerant of any small scale increases, such as those associated with the construction activities.

1.4.5.28 As such, no LSEs are anticipated to occur to Annex II marine mammal features of any European site and the impact of increased SSC and sediment deposition is therefore screened out of further consideration for all sites.

Accidental pollution

1.4.5.29 There is a risk of pollution being accidentally released during the operations and maintenance phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind developments). Furthermore, considering the large distances to the SACs identified, (the nearest site being the North Anglesey Marine/Gogledd Môn Forol SAC which is located 22.58 km from the Mona Array Area) any effects should they occur, will not directly affect the SACs. As noted above, any indirect effects on Annex II marine mammal qualifying interests from accidental release of pollutants would be unlikely and should they occur, these would be unlikely to lead to a significant effect on conservation objectives of the site. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of European sites as a result of accidental pollution and so this impact is screened out from further consideration.

1.4.5.30 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans include planning for accidental spills, address all potential contaminant

releases and include key emergency contact details. They will also set out industry good practice and OSPAR, IMO and MARPOL guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

Operations and maintenance phase

Underwater sound from vessels and other vessel activities

1.4.5.31 Disturbance of marine mammals may arise during the operations and maintenance phase from increased vessel traffic and vessel-based activities associated with operations and maintenance activities (e.g. cable reburial). As during the construction phase, the extent of this potential disturbance will be spatially restricted to within the Mona Offshore Wind Project Boundary and along routes to local ports. Beyond this, the movements of vessels using already established vessel routes will be dispersed and will become part of the background vessel traffic. The approach adopted to determine LSE at assumes that there is the potential for connectivity with Annex II marine mammal features of all sites located within the relevant MU for each species. On this basis it is concluded that LSE from underwater sound resulting from vessels and other vessel activities on marine mammals cannot be excluded. This impact is therefore screened in for further consideration in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) for Annex II marine mammal features of sites within the relevant MUs outlined in section 1.3.4.

Increased risk of injury due to collision with vessels

1.4.5.32 An increase in vessel activity associated with operations and maintenance activities may result in increased collisions with marine mammals. The extent of this potential disturbance will however be spatially restricted to within the Mona Offshore Wind Project Boundary and along routes to local ports. Beyond this, the movements of vessels using already established vessel routes will be dispersed and will become part of the background vessel traffic.

1.4.5.33 During any given year of the operations and maintenance phase there could be a maximum increase of up to 849 operations and maintenance vessel movements (all vessel types) associated with the Mona Offshore Wind Project within the Mona Array Area and Mona Offshore Cable Corridor on the current baseline of 3,166 vessel movements per year within the Mona Array Area (as presented in Volume 6, Annex ~~12~~7.1: Navigation Risk Assessment of the Environmental Statement (Document reference F6.7.1)). As outlined in paragraph 1.4.5.20, faster moving vessels (e.g. CTVs) travelling at 14 knots or faster are those most likely to cause death or serious injury to marine mammals. The MDS however assumes that only up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. Other vessels present are likely to be stationary for long periods of time and travel at slow speeds, therefore the potential for collision with these vessels is considered to be low.

1.4.5.34 As also outlined in paragraph 1.4.5.21 for the construction phase, there is no overlap between the Mona Offshore Wind Project and any SAC designated for Annex II marine mammals (the closest SAC being the North Anglesey Marine/Gogledd Môn Forol SAC which is located at a distance of 22.8 km from the Mona Array Area, all other SACs are located >80 km from the Mona Array Area). Therefore, the likelihood of collisions occurring between vessels and marine mammals is considered to be low. Marine

mammals are likely to maintain their distance if foraging within the Mona Offshore Wind Project Red Line Boundary.

1.4.5.35 There is therefore considered to be little potential for the increased vessel activity during the operations and maintenance phase to result in a significant effect to Annex II marine mammal features in terms of collision risk with vessels. As such, no LSEs are anticipated to occur to Annex II marine mammal features of any European site and the impact of vessel collision risk is therefore screened out of further consideration for all sites.

1.4.5.36 In addition, it is anticipated that the risk of such collision events occurring will be minimised and managed by the implementation of measures set out in the offshore EMP which will outline instructions for vessel behaviour and vessel operators, including advice to operators to not deliberately approach marine mammals and to avoid sudden changes in course or speed. These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an collision event occurring.

1.4.5.37 As such, no LSEs are anticipated to occur to Annex II marine mammal features of any European site and the impact of vessel collision risk is therefore screened out of further consideration for all sites.

Changes in prey availability

1.4.5.38 There is the potential for changes in marine mammal prey abundance and distribution to arise as a result of operations and maintenance activities and as a result of the presence of offshore structures. The potential for any adverse effects on prey are, however, significantly reduced compared to the construction phase as underwater sound will be substantially lower (i.e. no piling will be required). As such, no LSEs are anticipated to occur to Annex II marine mammal features of any European site and the impact of changes in prey availability is therefore screened out of further consideration for all sites within the relevant MUs outlined in section 1.3.4.

1.4.5.39 Underwater sound from wind turbine operation The Marine Management Organisation (MMO, 2014) review of post-consent monitoring at offshore wind farms found that available data on the operational wind turbine sound, from the UK and abroad, in general showed that sound levels from operational wind turbines are low and the spatial extent of the potential impact of the operational wind turbine sound on marine receptors is generally estimated to be small, with behavioural response only likely at ranges close to the wind turbines. This is supported by several published studies which provide evidence that marine mammals are not displaced from operational wind farms.

1.4.5.40 At the Horns Rev and Nysted offshore wind farms in Denmark, long term monitoring showed that both harbour porpoise and harbour seal were sighted regularly within the operational offshore wind farms, and within two years of operation, the populations had returned to levels that were comparable with the wider area (Diederichs *et al.*, 2008). Similarly, a monitoring programme at the Egmond aan Zee offshore wind farm in the Netherlands reported that significantly more porpoise activity was recorded within the offshore wind farm compared to the reference area during the operational phase (Scheidat *et al*., 2011). Other studies at Dutch and Danish offshore wind farms (Lindeboom *et al*., 2011) also suggest that harbour porpoise may be attracted to increased foraging opportunities within operating offshore wind farms. In addition, recent tagging work by Russell *et al*. (2014) found that some tagged harbour and grey seal demonstrated grid like movement patterns as these animals moved between

individual wind turbines, strongly suggestive of these structures being used for foraging.

1.4.5.41 Other reviews have also concluded that operational wind farm sound will have negligible effects (Madsen *et al*.,2006; Teilmann *et al*., 2006a; Teilmann *et al*., 2006b; CEFAS, 2010; Brasseur *et al*., 2012). As such, no LSE s are anticipated to occur to any marine mammal qualifying feature of any European site and the impact of underwater sound from wind turbine operation will be screened out of further consideration.

EMF

1.4.5.42 Based on the data currently available, there is no evidence of EMF related to marine renewable devices having any impact (either positive or negative) on marine mammals (Copping, 2018). There is no evidence that seals can detect or respond to EMF, however, some species of cetaceans may be able to detect variations in magnetic fields (Normandeau *et al*., 2011). To date, the only marine mammal known to show any response to EMF is the Guiana dolphin (*Sotalia guianensis*) which has been shown to possess an electroreceptive system, which uses the vibrissal crypts on their rostrum to detect electrical stimuli similar to those generated by small to medium sized fish (Czech-Damal *et al.,* 2013). However, this has not been shown in any other species of marine mammal and this species does not occur within the Mona marine mammal study area for the generation assets. As such, no LSEs are anticipated to occur to any marine mammal qualifying feature of any European site and the impact of EMF will be screened out of further consideration.

Accidental pollution

1.4.5.43 There is a risk of pollution being accidentally released during the operations and maintenance phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery.

1.4.5.44 Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind developments). Furthermore, considering the large distances to the SACs identified, (the nearest site being the North Anglesey Marine/Gogledd Môn Forol SAC which is located 22.58 km from the Mona Array Area) any effects should they occur, will not directly affect the SACs. As noted above, any indirect effects on Annex II marine mammal qualifying interests from accidental release of pollutants would be unlikely and should they occur these would be unlikely to lead to a significant effect on conservation objectives of the site. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of European sites as a result of accidental pollution and so this impact is screened out from further consideration.

1.4.5.45 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans include planning for accidental spills, address all potential contaminant releases and include key emergency contact details. They will also set out industry good practice and OSPAR, IMO and MARPOL guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of no LSE,

but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

Decommissioning phase

1.4.5.46 The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined above in the construction phase.

Determination of LSE for Annex II marine mammals

1.4.5.47 Table 1.25~~Table 1.25~~ to Table 1.52~~Table 1.52~~ present the results of the LSE determination assessment as a result of the Mona Offshore Wind Project on relevant qualifying interest features of the European sites identified for marine mammals. Separate HRA Screening tables are presented for each of the UK sites and Republic of Ireland sites. A single table (Table 1.52~~Table 1.52~~) has been produced to cover the 16 French sites screened into the LSE assessment for harbour porpoise. This is because the justifications for the screening decisions were the same for all French sites on the basis of the distance of these sites from the Mona Offshore Wind Project. A separate table has been provided to cover the single French site screened into the LSE assessment for both harbour porpoise and grey seal (Table 1.51~~Table 1.51~~).

1.4.5.48 These assessments have been made in the absence of mitigation measures. The footnotes to these tables provide a brief assessment to support the screening in or out of each of these likely significant effects on the identified SAC features.

LSE in combination

1.4.5.49 The LSE test requires consideration of the Mona Offshore Wind Project alone and/or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE 'alone' has already been identified, as in-combination effects will be considered at the Appropriate Assessment. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but for which there is potential for an LSE in-combination to occur in combination with other plans or projects (e.g. due to wide foraging ranges resulting in a species interacting with a large number of projects).

1.4.5.50 Given the method for site selection applied during this Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional LSEs being identified for the Screening assessment. For marine mammals, the potential for LSE alone is identified for all sites within the respective species MU, therefore effects in-combination will be considered at Appropriate Assessment.

Table 1.25: LSE matrix for North Anglesey Marine/Gogledd Môn Forol SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	✓d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.51 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Vessel collision risk** – Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (22.8 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. Furthermore, the advice on operations for this SAC (JNCC and NRW and DAERA, 2019a) does not currently identify the pressure of death/injury by collision as a 'high' or significant risk. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. The majority of impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. However, LSE associated with changes to prey species have been screened in for this SAC on a precautionary basis due to its proximity to the Mona Offshore Wind Project Boundary. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phases compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the

foraging ability of harbour porpoise. It is considered that there is no potential for LSE from changes in water clarity.

f. **Underwater sound from wind turbine operation –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (22.8 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to the Annex II harbour porpoise feature of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.26: LSE matrix for the North Channel SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.52 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (81.5 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. Furthermore, the advice on operations for this SAC (JNCC and NRW and DAERA, 2019a) does not currently identify the pressure of death/injury by collision as a 'high' or significant risk. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. 82 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the

foraging ability of harbour porpoise. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (81.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour porpoise features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.27: LSE matrix for Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation			Underwater sound during site investigation			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Bottlenose dolphin *Tursiops truncatus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f					×g		×h	×h	×h	✓i	✓i	✓i
Grey seal *Halichoerus grypus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f					×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.53 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for bottlenose dolphin and grey seal features of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- – there is the potential for bottlenose dolphin and grey seal features of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other non-vessel activities. It is therefore concluded that there is potential for LSE from vessel sound and other vessel related activities.

c. **Increased risk of injury due to collision with vessels**- Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (94 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. ~94 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE to the bottlenose dolphin and grey seal features from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – bottlenose dolphin and grey seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of this species. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to bottlenose dolphin will be small. Given the low abundance of bottlenose dolphin within the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence to indicate that bottlenose dolphin or grey seal respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (94 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** – activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II bottlenose dolphin and grey seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.28: LSE matrix for the West Wales Marine/Gorllewin Cymru Forol SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.54 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (95 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. ~95 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour porpoise. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (95 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour porpoise feature of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.29: LSE matrix for Strangford Lough SAC

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Operational Sound			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour seal *Phoca vitulina*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.55 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the harbour seal feature of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour seal from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (112 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >100 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – harbour seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour seal. Given the distance of the SAC from the Mona Offshore Wind Project Boundary it is considered that there is no potential for LSE from changes in water clarity.

f. **Underwater sound from wind turbine operation** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour seal will be small. Several published studies indicate that harbour seal are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that seals can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (112 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.30: LSE matrix for Murlough SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from investigation surveys			Underwater sound during site investigation			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour seal *Phoca vitulina*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.56 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the harbour seal feature of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour seal from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (116 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >100 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – harbour seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour seal. Given the distance of the SAC from the Mona Offshore Wind Project Boundary it is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour seal will be small. Several published studies indicate that harbour seal are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that seals can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (116 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination**.**

Table 1.31: LSE matrix Cardigan Bay/Bae Ceredigion SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D
Bottlenose dolphin *Tursiops truncatus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i
Grey seal *Halichoerus grypus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.57 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the bottlenose dolphin and grey seal features of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- there is considered to be the potential for bottlenose dolphin and grey seal features from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (163 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >100 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – bottlenose dolphin and grey seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the

foraging ability of this species. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** –sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to bottlenose dolphin and grey seal will be small. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence to indicate that bottlenose dolphin or grey seal respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

Accidental pollution – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (163 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

h. **In-combination effects –** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II bottlenose dolphin and grey seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.32: LSE matrix for The Maidens SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.58 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the grey seal feature of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for grey seal from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (167 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >100 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – grey seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of grey seal. Given the distance of the SAC from the Mona Offshore Wind Project Boundary it is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to grey seal will be small. Several published studies indicate that grey seal are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that seals can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (167 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II grey seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.33: LSE matrix for Pembrokeshire Marine/Sir Benfro Forol SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound during vessel use and other activities			Underwater sound due to other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i			

1.4.5.59 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the grey seal feature of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for grey seal from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (212 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >200 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – grey seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of grey seal. Given the distance of the SAC from the Mona Offshore Wind Project Boundary it is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to grey seal will be small. Several published studies indicate that grey seal are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that seals can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (212 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** - activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II grey seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.34: LSE matrix for the Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.60 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (275 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >200 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour porpoise. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (275 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour porpoise features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.35: LSE matrix for Lundy SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.61 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the grey seal feature of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for grey seal from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (310 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >300 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – grey seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of grey seal. Given the distance of the SAC from the Mona Offshore Wind Project Boundary it is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to grey seal will be small. Several published studies indicate that grey seal are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that seals can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (310 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II grey seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.36: LSE matrix for Treshnish Isles SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound during site investigation			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i			

1.4.5.62 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Treshnish Isles SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Treshnish Isles SAC as a result of in combination impacts.

Table 1.37: LSE matrix for Isles of Scilly Complex SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound during site investigation			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i			

1.4.5.63 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the grey seal feature of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for grey seal from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (439 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels **(e.g. CTVs)** which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >400 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – grey seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of grey seal. Given the distance of the SAC from the Mona Offshore Wind Project Boundary it is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to grey seal will be small. Several published studies indicate that grey seal are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that seals can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. Accidental pollution – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (439 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. In addition, it is anticipated thatIt should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II grey seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.38: LSE matrix Monach Islands SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.64 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Monach Islands SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Monach Islands SAC as a result of in combination impacts.

Table 1.39: LSE matrix North Rona SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound surveys ys			Underwater sound during site investigation			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i			

1.4.5.65 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the North Rona SAC and the Mona Offshore Wind Project. There is no potential for LSE on the North Rona SAC as a result of in combination impacts.

Table 1.40: LSE matrix for Rockabill to Dalkey Island SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.66 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (126 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >100 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour porpoise. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (126 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour porpoise features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.41: LSE matrix Lambay Island SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D	C	O& M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.67 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Lambay Island SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Lambay Island SAC as a result of in combination impacts.

Table 1.42: LSE matrix for Saltee Islands SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	✓a			✓a			✓a						✓b	✓b	✓b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.68 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – there is the potential for the grey seal feature of this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with piling, UXO clearance activities and site investigation surveys (e.g. geophysical surveys). There is therefore considered to be potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for grey seal from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (235 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >200 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – grey seal frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of grey seal. Given the distance of the SAC from the Mona Offshore Wind Project Boundary it is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to grey seal will be small. Several published studies indicate that grey seal are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that seals can detect or respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (235 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II grey seal features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.43: LSE matrix Horn Head and Rinclevan SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.69 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Horn Head and Rinclevan SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Horn Head and Rinclevan SAC as a result of in combination impacts.

Table 1.44: LSE matrix Slieve Tooey/Tormore Island/Loughros Beg Bay SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.70 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Slieve Tooey/Tormore Island/Loughros Beg Bay SAC as a result of in combination impacts.

Table 1.45: LSE matrix Duvillaun Islands SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.71 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Duvillaun Islands SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Duvillaun Islands SAC as a result of in combination impacts.

Table 1.46: LSE matrix Inishbofin and Inishark SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound during site investigation			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i			

1.4.5.72 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishbofin and Inishark SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Inishbofin and Inishark SAC as a result of in combination impacts.

Table 1.47: LSE matrix Inishkea Islands SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound during site investigation			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i			

1.4.5.73 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Inishkea Islands SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Inishkea Islands SAC as a result of in combination impacts.

Table 1.48: LSE matrix Slyne Head Islands SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys ys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d		×e			×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.74 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** - as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. It is considered that there is no potential for LSE from changes in water clarity.

f. **Operational sound** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** – as outlined in paragraph 1.4.5.8 there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution.

i. **In-combination effects –** as outlined in paragraph 1.4.5.8vv there is no potential connectivity between grey seal features associated with the Slyne Head Islands SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Slyne Head Islands SAC as a result of in combination impacts.

Table 1.49: LSE matrix for the Roaringwater Bay and Islands SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound from site investigation surveys			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i			
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	×i	×i	×i			

1.4.5.75 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – given the significant distance of the SAC to the Mona Offshore Wind Project Boundary (448 km from the Mona Array Area), the Mona Offshore Wind Project Boundary is unlikely to constitute important foraging grounds for individuals from these sites and underwater sound during construction is unlikely to result in significant effects (disturbance or injury) on the harbour porpoise features of these sites. However, due to this site being located within the Celtic and Irish seas MU for harbour porpoise there is potential connectivity between the Mona Offshore Wind Project and harbour porpoise features of this site. In the absence of project specific underwater sound modelling, a precautionary approach has been adopted at this stage and it is therefore concluded that there is potential for LSE on the Annex II harbour porpoise feature of the site during the construction phase from piling, UXO clearance activities or site investigation surveys (e.g. geophysical surveys). As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Roaringwater Bay and Islands SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE on Annex II grey seal features from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE for harbour porpoise features of the SAC from vessel sound across all phases of the Mona Offshore Wind Project. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Roaringwater Bay and Islands SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE on grey seal features of the SAC from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**- Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (449 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk for harbour porpoise features of the SAC across all phases of the Mona Offshore Wind Project. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Roaringwater Bay and Islands SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE on grey seal features from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >400 km) no LSEs are anticipated to occur as a result of changes in prey availability to harbour porpoise features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE for the harbour porpoise feature of the SAC from changes in prey availability during the operations and maintenance and decommissioning phases. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Roaringwater Bay and Islands SAC and the Mona Offshore Wind Project. It is therefore considered that there is also no potential for LSE on the grey seal feature of the SAC from changes in prey availability.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour porpoise. It is considered that there is no potential for LSE for the harbour porpoise feature of the SAC from changes in water clarity. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Roaringwater Bay and Islands SAC and the Mona Offshore Wind Project. It is therefore considered that there is also no potential for LSE on the grey seal feature of the SAC from changes in water clarity.

f. **Underwater sound from wind turbine operation –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE for the harbour porpoise feature of the SAC as a result of wind turbine sound during the operations and maintenance phase. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Roaringwater Bay and Islands SAC and the Mona Offshore Wind Project. It is therefore considered that there is also no potential for LSE on the grey seal feature of the SAC from underwater sound from wind turbine operation.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE for the harbour porpoise feature of the SAC from EMF during the operations and maintenance phase. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Roaringwater Bay and Islands SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is therefore

considered to be no potential for LSE on the grey seal feature of the SAC as a result of EMF during the operations and maintenance phase.

h. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC(449 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour porpoise features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone for the harbour porpoise feature of the SAC, the potential for LSE has been concluded in-combination. There is no potential for LSE in-combination fgopr the grey seal feature of the Roaringwater Bay and Islands SAC.

Table 1.50: LSE matrix Blasket Islands SAC.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.76 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – given the significant distance of the SAC to the Mona Offshore Wind Project Boundary (565 km from the Mona array area), the Mona Offshore Wind Project Boundary is unlikely to constitute important foraging grounds for individuals from this site and underwater sound during construction is unlikely to result in significant effects (disturbance or injury) on the harbour porpoise features of this site. However, due to this site being located within the Celtic and Irish Seas MU for harbour porpoise there is potential connectivity between the Mona Offshore Wind Project and harbour porpoise features of this site. In the absence of project specific underwater sound modelling, a precautionary approach has been adopted at this stage and it is therefore concluded that there is potential for LSE on the Annex II harbour porpoise feature of the site during the construction phase from piling, UXO clearance activities or site investigation surveys (e.g. geophysical surveys). As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Blasket Islands SAC and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE on Annex II grey seal features from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Blasket Islands SAC and the Mona Offshore Wind Project. There is therefore no potential for LSE on grey seal features of the SAC from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (566 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk for harbour porpoise features of the SAC across all phases of the Mona Offshore Wind Project. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Blasket Islands SAC and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE on grey seal from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and

reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >500 km) no LSEs are anticipated to occur as a result of changes in prey availability to harbour porpoise features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE for the harbour porpoise feature of this SAC from changes in prey availability during the operations and maintenance and decommissioning phases. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Blasket Islands SAC and the Mona Offshore Wind Project. It is therefore considered that there is also no potential for LSE on the grey seal feature of this SAC from changes in prey availability.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour porpoise. It is considered that there is no potential for LSE for the harbour porpoise feature of this SAC from changes in water clarity. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Blasket Islands SAC and the Mona Offshore Wind Project. It is therefore considered that there is also no potential for LSE on the grey seal feature of this SAC from changes in water clarity.

f. **Underwater sound from wind turbine operation –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE for the harbour porpoise feature of this SAC as a result of wind turbine sound during the operations and maintenance phase. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Blasket Islands SAC and the Mona Offshore Wind Project. It is therefore considered that there is no potential for LSE on the grey seal feature of this SAC from underwater sound from wind turbine operation.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE for the harbour porpoise features of this SAC from EMF during the operations and maintenance phase. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Blasket Islands SAC and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is therefore considered to be no potential for LSE on grey seal feature of the SAC as a result of EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (566 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour porpoise features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Blasket Islands SAC and the Mona Offshore Wind Project. There is no potential for LSE on the Blasket Islands SAC as a result of in combination impacts.

