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MONA OFFSHORE WIND PROJECT

HRA Stage 2 Information to Support an Appropriate Assessment

Part Three: Special Protection Areas and Ramsar sites Assessments

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Glossary

Term	Meaning
Air draught	Distance between sea level and lowest blade tip.
Applicant	Mona Offshore Wind Limited.
Appropriate Assessment	A stepwise procedure undertaken in accordance with Article 6(3) of the Habitats Directive, to determine the implications of a plan or project on a European site in view of the site's conservation objectives, where the plan or project is not directly connected with or necessary to the management of a European site but likely to have a significant effect thereon, either individually or in-combination with other plans or projects.
Competent Authority	The term derives from the Habitats Regulations and relates to the duties which the Habitat Regulations impose on public bodies and individuals. Regulation 6(1) defines competent authorities as "any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office".
Conservation Objectives	In its most general sense, a conservation objective is the specification of the overall target for the species and/or habitat types for which a site is designated in order for it to contribute to maintaining or reaching favourable conservation status of the habitats and species concerned, at the national, the biogeographical or the European level.
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.
European Commission	The executive body of the European Union responsible for proposing legislation, enforcing European law, setting objectives and priorities for action, negotiating trade agreements and managing implementing European Union policies and the budget.
European site	A Special Area of Conservation (SAC), possible SAC (pSAC), or candidate SAC, (cSAC), a Special Protection Area (SPA) or potential SPA (pSPA), a site listed as a site of community importance (SCI).
Evidence Plan	The Evidence Plan 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.
Habitat	The environment that a plant or animal lives in.
Habitats Directive	The Habitats Directive is the short name for European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. The Directive led to the establishing of European sites and setting out how they should be protected, it also extends to other topics such as European protected species.
Habitats Regulations	The Conservation (Natural Habitats, &c.) Regulations 1994, the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species 2017.

Term	Meaning
Habitats Regulations Assessment	A process required by the Habitats Regulations of identifying likely significant effects of a plan or project on a European site and (where likely significant effects are predicted or cannot be discounted) carrying out an appropriate assessment to ascertain whether the plan or project will adversely affect the integrity of the European site. If adverse effects on integrity cannot be ruled out, the latter stages of the process require consideration of the derogation provisions in the Habitats Regulations.
In-combination Effects	The combined effect of the Mona Offshore Wind Project in-combination with the effects from a number of different projects on the same feature/receptor.
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.
Likely Significant Effect	Any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the European site was designated but excluding trivial or inconsequential effects. A likely effect is one that cannot be ruled out on the basis of objective information. A 'significant' effect is a test of whether a plan or project could undermine the site's conservation objectives.
Macro-avoidance	Birds in flight taking action to avoid entering a wind farm array
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 NRW. A separate marine licence is required for the offshore export cables and related works located within and between the Mona Array Area and the landfall at MHWS.
Masking	Masking occurs when sound emissions interfere with a marine animal's ability to hear a sound of interest.
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.
Migratory waterbirds	Species of waders and waterfowl that are ecologically dependant on wetlands and which make regular migrations between their wintering and breeding areas.
Mona 440 kV Cable Corridor	The corridor from the Mona onshore substation to the National Grid substation.
Mona Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, offshore export cables and OSPs forming part of the Mona Offshore Wind Project will be located.
Mona Offshore Cable Corridor and Access Areas	The corridor located between the Mona Array Area and the landfall up to Mean High Water Springs (MHWS), in which the offshore export cables and the offshore booster substation 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.

Term	Meaning
Mona Scoping Report	The Mona Scoping Report that was submitted to The Planning Inspectorate (on behalf of the Secretary of State) and Natural Resource Wales (NRW) for the Mona Offshore Wind Project.
Offshore Substation Platform (OSP)	The offshore substation platforms located within the Mona Array Area will transform the electricity generated by the wind turbines to a higher voltage allowing the power to be efficiently transmitted to shore.
Ramsar site	A wetland site designated to be of international importance under the Ramsar Convention. The Convention on Wetlands, known as the Ramsar Convention.
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.
Special Area of Conservation	Special Areas of Conservation (SACs) are areas designated under the European Union (EU) Habitat's Directive to help conserve certain plant and animal species listed in the Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).
Special Protection Area	Special Protection Areas (SPAs) are sites classified under the EU Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds) to protect rare or vulnerable birds (as listed on Annex I of the Directive), as well as regularly occurring migratory species.
Species	A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
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).
Suspended sediment concentration	Suspended sediment concentration (SSC), which is defined as the total value of both mineral and organic material carried in suspension by a volume of water.
Energy Security and Net Zero	The decision maker with regards to the application for development consent for the Mona Offshore Wind Project.
Tidal Excursion	The horizontal distance over which a water particle may move during one cycle of flood and ebb.
Wind Turbines	The wind turbine generators, including the tower, nacelle and rotor.