Table 1.51: LSE matrix for the Chaussée de Sein SCI.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i
Grey seal *Halichoerus grypus*	×a			×a			×a			×b	×b	×b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	×i	×i	×i

1.4.5.77 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** – given the significant distance of the SAC to the Mona Offshore Wind Project Boundary (519 km from the Mona array area), the Mona Offshore Wind Project Boundary is unlikely to constitute important foraging grounds for individuals from this site and underwater sound during construction is unlikely to result in significant effects (disturbance or injury) on the harbour porpoise features of this site. However, due to this site being located within the Celtic and Irish seas MU for harbour porpoise there is potential connectivity between the Mona Offshore Wind Project and harbour porpoise features of this site. In the absence of project specific underwater sound modelling, a precautionary approach has been adopted at this stage and it is therefore concluded that there is potential for LSE on the Annex II harbour porpoise feature of the site during the construction phase from piling, UXO clearance activities or site investigation surveys (e.g. geophysical surveys). As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. There is therefore considered to be no potential for LSE on Annex II grey seal features from underwater sound during the construction phase.

b. **Underwater sound due to vessel use and other activities**– there is considered to be the potential for harbour porpoise from this site to be present (i.e. transiting or foraging) within the Mona Offshore Wind Project Boundary and zone of potential impact (injury and behavioural) from underwater sound associated with vessels and other vessel activities. There is therefore considered to be potential for LSE from vessel sound across all phases of the Mona Offshore Wind Project. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. There is therefore no potential for LSE on grey seal features of the SAC from vessel sound across all phases of the Mona Offshore Wind Project.

c. **Increased risk of injury due to collision with vessels**– Considering the distance at which the SAC is located from the Mona Offshore Wind Project Boundary (519 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE for harbour porpoise features of the SAC from vessel collision risk across all phases of the Mona Offshore Wind Project. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal features associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. It is therefore concluded that there is no potential for LSE on grey seal from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability –** the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and

reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >500 km) no LSEs are anticipated to occur as a result of changes in prey availability to harbour porpoise features of this SAC during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE for the harbour porpoise feature of this SAC from changes in prey availability during the operations and maintenance and decommissioning phases. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. It is therefore considered that there is also no potential for LSE on the grey seal feature of this SAC from changes in prey availability.

e. **Changes in water clarity** – harbour porpoise frequently occur in turbid environments and are adapted to navigating and locating prey in such conditions through echolocation. Increases in SSC during construction and decommissioning will be localised, short-term and intermittent and unlikely to result in significant effects to the foraging ability of harbour porpoise. It is considered that there is no potential for LSE for the harbour porpoise feature of this SAC from changes in water clarity. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. It is therefore considered that there is also no potential for LSE on the grey seal feature of this SAC from changes in water clarity.

f. **Underwater sound from wind turbine operation –** sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Several published studies indicate that harbour porpoise are not likely to be displaced from the operational wind farm and so there is considered to be no potential for LSE for the harbour porpoise feature of this SAC as a result of wind turbine sound during the operations and maintenance phase. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. It is therefore considered that there is no potential for LSE on the grey seal feature of this SAC from underwater sound from wind turbine operation.

g. **EMF –** there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence that harbour porpoise can detect or respond to EMF. It is concluded that there is no potential for LSE for the harbour porpoise features of this SAC from EMF during the operations and maintenance phase. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. Given the distance of the SAC from the Mona Array Area, there is therefore considered to be no potential for LSE on grey seal feature of the SAC as a result of EMF during the operations and maintenance phase.

h. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (519 km from the Mona Array Area) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects -** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in LSE to Annex II harbour porpoise features of the SAC as a result of in-combination effects across all phases of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination. As outlined in paragraph 1.4.5.8, on the basis of the telemetry data, there is no potential connectivity between grey seal associated with the Chaussée de Sein SCI and the Mona Offshore Wind Project. There is no potential for LSE on the Chaussée de Sein SCI as a result of in combination impacts.

Table 1.52: LSE matrix for the 16 French sites for harbour porpoise.

European Site Qualifying Features	Underwater sound from Piling			Underwater sound from Clearance of UXO			Underwater sound during site investigation surveys			Underwater sound due to vessel use and other activities			Vessel Collision Risk			Changes in Prey Availability			Changes in Water Clarity			Underwater sound from wind turbine operation			EMF			Accidental Pollution			In-combination Effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Harbour porpoise *Phocoena phocoena*	✓a			✓a			✓a			✓b	✓b	✓b	×c	×c	×c	×d	×d	×d	×e		×e		×f			×g		×h	×h	×h	✓i	✓i	✓i

1.4.5.78 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

1.4.5.79 SACs within French waters have been assessed together, as all SACs are designated for harbour porpoise and impacts are expected to be similar across all 16 sites.

a. **Underwater sound from piling, UXO clearance and site investigation surveys** - given the significant distance of the nearest French site to the Mona Offshore Wind Project Boundary (closest site is located 519 km from the Mona array area), the Mona Offshore Wind Project Boundary is unlikely to constitute important foraging grounds for individuals from these sites and underwater sound during construction is unlikely to result in significant effects (disturbance or injury) on the harbour porpoise features of these sites. However, due to the sites being located within the Celtic and Irish seas MU for harbour porpoise there is the potential connectivity for harbour porpoise features from these sites and the Mona Offshore Wind Project. In the absence of project specific underwater sound modelling, a precautionary approach has been adopted at this stage and it is therefore concluded that there is potential for LSE on the Annex II harbour porpoise feature of any French site during the construction phase from piling, UXO clearance activities or site investigation surveys (e.g. geophysical surveys).

b. **Underwater sound due to vessel use and other activities**- given the large distances of all the French sites from the Mona Offshore Wind Project Boundary (closest site is located 519 km from the Mona array area), it is considered that vessel traffic will not result in a significant disturbance to Annex II harbour porpoise feature of any French site. However, due to the sites being located within the Celtic and Irish seas MU for harbour porpoise there is the potential connectivity for harbour porpoise features from these sites and the Mona Offshore Wind Project. It is therefore concluded that there is potential for LSE on the Annex II harbour porpoise feature of all French sites during all phases from underwater sound associated with vessels and vessel activities.

c. **Increased risk of injury due to collision with vessels**- Considering the distance at which the French SACs are located from the Mona Offshore Wind Project Boundary (>500 km from the Mona Array Area) the likelihood of collisions occurring between vessels and marine mammals is considered to be low. In addition, fast moving vessels (e.g. CTVs) which pose the greater collision risk will be limited in number with a maximum of 12 CTVs potentially being present within the Mona Array Area at any one time during the construction phase and up to a maximum of six CTVs may be present on site at any one time during the operations and maintenance phase. It is therefore concluded that there is no potential for LSE from vessel collision risk across all phases of the Mona Offshore Wind Project.

d. **Changes in prey availability** – the majority of effects on fish populations across all phases of the Mona Offshore Wind Project are likely to be temporary, short-term and reversible. Any impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the foraging opportunities within the extensive ranges for marine mammal species and the highly mobile nature of these species. Due to the distance between this SAC and the Mona Offshore Wind Project Boundary (i.e. >500 km) no LSEs are anticipated to occur as a result of changes in prey availability to Annex II marine mammal features of this SAC

during the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is also concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

e. **Changes in water clarity** – given the large distance between the Mona Offshore Wind Project Boundary and the French sites for harbour porpoise (closest site is 519 km from the Mona Array Area) and the fact that increases in SSC will be localised, short-term and intermittent, they are considered unlikely to result in significant effects to the foraging ability of harbour porpoise. There is no potential for LSE from changes in water clarity for any French site.

f. **Underwater sound from wind turbine operation** – sound levels from operational wind turbines are predicted to be low and the spatial extent of any potential behavioural impact to harbour porpoise will be small. Given the large distance between the Mona Offshore Wind Project Boundary and the French sites for harbour porpoise (closest site is 519 km from the Mona Array Area) and that several published studies indicate that harbour porpoise are not likely to be displaced from the operations wind farm, there is considered to be no potential for LSE as a result of wind turbine sound during the operations and maintenance phase.

g. **EMF** – there is no evidence of EMF related to marine renewable devices having any impact (either beneficial or adverse) on marine mammals and there is no evidence to indicate that harbour porpoise respond to EMF. It is concluded that there is no potential for LSE from EMF during the operations and maintenance phase.

h. **Accidental pollution** - there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SAC (closest site (Mers Celtiques - Talus du golfe de Gascogne SCI) is located 533 km from the Mona Array Area)) any effects should they occur, will not directly affect the SAC. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any Annex II marine mammal qualifying interest features of the site as a result of accidental pollution. It should be noted that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project and secured as a condition of the marine licence(s). These plans have not however, been considered in the determination of no LSE, but will nevertheless reduce the likelihood of an accidental pollution event occurring.

i. **In-combination effects** – over the distances considered, all relevant effect-pathways are considered extremely weak, such that only a negligible (if even detectable) influence would be apparent. However, due to the sites being located within the Celtic and Irish seas MU for harbour porpoise there is the potential connectivity for harbour porpoise features from these sites and the Mona Offshore Wind Project. Therefore, in-combination effects associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project cannot be ruled out.

1.4.6 Assessment of LSE for offshore ornithological features

Sites overview

1.4.6.1 As outlined in section 1.3.7, 62 European sites were identified in the initial screening process to be taken forward for determination of LSE. These sites and the associated qualifying features are set out in Table 1.53~~Table 1.53~~ below.

Table 1.53: The European sites taken forward for determination of LSE, with details of the associated qualifying features.

European Site	Relevant qualifying features
Liverpool Bay/Bae Lerpwl SPA	Red-throated diver Little gull Common scoter Little tern Common tern Waterbird assemblage
Irish Seafront SPA	Manx shearwater
North-west Irish Sea cSPA	Manx shearwater Lesser black-backed gull Black-legged kittiwake
Ribble and Alt Estuaries SPA (and Ramsar site)	Lesser black-backed gull
Morecambe Bay and Duddon Estuary SPA	Lesser black-backed gull Herring gull
Bowland Fells SPA	Lesser black-backed gull
Aberdaron Coast and Bardsey Island SPA	Manx shearwater
Lambay Island SPA	Atlantic puffin Lesser black-backed gull Black-legged kittiwake
Howth Head SPA	Black-legged kittiwake
Ireland's Eye SPA	Black-legged kittiwake
Copeland Islands SPA	Manx shearwater
Wicklow Head SPA	Black-legged kittiwake
Ailsa Craig SPA	Northern gannet Black-legged kittiwake Lesser black-backed gull Common guillemot (non-breeding only)
Rathlin Island SPA	Atlantic puffin Black-legged kittiwake Lesser black-backed gull Common guillemot (non-breeding only) Razorbill (non-breeding only)

European Site	Relevant qualifying features
Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	Atlantic puffin Lesser black-backed gull Manx shearwater ~~Common guillemot (non-breeding only)~~ ~~Razorbill (non-breeding only)~~ European storm petrel (migratory only) Breeding seabird assemblage including the components: • ~~Atlantic puffin~~Common guillemot (non-breeding only) • Razorbill (non-breeding only) • • Black-legged kittiwake
Grassholm SPA	Northern gannet
Saltee Islands SPA	Atlantic puffin Northern gannet Black-legged kittiwake
North Colonsay and Western Cliffs SPA	Black-legged kittiwake Common guillemot (non-breeding only)
Helvick Head to Ballyquin SPA	Black-legged kittiwake
Rum SPA	Manx shearwater
Cruagh Island SPA	Northern fulmar
Blasket Islands SPA	Northern fulmar Manx shearwater
Deenish Island and Scariff Island SPA	Northern fulmar Manx shearwater
Puffin Island SPA	Northern fulmar European storm petrel (migratory only)
Shiant Isles SPA	Northern fulmar Atlantic puffin (non-breeding only) Common guillemot (non-breeding only) Razorbill (non-breeding only)
Skelligs SPA	Northern gannet Northern fulmar Manx shearwater European storm petrel (migratory only)
Handa SPA	Northern fulmar Common guillemot (non-breeding only) Razorbill (non-breeding only) Great skua (migratory)
St Kilda SPA	Northern gannet Northern fulmar

European Site	Relevant qualifying features
	Manx shearwater Atlantic puffin (non-breeding only) Common guillemot (non-breeding only) European storm petrel (migratory only) Leach's storm petrel (migratory only) Great skua (migratory only)
Cape Wrath SPA	Northern fulmar Black-legged kittiwake (non-breeding only) Common guillemot (non-breeding only) Razorbill (non-breeding only)
Flannan Isles SPA	Northern fulmar Atlantic puffin (non-breeding only) Common guillemot (non-breeding only) Leach's storm petrel (migratory only)
Hermaness, Saxa Vord and Valla Field SPA	Atlantic puffin (non-breeding only) Northern gannet (non-breeding only) Great skua (migratory only)
Foula SPA	Atlantic puffin (non-breeding only) Great skua (migratory only)
Forth Islands SPA	Atlantic puffin (non-breeding only)
Farne Islands SPA	Atlantic puffin (non-breeding only)
Sule Skerry and Sule Stack SPA	Atlantic puffin (non-breeding only) Common guillemot (non-breeding only) Northern gannet (non-breeding only)
West Westray SPA	Black-legged kittiwake (non-breeding only)
North Caithness Cliffs SPA	Black-legged kittiwake (non-breeding only)
East Caithness Cliffs SPA	Black-legged kittiwake (non-breeding only)
Troup, Pennan and Lions Heads SPA	Black-legged kittiwake (non-breeding only)
Buchan Ness to Collieston SPA	Black-legged kittiwake (non-breeding only)
Fowlsheugh SPA	Black-legged kittiwake (non-breeding only)
Flamborough and Filey Coast SPA	Black-legged kittiwake (non-breeding only)
Canna and Sanday SPA	Common guillemot (non-breeding only)
Mingulay and Berneray SPA	Common guillemot (non-breeding only) Northern fulmar (non-breeding only) Razorbill (non-breeding only)
North Rona and Sula Sgeir SPA	Common guillemot (non-breeding only) Northern fulmar (non-breeding only) Northern gannet (non-breeding only) Leach's storm petrel (migratory only)
Isles of Scilly SPA	Great black-backed gull (non-breeding only)

European Site	Relevant qualifying features
	Lesser black-backed gull (non-breeding only) European storm petrel (migratory only)
Fair Isle SPA	Northern fulmar (non-breeding only) Great skua (migratory only)
Noss SPA	Northern gannet (non-breeding only) Great skua (migratory only)
Auskerry SPA	European storm petrel (migratory only)
Deenish Island and Scariff Island SPA	European storm petrel (migratory only)
Duvillaun Islands SPA	European storm petrel (migratory only)
Illanmaster SPA	European storm petrel (migratory only)
Inishglora and Inishkeeragh SPA	European storm petrel (migratory only)
Mousa SPA	European storm petrel (migratory only)
Priest Island (Summer Isles) SPA	European storm petrel (migratory only)
Stags of Broad Haven SPA	European storm petrel (migratory only)
The Bull and The Cow Rocks SPA	European storm petrel (migratory only)
Treshnish Isles SPA	European storm petrel (migratory only)
Fetlar SPA	Great skua (migratory only)
Ronas Hill - North Roe and Tingon SPA	Great skua (migratory only)
Hoy SPA	Great skua (migratory only)

Pathways for LSE: potential impacts on offshore ornithological features

1.4.6.2 Six impact pathways on offshore ornithological features have been identified via the scoping opinion, PEIR preparation, consultation and expert opinion. The impacts may occur during the construction, operations and maintenance, and decommissioning phases of the Mona Offshore Wind Project.

1.4.6.3 These are the impacts which are taken into account when determining the potential for LSE on the designated sites and seabirds (i.e. during the breeding season; see section 1.3.7). The list of potential impacts on seabirds has been compiled using the experience and knowledge gained from previous offshore wind farm projects, as well as published literature. Full analysis of baseline survey information for the Mona Offshore Wind Project has been completed, and CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)), migratory CRM (Volume 6, Annex 5.4: ~~Volume 6, Annex 5.4:~~ Offshore ornithology migratory bird collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement assessment technical report of the Environmental Statement (Document reference F6.5.2)) and apportioning to European sites (Appendix A: Apportioning assessment to SPAs/Ramsar sites) have been undertaken and used to inform screening for LSE (as discussed in section 1.3.7).

1.4.6.4 Consideration of the potential impacts identified for the offshore ornithological features is presented in the following sections to inform the determination of LSE. Each impact pathway has a specific criteria for when an LSE may be considered for a site.

Construction phase

Temporary habitat loss/disturbance and increased SSC

1.4.6.5 Direct habitat loss arising from the presence of infrastructure may occur during the construction phase of the Mona Offshore Wind Project. This is a temporary (and relatively short-term) effect in relation to the construction period and is unlikely to be significant for offshore ornithological features using the Mona Array Area due to the lack of overlap between the Mona Array Area and any SPAs. However, there is potential for effects to occur in relation to the Mona Offshore Cable Corridor which passes through the Liverpool Bay/Bae Lerpwl SPA. Indirect loss of habitats used by offshore ornithological features is assessed as displacement. Therefore, it is considered that there is potential for LSE in relation to the qualifying features of the Liverpool Bay/Bae Lerpwl SPA only.

Disturbance and displacement from airborne sound and presence of vessels and infrastructure

Airborne sound, the presence of vessels and construction works may disturb seabirds from offshore foraging or non-foraging areas (e.g. rafting, moulting) in the short-term, causing changes in behaviour or displacement from the affected areas (Furness *et al.*, 2013 and Dierschke *et al*., 2016). Temporary disturbance/displacement may lead to a reduction in foraging opportunities or increased energy expenditure, resulting in decreased survival rates or productivity in the population. This impact would only apply to seabirds which use the area of the marine environment in which construction activities will occur.

1.4.6.6 Offshore ornithological species would not be significantly affected when passing through (or over) the Mona Offshore Wind Project Boundary on migration during the construction period due to the temporary nature of this impact over a small spatial scale. Migratory birds are not expected to forage or rest in the marine environment around the Mona Offshore Wind Project Boundary and would also not be impacted. The offshore Mona Offshore Cable Corridor passes through the Liverpool Bay/Bae Lerpwl SPA so there is the potential for LSE during the construction phase in relation to this site.

1.4.6.7 Given the above, it is considered that there is the potential for LSE to result from this effect pathway during the construction phase in relation to SPA populations of the Liverpool Bay/Bae Lerpwl SPA only.

Changes in prey availability

1.4.6.8 There is the potential for changes in bird prey (e.g. fish species) abundance and distribution to arise as a result of construction activities which physically disturb the seabed, resulting in increased SSC or underwater sound. The impact on fish prey resource is fully assessed within Volume 2, Chapter 3~~8~~: Fish and shellfish ecology of the Environmental Statement (Document reference F2.3). Reduction or disruption to prey availability to seabirds may cause displacement from foraging grounds in the area or reduced energy intake, affecting survival rates or productivity in the population in the short-term (Cury *et al*., 2011 and Dias *et al*., 2019). The risk of effects on prey

species is expected to be greatest during the construction phase (e.g. due to seabed disturbance and/or underwater sound during construction) with effects during the operations and maintenance phase expected to be much reduced.

1.4.6.9 As outlined in section 1.3.7 above, there is the potential for connectivity with SPA populations considered in this Stage 1 HRA Screening. Any potential temporary changes to the fish community in the vicinity of the Mona Array Area as a result of construction impacts, such as underwater sound, are unlikely to result in significant effects to SPA populations of bird species given that the majority of impacts on prey species will be spatially limited to the Mona Offshore Wind Project Boundary (for habitat disturbance) and surrounding area (e.g. behavioural effects from underwater sound), particularly in the context of the extensive foraging ranges for bird species and the highly mobile nature of these species. As such, no LSEs are anticipated to occur as a result of changes in prey availability to bird populations for the majority of the SPA sites considered. The only exceptions are the Liverpool Bay/Bae Lerpwl SPA (which overlaps the offshore Mona Offshore Cable Corridor) and the Irish Sea Front SPA which are screened in on a precautionary basis, due to their designation as marine SPAs. Marine SPAs protect the foraging range/area of the features. Therefore, any change in foraging resources may impact these sites.

1.4.6.10 Given the above, it is considered that there is the potential for LSE to result from this effect pathway during construction in relation to SPA populations of the Liverpool Bay/Bae Lerpwl SPA only.

Accidental pollution

1.4.6.11 There is a risk of pollution being accidentally released during the construction phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind). Furthermore, considering the large distances to the SPAs identified, (with the exception of Liverpool Bay/Bae Lerpwl SPA) any effects should they occur, will not directly affect the SPAs. As noted above, any indirect effects on offshore ornithological features from accidental release of pollutants would be unlikely and should they occur, these would be unlikely to lead to a significant effect on the conservation objectives of the site. The exception is for the Liverpool Bay/Bae Lerpwl SPA for which there is potential LSE for the Mona Offshore Cable Corridor only, due to the small spatial overlap between the Mona Offshore Cable Corridor and the SPA. On this basis, there is deemed to be no potential for LSE on any offshore ornithological features of European sites as a result of accidental pollution for all sites except the Liverpool Bay/Bae Lerpwl SPA.

1.4.6.12 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project. These plans include planning for accidental spills, address all potential contaminant releases and include key emergency contact details. They will also set out industry good practice and OSPAR, IMO and MARPOL guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

Operations and maintenance phase

Permanent habitat loss/disturbance and increased SSC

1.4.6.13 Direct habitat disturbance may occur during the operations and maintenance phase of the Mona Offshore Wind Project, specifically under the footprint of the turbines and scour protection within the Mona Array Area and under cable protection associated with offshore export cables and cable crossings along the Mona Offshore Cable Corridor. The loss of habitat may lead to reduced foraging opportunities either directly (loss of habitat) or indirectly (increased SSC reducing visibility and therefore foraging success) (Dias *et al*., 2019).

1.4.6.14 Given the large foraging ranges used by seabirds (Woodward *et al*., 2019) and the extent of marine habitats available for other functions (e.g. resting, moulting), direct habitat loss due to the Mona Offshore Wind Project is unlikely to have effects on SPA breeding seabird populations. Similarly, no effects are predicted on migratory waterbird populations as a result of birds passing through (or over) the Mona Offshore Wind Project Boundary on migration.

1.4.6.15 However, the Mona Offshore Cable Corridor passes through the Liverpool Bay/Bae Lerpwl SPA, so that there is the potential for LSE in relation to the qualifying features of this site during the operation and maintenance phase.

Disturbance and displacement from airborne sound and presence of vessels and infrastructure

1.4.6.16 The presence of operational wind turbines, as well as the associated maintenance activities, may disturb seabirds and displace them from preferred foraging areas over the long-term (Furness *et al*., 2013 and Bradbury *et al.*, 2014). This may lead to a reduction in foraging opportunities or increased competition and energy expenditure, resulting in decreased survival rates or productivity in the population. Such effects may be most likely in relation to seabirds using the marine habitats within the Mona Array Area, although species are known to vary in their sensitivity to displacement (e.g. large gull species show little evidence of displacement from offshore wind farms whereas gannet and red-throated diver show marked displacement; Dierschke *et al.*, 2018; Dorsch *et al.*, 2020). Additionally, the effects of such displacement are likely to be minimal for species such as Manx shearwater and northern fulmar (irrespective of their sensitivity to the effect), which have particularly large foraging ranges (> 1,000 km), because the resultant habitat loss will represent a small proportion of the available habitat that they use (Wade *et al.*, 2016).

1.4.6.17 The effect of disturbance and displacement as a result of the Mona Array Area (during all phases) has been assessed in Volume 6, Annex 5.2: Offshore ornithology displacement of the Environmental Statement (Document reference F6.5.2). The results of this assessment have been considered in the context of SPA and Ramsar populations within Appendix A: Apportioning assessment to SPAs/Ramsar sites of this LSE screening which is summarised in the HRA Screening tables below (see Table 1.54~~Table 1.54~~ to Table 1.124~~Table 1.124~~). The proportion of the population which may undergo displacement and mortality was presented within Appendix A using the estimated impact (50% displacement and 1% mortality for Atlantic puffin, black-legged kittiwake, common guillemot, Manx shearwater and razorbill and 70% displacement and 1% for northern gannet). Using this displacement assessment is as presented within the Volume 2, Chapter 5: Offshore Ornithology of the Environmental Statement (Document reference F2.5) and fully evidenced there as to suitability of using these

~~paramerters~~parameters. As stated in paragraph 1.4.6.30, species and sites which have an estimated mortality of <0.0 (rounded to one decimal place) are screened out of further assessment.

1.4.6.18 During the operations and maintenance phase, the offshore export cables within the offshore Mona Offshore Cable Corridor will be buried under the seabed with minimal maintenance activity involving vessel activity. As such, there is considered to be no potential for LSE due to disturbance and displacement associated with the Mona Offshore Cable Corridor during the operations and maintenance phase.

1.4.6.19 Within Appendix A: Apportioning assessment to SPAs/Ramsar sites, where appropriate both the predicted disturbance and displacement impact and the collision impact have been presented together. This is specifically the case for black-legged kittiwake and norther gannet. These species are susceptible to both impacts and at the request of the SNCBs (via the EWG) these impacts have been combined for ease of assessment at a European site level.

Collision risk

1.4.6.20 Collisions of seabirds with the rotating blades of the wind turbines may result in the death or injury of individuals (Dias *et al*., 2019). Such mortality may be additive, so could cause population declines or, in some situations, prevent population recovery. Therefore, seabird species which forage within or move through (during migration or more regular commuting flights) the Mona Array Area may be vulnerable to such effects.

1.4.6.21 For seabirds, collision risk may vary between species in relation to a range of factors associated with flight behaviour but flight heights are of fundamental importance in predicting the vulnerability to this effect (Johnston *et al.*, 2014a,b). Thus, species which fly at low heights and below the rotor swept area (e.g. northern fulmar and auk species) are less vulnerable to this effect pathway. In contrast other species which generally fly at greater heights are at risk of collision for a proportion of their flight time (e.g. black-legged kittiwake, large gull species and northern gannet).

1.4.6.22 The effect of collisions has been modelled in Volume 6, Annex 5.3: offshore ornithology collision risk modelling of the Environmental Statement (Document reference F6.5.3). The results of this assessment have been considered in the context of SPA and Ramsar populations within Appendix A: Apportioning assessment to SPAs/Ramsar sites of this LSE. The impact presented within Appendix A uses the mean value of the density estimates. The findings of these assessments are summarised for each SPA feature in the HRA Screening tables below (see Table 1.54~~Table 1.54~~ to Table 1.124~~Table 1.124~~). As stated in paragraph 1.4.6.30, species and sites which have an estimated mortality of <0.0 (rounded to one decimal place) are screened out of further assessment.

1.4.6.23 Within Appendix A: Apportioning assessment to SPAs/Ramsar sites the predicted impact from both disturbance and displacement and collision have been presented together where appropriate. This is specifically the case for black-legged kittiwake and norther gannet. These species are susceptible to both impacts and at the request of the SNCBs (via the EWG) these impacts have been combined for ease of assessment at a European site level.

Barrier to Movement

1.4.6.24 Large scale offshore wind farms may act as barriers to seabird and/or migratory waterbird movements, causing individuals to fly around or over the wind turbine arrays (Vanermen *et al*., 2014). However, seabird species that commute frequently across the Mona Array Area (e.g. to access foraging areas) could incur greater energetic costs as a consequence of these effects, with the potential for this to result in decreased survival rates or productivity in the population. This is particularly relevant to seabirds during the breeding season, when they frequently commute between the colony and foraging areas (e.g. Searle *et al.*, 2018) and migratory seabirds which pass the turbines twice a year on their spring and autumn passage.

1.4.6.25 The likelihood of the Mona Array Area resulting in barrier effects for qualifying features of SPAs are low, particularly in the context of the large foraging ranges used by seabirds and the large distances from the Mona Array at which the SPAs are located (Woodward *et al*., 2019). The assessment of disturbance and displacement includes an element of barrier effect impact (NatureScot, 2023) and therefore the specific impact of barrier to movement is screened out for all sites.

Changes in prey availability

1.4.6.26 As discussed in paragraph 1.4.6.8 above, indirect impacts on seabirds may occur as a result of changes in prey distribution, availability or abundance in the marine environment. Reduction or disruption to prey availability to seabirds may cause displacement from the area or reduced energy intake, affecting survival rates or productivity in the population in the long term. However, impacts on fish populations during the operations and maintenance phase and decommissioning phase are expected to be considerably lower than those for construction and as such, there is no potential for LSEs associated with changes to prey availability during the operations and maintenance or decommissioning phases.

Accidental pollution

1.4.6.27 There is a risk of pollution being accidentally released during the operations and maintenance phase of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Pollution events are considered unlikely, and given the volumes associated with offshore wind farm development, should an event occur, effects will be temporary, reversible and limited in spatial extent (e.g. due to the expected low volumes of pollutants associated with offshore wind). Furthermore, considering the large distances to the SPAs identified, (with the exception of Liverpool Bay/Bae Lerpwl SPA) any effects should they occur, will not directly affect the SPAs. As noted above, any indirect effects on offshore ornithological features from accidental release of pollutants would be unlikely and should they occur, these would be unlikely to lead to a significant effect on conservation objectives of the site. The exception is for the Liverpool Bay/Bae Lerpwl SPA for which there is potential LSE for the Mona Offshore Cable Corridor only, due to spatial overlap between the Mona Offshore Cable Corridor and the SPA. On this basis, and in the absence of mitigation, there is considered to be no potential for LSE on any offshore ornithological features of European sites as a result of accidental pollution for all sites except the Liverpool Bay/Bae Lerpwl SPA.

1.4.6.28 It should be noted that the risk of such events occurring will be minimised and managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the

Mona Offshore Wind Project. These plans include planning for accidental spills, address all potential contaminant releases and include key emergency contact details. They will also set out industry good practice and OSPAR, IMO and MARPOL guidelines for preventing pollution at sea. These plans have not however, been considered in the determination of no LSE, but they will nevertheless reduce the likelihood of an accidental pollution event occurring.

Decommissioning phase

1.4.6.29 The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined above for the construction phase. The impacts of direct habitat loss, collision and barriers to movement are not applicable to the decommissioning phase and will not be considered in the determination of LSE.

Determination of LSE for offshore ornithological features

1.4.6.30 Table 1.54~~Table 1.54~~ to Table 1.115~~Table 1.115~~ present the results of the LSE determination assessment as a result of the Mona Offshore Wind Project on relevant qualifying interest features of the 60 European sites identified for offshore ornithological features. When determining LSE, where the predicted effect is more than 0.0 annual mortalities (i.e. an annual figure of 0.2 mortalities would not be rounded down to 0, but 0.04 annual mortalities would be) then that SPA has been screened in. Any apportioning impact less than 0.0 annual mortalities has not been screened in, on the basis that the magnitude of the impact is too low for there to be any risk of LSE either alone or in-combination. The mean number of annual mortalities is used for both displacement and collision estimates.

1.4.6.31 These assessments have been made in the absence of mitigation measures but based on the outputs of the site-specific modelling and assessments outlined above. The footnotes to these tables provide a brief explanation to support the screening in or out of each of these likely significant effects on the identified SPA features.

LSE in combination

1.4.6.32 The LSE test requires consideration of the Mona Offshore Wind Project alone and/or in-combination with other plans and projects. Therefore, it is not necessary at the LSE stage to consider sites/features for which an LSE 'alone' has already been identified, as in-combination effects will be considered at the Appropriate Assessment. The focus at this stage should be to identify sites/features for which no LSE alone was concluded, but for which there is potential for an LSE in-combination to occur when considering other plans or projects (e.g. due to wide foraging ranges resulting in a species interacting with a large number of projects).

1.4.6.33 The approach taken within this assessment follows that all impacts which could not be screened out, are included within the in-combination assessment also.

1.4.6.34 Given the highly precautionary method for site selection applied during this HRA Screening assessment, it is considered that the consolidation of information regarding external plans and projects would not likely result in additional LSEs being identified for the Screening assessment.

Table 1.54: LSE matrix for offshore ornithological features of the Liverpool Bay/Bae Lerpwl SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning).

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Red-throated Diver (non-breeding)	✓a	✓a	✓a	✓b	✓b	✓b		×c			×d		✓e	×e	×e	✓f	✓f	✓f	✓g	✓g	✓g
Little gull (non-breeding)	✓a	✓a	✓a	✓b	✓b	✓b		×c			×d		✓e	×e	×e	✓f	✓f	✓f	✓g	✓g	✓g
Common scoter (non-breeding)	✓a	✓a	✓a	✓b	✓b	✓b		×c			×d		✓e	×e	×e	✓f	✓f	✓f	✓g	✓g	✓g
Waterbird assemblage	✓a	✓a	✓a	✓b	✓b	✓b		×c			×d		✓e	×e	×e	✓f	✓f	✓f	✓g	✓g	✓g
Little tern (breeding)	✓a	✓a	✓a	✓b	✓b	✓b		×c			×d		✓e	×e	×e	✓f	✓f	✓f	✓g	✓g	✓g
Common tern (breeding)	✓a	✓a	✓a	✓b	✓b	✓b		×c			×d		✓e	×e	×e	✓f	✓f	✓f	✓g	✓g	✓g

1.4.6.35 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC –** temporary habitat loss/disturbance and increased SSC can be discounted for the Mona Array Area because of the distance to the Liverpool Bay/Bae Lerpwl SPA (15.9 km). The Mona Offshore Cable Corridor however overlaps with the Liverpool Bay/Bae Lerpwl SPA and therefore the potential for LSE cannot be discounted for any qualifying features of the Liverpool Bay/Bae Lerpwl SPA in relation to temporary habitat loss/disturbance and increased SSC.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure –** disturbance and displacement from airborne sound and presence of vessels and infrastructure can be discounted for the Mona Array Area because of the distance to the Liverpool Bay/Bae Lerpwl SPA (15.9 km). The Mona Offshore Cable Corridor however overlaps with the Liverpool Bay/Bae Lerpwl SPA and therefore the potential for LSE cannot be discounted for any qualifying features of the Liverpool Bay/Bae Lerpwl SPA in relation to disturbance and displacement effects.

c. **Collision risk –** collision risk can be discounted for the Mona Array Area. None of the species listed as qualifying features of the SPA were present in digital aerial surveys in high enough numbers or were deemed vulnerable to collision risk effects and were therefore not assessed within the collision risk modelling for the Mona Offshore Wind Project (see section 1.3.7 and Volume 6, Annex 5~~10~~.3: offshore ornithology ~~non-migratory~~ seabird collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Therefore, it is considered that there is no potential for LSE in relation to collision risk for qualifying features of this SPA.

d. **Barrier to movement –**the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges of seabirds. In addition, the species listed as qualifying features of the SPA were excluded from collision risk modelling and displacement assessments based on either low numbers recorded within the Mona Array Area or that the species is not considered sensitive to these effects (see section 1.3.7, Volume 6, Annex 5~~10~~.3: offshore ornithology ~~non-migratory~~ seabird collision risk modelling technical report (Document reference F6.5.3) and Volume 6, Annex 5~~10~~.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). Effects relating to barrier to movement are considered to be of much lower magnitude compared with collision risk and displacement. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for any qualifying features of this SPA.

e. **Changes in prey availability –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. This SPA (which overlaps the offshore Mona Offshore Cable Corridor) has been screened in on a precautionary basis for the construction phase. The potential for any adverse effects on prey are significantly reduced during the operations and maintenance phase and decommissioning phase compared to the construction

phase as underwater sound will be substantially lower (i.e. no piling or similarly disturbing operations will be required). As such, it is concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

f. **Accidental pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Accidental pollution effects can be discounted for the Mona Array Area due to the distance to the Liverpool Bay/Bae Lerpwl SPA (15.9 km). The Mona Offshore Cable Corridor however overlaps with the Liverpool Bay/Bae Lerpwl SPA and therefore the potential for LSE cannot be discounted for any qualifying features of the Liverpool Bay/Bae Lerpwl SPA in relation to accidental pollution. On this basis, there is considered to be potential for LSE on qualifying interest features of the SPA as a result of accidental pollution for the Mona Offshore Cable Corridor only. In addition, it is anticipated that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project. While these plans are not considered in the determination of LSE, they will nevertheless reduce the likelihood of an accidental pollution event occurring.

g. **In-combination effects –** activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in an in-combination LSE to the offshore ornithological features of the SPA as a result of temporary habitat loss/disturbance and increased SSCs, disturbance and displacement from airborne sound and presence of vessels and infrastructure and accidental pollution effects across all phases of the Mona Offshore Wind Project. There is also potential for an in-combination LSE to the offshore ornithological features of the SPA as a result of changes in prey availability effects across the construction phase of the Mona Offshore Wind Project together with other projects. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.55: LSE matrix for offshore ornithological features of the Irish Sea Front SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Manx shearwater	×a	×a	×a	✓b	✓b	✓b		×c			×d		✓e	×e	×e	×f	×f	×f	✓g	✓g	✓g

1.4.6.36 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – Temporary habitat loss/disturbance and increased SSC due to the Mona Offshore Wind Project is unlikely to have effects on SPA seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for the Manx shearwater from this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – Manx shearwater are considered to have very low sensitivity to displacement impacts (Volume 6, Annex 5~~10~~.3: Offshore ornithology ~~non-migratory~~ seabird collision risk ~~assessment~~ modelling technical report of the Environmental Statement (Document reference F6.5.3)). The Irish Sea Front SPA is an area of the Irish Sea where birds from multiple colonies from Britain and Ireland congregate on a regular basis during the breeding season. There is no way of apportioning the impact to this individual SPA and therefore as precaution 100% of the impact predicted to Manx shearwater via the impact disturbance and displacement from airborne sound and presence of vessels and infrastructure could be upon this SPA. The mean annual mortality of three birds during construction and decommissioning phases and six birds during the operation and maintenance phase) could impact this population as the birds move through the Mona Array Area to reach the SPA. As such, it is concluded that there is potential for LSE on the Manx shearwater feature of the SPA during the operations and maintenance and decommissioning phases.

c. **Collision risk** – Collision risk assessments conducted for Manx shearwater showed that associated mortalities were estimated to be less than 0.0 birds before apportioning occurred. On this basis, it is considered that there is no potential for LSE in relation to collision risk for Manx shearwater from this SPA.

d. **Barrier to movement** – Effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (57.2 km from the Mona Array Area), and the low likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA, particularly in the context of the large foraging ranges used by seabirds. In addition, collision risk and displacement assessments have concluded very low numbers of Manx shearwater will be affected by these impacts, and effects relating to barriers to movement are considered to be of much lower magnitude compared with collision risk and displacement. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for the Manx shearwater from this SPA.

e. **Changes in prey availability** – As set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to birds populations for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. This SPA (which is located 57 km from the Mona Array Area) has been screened out for all project phases on distance. As such, it is concluded that there is no potential for LSE on the Manx shearwater feature of the SPA from changes in prey availability during the operations and maintenance and decommissioning phases.

f. **Accidental Pollution** – There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (57.2 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on the Manx shearwater feature of the SPA as a result of accidental pollution.

g. **In-combination effects** – As outlined above, estimated collisions for Manx shearwater were estimated to be 0.0 and this species was not considered in the apportioning impact to SPAs/Ramsar Sites (Appendix A: Apportioning assessment to SPAs/Ramsar sites of this LSE screening), impacts are considered too low for there to be any risk of LSE either alone or in-combination with other plans/projects (i.e. the effect will be inconsequential in the context of the natural variability in baseline mortalities associated with this SPA). Activities associated with planned projects or other activities in the vicinity of the Mona Offshore Wind Project have the potential to result in an in-combination LSE to the Manx shearwater feature of the SPA as a result of changes in prey availability effects across the construction phase of the Mona Offshore Wind Project. Where potential for LSE has been concluded alone, the potential for LSE has been concluded in-combination.

Table 1.56: LSE matrix for offshore ornithological features of the North-west Irish Sea cSPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Manx shearwater	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Black-legged kittiwake	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.37 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – Temporary habitat loss/disturbance and increased SSC due to the Mona Offshore Wind Project is unlikely to have effects on SPA seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for the Manx shearwater, lesser black-backed gull and black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – The North-west Irish Sea cSPA is an area off the east coast of Ireland designated for breeding and wintering birds to protect the foraging/roosting area. To reduce double counting the impacts of the species within both the foraging range SPA and also the breeding colony SPA, impacts are not presented for both. For Manx shearwater see Aberdaron Coast and Bardsey Island SPA, Copeland Islands SPA, and Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA screening tables, for lesser black-backed gull see Lambay Island SPA screening table and black-legged kittiwake see Lambay Island SPA, Ireland's Eye SPA and Howth Head SPA screening tables. The North-west Irish Sea cSPA is not considered further within the assessment.

c. **Collision risk** – The North-west Irish Sea cSPA is an area off the east coast of Ireland designated for breeding and wintering birds to protect the foraging/roosting area. To reduce double counting the impacts of the species within both the foraging range SPA and also the breeding colony SPA, impacts are not presented for both. For Manx shearwater see Aberdaron Coast and Bardsey Island SPA, Copeland Islands SPA, and Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA screening tables, for lesser black-backed gull see Lambay Island SPA screening table and black-legged kittiwake see Lambay Island SPA, Ireland's Eye SPA and Howth Head SPA screening tables. The North-west Irish Sea cSPA is not considered further within the assessment.

d. **Barrier to movement** – The North-west Irish Sea cSPA is an area off the east coast of Ireland designated for breeding and wintering birds to protect the foraging/roosting area. To reduce double counting the impacts of the species within both the foraging range SPA and also the breeding colony SPA, impacts are not presented for both. For Manx shearwater see Aberdaron Coast and Bardsey Island SPA, Copeland Islands SPA, and Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA screening tables, for lesser black-backed gull see Lambay Island SPA screening table and black-legged kittiwake see Lambay Island SPA, Ireland's Eye SPA and Howth Head SPA screening tables. The North-west Irish Sea cSPA is not considered further within the assessment.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to birds populations the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE on the Manx shearwater, lesser black-backed gull and black-legged kittiwake feature of the SPA from changes in prey availability.

f. **Accidental Pollution** – There is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (99.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on the Manx shearwater feature of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. collision risk for lesser black-backed gull), the potential for LSE has been concluded in-combination

Table 1.57: LSE matrix for offshore ornithological features of the Ribble and Alt Estuaries SPA (and Ramsar site).

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.38 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – temporary habitat loss/disturbance and increased SSC due to the Mona Offshore Wind Project is unlikely to have effects on SPA seabird population due to the large foraging ranges of lesser black-backed gull and the extent of marine habitats available for other functions (e.g. roosting). Densities of lesser black-backed gull recorded in the Mona Offshore Wind Project aerial surveys were also very low with a peak density of 0.04 birds/ km^2 recorded in March. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for lesser black-backed gull from this SPA (and Ramsar site).

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – lesser black-backed gull are considered to be relatively insensitive to disturbance and displacement effects and were not considered in displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for lesser black-backed gull from this SPA (and Ramsar site).

c. **Collision risk** – apportioning impact to SPAs/Ramsar sites in Appendix A: Apportioning Assessment to SPAs/Ramsar sites of this LSE screening estimated that the mortality numbers associated with collisions for lesser black-backed gull was 0.1 adult birds per annum. On this basis, it is considered that there is potential for LSE in relation to collision risk for the lesser black-backed gull from this SPA (and Ramsar site).

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (43.6 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by lesser black-backed gull. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for lesser black-backed gull features of this SPA (and Ramsar site).

e. **Indirect impacts from underwater sound affecting prey species –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to birds populations the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE on the lesser black-backed gull feature of the SPA (and Ramsar site) from changes in prey availability during the operations and maintenance and decommissioning phases.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA

(43.6 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA (and Ramsar site). On this basis, there is considered to be no potential for LSE on the lesser black-backed gull feature of the SPA (and Ramsar site) as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. collision risk for lesser black-backed gull), the potential for LSE has been concluded in-combination.

Table 1.58: LSE matrix for offshore ornithological features of the Morecambe Bay and Duddon Estuary SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		✓c ~~×c~~			×d		×e	×e	×e	×f	×f	×f	×g	✓ ~~×~~g	×g
Herring gull	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.39 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – temporary habitat loss/disturbance and increased SSC due to the Mona Offshore Wind Project is unlikely to have effects on SPA seabird populations due to the large foraging ranges used by seabirds and the extent of marine habitats available for other functions (e.g. roosting). Densities of lesser black-backed gull and herring gull recorded in the Mona Offshore Wind Project aerial surveys were also very low. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for lesser black-backed gull and herring gull from this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – lesser black-backed gull and herring gull are considered to be relatively insensitive to disturbance and displacement effects and were not considered in the displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for lesser black-backed gull and herring gull from this SPA.

c. **Collision risk** – Following CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)) and apportioning (Appendix A: Apportioning assessment to SPAs/Ramsar sites) the estimated mortality for ~~both~~ herring gull ~~features~~ was 0.0 birds and ~~0.~~1 lesser black-backed gull, annually. On this basis, it is considered that there is ~~no~~ potential for LSE in relation to collision risk for lesser black-backed gull ~~and herring gull~~ from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (54.6 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for lesser black-backed gull or herring gull from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the operations and maintenance and decommissioning phases.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA

(54.6 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – The additional mortality of 0.0 birds for all qualifying features will be too low for there to be any risk of LSE in-combination with other plans/projects (i.e. the effect will be inconsequential in the context of the natural variability in baseline mortalities associated with this SPA).

Table 1.59: LSE matrix for offshore ornithological features of the Bowland Fells SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		✓—c			×d		×e	×e	×e	×f	×f	×f	×g	✓—g	×g

1.4.6.40 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – temporary habitat loss/disturbance and increased SSC due to the Mona Offshore Wind Project is unlikely to have effects on SPA seabird population due to the large foraging ranges of lesser black-backed gull and the extent of marine habitats available for other functions (e.g. roosting). Densities of lesser black-backed gull recorded in the Mona Offshore Wind Project aerial surveys were also very low. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for lesser black-backed gull from this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – lesser black-backed gull are considered to be relatively insensitive to disturbance and displacement effects and were not considered in displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical reports of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for lesser black-backed gull from this SPA.

c. **Collision risk** – Following CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)) and apportioning (Appendix A: Apportioning Assessment to SPAs/Ramsar sites) the estimated mortality for lesser black-backed gull was 0.1 to 0.2 birds annually. On this basis, it is considered that there is potential for LSE in relation to collision risk for the lesser black-backed gull from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (76.9 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by lesser black-backed gull. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for lesser black-backed gull from this SPA.

e. **Indirect impacts from underwater sound affecting prey species –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to birds populations the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE on the lesser black-backed gull feature of the SPA from changes in prey availability during the operations and maintenance and decommissioning phases.

f. **Accidental Pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (76.9 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on lesser black-backed gull feature of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. collision risk for lesser black-backed gull), the potential for LSE has been concluded in-combination.

Table 1.60: LSE matrix for offshore ornithological features of the Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Manx shearwater	×a	×a	×a		✓b			×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.41 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (99.3 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for the Manx shearwater from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – at the request of the EWG, Manx shearwater was included within the displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). The apportioned SPA mortality due to the displacement from the Mona Offshore Wind Project alone was an estimated 0.7 birds. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Manx shearwater from this SPA.

c. **Collision risk** – apportioning was not done for collisions and Manx shearwater as the mean annual mortality before apportioning was 0.0 birds. On this basis, it is considered that there is no potential for LSE in relation to collision risk for Manx shearwater from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (99.3 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for Manx shearwater from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE for Manx shearwater from this SPA from changes in prey availability during the construction, operations and maintenance and decommissioning phases.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (99.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for Manx shearwater from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Manx shearwarer), the potential for LSE has been concluded in-combination.

Table 1.61: LSE matrix for offshore ornithological features of the Lambay Island SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Black-legged kittiwake	×a	×a	×a	×b	✓b	×b		✓c			×c		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.42 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (128.9 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – lesser black-backed gull are considered to be relatively insensitive to disturbance and displacement effects and were not considered in displacement assessment for the Mona Offshore Wind Project (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). For black-legged kittiwake the apportioned expected SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was 0.64 adult birds, annually (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Apportioning was not done for Atlantic puffin as the mean annual mortality from disturbance and displacement before apportioning was 0.~~0~~1 birds. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement for black-legged kittiwake from this SPA.

c. **Collision risk –** Following CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)) and apportioning (Appendix A: Apportioning Assessment to SPAs/Ramsar sites) the estimated mortality for lesser black-backed gull was 0.0 birds, annually. As stated above, the expected mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was 0.4 adult black-legged kittiwake, annually. Atlantic puffin is not considered susceptible to collisions and was not assessed. On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (128.9 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations

and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (128.9 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** –where potential for LSE has been concluded alone (i.e. collision risk and displacement for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.62: LSE matrix for offshore ornithological features of the Howth Head Coast SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.43 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (134.4 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– for black-legged kittiwake the apportioned expected SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was 0.3~~2~~ birds, annually. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement and collision risk for the black-legged kittiwake from this SPA.

c. **Collision risk –** see justification for disturbance and displacement above for black-legged kittiwake. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement and collision risk for the black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (134.4 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental Pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (134.4 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, it is considered that there is no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. collision risk and displacement for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.63: LSE matrix for offshore ornithological features of the Ireland's Eye SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.44 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (134.7 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**— for black-legged kittiwake the apportioned expected SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was 0.2 birds, annually. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement and collision risk for the black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement above for black-legged kittiwake. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement and collision risk for the black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (134.7 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental Pollution** - there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (134.7 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** –Where potential for LSE has been concluded alone (i.e. collision risk and displacement for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.64: LSE matrix for offshore ornithological features of the Copeland Islands SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Manx shearwater	×a	×a	×a		✓b			×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.45 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (136.5 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for Manx shearwater from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– At the request of the EWG, Manx shearwater was included within the displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). The apportioned SPA mortality due to the displacement from the Mona Offshore Wind Project alone was an estimated 0.1 birds. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Manx shearwater from this SPA.

c. **Collision risk** – Apportioning was not done for Manx shearwater as the mean annual mortality before apportioning was 0.0 birds. On this basis, it is considered that there is no potential for LSE in relation to collision risk for Manx shearwater from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (136.5 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for qualifying features of this SPA for Manx shearwater from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for Manx shearwater from this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (136.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for Manx shearwater from this SPA as a result of accidental pollution. In addition, it is anticipated that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project. While these plans are not considered in the determination of no LSE, they will nevertheless reduce the likelihood of an accidental pollution event occurring.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and displacement from airborne sound, and presence of vessels and infrastructure), the potential for LSE has been concluded in-combination.