Acronyms

Acronym	Description
BDMPS	Biologically Defined Minimum Population Scales
CRM	Collision Risk Model
CTV	Crew Transfer Vessel

Acronym	Description
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EWG	Expert Working Group
HRA	Habitats Regulations Assessment
IEMA	Institute of Environmental Management and Assessment
ISAA	Information to Support an Appropriate Assessment
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
LSE	Likely Significant Effect
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
NPWS	National Parks and Wildlife Service
NRW	National Resources Wales
NSIP	Nationally Significant Infrastructure Project
OSP	Offshore Substation Platform
PEIR	Preliminary Environmental Information Report
pSPA	Potential Special Protection Area
SAC	Special Area of Conservation
SD	Standard Deviation
SNCB	Statutory Nature Conservation Bodies
SSC	Suspended Sediment Concentration
TCE	The Crown Estate
UXO	Unexploded Ordnance
WFD	Water Framework Directive
ZoI	Zone of Influence

Units

Unit	Description
%	Percentage
km	Kilometres
km^2	Square kilometres
m	Metre
m^2	Square metres
MW	Megawatt
nm	Nautical mile
^oC	Degrees centigrade
s	Second

1 Habitats Regulations Assessment Stage 2 Information to Support an Appropriate Assessment – Part Three: Special Protection Areas and Ramsar sites assessments.

1.1 Introduction

1.1.1 Purpose of the HRA Stage 2 ISAA

1.1.1.1 This Information to Support an Appropriate Assessment (ISAA) has been prepared by RPS, on behalf of the Applicant, to support the Habitats Regulations Assessment (HRA) under Section 63 of the Conservation of Habitats and Species Regulations 2017 and Section 28 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 for the Mona Offshore Wind Project.

1.1.1.2 The HRA Stage 2 ISAA builds upon the HRA Stage 1 Screening Report (Document Reference E1.4) and considers the likely significant environmental effects of the Mona Offshore Wind Project as they relate to relevant European site integrity. This report will provide the Competent Authority with the information required to undertake an HRA Stage 2 Appropriate Assessment.

1.1.1.3 The scope of the HRA Stage 2 ISAA covers all relevant European sites and designated features where likely significant effects (LSEs) have been identified due to the potential impacts arising from the Mona Offshore Wind Project. This includes both 'offshore' European sites and features (seaward of Mean High Water Springs (MHWS)), and potential impacts of offshore (seaward of MHWS) and intertidal infrastructure (between MHWS and Mean Low Water Springs (MLWS)) and onshore infrastructure on 'onshore' European sites (landward of MLWS).

1.1.2 Structure of the HRA Stage 2 ISAA

1.1.2.1 As detailed in section 1.2.6 of Part One of this HRA Stage 2 ISAA, for clarity and ease of navigation, the HRA Stage 2 ISAA is structured and reported in several 'Parts', as follows:

- Part One – Introduction and Background (Document Reference E1.1)
- Part Two –Special Areas of Conservation (SACs) Assessments (Document Reference E1.2)
- Part Three (this document) –Special Protection Areas (SPAs) and Ramsar sites Assessments.

1.1.2.2 Each 'Part' of the HRA Stage 2 ISAA is supported by a series of topic specific appendices and relevant documentation including designated site summaries.

1.1.3 Structure of this document

1.1.3.1 This document constitutes the HRA Stage 2 ISAA Part Three – SPA and Ramsar sites assessment and provides consideration of the implications of the Mona Offshore Wind Project on SPAs and Ramsar sites.

1.1.3.2 This document is structured as follows:

- Section 1.1: Introduction – this section details the purpose and structure of the HRA Stage 2 ISAA

- Section 1.2: Consultation – this section provides a summary of the consultation undertaken with regards to the qualifying features of SPAs and Ramsar sites, the responses provided, and how these have been addressed within this Part of the HRA Stage 2 ISAA
- Section 1.3: Summary of HRA Stage 1 Screening – this section presents the SPAs and Ramsar sites potentially at risk of LSE and the features and pathways for which HRA Stage 2 ISAA is required, both alone and in combination.

1.1.3.3 Information for the HRA Stage 2 Appropriate Assessment is then provided in:

- Section 1.4: Information to inform the Appropriate Assessments, including maximum design scenarios, designed in measures, an outline of the approach taken to baseline data, conservation objectives, and the in-combination assessment
- Section 1.5: Assessment of potential adverse effect on integrity: Step 1. This provided a non-detailed assessment of all sites impacted by collision and displacement impacts which an apportioning report has been undertaken (Document Reference F6.5.5). Some SPAs and Ramsar sites would then be taken forward to Section 1.6 if further assessment was required.
- Section 1.6: Assessment of potential adverse effect on integrity: Step 2. This provided detailed assessment of all sites following a brief assessment (using the apportioning report), further consideration was needed to conclude if an adverse effect on site integrity would occur or not.

1.1.3.4 The scope of this Part of the HRA Stage 2 ISAA covers all relevant SPAs and Ramsar sites and relevant qualifying interest features where LSEs have been identified due to impacts arising from the Mona Offshore Wind Project. This report will provide the competent authority with the information required to undertake an HRA Stage 2 Appropriate Assessment (see Part One of the HRA Stage 2 ISAA for more detail on the HRA process).

1.2 Consultation

1.2.1.1 Consultation has been undertaken with statutory stakeholders during key stages of the Mona Offshore Wind Project with regards to ornithological features of SPAs and Ramsar sites as part of the evidence plan process. Full details of the consultation undertaken for the Mona Offshore Wind Project is provided in the Consultation Report (Document Reference E3) and the Technical Engagement Plan (Document Reference E4). These documents contain full minutes of all expert working group (EWG) meetings.

1.2.1.2 A summary of the details of all consultation undertaken to date which is relevant to this Part of the HRA Stage 2 ISAA on SPAs and Ramsar sites, the Mona Offshore Wind Project and the HRA process in general, is presented in Table 1.1.

Table 1.1: Summary of key consultation relevant to the HRA Stage 2 ISAA Part 3 – SPA and Ramsar site assessments for the Mona Offshore Wind Project.

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
Steering Group				
November 2021	Natural Resources Wales (NRW), Natural England, Marine Management Organisation (MMO), Joint Nature Conservation Committee (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. • No specific discussion of the HRA process.	No action required
July 2022	NRW, Natural England, MMO, JNCC and Planning Inspectorate	Steering Group meeting	• LSE Methodology circulated to members of the Steering Group to gain feedback and agreement on the methodology to be used.	Feedback has been incorporated into HRA Stage 1 Screening (Document Reference E1.4) and HRA Stage 2 ISAA – Part 3 (Document Reference E1.3).
July 2022	NRW, Natural England, MMO, JNCC and Planning Inspectorate	Steering Group meeting	• 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 an LSE. The process and associated buffers used to screen in sites was presented for ornithology (onshore and offshore). NRW responses: • NRW advised that all designated sites with named features whose foraging ranges fall within the mean maximum foraging range +1 standard deviation (Mean Max +1SD) in Woodward *et al.* (2019), should be scoped in and included in the screening process. JNCC responses:	Feedback received on the LSE screening methodology has been considered and incorporated into the HRA Stage 1 Screening Report (Document Reference E1.4) which precedes this HRA Stage 2 ISAA – Part 3 (Document Reference E1.3).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			• JNCC advised species specific foraging ranges (Woodward *et al.* 2019). • In section 1.2.7.15 JNCC noted the Statutory Nature Conservation Bodies (SNCBs) advice on the spatial extent of displacement impacts to seaducks and diver species other than red-throated diver is 4 km, and the spatial extent of displacement impacts to red-throated diver is 10 km, making the potential zone of influence (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. • NRW responded that they would consider what has been proposed. Initial thoughts were that this may be 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.	Feedback has been incorporated into the HRA Stage 1 Screening Report (Document Reference E1.4) and has therefore influence the sites assessed and methodology followed in section 1.4.7.
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 is 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.	Feedback has been incorporated into the HRA Stage 1 Screening Report (Document Reference E1.4) and has therefore influence the sites assessed and methodology followed in section 1.4.7.
Expert Working Groups (EWG)				
December 2021	NRW, Natural England, MMO, JNCC, The Wildlife Trust (TWT), Royal Society for the Protection of Birds (RSPB)	Offshore ornithology 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.	Feedback has been incorporated into Volume 2, Chapter 5~~6~~: Offshore ornithology of the Environmental Statement (Document Reference F2.5) and this HRA Stage 2 ISAA – Part 3 (Document Reference E1.3).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
July 2022	Natural England, NRW, MMO, JNCC, RSPB and TWT.	Offshore ornithology 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.	Feedback has been incorporated into HRA Stage 1 Screening (Document Reference E1.4) which precedes this HRA Stage 2 ISAA – Part 3 (Document Reference E1.3).
November 2022	Natural England, NRW, MMO, JNCC and TWT.	Offshore ornithology EWG meeting 3	• Baseline characterisation. • Baseline populations. • Approach to LSE screening.	Feedback has been incorporated into HRA Stage 1 Screening (Document Reference E1.4) which precedes this HRA Stage 2 ISAA – Part 3 (Document Reference E1.3).
February 2023	Natural England, NRW, MMO, Isle of Man, RSPB and TWT.	Offshore ornithology 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 updated HRA methodology note sent to consultees and included within the Technical Engagement Plan (Document Reference E4).
June 2023	Natural England, JNCC, NRW, MMO, and Isle of Man.	Offshore ornithology EWG meeting 5	• Discussion on Section 42 comments and clarifications required. • LSE methodology updates.	The Section 42 comments have been incorporated within this HRA Stage 1 Screening report (Document Reference E1.4). An updated HRA methodology note was shared with the consultees post meeting and included within the Technical Engagement Plan (Document Reference E4).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
August 2023	Natural England	Letter response to the updated HRA methodology note (included within the Technical Engagement Plan (Document Reference E4)).	• 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 Preliminary Environmental Information Report (PEIR). In this case, potential connectivity (and thus, LSE if 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 Biological Defined Minimum Population Scale (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.	Comments noted and the approach proposed by Natural England for screening of non-breeding birds has been adopted in the HRA Stage 1 Screening Report (Document Reference E1.4).
August 2023	NRW	Email response to the updated HRA methodology note (included within the Technical Engagement Plan (Document Reference E4)).	• 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 the HRA Stage 1 Screening Report (Document Reference E1.4).