Table 1.65: LSE matrix for offshore ornithological features of the Wicklow Head SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake	×a	×a	×a	×b	✓b~~×b~~	×b		~~×~~✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓~~×~~g	×g

1.4.6.46 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (148.8 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – for black-legged kittiwake the apportioned expected SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was 0.1~~0~~ birds. On this basis, it is considered that there is ~~no~~ potential for LSE in relation to disturbance and displacement and collision risk for the black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound, and presence of vessels and infrastructure above for the black-legged kittiwake qualifying feature. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement and collision risk for the black-legged kittiwake qualifying feature from SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (148.8 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental Pollution** - there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (134.8 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution. In addition, it is anticipated that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project. While these plans are not considered in the determination of no LSE, they will nevertheless reduce the likelihood of an accidental pollution event occurring.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk), the potential for LSE has been concluded in-combination.

Table 1.66: LSE matrix for offshore ornithological features of the Ailsa Craig SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern gannet	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Black-legged kittiwake	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.47 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC –** effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (174.5 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure –** for northern gannet the apportioned expected mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project was 1.8~~7~~ birds, annually (Appendix A: Apportioning assessment to SPAs/Ramsar sites). For black-legged kittiwake the expected mortality was 0.0 birds, annually, for the combined effect of collision risk and displacement. Common guillemot are sensitive to displacement only, and a mean mortality of 0.3 birds was predicted during the non-breeding period (Appendix A: Apportioning assessment to SPAs/Ramsar sites). Lesser black-backed gull are not considered sensitive to disturbance displacement effects and were therefore not considered in the displacement assessment (Volume 6, Annex 5~~10~~.2: offshore ornithology displacement technical report of the Environmental Statement (Document reference F6.5.2)). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement for northern gannet and common guillemot from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound, and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake and northern gannet. Following CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)) and apportioning (Appendix A: Apportioning Assessment to SPAs/Ramsar sites) the estimated mortality for lesser black-backed gull was 0.0 birds, annually. Common guillemot are not susceptible to collision due to their flight height and were not considered for this pathway. On this basis, it is considered that there is potential for LSE in relation to collision risk (combined with disturbance and displacement) for northern gannet only.

d. **Barrier to movement –** effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (174.5 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for qualifying features of this SPA.

e. **Changes in prey availability –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects

will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (174.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** –Where potential for LSE has been concluded alone (i.e. disturbance and collision risk for northern gannet and disturbance for common guillemot), the potential for LSE has been concluded in-combination.

Table 1.67: LSE matrix for offshore ornithological features of the Rathlin Island SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Black-legged kittiwake	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Razorbill (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.48 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC –** effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (211.9 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure –** for black-legged kittiwake the apportioned SPA mortality due to the combined effect of collision risk and displacement effects from the Mona Offshore Wind Project alone was ~~0.8~~1.4 birds, annually (Appendix A: Apportioning assessment to SPAs/Ramsar sites of this LSE screening). Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning from disturbance and displacement was 0.1~~0~~ birds. For common guillemot and razorbill, the mean mortality during the non-breeding season was 5.1 and 1.1, respectively. Lesser black-backed gull are not considered sensitive to disturbance displacement effects and were not considered in the displacement assessment. On this basis, it is considered that there is potential for LSE in relation to disturbance displacement effects for black-legged kittiwake, common guillemot and razorbill from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake qualifying feature. Following CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)) and apportioning (Appendix A: Apportioning Assessment to SPAs/Ramsar sites) the estimated mortality for lesser black-backed gull was 0.0 birds, annually. Atlantic puffin, common guillemot and razorbill are not considered sensitive to collisions and were not considered in CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA only.

d. **Barrier to movement –** effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (211.9 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the

large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (211.9 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk for black-legged kittiwake and disturbance for common guillemot and razorbill), the potential for LSE has been concluded in-combination.

Table 1.68: LSE matrix for offshore ornithological features of Skomer, Skokholm and the Seas off Pembrokeshire SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Black-legged kittiwake – seabird assembalge species	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Common guillemot (non-breeding only) – seabird assemblage species	×a	×a	×a	✓b	✓b	✓b		×c			×d		×e	×e	×e	×f	×f	×f	✓g	✓g	✓g
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Lesser black-backed gull	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Manx shearwater	×a	×a	×a	✓b	✓b	✓b		×c			×d		×e	×e	×e	×f	×f	×f	✓g	✓g	✓g

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
~~Common guillemot (non-breeding only)~~	~~×a~~	~~×a~~	~~×a~~	~~✓b~~	~~✓b~~	~~✓b~~		~~×c~~			~~×d~~		~~×e~~	~~×e~~	~~×e~~	~~×f~~	~~×f~~	~~×f~~	~~✓g~~	~~✓g~~	~~✓g~~
Razorbill (non-breeding only) – seabird assemblage species	×a	×a	×a	✓b	✓b	✓b		×c			×d		×e	×e	×e	×f	×f	×f	✓g	✓g	✓g
~~European storm petrel (migratory only)~~	~~×a~~	~~×a~~	~~×a~~	~~×b~~	~~×b~~	~~×b~~		~~×c~~			~~×d~~		~~×e~~	~~×e~~	~~×e~~	~~×f~~	~~×f~~	~~×f~~	~~×g~~	~~×g~~	~~×g~~
~~Seabird assemblage~~ ~~• Atlantic puffin~~ ~~• lack-legged kittiwake~~	~~×a~~	~~×a~~	~~×a~~	~~×b~~	~~×b~~	~~×b~~		~~×c~~			~~×d~~		~~×e~~	~~×e~~	~~×e~~	~~×f~~	~~×f~~	~~×f~~	~~×g~~	~~×g~~	~~×g~~

1.4.6.49 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – temporary habitat loss/disturbance and increased SSC due to the Mona Offshore Wind Project is unlikely to have effects on SPA seabird populations due to the large foraging ranges of qualifying features and the extent of marine habitats available for other functions (e.g. roosting). On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure –** lesser black-backed gull and European storm petrel are considered to be relatively insensitive to disturbance and displacement effects and were not considered in displacement assessment (Volume 6, Annex 5.2: Offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). The apportioned impact was 4.5 Manx shearwater, 0.8 common guillemot, 0.4 razorbill and 0.~~0~~1 black-legged kittiwake (in combination with collisions) annually (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Apportioning was not done for Atlantic puffin as the mean annual mortality from disturbance and displacement before apportioning was 0.1~~0~~ birds. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound and presence of vessels and infrastructure for black-legged kittiwake, Manx shearwater, common guillemot and razorbill from this SPA.

c. **Collision risk** – Following CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)) and apportioning (Appendix A: Apportioning Assessment to SPAs/Ramsar sites) the estimated mortality for lesser black-backed gull ~~and black-legged kittiwake~~ (in combination with disturbance and displacement) was 0.1 to 0.2~~0~~ birds and 0.0 black-legged kittiwake, annually. Apportioning was not done for Manx shearwater as the mean annual mortality before apportioning was 0.0 birds. Atlantic puffin, common guillemot and razorbill are not considered susceptible to collisions so no assessment was undertaken. Following migratory CRM (Migratory Collision Risk Modelling (mCRM); Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for qualifying features from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (221.6 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to birds populations the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species.

f. **Accidental Pollution** - there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (221.6 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for Manx shearwater, common guillemot and razorbill), the potential for LSE has been concluded in-combination.

Table 1.69: LSE matrix for offshore ornithological features of the Grassholm SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D				C	O&M	D
Northern gannet	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.50 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC –** effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (230.3 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for northern gannet from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure–** for gannet the apportioned SPA mortality due to the combined effect of collision risk and displacement effects from the Mona Offshore Wind Project alone was an estimated of 0.6~~5~~ birds, annually (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to collision risk for northern gannet from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above. On this basis, it is considered that there is potential for LSE in relation to collision risk for northern gannet from this SPA.

d. **Barrier to movement –** effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (230.3 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for northern gannet from this SPA.

e. **Changes in prey availability –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE for northern gannet from this SPA from changes in prey availability during the construction, operations and maintenance and decommissioning phases.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (230.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for northern gannet from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision for northern gannet), the potential for LSE has been concluded in-combination.

Table 1.70: LSE matrix for offshore ornithological features of the Saltee Islands SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Northern gannet	×a	×a	×a		✓b			✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Black-legged kittiwake	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.51 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC –** effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (236.8 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound and presence of vessels and infrastructure** – for black-legged kittiwake the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.0 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). For northern gannet, the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.1 birds. Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.1~~0~~ birds (Volume 6, Annex 5.2: offshore ornithology displacement technical report ~~assessment~~ of the Environmental Statement (Document reference F6.5.2)). On this basis, it is considered that there is potential for LSE in relation to collision risk for the northern gannet from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk for northern gannet and black-legged kittiwake above. Atlantic puffin are not susceptible to collision due to their flight height and were not considered for this pathway. On this basis, it is considered that there is potential for LSE in relation to collision risk for northern gannet from this SPA.

d. **Barrier to movement –** effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (236.8 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability –** as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction. operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (236.8 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision for northern gannet), the potential for LSE has been concluded in-combination.

Table 1.71: LSE matrix for offshore ornithological features of the North Colonsay and Western Cliffs SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.52 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (287.2 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake and common guillemot qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– for black-legged kittiwake the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.6~~1~~ birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). The apportioned impact to common guillemot during the non-breeding season is 0.8 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake and common guillemot from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above. On this basis, it is considered that there is potential for LSE in relation to collision risk for the black-legged kittiwake from this SPA only.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (287.2 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for the black-legged kittiwake and common guillemot qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for the black-legged kittiwake and common guillemot qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (287.2 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision for black-legged kittiwake and disturbance for common guillemot), the potential for LSE has been concluded in-combination.

Table 1.72: LSE matrix for offshore ornithological features of the Helvick Head to Ballyquin SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.53 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (292.4 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– for black-legged kittiwake the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.0 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above. On this basis, it is considered that there is no potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (292.4 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (292.4 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – the additional mortality of 0.0 birds for black-legged kittiwake from this SPA will be too low for there to be any risk of LSE in-combination with other plans/projects (i.e. the effect will be inconsequential in the context of the natural variability in baseline mortalities associated with this SPA).

Table 1.73: LSE matrix for offshore ornithological features of the Rum SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Manx shearwater	×a	×a	×a		✓b			×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.54 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (370.6 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for Manx shearwater from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – At the request of the EWG, Manx shearwater was included within the displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). The apportioned SPA mortality due to the displacement from the Mona Offshore Wind Project alone was an estimated 0.4 birds, annually (Appendix A: Apportioning assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Manx shearwater from this SPA.

c. **Collision risk** – Apportioning was not done for Manx shearwater as the mean annual mortality before apportioning was 0.0 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). On this basis, it is considered that there is no potential for LSE in relation to collision risk for Manx shearwater from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (370.6 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for Manx shearwater from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for Manx shearwater from this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (370.6 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for Manx shearwater from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Manx shearwater), the potential for LSE has been concluded in-combination.

Table 1.74: LSE matrix for offshore ornithological features of the Cruagh Island SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.55 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (407.3 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for northern fulmar from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**–northern fulmar are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~technical report of the Environmental Statement (Document reference F6.5.2)). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for northern fulmar from this SPA.

c. **Collision risk** – Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). On this basis, it is considered that there is no potential for LSE in relation to collision risk for northern fulmar from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (407.3 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for northern fulmar from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for northern fulmar from this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (407.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for northern fulmar from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone and so no potential for LSE has been concluded in-combination.

Table 1.75: LSE matrix for offshore ornithological features of the Blasket Islands SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Manx shearwater	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.56 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (465.3 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**–northern fulmar are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~technical report of the Environmental Statement (Document reference F6.5.2)). At the request of the EWG, Manx shearwater was included within the displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project (Appendix A: Apportioning Assessment to SPAs/Ramsar sites).The mean annual mortality was 0.0 Manx shearwater. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk** – Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Apportioning was not done for Manx shearwater as the mean annual mortality before apportioning was 0.0 birds. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (465.3 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (465.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – the additional mortality of 0.0 birds for Manx shearwater will be too low for there to be any risk of LSE in-combination with other plans/projects (i.e. the effect will be inconsequential in the context of the natural variability in baseline mortalities associated with this SPA). Similarly, the impact on northern fulmar (mean annual mortality of 0.4 birds before apportioning from collisions) will be too low for there to be any risk of LSE in-combination with other plans/projects.

Table 1.76: LSE matrix for offshore ornithological features of the Deenish Island and Scariff Island SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Manx shearwater	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.57 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (466.3 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**–northern fulmar are not sensitive to disturbance and displacement and were not assessed against this pathway. At the request of the EWG, Manx shearwater was included within the displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). However, the mean annual mortality was 0.0 Manx shearwater. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk** – Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Apportioning was not done for Manx shearwater as the mean annual mortality before apportioning was 0.0 birds. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (466.3 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (466.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – the additional mortality of 0.0 birds for Manx shearwater will be too low for there to be any risk of LSE in-combination with other plans/projects (i.e. the effect will be inconsequential in the context of the natural variability in baseline mortalities associated with this SPA). Similarly, the impact on northern fulmar (mean annual mortality of 0.4 birds before apportioning from collisions) will be too low for there to be any risk of LSE in-combination with other plans/projects.

Table 1.77: LSE matrix for offshore ornithological features of the Puffin Island SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
European storm petrel (migratory only)	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.58 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (472.3 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**–northern fulmar nor European storm petrel are not sensitive to disturbance and displacement and were not assessed against this pathway. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk** – Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (472.3 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (472.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution. In addition, it is anticipated that the risk of such events occurring will be further managed by the implementation of measures set out in standard post consent plans (e.g. an offshore EMP including a MPCP) which will be implemented as part of the Mona Offshore Wind Project. While these plans are not considered in the determination of no LSE, they will nevertheless reduce the likelihood of an accidental pollution event occurring.

g. **In-combination effects** – The impact on northern fulmar (mean annual mortality of 0.4 birds before apportioning from collisions) and European storm petrel (0.3 birds before apportioning) will be too low for there to be any risk of LSE in-combination with other plans/projects.

Table 1.78: LSE matrix for offshore ornithological features of the Shiant Isles SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Atlantic puffin (non-breeding only)	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a		✓b			×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Razorbill (non-breeding only)	×a	×a	×a		✓b			×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.59 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (472.7 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**–northern fulmar are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.~~0~~1 birds. Whereas for razorbill and common guillemot the apportioned impact from disturbance and displacement was 0.3 ~~-~~birds of each species during the non-breeding season (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for razorbill from this SPA only.

c. **Collision risk** – Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Neither Atlantic puffin nor razorbill are considered susceptible to collisions and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (472.7 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (472.7 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for razorbill), the potential for LSE has been concluded in-combination.

Table 1.79: LSE matrix for offshore ornithological features of the Skelligs SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern gannet	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Northern fulmar	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Manx shearwater	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
European storm petrel (migratory only)	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.60 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (481.9 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– for northern gannet the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.1 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Nnorthern fulmar and European storm petrel are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement assessment of the Environmental Statement). At the request of the EWG, Manx shearwater was included within the displacement assessment (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)) for the Mona Offshore Wind Project (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). However, the mean annual mortality was 0.0 Manx shearwater. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above for northern gannet. Apportioning was not done for northern fulmar nor Manx shearwater as the mean annual mortality before apportioning was 0.4 and 0.0 birds, respectively (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Apportioning was not done for Manx shearwater as the mean annual mortality before apportioning was 0.0 birds. Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (481.9 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is

no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution –** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (481.9 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – the additional mortality of 0.0 birds for Manx shearwater will be too low for there to be any risk of LSE in-combination with other plans/projects (i.e. the effect will be inconsequential in the context of the natural variability in baseline mortalities associated with this SPA). Similarly, the impact on northern fulmar and European storm petrel (mean annual mortality of 0.4 birds and 0.3 before apportioning from collisions) will be too low for there to be any risk of LSE in-combination with other plans/projects.

Table 1.80: LSE matrix for offshore ornithological features of the Handa SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a		✓b			×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Razorbill (non-breeding only)	×a	×a	×a		✓b			×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Great skua (migratory only)	×a	×a	×a		×b			×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.61 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (510.5 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– northern fulmar are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~technical report of the Environmental Statement (Document reference F6.5.2)). For razorbill the apportioned impact was 0.3 birds during the non-breeding season and for common guillemot the mean mortality was 2.1 birds per winter (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for razorbill and common guillemot from this SPA.

c. **Collision risk** – Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Neither common guillemot nor razorbill are sensitive to collision risk and no assessment was undertaken. Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (510.5 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations

and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental Pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (510.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for northern guillemot and razorbill), the potential for LSE has been concluded in-combination.

Table 1.81: LSE matrix for offshore ornithological features of the St Kilda SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern gannet	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Northern fulmar	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Manx shearwater	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Leach's storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.62 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (519.2 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– for northern gannet the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.1 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Northern fulmar, European storm petrel, Leach's storm petrel and great skua are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). For common guillemot the mean mortality was 0.9 birds per winter (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Neither Manx shearwater nor Atlantic puffin were apportioned to St Kilda due to lack of impact. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for northern gannet and common guillemot (non-breeding only) from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above for northern gannet. Atlantic puffin and common guillemot are not considered susceptible to collisions and were not assessed. Apportioning was not done for northern fulmar nor Manx shearwater the mean annual mortality before apportioning was 0.4 and 0.0 birds, respectively (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel, 0.8 Leach's storm petrel and 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as the low numbers of birds impacted is less than 0.001% of the UK and Ireland populations, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for only the northern gannet qualifying feature of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (519.2 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is

no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (519.2 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision for northern gannet and disturbance for common guillemot), the potential for LSE has been concluded in-combination.

Table 1.82: LSE matrix for offshore ornithological features of the Cape Wrath SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Razorbill (non-breeding only)	×a	×a	×a		✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.63 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (532.8 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – Northern fulmar are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). The combined impact of displacement and collision for black-legged kittiwake indicated up to 0.8 birds~~6~~ during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). For common guillemot and razorbill the mean mortality was 1.5 and 0.1 birds per winter, respectively from displacement and disturbance. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake (non-breeding only), common guillemot (non-breeding only) and razorbill (non-breeding only) of this SPA.

c. **Collision risk** – Razorbill and common guillemot are not sensitive to collisions so were not assessed against this pathway. The justification for black-legged kittiwake is provided above. Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk model of the Environmental Statement (Document reference F6.5.3)). On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (532.8 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (532.8 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision for black-legged kittiwake and disturbance for common guillemot and razorbill), the potential for LSE has been concluded in-combination.

Table 1.83: LSE matrix for offshore ornithological features of the Flannan Isles SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Leach's storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.64 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (540.6 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – Northern fulmar and Leach's storm petrel are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). For common guillemot the mean mortality was 0.5 birds per winter (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.~~0~~1 birds. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for common guillemot from this SPA.

c. **Collision risk** – Atlantic puffin and common guillemot are not considered susceptible to collisions and were not assessed. Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling of the Environmental Statement (Document reference F6.5.3)). Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling~~l~~ of the Environmental Statement (Document reference F6.5.4)), an estimated 0.8 Leach's storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.8 birds is 0.0008% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (540.6 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations

and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (540.6 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for common guillemot), the potential for LSE has been concluded in-combination.

Table 1.84: LSE matrix for offshore ornithological features of the Flamborough and Filey Coast SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.65 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** –The combined impact of displacement and collision for black-legged kittiwake indicated up to ~~0.1~~1.0 birds during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake qualifying feature. On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (235 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (235 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.85: LSE matrix for offshore ornithological features of the Forth Islands SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.66 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for Atlantic puffin from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.1~~0~~ birds (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Atlantic puffin from this SPA.

c. **Collision risk –**. Atlantic puffin is not considered susceptible to collisions and was not assessed. On this basis, it is considered that there is no potential for LSE in relation to collision risk for Atlantic puffin from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for Atlantic puffin from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for Atlantic puffin from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for Atlantic puffin from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.86: LSE matrix for offshore ornithological features of the Farne Islands SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.67 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for Atlantic puffin from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.1~~0~~ birds (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Atlantic puffin from this SPA.

c. **Collision risk –**. Atlantic puffin is not considered susceptible to collisions and was not assessed. On this basis, it is considered that there is no potential for LSE in relation to collision risk for Atlantic puffin from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for Atlantic puffin from this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for Atlantic puffin from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for Atlantic puffin from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for Atlantic puffin from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.87: LSE matrix for offshore ornithological features of the Fowlsheugh SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.68 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** –The combined impact of displacement and collision for black-legged kittiwake indicated 0.~~1~~13 birds during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake qualifying feature. On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (360 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.88: LSE matrix for offshore ornithological features of the Canna and Sanday SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.69 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for common guillemot from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – For common guillemot the mean mortality was 0.2 birds per winter (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). It is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for common guillemot from this SPA.

c. **Collision risk** – Common guillemot are not considered susceptible to collisions and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to collision risk for common guillemot from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for common guillemot from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for common guillemot from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for common guillemot from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for common guillemot), the potential for LSE has been concluded in-combination.

Table 1.89: LSE matrix for offshore ornithological features of the Mingulay and Berneray SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Razorbill (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.70 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – Northern fulmar are not sensitive to disturbance and displacement and were not assessed against this pathway (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~technical report of the Environmental Statement (Document reference F6.5.2)). For common guillemot and razorbill the mean mortality was 0.7 birds and 0.7 birds, respectively (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for common guillemot and razorbill from this SPA.

c. **Collision risk** – Razorbill and common guillemot are not considered susceptible to collisions and were not assessed. Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for common guillemot and razorbill), the potential for LSE has been concluded in-combination.

Table 1.90: LSE matrix for offshore ornithological features of the Buchan Ness to Collieston SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.71 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** –The combined impact of displacement and collision for black-legged kittiwake indicated 0.3 birds during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites)On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (disturbance and collision risk for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.91: LSE matrix for offshore ornithological features of the Isles of Scilly SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great black-backed gull (non-breeding only)	×a	×a	×a	×b	×b	×b		✓—c			×d		×e	×e	×e	×f	×f	×f	×g	✓—g	×g
Lesser black-backed gull (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.72 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – Great black-backed gull and lesser black-backed gull and European storm petrel are not considered sensitive to disturbance displacement effects and were not considered in the displacement assessment. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk** – Following CRM (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)) and apportioning (Appendix A: Apportioning Assessment to SPAs/Ramsar sites) the estimated mortality for lesser black-backed gull was 0.0 birds, annually and between 0.1 and 0.64 birds for great black-backed gull. Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for great black-backed gull from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. collision risk for great black-backed gull), the potential for LSE has been concluded in-combination.

Table 1.92: LSE matrix for offshore ornithological features of the Troup, Pennan and Lions Heads SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.73 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** –The combined impact of displacement and collision for black-legged kittiwake indicated 0.4~~3~~ birds during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake qualifying feature. On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.93: LSE matrix for offshore ornithological features of the East Caithness Cliffs SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.74 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** –The combined impact of displacement and collision for black-legged kittiwake indicated 1.1~~0.7~~ birds during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake qualifying feature. On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.94: LSE matrix for offshore ornithological features of the North Caithness Cliffs SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.75 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** –The combined impact of displacement and collision for black-legged kittiwake indicated 0.1 birds during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake qualifying feature. On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.95: LSE matrix for offshore ornithological features of the Sule Skerry and Sule Stack SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern gannet (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.76 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – for northern gannet the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.0 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). For common guillemot the mean mortality was 0.4 birds per winter from disturbance and displacement only. Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.~~0~~1 birds (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for common guillemot from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above for northern gannet. Atlantic puffin and common guillemot are not considered susceptible to collisions and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (579.5 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (579.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for common guillemot), the potential for LSE has been concluded in-combination.

Table 1.96: LSE matrix for offshore ornithological features of the North Rona and Sula Sgeir SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern gannet (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Northern fulmar (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Common guillemot (non-breeding only)	×a	×a	×a	×b	✓b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g
Leach's storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.77 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – for northern gannet the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.0 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). For common guillemot the mean mortality was 0.3 birds per winter from disturbance and displacement only. Northern fulmar and leach's storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for common guillemot from this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above for northern gannet. Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Common guillemot are not considered susceptible to collisions and were not assessed. Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.8 Leach's storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.8 birds is 0.0008% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (598.7 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no

potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (598.7 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance for common guillemot), the potential for LSE has been concluded in-combination.

Table 1.97: LSE matrix for offshore ornithological features of the West Westray SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Black-legged kittiwake (non-breeding only)	×a	×a	×a	×b	✓b	×b		✓c			×d		×e	×e	×e	×f	×f	×f	×g	✓g	×g

1.4.6.78 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for black-legged kittiwake from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** –The combined impact of displacement and collision for black-legged kittiwake indicated 0.3 birds during the non-breeding period (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for black-legged kittiwake from this SPA.

c. **Collision risk** – see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure in conjunction with collision risk above for black-legged kittiwake qualifying feature. On this basis, it is considered that there is potential for LSE in relation to collision risk for black-legged kittiwake from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for black-legged kittiwake from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for black-legged kittiwake from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for black-legged kittiwake from this SPA as a result of accidental pollution.

g. **In-combination effects** – where potential for LSE has been concluded alone (i.e. disturbance and collision risk for black-legged kittiwake), the potential for LSE has been concluded in-combination.

Table 1.98: LSE matrix for offshore ornithological features of the Fair Isle SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern fulmar (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.79 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– Northern fulmar and great skua are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk –** Apportioning was not done for northern fulmar as the mean annual mortality before apportioning was 0.4 birds (Volume 6, Annex 5.3: offshore ornithology collision risk modelling technical report of the Environmental Statement (Document reference F6.5.3)). Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.99: LSE matrix for offshore ornithological features of the Sule Skerry and Sule Stack SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.80 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for Atlantic puffin from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**–Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.1~~0~~ birds (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). On this basis, it is considered that there is potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for Atlantic puffin from this SPA.

c. **Collision risk –** Atlantic puffin are not considered susceptible to collisions and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to collision risk for Atlantic puffin from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project, the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for Atlantic puffin from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for Atlantic puffin from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for Atlantic puffin from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.100: LSE matrix for offshore ornithological features of the Noss SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern gannet (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.81 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to impact occurring during winter, when the feature are not spatially restricted. The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large wintering ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– for northern gannet the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.0 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Great skua are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above for northern gannet. Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (732.2 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (732.2 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.101: LSE matrix for offshore ornithological features of the Hermaness, Saxa Vord and Valla Field SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern gannet (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.82 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (790.2 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– for northern gannet the apportioned SPA mortality due to the combined effect of collision risk and displacement from the Mona Offshore Wind Project alone was an estimated 0.0 birds (Appendix A: Apportioning Assessment to SPAs/Ramsar sites). Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.1~~0~~ birds (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). Great skua are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk –** see justification for disturbance and displacement from airborne sound and presence of vessels and infrastructure above for northern gannet. Atlantic puffin are not sensitive to collisions. Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (790.2 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (790.2 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.102: LSE matrix for offshore ornithological features of the Foula SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Atlantic puffin (non-breeding only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.83 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (707.8 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for all qualifying features of this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**–Apportioning was not done for Atlantic puffin as the mean annual mortality before apportioning was 0.1~~0~~ birds (Volume 6, Annex 5.2: offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document reference F6.5.2)). Great skua are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for all qualifying features of this SPA.

c. **Collision risk –**Atlantic puffin are not considered susceptible to collisions and were not assessed. Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for all qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (707.8 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for all qualifying features of this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for all qualifying features of this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (707.8 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE on all qualifying interest features of the SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.103: LSE matrix for offshore ornithological features of the Treshnish Isles SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.84 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (332.8 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk** – Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (332.8 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (332.8 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.104: LSE matrix for offshore ornithological features of the Illanmaster SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.85 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (369.9 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for qualifying features of this SPA for European storm petrel from this SPA.

c. **Collision risk** – Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (369.9 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (369.9 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.105: LSE matrix for offshore ornithological features of the Stags of Broad Haven SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.86 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (380.2 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (380.2 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (380.2 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.106: LSE matrix for offshore ornithological features of the Duvillaun Islands SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.87 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (399.6 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (399.6 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (399.6 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.107: LSE matrix for offshore ornithological features of the Inishglora and Inishkeeragh SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.88 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (400.1 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (400.1 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (400.1 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE has been concluded alone, and so no potential for LSE has been concluded in-combination.

Table 1.108: LSE matrix for offshore ornithological features of the Deenish Island and Scariff Island SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.89 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (466.5 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (466.5 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (466.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.109: LSE matrix for offshore ornithological features of The Bull and The Cow Rocks SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.90 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (475.7 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure** – European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (475.7 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (475.7 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.110: LSE matrix for offshore ornithological features of the Priest Island (Summer Isles) SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.91 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (480.5 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (480.5 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (480.5 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.111: LSE matrix for offshore ornithological features of Hoy SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.92 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (552.3 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for great skua from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– Great skua are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for great skua from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for great skua from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (552.3 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for great skua from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for great skua from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (552.3 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for great skua from this SPAas a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.112: LSE matrix for offshore ornithological features of the Auskerry SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.93 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (587.1 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (587.1 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (587.1 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.113: LSE matrix for offshore ornithological features of the Mousa SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
European storm petrel (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.94 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (708.4 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for European storm petrel from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– European storm petrel are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for European storm petrel from this SPA.

c. **Collision risk –** Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.3 European storm petrel mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.3 birds is 0.0003% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for European storm petrel from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (708.4 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for European storm petrel from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for European storm petrel from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (708.4 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for European storm petrel from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.114: LSE matrix for offshore ornithological features of Ronas Hill – North Roe and Tingon SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.95 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (761 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for great skua from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– Great skua are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for great skua from this SPA.

c. **Collision risk** – Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is no potential for LSE in relation to collision risk for qualifying features of this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (761 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for great skua from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for great skua from this SPA.

f. **Accidental pollution** – there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (761 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for great skua from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

Table 1.115: LSE matrix for offshore ornithological features of Fetlar SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European site qualifying feature	Temporary habitat loss/disturbance and increased SSC			Disturbance and displacement from airborne sound and presence of vessels and infrastructure			Collison risk			Barrier to movement			Changes in prey availability			Accidental pollution			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Great skua (migratory only)	×a	×a	×a	×b	×b	×b		×c			×d		×e	×e	×e	×f	×f	×f	×g	×g	×g

1.4.6.96 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and increased SSC** – effects resulting from temporary habitat loss/disturbance and increased SSC are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (770.7 km from the Mona Array Area). The likelihood of the Mona Offshore Wind Project resulting in effects for qualifying features of this SPA are low, due to the temporary and reversible nature of the relatively limited spatial extent of impacts particularly in the context of the large foraging ranges used by seabirds and the extent of marine habitats and prey available for foraging opportunities. On this basis, it is considered that there is no potential for LSE in relation to temporary habitat loss/disturbance and increased SSC for great skua from this SPA.

b. **Disturbance and displacement from airborne sound, and presence of vessels and infrastructure**– Great skua are not considered sensitive to this impact and were not assessed. On this basis, it is considered that there is no potential for LSE in relation to disturbance and displacement from airborne sound, and presence of vessels and infrastructure for great skua from this SPA.

c. **Collision risk** – Following mCRM (Volume 6, Annex 5.4: offshore ornithology migratory collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4)), an estimated 0.2 great skua mortalities were predicted (98% avoidance rate). There is no way to apportion this impact to a specific SPA, but as 0.2 birds is 0.001% of the UK and Ireland population, an LSE on any single SPA is not considered likely. On this basis, it is considered that there is potential for LSE in relation to collision risk for great skua from this SPA.

d. **Barrier to movement** – effects resulting from barriers to movement are considered to be low for this SPA due to the distance from the Mona Offshore Wind Project (770.7 km from the Mona Array Area), the likelihood of the Mona Array Area resulting in barrier effects for qualifying features of this SPA are low, particularly in the context of the large foraging ranges used by seabirds. Therefore, it is considered that there is no potential for LSE in relation to barrier to movement for great skua from this SPA.

e. **Changes in prey availability** – as set out in paragraph 1.4.6.9 no LSEs are anticipated to occur as a result of changes in prey availability to bird populations during the construction phase for the majority of the SPA sites considered as effects will be temporary, reversible and relatively limited in extent when considering the large foraging ranges for these species. As such, it is concluded that there is no potential for LSE from changes in prey availability during the construction, operations and maintenance and decommissioning phases for great skua from this SPA.

f. **Accidental pollution -** there is a risk of pollution being accidentally released during all phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. However, pollution events are considered unlikely, and should an event occur effects will be temporary, reversible and limited in spatial extent. Furthermore, considering the large distance to the SPA (770.7 km from the Mona Array Area) any effects should they occur, will not directly affect the SPA. On this basis, there is considered to be no potential for LSE for great skua from this SPA as a result of accidental pollution.

g. **In-combination effects** – there is no potential for LSE alone, and so no potential for LSE has been concluded in-combination.

1.4.7 Assessment of LSE for onshore ornithological features

Site overview

1.4.7.1 As outlined in section 1.3.8, a total of eight European sites were identified in the initial screening process to be taken forward for determination of LSE (two marginally within 10 km of the landfall and six at the request of NRW for potential collision risk impacts). These sites and the associated qualifying features are set out in Table 1.116~~Table 1.116~~.

Table 1.116: The SPAs and Ramsar sites taken forward for determination of LSE, with details of the associated qualifying features.

European Site	Relevant Qualifying Features
The Dee Estuary SPA	Northern pintail Eurasian teal Dunlin Red knot Eurasian oystercatcher Bar-tailed godwit Black-tailed godwit Eurasian curlew Grey plover Common shelduck Common redshank Northern lapwing
The Dee Estuary Ramsar site	Common redshank Eurasian Teal Common shelduck Eurasian oystercatcher Eurasian curlew Northern pintail Grey plover Red knot Black-tailed godwit Bar-tailed godwit
Traeth Lafan/Lavan Sands, Conway Bay SPA	Eurasian oystercatcher Red-breasted merganser Eurasian curlew Great crested grebe Common redshank
Dyfi Estuary/Aber Dyfi SPA	Greenland white-fronted goose
Burry Inlet SPA	Northern pintail Northern shoveler Eurasian teal Eurasian wigeon

European Site	Relevant Qualifying Features
	Turnstone Dunlin Red knot Eurasian oystercatcher Eurasian curlew Eurasian golden plover Common shelduck Common redshank
Burry Inlet Ramsar site	Northern pintail Northern shoveler Eurasian oystercatcher
Severn Estuary SPA	Gadwall European white-fronted goose Dunlin Bewick's swan Common shelduck Common redshank
Severn Estuary Ramsar site	Gadwall European white-fronted goose Dunlin Bewick's swan Common shelduck Common redshank

Pathways for LSE: potential impacts on onshore ornithological features

1.4.7.2 Potential impacts on the onshore ornithological features may occur during the construction, operation and maintenance and decommissioning phases of the Mona Offshore Wind Project. These are the impacts which are taken into account when determining the potential for LSE on the designated sites and waterbird features identified in Table 1.116~~Table 1.116~~. The list of potential impacts on wintering and migratory waterbirds has been compiled using the experience and knowledge from previous offshore wind farm projects, as well as published literature. Site-specific survey data collected between December 2021 and June 2023 (19 months of surveys) was used to identify the species of interest and define connectivity between the Mona Offshore Wind Project and SPAs.

1.4.7.3 Consideration of the potential impacts identified for the onshore ornithological features is presented in the following sections to inform the determination of LSE. Many of the European sites screened in include an "waterbird assemblage" qualifying feature, with the named components of each of these assemblage features also being identified in Table 1.116~~Table 1.116~~. For the purposes of considering the potential effect pathways, these named components are treated as qualifying features (with the potential effect pathways also considered for the overall "waterbird assemblage" feature).

Construction phase

Temporary habitat loss/disturbance and change in prey availability

1.4.7.4 Temporary habitat loss arising from the trenching and burying of the onshore export cable may occur during the construction phase of the Mona Offshore Wind Project. This is a temporary and relatively short-term effect of very small extent in relation to the construction period and is unlikely to be significant for waterbirds using the habitats near the onshore export cable. The works at the onshore export cable landfall are outwith any SPA or Ramsar site.

1.4.7.5 Any possible effect would also be concurrent and unmeasurable by the effect of disturbance and displacement and therefore, temporary habitat loss/disturbance and change in prey availability is therefore screened out for all sites.

Permanent habitat loss/displacement

1.4.7.6 Permanent habitat loss may occur during the construction and operation of the onshore substation and associated infrastructure. Loss of key foraging and roosting habitats for waterbirds may occur. However, given the footprint of the substation (125,000 m^2) and distance from the coastline (approximately 10 km) the effect is unlikely to be significant for waterbird ornithological features of nearby SPAs and this potential effect is therefore screened out.

Disturbance and displacement from presence of vehicles/heavy machinery

1.4.7.7 The presence of vehicle/heavy machinery and construction works may temporarily disturb waterbirds from the intertidal habitats (at the landfall) or along the Mona Onshore Cable Corridor. This may cause change in behaviour (e.g. reduce feeding intake rate) or displace the birds from the affected area. The temporary disturbance and displacement may lead to a reduction in foraging opportunities or increased energy expenditure with the potential to affect fitness (e.g., body condition), which can have a detrimental impact on bird survival and productivity. This would only be likely to apply to waterbirds which regularly utlise the Mona Onshore Cable Corridor in which construction activities will occur.

1.4.7.8 A programme of site-specific intertidal ornithology surveys, commencing in December 2021 for a period of 19 months (finishing in June 2023), were undertaken at the proposed landfall to characterise the baseline wintering waterbird utilisation of the intertidal area and inshore (Volume 7, Annex 4.2: Intertidal ornithology technical report of the Environmental Statement). This HRA Stage 1 Screening report considers the findings from the surveys undertaken between December 2021 and June 2023, inclusive. The findings show that birds associated with the habitats at the landfall are unlikely to be functionally linked with the SPAs identified during the overwintering period. While some birds which are qualifying features of SPAs within the vicinity of the landfall, may be present during the passage period, the numbers of birds present are small, particularly in the context of the SPA populations. For example, 188 oystercatchers were recorded at the landfall in December 2021, compared to the latest population of 28,033 birds associated with the Dee Estuary SPA (0.8% of the population; 2017/18 to 2021/22 five year mean peak; Austin *et al.*, 2023). Due to the proportionally small number of birds recorded at the Mona Offshore Cable Corridor landfall and the distance from the nearest SPA there is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure and the impact is screened out.

Operations and maintenance phase

Collision risk

1.4.7.9 Collisions of migratory waterbirds with the rotating blades of the wind turbines may result in the death or injury of individuals. Such mortality may be additive, so could cause population declines or, in some situations, prevent population recovery. Therefore, waterbird species which migrate through the Mona Array Area may be vulnerable to such effects.

1.4.7.10 The effect of collisions has been modelled in Volume 6, Annex 5.4: offshore ornithology migratory bird collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4) and assessed against the baseline mortality of each species in Volume 2, Chapter 5: offshore ornithology of the Environmental Statement (Document reference F2.5). The results of this assessment have been considered in the context of SPAs requested by NRW. There is no way of apportioning the modelled collision estimates to a specific SPA or Ramsar site due to the migratory nature of the birds. As such a different method is proposed.

1.4.7.11 For a precautionary assessment, the estimated number of annual collisions can be applied to each SPA or Ramsar site fully as there is no way of knowing which SPA or Ramsar site the bird originates from. If the percentage estimated number of annual collisions as a percentage of baseline mortality is greater than 0.1%, it would be considered that an LSE cannot be ruled out and the site (and species) would be taken through to the Stage 2 ISAA. If the increase in baseline mortality is less than 0.1%, no LSE can be concluded.

1.4.7.12 No species, which is a feature of an onshore ornithology designated site (Table 1.116~~Table 1.116~~) was predicted to have annual mortalities which results in >0.01% increase of baseline mortality, when applying a estimate of 98% avoidance. Therefore there is no potential for LSE to occur to any designated site as a result of collisions during migration for onshore ornithological features.

1.4.7.13 Full calculations are provided within Volume 6, Annex 5.4: offshore ornithology migratory bird collision risk modelling technical report of the Environmental Statement (Document reference F6.5.4) and assessed against the baseline mortality of each species in Volume 2, Chapter 5: offshore ornithology of the Environmental Statement (Document reference F2.5) but summarised below within Table 1.117~~Table 1.117~~ to Table 1.123~~Table 1.123~~.

Decommissioning phase

1.4.7.14 The impacts during the decommissioning phase are considered to be similar and potentially less than those outlined above for the construction phase, because associated works are likely to be of smaller scale and shorter duration. There is no permanent habitat loss associated with decommissioning.

Determination of LSE for onshore ornithological features

1.4.7.15 Table 1.117~~Table 1.117~~ to Table 1.24~~Table 1.24~~ present the results of the LSE determination assessment as a result of the Mona Offshore Wind Project on relevant qualifying waterbird features of The Dee Estuary SPA, The Dee Estuary Ramsar site, Traeth Lafan/Lavan Sands, Conway Bay SPA, Dyfi Estuary/Aber Dyfi SPA, Bury Inlet SPA, Bury Inlet Ramsar site, Severn Estuary SPA and Severn Estuary Ramsar.

1.4.7.16 These assessments are made in the absence of measures adopted as part of the Mona Offshore Wind Project. The footnotes to the following tables provide clarification to support the screening in or out of each of the LSE on the identified SPA features.

Table 1.117: LSE matrix for waterbird ornithological features of the Dee Estuary SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European Site Qualifying Feature	Temporary habitat loss/disturbance and change in prey availability			Permanent habitat loss/diplacement			Disturbance and displacement from airborne sound, and presence of vehicles/heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Northern pintail	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Eurasian teal	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Dunlin	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Red knot	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Eurasian oystercatcher	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Bar-tailed godwit	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Black-tailed godwit	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Eurasian curlew	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Grey plover	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Common shelduck	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Common redshank	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e
Northern lapwing	×a	×a	×a	×b	×b		×c		×c		×d		×e		×e

1.4.7.17 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where an LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where an LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and changes in prey availability** - as stated in paragraph 1.4.7.4, LSE on the qualifying features of this SPA as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Dee Estuary SPA.

b. **Permanent habitat loss/displacement** - although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this SPA, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Dee Estuary SPA.

c. **Disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure** – as outlined in section 1.4.7.8 birds recorded at the landfall are not considered to be associated with the Dee Estuary SPA (Volume 7, Annex 4.2: intertidal ornithology technical report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the SPA (~10 km from the Mona Onshore Cable Corridor). The intertidal surveys recorded low number of birds at the landfall, and while some birds from SPAs may be present during the passage period, the numbers of birds present are small, particularly in the context of the SPA populations. For example, up to 188 oystercatchers were recorded at the landfall during winter, against a background population of 28,033 birds associated with the SPA. There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure on qualifying features of the Dee Estuary SPA.

d. **Collision risk** – black-tailed godwit was the feature of the SPA for which the highest increase in baseline mortality, with an annual mortality estimate of 0.26 birds or 0.01% increase in baseline mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Dee Estuary SPA.

e. **In-combination effects** - other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning.

Table 1.118: LSE matrix for waterbird ornithological features of the Dee Estuary Ramsar site.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European Site Qualifying Feature	Temporary habitat loss/disturbance and change in prey availability			Permanent habitat loss/diplacement			Disturbance and displacement from airborne sound, and presence of vehicles/heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Bar-tailed godwit	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Black-tailed godwit	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Common redshank	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Common shelduck	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Eurasian curlew	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Eurasian oystercatcher	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Eurasian Teal	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Grey plover	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Northern pintail	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d
Red knot	×a	×a	×a	×b	×b		×c		×c		×d		×d		×d

1.4.7.18 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and changes in prey availability** - as stated in paragraph 1.4.7.4, LSE on the qualifying features of this SPA as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Dee Estuary Ramsar site.

b. **Permanent habitat loss/displacement** - although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this Ramsar site, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Dee Estuary Ramsar site.

c. **Disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure** - as outlined in section 1.4.7.8 birds recorded at the landfall are not considered to be associated with the Dee Estuary Ramsar site (Volume 7, Annex 4.2: intertidal ornithology technical report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the Ramsar site (13 km from the Mona Onshore Cable Corridor). The intertidal surveys also recorded low number of birds at the landfall, while some birds from SPAs may be present during the passage period, the numbers of birds present are small, particularly in the context of the SPA populations. For example, up to 188 oystercatchers were recorded at the landfall during the winter period, against a background of 28,033 birds associated with the Dee Estuary**.** There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure on qualifying features of the Dee Estuary Ramsar site.

d. **Collision risk** – black-tailed godwit was the feature of the Ramsar site for which the highest increase in baseline mortality, with an annual mortality estimate of 0.26 birds or 0.01% increase in baseline mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Dee Estuary Ramsar site.

e. **In-combination effects** – other plans or projects which have the potential to cause effects on the qualifying features of this Ramsar site may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning

Table 1.119: LSE matrix for waterbird ornithological features of the Traeth Lafan/Lavan Sands, Conway Bay SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning; P = potential for LSE, O = no potential for LSE)

European Site Qualifying Feature	Temporary habitat loss / disturbance and change in prey availability			Permanent habitat loss / diplacement			Disturbance and displacement from airborne sound, and presence of vehicles / heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Eurasian oystercatcher	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Red-breasted merganser	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Eurasian curlew	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Great crested grebe	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Common redshank	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e

1.4.7.19 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and changes in prey availability** – as stated in paragraph 1.4.7.4, LSE on the qualifying features of this SPA as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Traeth Lafan/Lavan Sands, Conway Bay SPA.

b. **Permanent habitat loss/displacement** – although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this SPA, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Traeth Lafan/Lavan Sands, Conway Bay SPA.

c. **Disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure** – As outlined in section 1.4.7.8 birds recorded at the landfall are not considered to be associated with the Traeth Lafan/Lavan Sands, Conway Bay SPA (Volume 7, Annex 4.2: Intertidal Ornithology Technical Report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the SPA (>20 km from the Mona Onshore Cable Corridor). There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure on qualifying features of the Traeth Lafan/Lavan Sands, Conway Bay SPA.

d. **Collision risk** – Eurasian curlew was the feature of the SPA for which the highest increase in baseline mortality , with an annual mortality estimate of 0.84 birds or 0.007% increase in baseline mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Traeth Lafan/Lavan Sands, Conway Bay SPA.

e. **In-combination effects** – other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning.

Table 1.120: LSE matrix for waterbird ornithological features of the Dyfi Estuary/Aber Dyfi SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

European Site Qualifying Feature	Temporary habitat loss / disturbance and change in prey availability			Permanent habitat loss / diplacement			Disturbance and displacement from airborne sound, and presence of vehicles / heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Greenland white-fronted goose	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e

1.4.7.20 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and changes in prey availability** – as stated in paragraph 1.4.7.4, LSE on the qualifying features of this SPA as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Dyfi Estuary/Aber Dyfi SPA.

b. **Permanent habitat loss/displacement** – although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this SPA, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Dyfi Estuary/Aber Dyfi SPA.

c. **Disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure** – as outlined in section 1.4.7.8 birds recorded at the landfall are not considered to be associated with the Dyfi Estuary/Aber Dyfi SPA (Volume 7, Annex 4.2: intertidal ornithology technical report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the SPA (>20 km from the Mona Onshore Cable Corridor). The intertidal surveys also recorded no Greenland white-fronted goose. There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure on qualifying features of the Dyfi Estuary/Aber Dyfi SPA.

d. **Collision risk** – Greenland white-fronted goose was the feature of the SPA for which the highest increase in baseline mortality , with an annual mortality estimate of 0.15 birds or 0.004% increase in basleine mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Dyfi Estuary/Aber Dyfi SPA.

e. **In-combination effects** - other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning.