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
October 2023	Natural England, JNCC, NRW, RSPB TWT, Isle of Man Government, MMO, Niras	Offshore ornithology EWG meeting 6	• The HRA process was not specifically discussed. • Use of avoidance rates was discussed and the difference between the applicant's and the EWG's opinion of which rate to use was explored. The applicant requested a clarification/justification of the EWGs opinion to use species group avoidance rate (see line below).	Both species group and species specific avoidance rates are presented within this document.
October 2023	JNCC, Natural England and NRW	Letter response to the request for clarification on rationale for species group avoidance rate.	• JNCC, Natural England and NRW provided a note clarifying the rationale for their preference for using the species group avoidance rate, over the species specific rates. • The consultees consider the species group avoidance rate to be more precautionary.	Both species group and species specific avoidance rates are presented within this document. An impact is taken through for further assessment if either of the impacts, when using the species group or species specific avoidance rate, results an impact above the thresholds set out in the methodology.
December 2023	Natural England, JNCC, NRW, RSPB TWT, Isle of Man Government, MMO, Niras	Offshore ornithology EWG meeting 7	• Results of the LSE for in-combination effect was presented for lesser black-backed gull as an example species. Step one of the ISAA for the in-combination assessment was also shown for lesser black-backed gull for the Ribble and Alt Estuaries SPA and Ramsar site. • Confirmed that all birds have been included in the apportioning including sabbaticals. Natural England noted that they were pleased that their advice was being followed.	Methodology is as detailed in section 1.4.7.
Section 42 Consultation				
June 2023	NRW, JNCC, Natural England	Section 42 Consultation	• Consultees do not agree with the use of stable age structures for age-class apportioning or the removal of sabbaticals from impacts in the PEIR.	New HRA method presented to the EWG (at offshore ornithology EWG meeting 5 in June 2023) which addresses the concerns and

Date	Consultee	Type of Consultation	Summary of Consultation	Where addressed
			• Consultees do not consider it appropriate to base the cumulative (and hence also in-combination) assessments on so many unknowns for impacts from many of the relevant other projects. Whilst these historic projects may not have undertaken quantitative assessments, or assessments using current approaches, estimates will need to be generated for these unknown projects in order to undertake meaningful assessments.	comments provided by NRW, JNCC and Natural England. New method used within this HRA Stage 2 ISAA – Part 3 (Document Reference E1.3) in line with Volume 2, Chapter ~~6~~5: Offshore ornithology of the Environmental Statement (Document Reference F2.5) following the Section 42 consultation response.
			• The combined impact of displacement plus collision risk for the Mona project alone should be undertaken for black-legged kittiwake and northern gannet.	
			• Consultees did not agree with the HRA method presented within the PEIR documentation.	
June 2023	RSPB	Section 42 Consultation	• Main breeding seabird species of interest to the RSPB include Manx shearwater, northern gannet, black-legged kittiwake, common guillemot and razorbill along with non-breeding red-throated diver and common scoter. RSPB also have concerns with breeding lesser black-backed gull.	All species suggested by the RSPB have been included within this HRA Stage 2 ISAA – Part 3 (Document Reference E1.3).

1.3 HRA Stage 1 Screening conclusions

1.3.1 Screening outcomes for the Mona Offshore Wind Project alone

1.3.1.1 This section summarises all pathways identified for potential LSE (arising alone and/or in-combination) for SPAs and defines the scope of the Stage 2 assessments within this Part of the HRA Stage 2 ISAA.

1.3.1.2 The potential for LSE as a result of the Mona Offshore Wind Project alone was identified in the HRA Stage 1 Screening Report (Document Reference E1.4) with respect to 33 SPAs with offshore ornithological features and one Ramsar site. The one Ramsar site (Ribble and Alt Estuaries Ramsar site is assessed alongside the Ribble and Alt Estuaries SPA due to the same features being protected). No SPAs or Ramsar sites with onshore ornithological features were screened into assessment following the HRA Stage 1 Screening Report (Document Reference E1.4).

Offshore ornithological sites

1.3.1.3 As detailed in the HRA Stage 1 Screening Report (Document Reference E1.4), a total of 363 SPAs (and Ramsar sites) designated for ornithological features were advanced to the HRA Stage 2 ISAA. These comprised two marine SPAs and 31 breeding seabird colony SPAs:

- Liverpool Bay/Bae Lerpwl SPA
- Ribble and Alt Estuaries SPA (and Ramsar site)
- Irish Sea Front SPA
- Morecambe Bay and Duddon Estuary SPA
- Bowland Fells SPA
- Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA
- Lambay Island SPA
- Howth Head Coast SPA
- Ireland's Eye SPA
- Copeland Islands SPA
- Wicklow Head SPA
- Ailsa Craig SPA
- Rathlin Island SPA
- Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA
- Grassholm SPA
- Saltee Islands SPA
- North Colonsay and Western Cliffs SPA
- Rum SPA
- Shiant Isles SPA
- Skelligs SPA

- Handa SPA
- St Kilda SPA
- Cape Wrath SPA
- Flannan Isles SPA
- Flamborough and Filey Coast SPA
- Fowlsheugh SPA
- Mingulay and Berneray SPA
- Canna and Sanday SPA
- Isles of Scilly SPA
- Buchan Ness to Collieston SPA
- Troup, Pennan and Lion's Heads SPA
- East Caithness Cliffs SPA
- North Caithness Cliffs SPA
- Sule Skerry and Sule Stack SPA
- North Rona and Sula Sgeir SPA
- West Westray SPA.