Table 1.121: LSE matrix for waterbird ornithological features of the Burry Inlet SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning)

	Temporary habitat loss/disturbance and change in prey availability			Permanent habitat loss/displacement			Disturbance and displacement from airborne sound, and presence of vehicles / heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Common redshank	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Common shelduck	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Dunlin	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Eurasian curlew	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Eurasian golden plover	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Eurasian oystercatcher	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Eurasian teal	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Eurasian wigeon	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Northern pintail	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Northern shoveler	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Red knot	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Turnstone	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e

1.4.7.21 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and changes in prey availability** - as stated in paragraph 1.4.7.4, LSE on the qualifying features of this SPA as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Burry Inlet SPA.

b. **Permanent habitat loss/displacement** - although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this SPA, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Burry Inlet SPA.

c. **Disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure** - as outlined in section 1.4.7.8, birds recorded at the landfall are not considered to be associated with the Burry Inlet SPA (Volume 7, Annex 4.2: intertidal ornithology technical report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the SPA (>20 km from the Mona Onshore Cable Corridor). There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure on qualifying features of the Burry Inlet SPA.

d. **Collision risk** – Eurasian curlew was the feature of the SPA for which the highest percentage increase in baseline mortality, with an annual mortality estimate of 0.84 birds or 0.007% increase in baseline mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Burry Inlet SPA.

e. **In-combination effects** - other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning.

Table 1.122: LSE matrix for waterbird ornithological features of the Burry Inlet Ramsar site.

(C = construction, O&M = operations and maintenance, D = decommissioning)

	Temporary habitat loss/disturbance and change in prey availability			Permanent habitat loss/displacement			Disturbance and displacement from airborne sound, and presence of vehicles /heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Eurasian oystercatcher	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Northern pintail	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e
Northern shoveler	×a	×a	×a	×b	×b		×c		×c		×d		×e	×e	×e

1.4.7.22 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a × symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and changes in prey availability** - as stated in paragraph 1.4.7.4, LSE on the qualifying features of this Ramsar site as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Burry Inlet Ramsar site.

b. **Permanent habitat loss/displacement** - although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this SPA, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Burry Inlet Ramsar site.

c. **Disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure** - as outlined in section 1.4.7.8, birds recorded at the landfall are not considered to be associated with the Burry Inlet Ramsar site (Volume 7, Annex 4.2: intertidal ornithology technical report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the Ramsar site (>20 km from the Mona Onshore Cable Corridor). There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure on qualifying features of the Burry Inlet Ramsar site.

d. **Collision risk** – Eurasian oystercatcher was the feature of the Ramsar site for which the highest increase in baseline mortality, with an annual mortality estimate of 1.82 birds or 0.005% increase in baseline mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Burry Inlet Ramsar site.

e. **In-combination effects** - other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning.

Table 1.123: LSE matrix for waterbird ornithological features of the Severn Estuary SPA.

(C = construction, O&M = operations and maintenance, D = decommissioning; P = potential for LSE, O = no potential for LSE)

European Site Qualifying Feature	Temporary habitat loss/disturbance and change in prey availability			Permanent habitat loss/displacement			Disturbance and displacement from airborne sound, and presence of vehicles / heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Bewick's swan	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Common redshank	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Common shelduck	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Dunlin	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
European white-fronted goose	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Gadwall	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d

1.4.7.23 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

a. **Temporary habitat loss/disturbance and changes in prey availability** - as stated in paragraph 1.4.7.4, LSE on the qualifying features of this SPA as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Severn Estuary SPA.

b. **Permanent habitat loss / displacement** - although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this SPA, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Severn Estuary SPA.

c. **Disturbance and displacement from airborne sound and presence of vehicles/heavy machinery and infrastructure** - As outlined in section 1.4.7.8 birds recorded at the landfall are not considered to be associated with the Severn Estuary SPA (Volume 7, Annex 4.2: Intertidal Ornithology Technical Report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the SPA (>20 km from the Mona Onshore Cable Corridor). There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure on qualifying features of the Severn Estuary SPA.

d. **Collision risk** – Common shelduck was the feature of the SPA for which the highest increase in baseline mortality, with an annual mortality estimate of 0.22 birds or 0.004% increase in baseline mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Severn Estuary SPA.

e. **In-combination effects** - other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning.

Table 1.124: LSE matrix for waterbird ornithological features of the Severn Estuary Ramsar site.

(C = construction, O&M = operations and maintenance, D = decommissioning; P = potential for LSE, O = no potential for LSE)

European Site Qualifying Feature	Temporary habitat loss/disturbance and change in prey availability			Permanent habitat loss/diplacement			Disturbance and displacement from airborne sound, and presence of vehicles/heavy machinery and infrastructure			Collision risk			In-combination effects		
	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Bewick's swan	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Common redshank	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Common shelduck	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Dunlin	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
European white-fronted goose	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d
Gadwall	×a	×a	×a	×b	×b		×c		×c		×d		×d	×d	×d

1.4.7.24 The notes below explain the conclusion of whether or not LSE can be ruled out for a given impact. The impacts are categorised by letter which correspond to a letter within the table. Within the table where a LSE cannot be ruled out for a given impact a ✓ symbol is included and the box is highlighted in blue, where a LSE has been ruled out a ✗ symbol is included and highlighted green.

f. **Temporary habitat loss/disturbance and changes in prey availability** - as stated in paragraph 1.4.7.4, LSE on the qualifying features of this SPA as a result of temporary habitat loss or disturbance associated with the construction, operations and maintenance or decommissioning of the onshore export cable is screened out due to the small-scale, temporary nature of any loss or disturbance of habitats used by qualifying features. There are no effects on qualifying features during operation because the export cable is an immobile, mostly buried structure requiring minimal maintenance. There is no potential for LSE from temporary habitat loss/disturbance and changes in prey availability on qualifying features of the Severn Estuary Ramsar site.

g. **Permanent habitat loss/displacement** - although the construction of a substation may result in permanent habitat loss and potential displacement of waterbird features, the distribution of these qualifying features is concentrated on the intertidal habitats and coastal fields of this Ramsar site, so that there is no potential for LSE from habitat loss associated with the construction or long-term presence of the substation located further inland. There is no potential for LSE from permanent habitat loss/disturbance and changes in prey availability on qualifying features of the Severn Estuary Ramsar site.

h. **Disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure** - As outlined in section 1.4.7.8 birds recorded at the landfall are not considered to be associated with the Severn Estuary Ramsar site (Volume 7, Annex 4.2: Intertidal Ornithology Technical Report of the Environmental Statement (Document reference F7.4.2)) due to the distance to the Ramsar site (>20 km from the Mona Onshore Cable Corridor). There is no potential for LSE disturbance and displacement from airborne sound and presence of vehicles / heavy machinery and infrastructure on qualifying features of the Severn Estuary Ramsar site.

i. **Collision risk** – Common shelduck was the feature of the SPA for which the highest increase in baseline mortality, with an annual mortality estimate of 0.22 birds or 0.004% increase in baseline mortality. There is no potential for LSE to occur due to collision risk to any of the features of the Severn Estuary Ramsar site.

j. **In-combination effects** - other plans or projects which have the potential to cause effects on the qualifying features of this SPA may combine with potential effects associated with the onshore export cable, as stated above, no potential LSEs have been identified and therefore the potential for LSE can be excluded in relation to in-combination effects during construction and decommissioning.

1.5 Approach to the in-combination assessment

1.5.1.1 The Habitats Regulations require the consideration of the potential effects of a project on European sites both alone and in-combination with other plans or projects.

1.5.1.2 The in-combination assessment will consider all other relevant plans, projects and activities where information to inform the assessment is publicly available three months prior to the Mona Offshore Wind Project application.

1.5.1.3 For the Mona Offshore Wind Project in-combination assessment a tiered approach has been adopted. This approach provides a framework for placing relative weight on the potential for each project/plan to be included in the in-combination assessment to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the project's parameters. The allocation of each project, plan and activity into tiers is not affected by the screening process but is merely a categorisation applied to all projects, plans and activities that have been screened in for assessment.

1.5.1.4 The tiered approach uses the following categorisations:

- Tier 1
  - Under construction
  - Permitted application
  - Submitted application
  - Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an on-going impact
- Tier 2
  - Scoping report has been submitted and is in the public domain
- Tier 3
  - Scoping report has not been submitted
  - Identified in a relevant development plan
  - Identified in other plans and programmes.

1.5.1.5 An overview of the projects or activities which will be considered for in-combination with the Mona Offshore Wind Project include (but are not limited to):

- Other offshore wind farms and associated cabling and infrastructure
- Oil and gas infrastructure/development (cables and pipelines)
- Other forms of cabling (i.e. telecommunications and interlinks)
- Beach replenishment schemes
- Navigation and shipping
- Aggregate extraction and disposal of dredging spoil.

1.6 Summary of LSE

1.6.1.1 Table 1.125~~Table 1.125~~ provides a summary of the European sites, qualifying interest features and potential impacts for which a potential for an LSE has been identified as a result of the Mona Offshore Wind Project alone and/or in combination with other

plans or projects. The table excludes all features which have been screened out as no potential for LSE has been identified. These sites and features will be taken forward for consideration in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2).

1.6.1.2 In total, 43 SACs are being taken forward for consideration in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2). No European sites were considered for LSE with Annex I habitats (onshore) listed as designated features.

1.6.1.3 In relation to European sites designated for Annex I Habitats (offshore), the assessment of LSE undertaken in section 1.4.3 considered a single European site (Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC) for which the potential for LSE could not be discounted. An appropriate assessment will be undertaken for this site in the HRA Stage 2 ISAA Part 2 – SAC assessments (Document Reference E1.2) with respect to:

- Increases in SSC and associated deposition (Mona Offshore Cable Corridor only and for all phases of the Mona Offshore Wind Project)
- Changes in physical processes (Mona Offshore Cable Corridor only and for the operations and maintenance and decommissioning phases of the Mona Offshore Wind Project only)
- Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor only and for all phases of the Mona Offshore Wind Project)
- Removal of hard substrates (Mona Offshore Cable Corridor and Annex I reefs only and for the decommissioning phase of the Mona Offshore Wind Project only)
- Accidental pollution (for all phases of the Mona Offshore Wind Project)
- In-combination effects.

1.6.1.4 Nine SACs were considered for Annex II diadromous fish species in section 1.4.4. All nine of these sites will be progressed to stage two of the HRA with respect to:

- Underwater sound (during the construction and decommissioning phases of the Mona Offshore Wind Project)
- EMF (during the operations and maintenance phase of the Mona Offshore Wind Project)
- In-combination effects.

1.6.1.5 With respect to marine mammals, the assessment of LSE undertaken in section 1.4.4, considered 43 European sites (including 26 SACs in the UK and Ireland and 17 French sites). Of these, the potential for LSE could not be discounted with respect to the following impacts for all sites considered:

- Underwater sound from piling (during the construction phase only of the Mona Offshore Wind Project)
- Underwater sound from clearance of UXO (during the construction phase only of the Mona Offshore Wind Project)
- Underwater sound during site investigation surveys (during the construction phase only of the Mona Offshore Wind Project)
- Underwater sound from vessels and other vessel activities (for all phases of the Mona Offshore Wind Project)

- Changes in prey availability (North Anglesey Marine/Gogledd Môn Forol only and during the construction phase only of the Mona Offshore Wind Project)
- In-combination effects.

1.6.1.6 No sites were considered for Annex II species (onshore) (otter).

1.6.1.7 In relation to the offshore ornithology SPAs (and associated Ramsar sites included on the basis of their ornithological features), the assessment of LSE undertaken in section 1.4.6 above, resulted in 36~~3~~ SPAs listed in Table 1.125~~Table 1.125~~ being taken forward for consideration in the ISAA, these include marine SPAs and breeding seabird colony SPAs.

1.6.1.8 The following impacts will be considered for the Liverpool Bay/Bae Lerpwl SPA:

- Temporary habitat loss/disturbance and increased SSC
- Disturbance and displacement from airborne sound, and presence of vessels and infrastructure
- Changes in prey availability (construction phase only)
- Accidental pollution
- In-combination effects.

1.6.1.9 For the other 3~~2~~5 SPAs the following impacts will be considered, outlined in Table 1.125~~Table 1.125~~:

- Disturbance and displacement from airborne sound and presence of vessels and infrastructure
- Collison risk
- In-combination effects.

1.6.1.10 In relation to the onshore ornithology SPAs (and associated Ramsar sites included on the basis of their ornithological features), the assessment of LSE undertaken in section 1.4.7 above, resulted in no onshore ornithology SPAs being taken forward for consideration in the ISAA.

Table 1.125: Summary of European Sites and relevant qualifying features for which potential LSEs have been identified and screened in for further assessment in the ISAA.

European Site	Relevant qualifying features	Project phase	Impact
Menai Strait and Conwy Bay/Y Fenai a Bae Conwy SAC	Reefs	Construction/decommissioning	• Increases in SSC and associated deposition (Mona Offshore Cable Corridor only) • Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor only) • Changes in physical processes (Mona Offshore Cable Corridor only and decommissioning phase only) • Removal of hard substrate (Mona Offshore Cable Corridor only and for Annex I reef only)Accidental pollution (Mona Offshore Cable Corridor only) • In-combination effects
		Operations and maintenance	• Increases in SSC and associated deposition (Mona Offshore Cable Corridor only) • Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor only) • Changes in physical processes (Mona Offshore Cable Corridor only) • Accidental pollution (Mona Offshore Cable Corridor only) • In-combination effects
	Sandbanks which are slightly covered by seawater all the time	Construction/decommissioning	• Increases in SSC and associated deposition (Mona Offshore Cable Corridor only) • Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor only) • Changes in physical processes (Mona Offshore Cable Corridor only and decommissioning phase only) • Accidental pollution (Mona Offshore Cable Corridor only) • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
		Operations and maintenance	• Increases in SSC and associated deposition (Mona Offshore Cable Corridor only) • Changes in physical processes (Mona Offshore Cable Corridor only) • Increased risk of introduction and spread of INNS (Mona Offshore Cable Corridor only) • Accidental pollution (Mona Offshore Cable Corridor only) • In-combination effects
Dee Estuary/Aber Dyfrdwy SAC	Sea lamprey	Construction	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Dee and Bala Lake/Afon Dyfrydwy a Llyn Tegid SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors

European Site	Relevant qualifying features	Project phase	Impact
			• In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Ehen SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	Freshwater pearl mussel	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Eden SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
Afon Gwyrfai a Llyn Cwellyn SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors

European Site	Relevant qualifying features	Project phase	Impact
			• In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Kent SAC	Freshwater pearl mussel	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Derwent and Bassenthwaite SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
Solway Firth SAC	Sea lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
	River lamprey	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors

European Site	Relevant qualifying features	Project phase	Impact
			• In-combination effects
		Operations and maintenance	• EMF • In-combination effects
River Bladnoch SAC	Atlantic salmon	Construction/decommissioning	• Underwater sound impacting fish and shellfish receptors • In-combination effects
		Operations and maintenance	• EMF • In-combination effects
North Anglesey Marine/Gogledd Môn Forol SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • Changes in prey availability (construction only) • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
North Channel SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC	Bottlenose dolphin	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys

European Site	Relevant qualifying features	Project phase	Impact
			• Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
West Wales Marine/Gorllewin Cymru Forol SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Strangford Lough SAC	Harbour seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activitiesIn-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Murlough SAC	Harbour seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Cardigan Bay/Bae Ceredigion SAC	Bottlenose dolphin	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound from vessels and other vessel activities • In-combination effects
	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
The Maidens SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys

European Site	Relevant qualifying features	Project phase	Impact
			• Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Pembrokeshire Marine/Sir Benfro Forol SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Bristol Channel Approaches/Dynesfeydd Môr Hafren SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Lundy SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Isles of Scilly Complex SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Rockabill to Dalkey Island SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Saltee Islands SAC	Grey seal	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Roaringwater Bay and Islands SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities

European Site	Relevant qualifying features	Project phase	Impact
			• In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
Blasket Islands SAC	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects
17 French Sites • Mers Celtiques - Talus du golfe de Gascogne SCI • Abers - Côte des legends SCI • Ouessant-Molène SCI • Côte de Granit rose-Sept-Iles SCI • Anse de Goulven, dunes de Keremma SCI • Tregor Goëlo SCI • Côtes de Crozon SCI • Chaussée de Sein SCI • Cap Sizun SCI • Récifs du talus du golfe de Gascogne SCI • Anse de Vauville SCI • Cap d'Erquy-Cap Fréhel SCI	Harbour porpoise	Construction/decommissioning	• Underwater sound from piling • Underwater sound from clearance of UXO • Underwater sound from site investigation surveys • Underwater sound due to vessel use and other activities • In-combination effects
		Operations and maintenance	• Underwater sound due to vessel use and other activities • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
• Baie de Saint-Brieuc – Est SC • Banc et récifs de Surtainville SCI • Baie de Lancieux, Baie de l'Arguenon, Archipel de Saint Malo et Dinard SCI • Estuaire de la Rance SCI • Baie du Mont Saint-Michel SCI			
Liverpool Bay/Bae Lerpwl SPA	Red-throated diver Little gull Common scoter Little tern Common tern Waterbird assemblage	Construction/decommissioning	• Temporary habitat loss/disturbance and increased SSC • Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Changes in prey availability (construction only) • Accidental pollution • In-combination effects
		Operations and maintenance	• Temporary habitat loss/disturbance and increased SSC • Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Accidental pollution • In-combination effects
Irish Sea Front SPA	Manx shearwater	Construction/decommissioning	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
		Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Skomer, Skokholm and the Seas off Pembrokeshire SPA	Lesser black-black gull	Construction/decommissioning	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure

European Site	Relevant qualifying features	Project phase	Impact
	Black-legged kittiwake – assemblage speceis Manx shearwater Common guillemot (non-breeding only) – assemblage speceis Razorbill (non-breeding only) – assemblage speceis		• In-combination effects
		Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Ribble and Alt Estuaries SPA (and Ramsar site)	Lesser black-backed gull	Operations and maintenance	• Collision risk • In-combination effects
Morecambe Bay SPA	Lesser black-backed gull	Operations and maintenance	• Collision risk • In-combination effects
Bowland Fells SPA	Lesser black-backed gull	Operations and maintenance	• Collision risk • In-combination effects
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA	Manx shearwater	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Lambay Island SPA	Black-legged kittiwake	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Howth Head Coast SPA	Black-legged kittiwake	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Ireland's Eye SPA	Black-legged kittiwake	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure

European Site	Relevant qualifying features	Project phase	Impact
			• Collision risk • In-combination effects
Copeland Islands SPA	Manx shearwater	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Grassholm SPA	Gannet	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk • In-combination effects
Wicklow Head SPA	Black-legged kittiwake	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Ailsa Craig SPA	Northern gannet Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk (northern gannet only) • In-combination effects
Rathlin Island SPA	Black-legged kittiwake Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk (black-legged kittiwake only) • In-combination effects
Saltee Islands SPA	Northern gannet	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk • In-combination effects
North Colonsay and Western Cliffs SPA	Black-legged kittiwake	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure

European Site	Relevant qualifying features	Project phase	Impact
	Common guillemot (non-breeding only)		• Collison risk (black-legged kittiwake only) • In-combination effects
Rum SPA	Manx shearwater	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Shiant Isles SPA	Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Skelligs SPA	Northern gannet	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk (northern gannet only) • In-combination effects
Handa SPA	Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
St Kilda SPA	Northern gannet Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk (northern gannet only) • In-combination effects
Cape Wrath SPA	Black-legged kittiwake (non-breeding only) Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk (black-legged kittiwake only) • In-combination effects
Flannan Isles SPA	Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects

European Site	Relevant qualifying features	Project phase	Impact
Flamborough and Filey Coast SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Fowlsheugh SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Canna and Sanday SPA	Common guillemot ~~Black-legged kittiwake~~ (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure ~~• Collision Risk~~ • In-combination effects
Mingulay and Berneray SPA	Common guillemot (non-breeding only) Razorbill (non-breeding only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
Isles of Scilly SPA	Great black-backed gull	Operations and maintenance	• Collision risk • In-combination effects
Buchan Ness to Collieston SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Troup, Pennan and Lions Heads SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
East Caithness Cliffs SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure

European Site	Relevant qualifying features	Project phase	Impact
			• Collision risk • In-combintion effects
North Caithness Cliffs SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
Sule Skerry and Sule Stack SPA	Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
North Rona and Sula Sgeir SPA	Common guillemot (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
West Westray SPA	Black-legged kittiwake (non-breeding only)	Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects

1.7 References

Andersson, M., Sigray, P. and Persson, L. (2011) Operational wind farm noise and shipping noise compared with estimated zones of audibility for four species of fish. Journal of The Acoustical Society of America. Vol.129. 10.

Austin, G.E., Calbrade, N.A., Birtles, G.A., Peck, K., Shaw, J.M. Wotton, S.R., Balmer, D.E. and Frost, T.M. 2023. Waterbirds in the UK 2021/22: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

Bat Conservation Trust/BMT Cordah Limited (2005) A Review and Synthesis of published information and practical experience on bat conservation within a fragmented landscape. An occasional report by the Three Welsh National Parks, Pembrokeshire CC and the Countryside Council for Wales, Cardiff.

Boere, G. C., Galbraith, C. A. and Stroud, D. A. (2006) Waterbirds around the world. Edinburgh, UK: The Stationery Office.

Bowland Ecology (2021) Identification of Functionally Linked Land supporting SPA waterbirds in the North West of England. NERC361. Natural England.

Brasseur, S., G. Aarts, E. Meesters, T. van Polanen Petel, E. Dijkman, J. Cremer, and P. Reijnders. (2012) *Habitat preference of harbour seals in the Dutch coastal area: analysis and estimate of effects of offshore wind farms*. Report number: OWEZ R 252 T1 20100929 p 55.

CEFAS (2010) *Strategic review of offshore wind farm monitoring data associated with FEPA licence conditions – annex 4: underwater sound*., Cefas report ME1117.

Chanin P (2003) Ecology of the European Otter. Conserving Natura 2000 Rivers Ecology Series No. 10. English Nature, Peterborough.

Chanin P (2003) *Ecology of the European Otter.* Conserving Natura 2000Rivers Ecology Series No. 10. English Nature, Peterborough.

Countryside Council For Wales (2008a) Core Management Plan Including Conservation Objectives For River Dee And Bala Lake/Afon Dyfrdwy A Llyn Tegid SAC. Available at: CONSERVATION OBJECTIVES FOR N2K SITES (afonyddcymru.org) Accessed on 06 June 2022.

Countryside Council For Wales (2008b) Core Management Plan Including Conservation Objectives For Afon Gwyrfai A Llyn Cwellyn SAC. Available at: CORE MANAGEMENT PLAN INCLUDING CONSERVATION OBJECTIVES FOR Afon GWyrfai a Llyn Cwellyn Special Area of Conservation (afonyddcymru.org). Accessed on 06 June 2022.

Countryside Council for Wales (2010) The Dee Estuary European Marine Site comprising: Dee Estuary / Aber Dyfrdwy Special Area of Conservation The Dee Estuary Special Protection Area The Dee Estuary Ramsar Site. Available at: https://naturalresources.wales/media/673576/Dee%20Estuary-Reg33-Volume%201-English-091209_1.pdf Accessed 01 September 2023.

Cummins, S., Lauder, C., Lauder, A. & Tierney, T. D. (2019) The Status of Ireland's Breeding Seabirds: Birds Directive Article 12 Reporting 2013 – 2018. Irish Wildlife Manuals, No. 114. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Cury, P.M., Boyd, I.L., Bonhommeau, S., Anker-Nilssen, T., Crawford, R.J., Furness, R.W., Mills, J.A., Murphy, E.J., Österblom, H., Paleczny, M. and Piatt, J.F., 2011. Global seabird response to forage fish depletion—one-third for the birds. Science, 334(6063), pp.1703-1706.

Czech-Damal, N. U., Dehnhardt, G., Manger, P. and Hanke, W. (2013) Passive electroreception in aquatic mammals. *Journal of Comparative Physiology A*-Neuroethology Sensory Neural and Behavioral Physiology 199:555-563.

Department for Environment Food and Rural Affairs (Defra) (2021) Changes to the Habitats Regulations 2017. January 2021. Available: https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017. Accessed June 2022.

Dias, M.P., Martin, R., Pearmain, E.J., Burfield, I.J., Small, C., Phillips, R.A., Yates, O., Lascelles, B., Borboroglu, P.G. and Croxall, J.P., 2019. Threats to seabirds: a global assessment. Biological Conservation, 237, pp.525-537.