1.3.2 Screening outcomes for the Mona Offshore Wind Project in-combination

1.3.2.1 All offshore ornithology sites which could not be excluded from the alone assessment are also included within the in-combination assessment following LSE screening. Further information on in-combination assessment methodology is presented within section 1.4.6.

1.3.3 Summary Table of LSE screening outcomes

1.3.3.1 Table 1.2 presents a summary of the 33 SPAs (and Ramsar sites) and relevant qualifying features for which LSE could not be ruled out and therefore an Appropriate Assessment is required to be undertaken. The distances presented within Table 1.2 were calculated as a straight line between the SPA or Ramsar site and the Mona Offshore Wind Project boundary.

Table 1.2: A summary of all SPAs (and Ramsar sites) for which the potential for LSE could not be discounted at the Stage 1 screening stage, and for which Appropriate Assessment is required.

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
1	Liverpool Bay/Bae Lerpwl SPA	15.9	0.0	• Red-throated diver *Gavia stellata* • Little gull *Hydrocoloeus minutus* • Common scoter *Melanitta nigra* • Little tern *Sternula albifrons* • Common tern • Waterbird assemblage	• Construction • Operations and maintenance • Decommissioning	• Temporary habitat loss/disturbance and increased suspended sediment concentration (SSC) • Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Changes in prey availability (construction only) • Accidental pollution • In-combination effects.
2	Ribble and Alt Estuaries SPA and Ramsar site	43.6	38.9	• Lesser black-backed gull *Larus fuscus*	• Operations and maintenance	• Collision risk • In-combination effects
3	Irish Sea Front SPA	57.2	60.5	• Manx shearwater	• Construction • Operations and maintenance • Decommissioning	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
4	Morecambe Bay and Duddon Estuary SPA	54.6	60.1	• Lesser black-backed gull	• Operations and maintenance	• Collision risk • In-combination effects
5	Bowland Fells SPA	84.5	95.3	• Lesser black-backed gull	• Operations and maintenance	• Collision risk • In-combination effects

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
64	Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA	99.3	84.7	• Manx shearwater	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
75	Lambay Island SPA	128.9	132.5	• Black-legged kittiwake *Rissa tridactyla*	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
86	Howth Head Coast SPA	134.4	137.3	• Black-legged kittiwake	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
97	Ireland's Eye SPA	134.7	137.7	• Black-legged kittiwake	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
108	Copeland Islands SPA	136.5	152.0	• Manx shearwater	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
11~~9~~	Wicklow Head SPA	148.8	146.2	~~•~~ Black-legged kittiwake •	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collison risk • In-combination effects
12	Ailsa Craig SPA	174.5	190.9	• Northern gannet • Common guillemot (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk (northern gannet only) • In-combination effects
13~~0~~	Rathlin Island SPA	211.9	228.3	• Black-legged kittiwake • Common guillemot (non-breeding season only) • Razorbill (non-breeding season 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
14~~1~~	Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	221.6	201.1	• Black-legged kittiwake – assemblage species • Lesser black-backed gull • Manx shearwater • Common guillemot (non-breeding season only) – assemblage species	• Construction • Operations and maintenance • Decommissioning	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk (lesser black backed gull and black-legged kittiwake only) • In-combination effects

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
				• Razorbill (non-breeding season only) – assemblage species		
152	Grassholm SPA	230.3	211.4	• Northern gannet *Morus bassanus*	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
163	Saltee Islands SPA	236.8	228.2	• Northern gannet	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk • In-combination effects
174	Flamborough and Filey Coast SPA	242.8	237.7	• Black-legged kittiwake (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
185	North Colonsay and Western Cliffs SPA	281.7	305.6	• Black-legged kittiwake • Common guillemot (non-breeding season 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

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
196	Rum SPA	370.6	390.1	• Manx shearwater	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
2017	Fowlsheugh SPA	380.4	379.1	• Black-legged kittiwake (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
2118	Mingulay and Berneray SPA	413.5	415.8	• Common guillemot (non-breeding season only) • Razorbill (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
2219	Canna and Sanday SPA	413.6	408.7	• ~~Black-legged kittiwake~~Common guillemot (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • ~~Collision risk~~ • In-combination effects
2331	Isles of Scilly SPA	419.7	401.6	• Great black-backed gull *Larus marinus* (non-breeding season only)	• Operations and maintenance	• Collision risk • In-combination effects
2432	Buchan Ness to Collieston SPA	431.0	429.8	• Black-legged kittiwake (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
						sound and presence of vessels and infrastructure • Collision risk • In-combination effects
25	Troup, Pennan and Lion's Heads SPA	462.0	461.2	• Black-legged kittiwake (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
264	Shiant Isles SPA	472.7	492.5	• Common guillemot (non-breeding season only) • Razorbill (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
27	Skelligs SPA	481.9	480.5	• Northern gannet	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects
286	East Caithness Cliffs SPA	498.8	499.4	• Black-legged kittiwake (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
29~~7~~	Handa SPA	510.5	530.6	• Common guillemot (non-breeding season only) • Razorbill (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
30~~8~~	St Kilda SPA	519.2	537.2	• 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
31~~9~~	Cape Wrath SPA	532.8	553.4	• Black-legged kittiwake (non-breeding season 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
32	Flannan Isles SPA	540.6	559.8	• Common guillemot (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
33~~10~~	North Caithness Cliffs SPA	548.2	549.0	• Black-legged kittiwake (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk

ID	European Site	Distance to Mona Array Area (km)	Distance to Mona Offshore Cable Corridor and Access Areas (km)	Relevant qualifying features	Project phase	Impact
						• In-combination effects
34~~11~~	Sule Skerry and Sule Stack SPA	601.6	599.2	• Common guillemot (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
35~~12~~	North Rona and Sula Sgeir SPA	616.9	618.2	• Common guillemot (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • In-combination effects
36~~3~~	West Westray SPA.	630.7	629.5	• Black-legged kittiwake (non-breeding season only)	• Operations and maintenance	• Disturbance and displacement from airborne sound and presence of vessels and infrastructure • Collision risk • In-combination effects

1.4 Information to inform the Appropriate Assessment

1.4.1 Overview

1.4.1.1 As described in the HRA Stage 2 ISAA Part 1 – Introduction (Document Reference E1.1), a European site is progressed to the Appropriate Assessment stage (Stage 2 of the HRA process) where it is not possible to exclude an LSE on one or more of its qualifying interest features in view of the site's conservation objectives. European sites, features and potential impacts requiring an Appropriate Assessment for the Proposed Development are therefore those for which LSE could not be ruled out during the Screening exercise and following consultation (see Table 1.1).

1.4.1.2 Information to help inform the Appropriate Assessment for SPAs and Ramsar sites is provided in the following sections of this Part of the HRA Stage 2 ISAA. The information provided includes a description of the SPAs under consideration, their qualifying interest features, and an assessment of potential effects on site integrity in light of the conservation objectives of each site.

1.4.2 Maximum design scenarios

1.4.2.1 For all SPAs (and Ramsar sites) considered in this Part of the HRA Stage 2 ISAA, the assessments have been based on a realistic Maximum Design Scenario (MDS) derived from the design envelope for the Mona Offshore Wind Project. Volume 1, Chapter 3: Project description of the Environmental Statement (Document Reference F1.3) describes the Mona Offshore Wind Project design and identifies the potential parameters for all relevant components which could result in the maximum impact.

1.4.2.2 The MDS for each of the potential impacts for ornithological features are tabulated separately in this HRA Stage 2 ISAA according to the effect-pathway under consideration (section 1.6.3). The assessment scenarios are consistent with those used for assessment in Volume 2, Chapter ~~6~~5: Offshore ornithology of the Environmental Statement (Document Reference F2.5).

1.4.3 Measures adopted as part of the Mona Offshore Wind Project

1.4.3.1 An iterative approach to the Mona Offshore Wind Project Environmental Impact Assessment (EIA) and HRA process has been utilised to inform the Mona Offshore Wind Project design (through the identification of LSEs and development of measures to address these), this is explained in more detail in Volume 1, Chapter 5: Environmental Impact Assessment methodology of the Environmental Statement (Document Reference F1.5). The incorporation of such measures within the design of the Mona Offshore Wind Project demonstrates commitment to implementing the identified measures.

1.4.3.2 The term 'measures adopted as part of the Mona Offshore Wind Project' is used in this HRA Stage 2 ISAA to include the following measures (adapted from Institute of Environmental Management and Assessment (IEMA), 2016):

- Measures included as part of the project design. These include modifications to the location or design envelope of the Mona Offshore Wind Project which are integrated into the application for consent. These measures are secured through the consent itself through the description of the development and the parameters secured in the Development Consent Order (DCO) and/or marine licences (referred to as primary mitigation in IEMA, 2016)

- Measures required to meet legislative requirements, or actions that are generally standard practice used to manage commonly occurring environmental effects and are secured through the DCO requirements and/or the conditions of the marine licences (referred to as tertiary mitigation in IEMA, 2016).

1.4.3.3 The relevant measures adopted as part of the Mona Offshore Wind Project for each of the potential impacts for ornithological features are tabulated separately in this HRA Stage 2 ISAA according to the effect-pathway under consideration.

1.4.4 Baseline information

1.4.4.1 Baseline information on the SPAs (and Ramsar sites) identified for further assessment (integrity test: Step 2) within this Part of the HRA Stage 2 ISAA has been gathered through a comprehensive desktop study of existing studies and datasets. The key data sources used in section 1.4.7 are summarised below. Any additional sources of information used in this Part of the HRA Stage 2 ISAA are also summarised.