Diederichs, A., Nehls, G., Dähne, M., Adler, S., Koschinski, S. and Verfuß, U. (2008) *Methodologies for measuring and assessing potential changes in marine mammal behaviour, abundance or distribution arising from the construction, operation and decommissioning of offshore windfarms.*

Dierschke, V., Furness, R.W. & Garthe, S. (2016) Seabirds and offshore wind farms in European waters: avoidance and attraction. Biological Conservation, 202, 59-68.

Diershke, V., Furness, R.W. and Garthe, S. (2018) Seabirds and wind farms in European waters: Avoidance and attraction. *Biological Conservation*, **202**, 59-68.

Dorsch, M., Burger, C., Schubert, A. and Nehls, G. (2020) *DIVER: German tracking study of seabirds in areas of planned Offshore Wind Farms at the example of divers.* Final report on the joint project DIVER, FKZ 0325747A/B, funded by the Federal Ministry of Economics and Energy (BMWi) on the basis of a decision by the German Bundestag.

European Commission (EC) (2006) Nature and Biodiversity Cases Ruling of the European Court of Justice.

EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EE. Clarification on the Concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission

EC (2018) Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC'.

EC (2020) Guidance document on wind energy developments and EU nature legislation. European Commission Notice Brussels (2020) 7730 final.

EC (2021) Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC. European Commission Notice Brussels (2021) 6913 final.

Franks, S., Fiedler, W., Arizaga, J., Jiguet, F., Nikolov, B., van der Jeugd, H., Ambrosini, R., Aizpurua, O., Bairlein, F., Clark, J., Fattorini, N., Hammond, M., Higgins, D., Levering, H., Skellorn, W., Spina, F., Thorup, K., Walker, J., Woodward, I. and Baillie, S.R.1. (2022) Online Atlas of the movements of Eurasian-African bird populations. EURING/CMS.

Furness, R. W., Wade, H. M., & Masden, E. A. (2013) Assessing vulnerability of marine bird populations to offshore wind farms. Journal of environmental management, 119, 56–66. https://doi.org/10.1016/j.jenvman.2013.01.025

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

Gill, A. B. and Bartlett, M. (2010) Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Scottish Natural Heritage

Green, R.M.W., Niall H.K. Burton & Aonghais S.C.P. Cook. (2019) Migratory movements of British and Irish Common Shelduck Tadorna tadorna: a review of ringing data and a pilot tracking study to inform potential interactions with offshore wind farms in the North Sea, Ringing & Migration, 34:2, 71-83, DOI: 10.1080/03078698.2019.1887670.

Harris S, Morris P, Wray S & Yalden P (1995) *A review of British mammals*. Joint Nature Conservation Committee, Peterborough.

Harris S, Morris P, Wray S and Yalden P (1995) A review of British mammals. Joint Nature Conservation Committee, Peterborough.

Hastie, G. D., Russell, D. J., Benjamins, S., Moss, S., Wilson, B. and Thompson, D. (2016) Dynamic habitat corridors for marine predators; intensive use of a coastal channel by harbour seals is modulated by tidal currents. *Behavioral Ecology and Sociobiology*:1-14.

Hutchison (2020) The Interaction Between Resource Species and Electromagnetic Fields Associated with Electricity Production by Offshore Wind Farms. Available at: https://tethys.pnnl.gov/sites/default/files/publications/Hutchison-et-al-2020-EMFs.pdf Accessed on 21 June 2022.

IAQM (2020). A guide to the assessment of air quality impacts on designated nature conservation sites. Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf Accessed on: 11 August 2022.

IMWWG (2015) Management Units for cetaceans in UK waters (January 2015) JNCC Report No. 547, JNCC Peterborough.

Joint Nature Conservation Committee and Natural England (2013a) Suggested Tiers for Cumulative Impact Assessment, 12 September 2013. JNCC, Peterborough.

JNCC (2019a) Harbour Porpoise (*Phocoena phocoena*) Special Area of Conservation: North Anglesey Marine/ Gogledd Môn Forol Conservation Objectives and Advice on Operations. Available at: https://data.jncc.gov.uk/data/f4c19257-2341-46b3-8e29-49665cd8f3d2/NorthAnglesey-Conservation-Advice.pdf. Accessed on 06 June 2022

JNCC (2019b) Harbour Porpoise (*Phocoena phocoena*) Special Area of Conservation: North Channel Conservation Objectives and Advice on Operations Available at: https://data.jncc.gov.uk/data/be0492aa-f1d6-4197-be22-e9a695227bdb/NorthChannel-conservation-advice.pdf Accessed on 06 June 2022

Johnston, A., Cook, A.S.C.P., Wright, L.J., Humphreys, E.M. and Burton, N.H.K. (2014a) Modelling flight heights of marine birds to more accurately assess collision risk with offshore wind turbines. *Journal of Applied Ecology*, 51, 31- 41.

Johnston, A., Cook, A.S.C.P., Wright, L.J., Humphreys, E.M. and Burton, N.H.K. (2014b) Corrigendum. *Journal of Applied Ecology*, doi: 10.1111/1365-2664.12260.

Kean E. and Chadwick, L. (2021) NRW Evidence Report Otter Survey Wales 2015-2018 (Report: No 519). Natural Resources Wales.

Kean E. and Chadwick, L. (2021) NRW Evidence Report Otter Survey Wales 2015-2018 (Report: No 519). Natural Resources Wales.

Kruuk, H. (1995) Wild otters: predation and populations. Oxford University Press, Oxford.

Laist, D. W., Knowlton, A. R., Mead, J. G., Collet, A. S., & Podesta, M. (2001). Collisions between ships and whales. Marine Mammal Science, 17(1). Available: https://doi.org/10.1111/j.1748-7692.2001.tb00980.x. Accessed October 2022.

Lindeboom, H. J., H. J. Kouwenhoven, M. J. N. Bergman, S. Bouma, S. Brasseur, R. Daan, R. C. Fijn, D. de Haan, S. Dirksen, R. van Hal, R. Hille Ris Lambers, R. ter Hofstede, K. L. Krijgsveld, M. Leopold, and M. Scheidat. (2011) Short-term ecological effects of an offshore wind farm in the Dutch coastal zone; a compilation. *Environmental Research Letters* 6:1-13.

Madsen, P. T., Wahlberg, M., Tougaard, J., Lucke, K. and Tyack., P. (2006) Wind turbine underwater sound and marine mammals: implications of current knowledge and data needs. *Marine Ecology Progress Series* 309:279-295.

Mander, L., Nicholson, I., Green, R.M., Dodd, S.G., Forster, R.M. and Burton, N.H., 2022. Individual, sexual and temporal variation in the winter home range sizes of GPS-tagged Eurasian Curlews Numenius arquata. Bird Study, 69(1-2), pp.39-52.

Marubini, F., Gimona, A., Evans, P.G., Wright, P.J. and Pierce, G.J. (2009) Habitat preferences and interannual variability in occurrence of the harbour porpoise *Phocoena* off northwest Scotland. *Marine Ecology Progress Series* 381:297-310.

Matz, H. (2014) Evidence for Collective Navigation in Salmon for Homeward Migration. Miami Shark Research. Available at: https://sharkresearch.earth.miami.edu/evidence-for-collective-navigation-in-salmon-for-homeward-migration/. Accessed September 2023.

MMO (2014) *Review of post-consent offshore wind farm monitoring data associated with licence conditions.* A report produced for the Marine Management Organisation, pp 194. MMO Project No: 1031. ISBN: 978-1-909452-24-4.

Natural England (2019a) River Ehen SAC Standard Data Form. Available at: https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0030057.pdf. Accessed September 2023.

Natural England (2019b) European Site Conservation Objectives: Supplementary advice on conserving and restoring site features River Derwent and Bassenthwaite Lake Special Area of Conservation (SAC) Available at: http://publications.naturalengland.org.uk/publication/6086221126172672 Accessed September 2023.

Natural England (2019c) European Site Conservation Objectives: Supplementary advice on conserving and restoring site features River Kent Special Area of Conservation (SAC) Available at: http://publications.naturalengland.org.uk/publication/5256393649029120 Accessed September 2023.

Natural England, JNCC, NRW (2019) Harbour Porpoise (Phocoena phocoena) Special Area of Conservation: Bristol Channel Approaches / Dynesfeydd Môr Hafren Conservation Objectives and Advice on Operations Available at: Bristol Channel Approaches MPA: Conservation Objectives and Advice on Operations (jncc.gov.uk). Accessed September 2023.

Natural Resources Wales (2018) Pen Llŷn a'r Sarnau / Lleyn Peninsula and the Sarnau Special Area of Conservation Advice provided by Natural Resources Wales in fulfilment of Regulation 37 of the Conservation of Habitats and Species Regulations 2017. Available at: https://cdn.naturalresources.wales/media/688001/eng-pen-llyn-ar-sarnau-reg-37-report-2018.pdf?mode=pad. Accessed September 2023.

NatureScot (2022a) River Bladnoch Special Area Of Conservation (Sac) Conservation Advice Package. Available at: https://sitelink.nature.scot/site/8355 Accessed September 2023.

NatureScot (2022b) Site information for Solway Firth SAC. Available at: https://sitelink.nature.scot/site/8377. Accessed September 2023.

NatureScot (2023) Guidance Note 8: Guidance to support Offshore Wind Applications: Marine Ornithology Advice for assessing the distributional responses, displacement and barrier effects of Marine birds. Available at: https://www.nature.scot/doc/guidance-note-8-guidance-support-offshore-wind-applications-marine-ornithology-advice-assessing. Accessed October 2023

Normandeau (Normandeau Associates, Inc.), Exponent Inc., Tricas, T. and Gill, A. (2011). Effects of EMFs from Undersea Power Cables on Elasmobranchs and Other Marine Species. U. [Online]. Available at: https://espis.boem.gov/final%20reports/5115.pdf. Accessed September 2023.

NRW (2010). The Dee Estuary European Marine Site. Available at: https://naturalresources.wales/media/673576/Dee%20Estuary-Reg33-Volume%201-English-091209_1.pdf. Accessed September 2023.

NRW and JNCC (2019) West Wales Marine / Gorllewin Cymru Forol MPA: Conservation Objectives And Advice On Operations Available at: https://jncc.gov.uk/our-work/west-wales-marine-mpa/. Accessed September 2023.

Pierpoint, C. (2008) Harbour porpoise (Phocoena phocoena) foraging strategy at a high energy, near-shore site in south-west Wales, UK. *Journal of the Marine Biological Association of the UK* 88:1167-1173.

Russell, D. J., Brasseur, S.M., Thompson, D., Hastie, G.D., Janik, V.M., Aarts, G., McClintock, B.T., Matthiopoulos, J., Moss, S. E. and McConnell, B. (2014) Marine mammals trace anthropogenic structures at sea. *Current Biology* 24:R638-R639.

Scheidat, M., J. Tougaard, S., Brasseur, J., Carstensen, T., van Polanen Petel, J., Teilmann, and Reijnders. P. (2011) Harbour porpoises (*Phocoena phocoena*) and wind farms: a case study in the Dutch North Sea. *Environmental Research Letters* 6:1-10.

Schoeman, R.P., Patterson-Abrolat, C. and Plön, S. (2020) A Global Review of Vessel Collisions With Marine Animals. Front. Mar. Sci. 7:292.

SCOS (2018) Scientific Advice on Matters Related to the Management of Seal Populations: 2018. Available at: http://www.smru.st-andrews.ac.uk/files/2019/05/SCOS-2018.pdf. Accessed September 2023.

SCOS (2020) Scientific Advice on Matters Related to the Management of Seal Populations: 2020. Available at: http://www.smru.st-andrews.ac.uk/files/2021/06/SCOS-2020.pdf. Accessed September 2023.

Searle, K.R., Mobbs, D.C., Butler, A., Furness, R.W., Trinder, M.N. and Daunt, F. (2018) *Finding out the Fate of Displaced Birds.* Scottish Marine and Freshwater Science Vol 9 No 8, 149pp. DOI: 10.7489/12118-1. https://data.marine.gov.scot/dataset/finding-out-fate-displaced-birds. Accessed September 2023.

Sigray, P. and Andersson, M. (2011) Particle motion measured at an operational wind turbine in relation to hearing sensitivity in fish. The *Journal of the Acoustical Society of America*. 130. 200-7.

Strachan, R. (2015) Otter Survey of Wales 2009-10. Natural Resources Wales.

Strachan, R. (2015) Otter Survey of Wales 2009-10. Natural Resources Wales.

Stroud, D.A., Bainbridge, I.P., Maddock, A., Anthony, S., Baker, H., Buxton, N., Chambers, D., Enlander, I., Hearn, R.D., Jennings, K.R, Mavor, R., Whitehead, S. & Wilson, J.D. - on behalf of the UK SPA & Ramsar Scientific Working Group (eds.) 2016. The status of UK SPAs in the 2000s: the Third Network Review. [c.1,108] pp. JNCC, Peterborough

Teilmann, J., Tougaard, J. and Carstensen, J. (2006a*) Summary on harbour porpoise monitoring 1999-2006 around Nysted and Horns Rev Offshore Wind Farms.*

Teilmann, J., Tougaard, J., Cartensen, J., Dietz, R. and Tougaard, S. (2006b) *Summary on seal monitoring 1999-2005 around Nysted and Horns Rev Offshore Wind Farms.*

The Planning Inspectorate (2022) Advice Note ten, Habitats Regulations Assessment relevant to Nationally Significant Infrastructure Projects. Version 9. Available: https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-ten/#2. Accessed September 2023.

Tyler-Walters, H. (2004). *Puccinellia maritima* salt-marsh community. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews,

[on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 21-11-2022]. Available: https://www.marlin.ac.uk/habitats/detail/350/puccinellia_maritima_salt-marsh_community#:~:text=Puccinellia%20maritima%20dominated%20communities%20may,by%20vehicles%20or%20grazing%20animals. Accessed September 2023.

Tyler-Walters, H. (2001). Saltmarsh (pioneer). In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 21-11-2022]. Available: https://www.marlin.ac.uk/habitats/detail/25/saltmarsh_pioneer. Accessed September 2023.

UK Government (2023)Otters: advice for making planning decisions. Available at: https://www.gov.uk/guidance/otters-advice-for-making-planning-decisions. Accessed September 2023.

Vanermen, N., Onkelinx, T., Courtens, W., Van de walle, M., Verstaete, H., and Stienen, E.W.M., 2014. Seabird avoidance and attraction at an offshore wind farm in the Belgian part of the North Sea. Hydrobiologia. 756 pp.51-61.

Wade H.M., Masden. E.A., Jackson, A.C. and Furness, R.W. (2016) Incorporating data uncertainty when estimating potential vulnerability of Scottish seabirds to marine renewable energy developments. Marine Policy 70, 108–113. Available online at doi:10.1016/j.marpol.2016.04.045.

Wernham C., Siriwardena G.M., Toms M., Marchant J., Clark J.A. & Baillie S. (2002) The migration atlas: Movements of the birds of Britain and Ireland. T. & A.D. Poyser, London. Wright, L.J., Ross-Smith, V.H., Massimino, D., Dadam, D., Cook, A.S.C.P. and Burton, N.H.K. (2012) Assessing the risk of offshore wind farm development to migratory birds designated as features of UK Special Protection Areas (and other Annex I species). Strategic Ornithological Support Services. Project SOSS-05. BTO Research Report No. 592.

Wilson, B., Batty, R. S., Daunt, F. and Carter, C. (2007). Collision risks between marine renewable energy devices and mammals, fish and diving birds. Report to the Scottish Executive. Scottish Association for Marine Science, Oban.

Woodroffe, G. (2001) The Otter. The Mammal Society, London.

Woodward, I., Thaxter, C.B., Owen, E. and Cook, A.S.C.P., 2019. Desk-based revision of seabird foraging ranges used for HRA screening. BTO research report, (724), pp.2019-202.

Wright, L.J., Ross-Smith, V.H., Austin, G.E., Massimino, D., Dadam, D., Cook, A.S., Calbrade, N.A. and Burton, N.H. (2012) Strategic Ornithological Support Services Project SOSS-05 Assessing the risk of offshore wind farm development to migratory birds designated as features of UK Special Protection Areas.

WWT Consulting and MacArthur Green (2014) Scottish Marine and Freshwater Science Volume 5 Number 12: Strategic assessment of collision risk of Scottish offshore wind farms to migrating birds. Available: https://www.gov.scot/publications/scottish-marine-freshwater-science-volume-5-number-12-strategic-assessment/pages/7/. Accessed August 2023.

Appendix A: Apportioning Assessment to SPAs/Ramsar Sites

A.1 Brief apportioning methods

A.1.1 Colonies included within this Appendix

A.1.1.1.1 During the breeding season all SPA colonies within a species' foraging range (Table 1.7~~Table 1.7~~) are included within this Appendix.

A.1.1.1.2 During the non-breeding season the colonies presented within this Appendix are taken from Furness (2015). Furness (2015) presented all SPA colonies within the relevant BDMPS, however only the colonies that are relevant to this LSE screening (i.e. those which represent > 1% of the relevant BDMPS) are included within the tables below.

A.1.2 Species and age specific annual mortality

A.1.2.1.1 Impacts from collision and displacement need to be assigned to colonies within range in order to understand the magnitude of the impacts during the breeding, non-breeding and migratory periods. The colony specific proportional weights estimated in Volume 6, Annex 5.5: Offshore ornithology apportioning technical report of the Environmental Statement (Document reference F6.5.5) need to be used alongside the baseline mortality rates (estimated from species specific survival and mortality rates) in order to estimate the increase in baseline mortality when additional mortalities from the development project have been taken into account.

A.1.2.1.2 The annual survival estimates of adults and immatures have been taken from Horswill and Robinson (2015), which provides age specific mortality estimates. To get an overall immature survival estimate, age specific mortalities were fed into a simple population model to derive relative proportions of each age class, which leads to the mortality proportions presented in Table A 1: Species and age specific survival and mortality estimates, from Horswill and Robinson (2015).~~A 1: Species and age specific survival and mortality estimates, from Horswill and Robinson (2015).~~

Table A 1: Species and age specific survival and mortality estimates, from Horswill and Robinson (2015).

Species	Adult survival	Adult mortality	Average Immature survival	Immature mortality
Common guillemot	0.939	0.061	0.765	0.235
Razorbill	0.895	0.105	0.716	0.284
Northern gannet	0.919	0.081	0.681	0.319
Black-legged kittiwake	0.854	0.146	0.833	0.167
Herring gull	0.834	0.166	0.824	0.176
Lesser black-backed gull	0.885	0.115	0.868	0.132
Great black-backed gull	0.930	0.070	0.889	0.111
Manx shearwater	0.870	0.130	0.870	0.130

A.2 Results

A.2.1 Guillemot

A.2.1.1 Apportioned non-breeding impacts

A.2.1.1.1 Apportioned increase in baseline mortality for common guillemot during the non-breeding season is presented in Table A 2~~Table A 2~~, and ranges from 0.043~~020~~% to 0.045~~6605~~%. Only SPAs considered within this LSE screening document are included within Table A 2~~Table A 2~~.

Table A 2: Adult non-breeding common guillemot apportioned expected SPA mortality due to displacement (based on Furness *et al*. 2015).

Season	Colony	BDMPS	Baseline Mortality	Mortality from displacement ~~(range)~~	Increase in baseline mortality
Non-breeding (August to February)	Sule Skerry & Sule Stack SPA	15,266	931	0.4 ~~0.2~~	0.045% ~~0.03%~~
Non-breeding (August to February)	North Rona & Sula Sgeir SPA	10,000	610	0.3 ~~0.2~~	0.045% ~~0.03%~~
Non-breeding (August to February)	Cape Wrath SPA	54,718	3,338	1.5 ~~0.8~~	0.045% ~~0.03%~~
Non-breeding (August to February)	Handa SPA	75,986	4,635	2.1 ~~1.2~~	0.045% ~~0.03%~~
Non-breeding (August to February)	Shiant Isles SPA	10,296	628	0.3 ~~0.2~~	0.045% ~~0.03%~~
Non-breeding (August to February)	Flannan Isles SPA	19,614	1,196	0.5~~0.3~~	0.045% ~~0.03%~~
Non-breeding (August to February)	St Kilda SPA	31,400	1,915	0.9~~0.5~~	0.045% ~~0.03%~~
Non-breeding (August to February)	Canna & Sanday SPA	7,826	477	0.2~~0.1~~	0.045% ~~0.03%~~
Non-breeding (August to February)	Mingulay & Berneray SPA	27,054	1,650	0.7 ~~0.4~~	0.045% ~~0.03%~~
Non-breeding (August to February)	North Colonsay and western cliffs SPA	27,000	1,647	0.8 ~~0.4~~	0.0475% ~~0.03%~~
Non-breeding (August to February)	Ailsa Craig SPA	10,494	640	0.3 ~~0.2~~	0.0475% ~~0.03%~~
Non-breeding (August to February)	Rathlin Island SPA	174,796	10,663	5.1 ~~2.8~~	0.0475% ~~0.03%~~
Non-breeding (August to February)	Skomer & Skokholm SPA	32,600	1,989	0.8 ~~0.5~~	0.0434% ~~0.02%~~

A.2.2 Razorbill

A.2.2.1 Apportioned non-breeding impacts

A.2.2.1.1 Apportioned mortality for razorbill during the non-breeding season is presented in Table A 3~~Table A 3~~. The increase in baseline mortality ranges from 0.00~~0~~% to 0.03%. Only SPAs considered within this LSE screening document are included within Table A 3~~Table A 3~~.

Table A 3: Adult non-breeding razorbill apportioned expected SPA mortality due to displacement (based on Furness *et al*. 2015).

Season	Colony	BDMPS	Baseline Mortality	Mortality from displacement	Increase in baseline mortality
Migration seasons (August to October, and January to March)	Cape Wrath	4,180	439	0.1	0.03% ~~0.02%~~
Migration seasons (August to October, and January to March)	Handa	10,330	1,085	0.3 ~~0.2~~	0.03% ~~0.02%~~
Migration seasons (August to October, and January to March)	Shiants	8,496	892	~~-~~0.3 ~~0.2~~	0.03% ~~0.02%~~
Migration seasons (August to October, and January to March)	Mingulay & Berneray	20,222	2,123	0.6 ~~0.4~~	0.03% ~~0.02%~~
Migration seasons (August to October, and January to March)	Rathlin Island	30,786	3,233	1.0 ~~0.5~~	0.03% ~~0.02%~~
Migration seasons (August to October, and January to March)	Skomer & Skokholm	12,002	1,260	0.4 ~~0.2~~	0.03% ~~0.02%~~
Winter (November and December)	Cape Wrath	4,180	439	0.0 ~~0.1~~	0.00% ~~0.01%~~
Winter (November and December)	Handa	10,330	1,085	0.0 ~~0.1~~	0.00% ~~0.01%~~
Winter (November and December)	Shiants	8,496	892	0.0 ~~0.1~~	0.00% ~~0.01%~~
~~Winter (November and December)~~	~~Flannan Islands~~	~~2,102~~	~~221~~	~~0.0~~ 0.0	~~0.00%~~ 0.01%
Winter (November and December)	Mingulay & Berneray	20,222	2,123	0.1 ~~0.3~~	0.00% ~~0.01%~~
Winter (November and December)	Rathlin Island	30,786	3,233	0.1 ~~0.4~~	0.00% ~~0.01%~~
Winter (November and December)	Skomer & Skokholm	12,002	1,260	0.0 ~~0.1~~	0.00% ~~0.01%~~

A.2.3 Northern gannet

A.2.3.1 Apportioned breeding impacts - Assuming 70% decrease in abundances from macro avoidance

A.2.3.1.1 If a macro avoidance rate of 70% is assumed, the apportioned increase in baseline mortality for northern gannet during the breeding season ranges from 0.0002% to 0.01388% (Table A 4~~Table A 4~~).

A.2.3.2 Apportioned non-breeding impacts - Assuming 70% decrease in abundances from macro avoidance

A.2.3.2.1 If a 70% macro avoidance rate is assumed, apportioned mortality for northern gannet during the non-breeding season ranges from 0.00% to 0.02% for adults (Table A 5~~Table A 5~~). Only SPAs considered within this LSE screening document are included within Table A 5~~Table A 5~~.