1.4.4.2 For offshore ornithology SPA and Ramsar sites, the main source of baseline information comes from the 24 month site-specific aerial survey data and baseline characterisation for ornithology. The detailed methods, results and analysis of the aerial surveys are presented within documentation associated with the Environmental Statement. The additional documentation which should be read in conjunction with this assessment are:

- Baseline characterisation - Volume 6, Annex 5.1: Offshore ornithology baseline characterisation technical report of the Environmental Statement (Document Reference F6.5.1)
- Displacement assessment – Volume 6, Annex 5.2: Offshore ornithology displacement ~~assessment~~ technical report of the Environmental Statement (Document Reference F6.5.2)
- Collision Risk Modelling assessment of non-migratory seabird species – Volume 6, Annex 5.3: Offshore ornithology ~~non-migratory seabird~~ collision risk modelling technical report ~~assessment~~ of the Environmental Statement (Document Reference F6.5.3)
- Collision Risk Modelling assessment of migratory seabird species – Volume 6, Annex 5.4: Offshore ornithology migratory ~~sea~~bird collision risk ~~assessment~~ modelling technical report of the Environmental Statement (Document Reference F6.5.4)
- Apportioning assessment – Volume 6, Annex 5.5: Offshore Ornithology apportioning ~~assessment~~technical report of the Environmental Statement (Document Reference F6.5.5).

1.4.4.3 In addition to the baseline surveys, information was presented from multiple reports which investigated the ornithological assemblage of Liverpool Bay and the Irish Sea (Lawson *et al.*, 2016; Waggit *et al.*, 2020; and HiDef, 2023).

1.4.4.4 The site descriptions, conservation objectives and condition assessment (if relevant) of any site which was identified for further assessment (integrity test: Step 2) within this Part of the HRA Stage 2 ISAA are also presented within the baseline section (1.6.2).

1.4.5 Conservation objectives and advice

1.4.5.1 The SNCBs have produced conservation advice for European sites under their statutory remit. This conservation advice provides supplementary information on sites and features, and although the content provided is similar, the format of the advice provided varies between the different SNCBs.

1.4.5.2 Conservation objectives set the framework for establishing appropriate conservation measures for each feature of the site and provide a benchmark against which plans or projects can be assessed. The conservation objectives set out the essential elements needed to ensure that a qualifying habitat or species is maintained or restored at a site. If all the conservation objectives are met, then the integrity of the site will be maintained, and deterioration or significant disturbance of the qualifying features avoided.

1.4.5.3 Due to the location and scale of the Mona Offshore Wind Project, SPAs (and Ramsar sites) with the potential to be impacted fall under the remit of NRW, Natural England, NatureScot, National Parks and Wildlife Service (NPWS) and JNCC. Each of the different SNCBs publish conservation objectives and advice under different names/titles.

1.4.5.4 For some SPAs under the statutory remit of NatureScot, NRW and/or Natural England a Conservation Advice Package (CAP) document has been produced. Of the SPAs screened into this HRA Stage 2 ISAA, a CAP document has only been produced for the Liverpool Bay/Bae Lerpwl SPA (Natural England, NRW and JNCC, 2022); CAP documents for other European sites have not yet been produced. The Liverpool Bay/Bae Lerpwl SPA CAP document contains revised and updated conservation objectives for the features of the Liverpool Bay SPA, site-specific clarifications and advice in order for the conservation objectives to be achieved, and advice on management required to achieve the conservation objectives.

1.4.5.5 For SPAs sites located within the Republic of Ireland there are currently no CAP documents. However, conservation objectives have been published by NPWS for all sites and these have been considered within this this Part of the HRA Stage 2 ISAA.

1.4.5.6 For SPAs which fall within both Welsh and English or English and Scottish territorial waters the two relevant governing SNCBs can publish separate conservation objectives for the same European site. Where this is the case for European sites assessed within this Part of the HRA Stage 2 ISAA, the most recently published conservation objectives have been used.

1.4.5.7 Where a Ramsar site's interests coincide with qualifying features within an SPA, the advice for overlapping designations is considered to be sufficient to support the management of the Ramsar site’s interests.

1.4.6 Approach to the in-combination assessments

1.4.6.1 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.

1.4.6.2 When undertaking an in-combination assessment projects, plans or activities with which the Mona Offshore Wind Project may interact to produce an in-combination effect must be identified. These interactions may arise within the construction, operations and maintenance, or decommissioning phases.

1.4.6.3 A predicted impact from the Mona Offshore Wind Project alone assessment will only be included within the in-combination when it is considered to represent a material and measurable impact to the impacted population. The level at which an impact is

included has been set for this project at >0.05% increase in baseline mortality, in line with other consented offshore wind farm projects (e.g. Awel y Môr). If an impact of <0.05% is predicted it is deemed non-material and within natural fluctuations of the population.

1.4.6.4 The process of identifying those projects, plans or activities for which there is the potential for an interaction to occur is referred to as 'screening'. A specialised process has been developed in order to methodically and transparently screen the large number of projects, plans and activities that may be considered cumulatively alongside the Mona Offshore Wind Project. This involves a staged process that considers the level of detail available for projects, plans and activities, as well as the potential for interactions on a conceptual, physical and temporal basis.

1.4.6.5 The projects, plans and activities screened into the in-combination assessment will be consulted upon with the SNCBs through this ISAA, in order to seek agreement on the projects, plans and activities to be considered in the cumulative assessment.

1.4.6.6 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.

1.4.6.7 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 ongoing impact
- Tier 2
  - Scoping report has been submitted and is in the public domain
- Tier 3
  - Scoping report has not been submitted or is not in the public domain
  - Identified in a relevant development plan
  - Identified in other plans and programmes.