Table A 4: Breeding adult northern gannet apportioned expected SPA mortality due to collision risk and displacement.

SPA	Mortality from displacement and collisions (0.99283 avoidance rate)	Baseline mortality	Increase in baseline mortality from displacement and collisions (0.99283 avoidance rate)
Ailsa Craig SPA	1.81.7	5,382.6	0.03%
Grassholm SPA	0.65	5,833.8	0.01%
Saltee Islands SPA	0.1	765.0	0.01%
Skelligs SPA	0.1	5,717.6	0.00%
St Kilda SPA	0.21	9,771.5	0.00%

Table A 5: Non-breeding adult northern gannet apportioned expected SPA mortality due to collision risk and displacement (based on Furness *et al*. 2015).

Season	Colony	Baseline Mortality	Mortality from displacement and collisions (0.993 avoidance rate)	Increase in baseline mortality (0.993 avoidance rate)
Post-breeding migration (~~September~~ October ~~to~~ and November)	Hermaness, Saxavord	3,945	0.0	0.00%
Post-breeding migration (October ~~September to~~ and November)	Noss	1,582	0.0	0.00%
Post-breeding migration (October ~~September to~~ and November)	Sule Skerry & Sule Stack	757	0.0	0.00%
Post-breeding migration (October ~~September to~~ and November)	North Rona & Sula Sgeir	1,494	0.0	0.00%
Post-breeding migration (October ~~September to~~ and November)	St Kilda	9,659	0.0~~1~~	0.00%
Post-breeding migration (October ~~September to~~ and November)	Ailsa Craig	4,395	0.0	0.00%
Post-breeding migration (October ~~September to~~ and November)	Grassholm	6,365	0.0	0.00%
Return migration (December to ~~March~~February)	Hermaness, Saxavord	3,945	0.0	0.00%
Return migration (December to February~~March~~)	Noss	1,582	0.0	0.00%
Return migration (December to February~~March~~)	Sule Skerry & Sule Stack	757	0.0	0.00%

Season	Colony	Baseline Mortality	Mortality from displacement and collisions (0.993 avoidance rate)	Increase in baseline mortality (0.993 avoidance rate)
Return migration (December to FebruaryMarch)	North Rona & Sula Sgeir	1,494	0.0	0.00%
Return migration (December to FebruaryMarch)	St Kilda	9,659	0.01	0.00%
Return migration (December to FebruaryMarch)	Ailsa Craig	4,395	0.0	0.00%
Return migration (December to FebruaryMarch)	Grassholm	6,365	0.0	0.00%

A.2.4 Black-legged kittiwake – displacement

A.2.4.1 Apportioned breeding impacts

A.2.4.1.1 Apportioned mortality for black-legged kittiwake during the breeding season is presented in Table A 6~~Table A 6~~ for adults. In adults, mortality ranged from 0.00% to 0.09~~84~~% when considering an avoidance rate of 0.993, whereas mortality ranged from 0.00% to 0.03~~24~~% when considering an avoidance rate of 0.999.

A.2.4.2 Apportioned non-breeding impacts

A.2.4.2.1 Apportioned mortality for black-legged kittiwake during the non-breeding season is presented in Table A 7~~Table A 7~~, and ranges from 0.00% to 0.06~~1~~% when considering an avoidance rate of 0.993, whereas mortality ranged was estimated to be 0.00% to 0.01% when considering an avoidance rate of 0.999. Only SPAs considered within this LSE screening document are included within Table A 7~~Table A 7~~.

Table A 6: Breeding adult black-legged kittiwake apportioned SPA mortality due to ~~collision risk and~~ displacement.

SPA	Mortality from displacement ~~and collisions (0.993 avoidance rate)~~=	Baseline mortality	Increase in baseline mortality ~~(0.993 avoidance rate)~~
Lambay Island SPA	0.13	969.4	0.013%
Rathlin Island SPA	0.24	4,020.0	0.001%
Ireland's Eye SPA	0.11	452.6	0.013%
Howth Head Coast SPA	0.12	523.6	0.013%
Wicklow Head SPA	0.0	196.8	0.013%
Helvick Head to Ballyquin SPA	0.0	19.0	0.00%
Saltee Islands SPA	0.0	246.7	0.001%
North Colonsay and Western Cliffs SPA	0.01	1,366.7	0.001%
Ailsa Craig SPA	0.0	143.1	0.002%
Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	0.0	294.0	0.001%

Table A 7: Non-breeding adult black-legged kittiwake apportioned SPA mortality due to ~~to collision risk and~~ displacement (based on Furness et al. 2015).

Season	Colony	Baseline Mortality	Mortality from displacement ~~and collisions (0.993 avoidance rate)~~	Increase in baseline mortality ~~(0.993 avoidance rate)~~
Autumn migration (September to December)	West Westray	3,520	0.0	0.00%
Autumn migration (September ~~August~~ to December)	North Caithness Cliffs	2,964	0.0	0.00%
Autumn migration (September ~~August~~ to December)	East Caithness Cliffs	11,800	0.1 ~~0.2~~	0.00%
Autumn migration (September ~~August~~ to December)	Troup, Pennan & Lions Heads	4,350	0.0 ~~0.1~~	0.00%
Autumn migration (September ~~August~~ to December)	Buchan Ness to Collieston	3,662	0.0 ~~0.1~~	0.00%
Autumn migration (September ~~August~~ to December)	Fowlsheugh	2,726	0.0	0.00%
Autumn migration (September ~~August~~ to December)	Flamborough and Filey	10,984	~~-~~0.1 ~~0.2~~	0.00%
Autumn migration (September ~~August~~ to December)	Cape Wrath	3,020	~~-~~0.1 ~~0.2~~	0.00%~~0.01%~~
Autumn migration (September ~~August~~ to December)	North Colonsay & Western Cliffs	1,624	0.0 ~~0.1~~	0.00% ~~0.01%~~
Autumn migration (September ~~August~~ to December)	Ailsa Craig	143	0.0	0.00% ~~0.01%~~
Autumn migration (September ~~August~~ to December)	Rathlin Island	2,313	0.1 ~~0.1~~	0.00% ~~0.01%~~
Autumn migration (September ~~August~~ to December)	Skomer, Skokholm, Middleholm	305	0.0	0.00% ~~0.01%~~
Spring migration (January ~~to April~~and February)	West Westray	3,520	0.1 ~~0.2~~	0.00%

Season	Colony	Baseline Mortality	Mortality from displacement ~~and collisions (0.993 avoidance rate)~~	Increase in baseline mortality ~~(0.993 avoidance rate)~~
Spring migration (January and February~~to April~~)	North Caithness Cliffs	2,964	0.1	0.00%
Spring migration (January ~~to April~~and February)	East Caithness Cliffs	11,800	0.2 ~~0.5~~	0.00%
Spring migration (January ~~to April~~and February)	Troup, Pennan & Lions Heads	4,350	0.1 ~~0.2~~	0.00%
Spring migration (January ~~to April~~and February)	Buchan Ness to Collieston	3,662	0.1 ~~0.2~~	0.00%
Spring migration (January ~~to April~~and February)	Fowlsheugh	2,726	0.1	0.00%
Spring migration (January ~~to April~~and February)	Flamborough and Filey	10,984	0.2 ~~0.5~~	0.00% ~~0.00%~~
Spring migration (January ~~to April~~and February)	Cape Wrath	3,020	0.12 ~~0.4~~	0.00% ~~0.01%~~
Spring migration (January ~~to April~~and February)	North Colonsay & Western Cliffs	1,624	0.1 ~~0.2~~	0.00% ~~0.01%~~
Spring migration (January ~~to April~~and February)	Ailsa Craig	143	0.0	0.00% ~~0.01%~~
Spring migration (January ~~to April~~and February)	Rathlin Island	2,313	0.1 ~~0.3~~	0.00% ~~0.01%~~
Spring migration (January ~~to April~~and February)	Skomer, Skokholm, Middleholm	305	0.0	0.00% ~~0.01%~~

A.1.1 Black-legged kittiwake – collision risk mortality

A.2.4.3 Apportioned breeding impacts

A.2.4.3.1 Apportioned increase in baseline mortality for black-legged kittiwake during the breeding season is presented in Table A 8~~Table A 8~~ for adults. In adults, mortality ranged from 0.00% to 0.06% when considering an avoidance rate of 0.9928~~3~~, whereas mortality ranged from 0.00% to 0.02% when considering an avoidance rate of 0.9979.

A.2.4.4 Apportioned non-breeding impacts

A.2.4.4.1 Apportioned increase in baseline mortality for black-legged kittiwake during the non-breeding season is presented in Table A 9~~Table A 9~~, and ranges from 0.00% to 0.03% when considering an avoidance rate of 0.9928~~3~~, whereas mortality ranged was estimated to be 0.00% when considering an avoidance rate of 0.9979. Only SPAs considered within this LSE screening document are included within Table A 9~~Table A 9~~.

Table A 8: Breeding adult black-legged kittiwake apportioned SPA mortality due to collision risk.

SPA	Mortality from collisions (0.99283 avoidance rate)	Mortality from collisions (0.9979 avoidance rate)	Baseline mortality	Increase in baseline mortality (0.99283 avoidance rate)	Increase in baseline mortality (0.9979 avoidance rate)
Lambay Island SPA	0.60.3	0.2 0.1	969.4969.4	0.06% 0.03%	0.01% 0.01%
Rathlin Island SPA	0.70.4	0.2 0.1	4,020.04,020.0	0.02%0.01%	0.00% 0.00%
Ireland's Eye SPA	0.20.1	0.1 0.0	452.6452.6	0.05% 0.03%	0.01%0.01%
Howth Head Coast SPA	0.30.2	0.1 0.0	523.6523.6	0.05% 0.03%	0.01% 0.01%
Wicklow Head SPA	0.10.0	0.00.0	196.8196.8	0.04% 0.03%	0.01% 0.01%
Helvick Head to Ballyquin SPA	0.00.0	0.0 0.0	19.019.0	0.01%0.00%	0.00% 0.00%
Saltee Islands SPA	0.00.0	0.0 0.0	246.7246.7	0.01% 0.01%	0.00% 0.00%
North Colonsay and Western Cliffs SPA	0.10.1	0.0 0.0	1,366.71,366.7	0.01% 0.01%	0.00% 0.00%
Ailsa Craig SPA	0.00.0	0.0 0.0	143.1143.1	0.03% 0.02%	0.01% 0.01%
Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	0.00.0	0.0 0.0	294.0294.0	0.02% 0.01%	0.00%0.00%

Table A 9: Non-breeding adult black-legged kittiwake apportioned SPA mortality due to collision risk (based on Furness et al. 2015).

Season	Colony	Baseline Mortality	Mortality from ~~displacement and~~ collisions (0.9932~~3~~8 avoidance rate)	Mortality from ~~displacement and~~ collisions (0.999~~9~~79 avoidance rate)	Increase in baseline mortality (0.9928~~3~~ avoidance rate)	Increase in baseline mortality (0.9979 avoidance rate)
Autumn migration (September to December)	West Westray	3,520	0.1	0.0	0.00%	0.00%
Autumn migration (~~August to~~September to December)	North Caithness Cliffs	2,964	0.1	0.0	0.00%	0.00%
Autumn migration (~~August to~~September to December)	East Caithness Cliffs	11,800	0.3	0.1~~0~~	0.00%	0.00%
Autumn migration (~~August to~~September to December)	Troup, Pennan & Lions Heads	4,350	0.1	0.0	0.00%	0.00%
Autumn migration (~~August to~~September to December)	Buchan Ness to Collieston	3,662	0.1	0.0	0.00%	0.00%
Autumn migration (~~August to~~September to December)	Fowlsheugh	2,726	0.1	0.0	0.00%	0.00%
Autumn migration (~~August to~~September to December)	Flamborough and Filey	10,984	0.2	0.1~~0~~	0.00%	0.00%

Season	Colony	Baseline Mortality	Mortality from ~~displacement and~~ collisions (0.99~~3~~28 avoidance rate)	Mortality from ~~displacement and~~ collisions (0.99~~9~~79 avoidance rate)	Increase in baseline mortality (0.9928~~3~~ avoidance rate)	Increase in baseline mortality (0.9979 avoidance rate)
Autumn migration (~~August to~~September to December)	Cape Wrath	3,020	0.2	0.1~~0~~	0.01%	0.00%
Autumn migration (~~August to~~September to December)	North Colonsay & Western Cliffs	1,624	0.1	0.0	0.01%	0.00%
Autumn migration (~~August to~~September to December)	Ailsa Craig	143	0.0	0.0	0.01%	0.00%
Autumn migration (~~August to~~September to December)	Rathlin Island	2,313	0.1	0.0	0.01%	0.00%
Autumn migration (~~August to~~September to December)	Skomer, Skokholm, Middleholm	305	0.0	0.0	0.01%	0.00%
Spring migration (January ~~to April~~and February)	West Westray	3,520	0.2~~0.2~~	0.0~~0.0~~	0.00%~~0.01%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	North Caithness Cliffs	2,964	0.1~~0.2~~	0.0~~0.0~~	0.00%~~0.01%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	East Caithness Cliffs	11,800	0.5~~0.7~~	0.2~~0.1~~	0.00%~~0.01%~~	0.00%~~0.00%~~

Season	Colony	Baseline Mortality	Mortality from ~~displacement and~~ collisions (0.993~~8~~28 avoidance rate)	Mortality from ~~displacement and~~ collisions (0.999~~8~~79 avoidance rate)	Increase in baseline mortality (0.9928~~3~~ avoidance rate)	Increase in baseline mortality (0.9979 avoidance rate)
Spring migration (January ~~to April~~and February)	Troup, Pennan & Lions Heads	4,350	0.2~~0.2~~	0.1~~0.0~~	0.00%~~0.01%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	Buchan Ness to Collieston	3,662	0.2 ~~0.2~~	0.0~~0.0~~	0.00%~~0.01%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	Fowlsheugh	2,726	0.1~~0.2~~	0.0 ~~0.0~~	0.00%~~0.01%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	Flamborough and Filey	10,984	0.5 ~~0.6~~	0.1~~0.1~~	0.00%~~0.01%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	Cape Wrath	3,020	0.4 ~~0.5~~	0.1~~0.1~~	0.01%~~0.02%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	North Colonsay & Western Cliffs	1,624	0.2 ~~0.2~~	0.1~~0.0~~	0.01%~~0.02%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	Ailsa Craig	143	0.0 ~~0.0~~	0.0~~0.0~~	0.01% ~~0.02%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	Rathlin Island	2,313	0.3 ~~0.3~~	0.1~~0.0~~	0.01%~~0.02%~~	0.00%~~0.00%~~
Spring migration (January ~~to April~~and February)	Skomer, Skokholm, Middleholm	305	0.0~~0.0~~	0.0 ~~0.0~~	0.01%~~0.02%~~	0.00%~~0.00%~~

A.2.5 Herring gull

A.2.5.1 Apportioned breeding impacts

A.2.5.1.1 Apportioned increase in baseline mortality for herring gull during the breeding season is presented in Table A 10~~Table A 10~~, and ranges from 0.000% to 0.000% when considering an avoidance rate of both 0.9939 and 0.99~~9~~52.

A.2.5.2 Apportioned non-breeding impacts

A.2.5.2.1 Apportioned increase in baseline mortality for herring gull during the non-breeding season is presented in Table A 11~~Table A 11~~ and ranges from 0.00% to 0.01% when considering the avoidance rates of 0.9939~~4~~ and 0.9952). Only SPAs considered within this LSE screening document are included within Table A 11~~Table A 11~~.

Table A 10: Breeding adult herring gull apportioned expected SPA mortality due to collision risk.

SPA	Mortality from collisions (0.93994 avoidance rate)	Mortality from collisions (0.9952 avoidance rate)	Baseline mortality	Increase in baseline mortality (0.99439 avoidance rate)	Increase in baseline mortality (0.9952 avoidance rate)
Morecambe Bay and Duddon Estuary SPA	0.0	0.0	529.2	0.00%	0.00%

Table A 11: Non-breeding adult herring gull apportioned expected SPA mortality due to collision risk (based on Furness *et al*. 2015).

Season	Colony	Baseline Mortality	Mortality from collisions (0.99394 avoidance rate)	Mortality from collisions (0.9952 avoidance rate)	Increase in baseline mortality (0.99394 avoidance rate)	Increase in baseline mortality (0.9952 avoidance rate)
Non-breeding season (September to February)	Morecambe Bay	576	0.00	0.00	0.010%	0.00%

A.2.6 Lesser black-backed gull

A.2.6.1 Apportioned breeding impacts

A.2.6.1.1 Apportioned increase in baseline mortality for lesser black-backed gull during the breeding season is presented in Table A 12~~Table A 12~~, and ranges from 0.00% to 0.038~~8~~% when considering an avoidance rate of 0.9943~~4~~39, and mortality ~~ranged from~~was 0.00% ~~to 0.01%~~ when considering an avoidance rate of 0.9954.

A.2.6.2 Apportioned non-breeding impacts

A.2.6.2.1 Apportioned increase in baseline mortality for lesser black-backed gull during the non-breeding season is presented in Table A 13~~Table A 13~~, and ranges from 0.00% to 0.01% when considering an avoidance rate of both 0.9943~~4~~39 and 0.9954. Only SPAs considered within this LSE screening document are included within Table A 13~~Table A 13~~.

Table A 12: Breeding adult lesser black-backed gull apportioned SPA mortality due to collision risk.

SPA	Mortality from collisions (0.99394 avoidance rate)	Mortality from collisions (0.9954 avoidance rate)	Baseline mortality	Increase in baseline mortality (0.994 avoidance rate)	Increase in baseline mortality (0.9954 avoidance rate)
Ribble & Alt Estuaries SPA	0.1	0.1	1,032.5	0.01%	0.00%
Morecambe Bay and Duddon Estuary SPA	0.1 ~~0.0~~	0.0	560.5	0.01%	0.00%
Bowland Fells SPA	0.1	0.1	3,364.5	0.00%	0.00%
Lambay Island SPA	0.0	0.0	109.5	0.00%	0.00%
Ailsa Craig SPA	0.0	0.0	43.5	0.00%	0.00%
Rathlin Island SPA	0.0	0.0	119.4	0.00%	0.00%
Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	0.0	0.0	1,864.6	0.00%	0.00%

Table A 13: Non-breeding adult lesser black-backed gull apportioned expected SPA mortality due to collision risk (based on Furness *et al*. 2015).

Season	Colony	Baseline Mortality	Mortality from collisions (0.99394 avoidance rate)	Mortality from collisions (0.9954 avoidance rate)	Increase in baseline mortality (0.99394 avoidance rate)	Increase in baseline mortality (0.9954 avoidance rate)
~~-~~Autumn migration (~~August-October~~September and October)	Rathlin Island	25	0.0	0.0	0.00%	0.00%
~~-~~Autumn migration (~~August-October~~September and October)	Bowland Fells	1,052	0.0	0.0	0.00%	0.00%

Season	Colony	Baseline Mortality	Mortality from collisions (0.99394 avoidance rate)	Mortality from collisions (0.9954 avoidance rate)	Increase in baseline mortality (0.99394 avoidance rate)	Increase in baseline mortality (0.9954 avoidance rate)
-Autumn migration (~~August-October~~September and October)	Morecambe Bay	1,147	0.0	0.0	0.00%	0.00%
-Autumn migration (~~August-October~~September and October)	Ribble & Alt Estuaries	1,901	0.0	0.0	0.00%	0.00%
Autumn migration (~~August-October~~September and October)	Skokholm, Skomer, Mholm	2,217	0.0	0.0	0.00%	0.00%
Autumn migration (~~August-October~~September and October)	Isles of Scilly	782	0.0	0.0	0.00%	0.00%
Winter (November to February)	Rathlin Island	25	0.0	0.0	0.00%	0.00%
Winter (November to February)	Bowland Fells	1,052	0.0	0.0	0.00%	0.00%
Winter (November to February)	Morecambe Bay	1,147	0.0	0.0	0.00%	0.00%
Winter (November to February)	Ribble & Alt Estuaries	1,901	0.1 ~~0.0~~	0.0	0.00%	0.00%
Winter (November to February)	Skokholm, Skomer, Mholm	2,217	0.1	0.1 ~~0.0~~	0.00%	0.00%
Winter (November to February)	Isles of Scilly	782	0.0	0.0	0.00%	0.00%
Spring migration (March-~~April~~)	Rathlin Island	25	0.0	0.0	0.00%	0.00%

Season	Colony	Baseline Mortality	Mortality from collisions (0.99394 avoidance rate)	Mortality from collisions (0.9954 avoidance rate)	Increase in baseline mortality (0.99394 avoidance rate)	Increase in baseline mortality (0.9954 avoidance rate)
Spring migration (March-~~April~~)	Bowland Fells	1,052	0.0	0.0	0.00%	0.00%
Spring migration (March-~~April~~)	Morecambe Bay	1,147	0.0	0.0	0.00%	0.00%
Spring migration (March-~~April~~)	Ribble & Alt Estuaries	1,901	0.1 ~~0.0~~	0.0	0.00%	0.00%
Spring migration (March-~~April~~)	Skokholm, Skomer, Mholm	2,217	0.1	0.1 ~~0.0~~	0.00%	0.00%
Spring migration (March-~~April~~)	Isles of Scilly	782	0.0	0.0	0.00%	0.00%

A.2.7 Great black-backed gull

A.2.7.1 Apportioned non-breeding impacts

A.2.7.1.1 Apportioned mortality for great black-backed gull during the non-breeding season is presented in Table A 14~~Table A 14~~, and ranges from 0.1~~00%~~ to 0.6~~01%~~ when considering an avoidance rate of 0.9939 and 0.9991, respectively. The increase in baseline mortality is 0.08 for 99.91 avoidance rate and 0.51 for 0.9939 avoidance rate. ~~and is around 0.00% when considering an avoidance rate of 0.999.~~

A.2.7.1.2 Only one SPA is~~s~~ considered within this LSE screening document ~~are~~ and is included within Table A 14~~Table A 14~~.

Table A 14: Non-breeding adult great black-backed gull apportioned expected SPA mortality due to collision risk (based on Furness *et al*. 2015).

Season	Colony	Baseline Mortality	Mortality from collisions (0.9939 avoidance rate)	Mortality from collisions (0.9991 avoidance rate)	Increase in baseline mortality (0.9939 avoidance rate)	Increase in baseline mortality (0.9991 avoidance rate)
Non-breeding (September to February)	Isles of Scilly	126	0.6 ~~0.4~~	0.1	0.51~~0.32%~~	0.08~~0.05%~~

A.2.8 Manx shearwater

A.2.8.1 Apportioned breeding impacts

A.2.8.1.1 Apportioned mortality for Manx shearwater during the breeding season is presented in Table A 13. The increase in baseline mortality ranges from 0.00% to 0.2023~~86~~%.

A.2.8.2 Non-breeding season impact

A.2.8.2.1 Apportioned mortality for Manx shearwater during the non-breeding season is presented in Table A 14. The increase in baseline mortality ranges from 0.00% to 0.00%. Only SPAs considered within this LSE screening document are included within Table A 14.

Table A 15: Breeding Manx shearwater apportioned SPA mortality due to displacement.

SPA	Mortality from displacement	Baseline mortality	Increase in baseline mortality
Glannau Aberdaron ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA	0.7	4,207.6	0.02%
Copeland Islands SPA	0.1	1,261.0	0.01%
Cruagh Island SPA	0.0	854.4	0.00%
Blasket Islands SPA	0.0	5,078.8	0.00%
Skelligs SPA	0.0	191.9	0.00%
Deenish Island and Scariff Island SPA	0.0	600.9	0.00%
Rum SPA	0.4	31,200.0	0.00%
Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	4.5	118,340.6	0.00%

Table A 16: Non-breeding adult Manx shearwater apportioned expected SPA mortality due to collision risk (based on Furness *et al*. 2015).

Season	Colony	BDMPS	Baseline Mortality	Mortality from displacement	Increase in baseline mortality
Migration seasons (August to early October, late March to May)	St Kilda	9,604	1,249	0.0	0.00%
Migration seasons (August to early October, late March to May)	Rum	240,000	31,200	0.0~~9~~	0.00%
Migration seasons (August to early October, late March to May)	Aberdaron Coast & Bardsey	32,366	4,208	0.0~~1~~	0.00%
Migration seasons (August to early October, late March to May)	Skomer, Skokholm & Middleh	700,000	91,000	0.0~~2.7~~	0.00%