1.4.6.8 An overview of the projects, plans or activities considered for ornithological receptors are tabulated separately in this Part of the HRA Stage 2 ISAA according to the effect-pathway under consideration (Table 1.3).

1.4.6.9 As part of the in-combination assessment only projects that have apportioned their impact to individual SPAs are presented quantitatively within section 1.5.4. However, as this may not be for all species at all sites which have been screened in for Mona Offshore Wind Project, an explanation of what data is available is presented within each site/species specific table of the integrity test: Step 1 (section 1.5.3). For the plans and projects which have not presented any apportioned data a qualitative assessment has been included for the relevant species by reviewing the historical projects project specific documentation.

1.4.6.10 Full explanation for each species, and which projects have and have not been included, are contained within the relevant sections below.

1.4.6.11 Impacts from other projects which have no publicly available data are presented within the Cumulative Effects Assessment within the offshore ornithology chapter (Volume 2, Chapter 5~~6~~: Offshore ornithology of the Environmental Statement (Document Reference F2.5)) but are not considered here due to the uncertainty of the data.

Table 1.3: Summary of Tier 1 and 2 projects considered within the in-combination assessment.

Project	Status	Tier	Data availability	Reference for apportioned data presented
Arklow Bank Phase 1 Offshore Wind Farm	Operational	1	No publicly available data.	N/A
Awel y Môr Offshore Wind Farm	Consented	1	Apportioned impacts presented.	Awel y Môr (2022)
Barrow Offshore Wind Farm	Operational	1	No publicly available data.	N/A
Burbo Bank Extension Offshore Wind Farm	Operational	1	No apportioned data available. A qualitative assessment is presented if relevant.	Seascape Energy (2002)
Burbo Bank Offshore Wind Farm	Operational	1	No apportioned data available. A qualitative assessment is presented if relevant.	Dong Energy (2013a)
Erebus Offshore Wind Farm	Under construction	1	Apportioned impacts presented.	Marine Space (2021) and Erebus (2023)
Gwynt y Môr Offshore Wind Farm	Operational	1	No apportioned data available. A qualitative assessment is presented if relevant.	RWE Group and Npower Renewables (2005)
Minesto tidal kite (within the Holyhead Deep development zone)	Operational	1	Apportioned impacts presented.	Minesto (2016)
Morlais Tidal Demonstration Zone	Consented	1	Apportioned impacts presented.	Morlais (2019)
North Hoyle Offshore Wind Farm	Operational	1	No apportioned data available.	N/A
Ormonde Offshore Wind Farm	Operational	1	Apportioned impacts presented.	RBA (2005)
Rampion Offshore Wind Farm	Operational	1	Apportioned impacts presented.	RSK Environmental (2012)
Rampion 2 Offshore Wind	Application submitted	1	Apportioned impacts presented.	Rampion 2 Wind Farm (2023)
Rhyl Flats Offshore Wind Farm	Operational	1	No apportioned data available.	N/A
Robin Rigg Offshore Wind Farm	Operational	1	No apportioned data available. The projected lifetime of the project means operational overlap unlikely.	N/A
Walney 1 Offshore Wind Farm	Operational	1	No apportioned data available. A qualitative assessment presented.	RPS (2006a).

Project	Status	Tier	Data availability	Reference for apportioned data presented
Walney 2 Offshore Wind Farm	Operational	1	No apportioned data available. A qualitative assessment presented.	
Walney Extension 3 Offshore Wind Farm	Operational	1	Apportioned impacts presented.	Dong Energy (2013b)
Walney Extension 4 Offshore Wind Farm	Operational	1	Apportioned impacts presented.	
West of Duddon Sands Offshore Wind Farm	Operational	1	No apportioned data available. A qualitative assessment presented.	RPS (2006b)
White Cross Offshore Wind Farm	Application submitted	1	Apportioned impacts presented.	White Cross (2023)
Arklow Bank Phase 2 Offshore Wind Farm	Scoping report submitted	2	No apportioned data available.	N/A
Codling Wind Park Offshore Wind Farm	Scoping report submitted	2	No publicly available data.	N/A
Dublin Array Offshore Wind Farm	Scoping report submitted	2	No publicly available data.	N/A
Inis Ealga Marine Energy Park Offshore Wind Farm	Scoping report submitted	2	No apportioned data available.	N/A
Llyr 1 Offshore Wind Farm	Scoping report submitted	2	No apportioned data available.	N/A
Llyr 2 Offshore Wind Farm	Scoping report submitted	2	No apportioned data available.	N/A
Mooir Vannin Offshore Wind Farm	Scoping report submitted	2	No apportioned data available.	N/A
Morecambe Offshore Wind Farm	Pre-application	2	Apportioned impacts presented.	Morecambe Offshore Wind Ltd. (2023)
Morgan Offshore Wind Project Generation Assets	Pre-application	2	Apportioned impacts presented.	Morgan Offshore Wind Ltd. (2023)
Morgan and Morecambe Wind Farms Transmission Assets	Pre-application	2	Apportioned impacts presented.	Morgan Offshore Wind Ltd. and Morecambe Offshore Windfarm (2023)
North Irish Sea Array Offshore Wind Farm	Scoping report submitted	2	No publicly available data.	N/A
Oriel Offshore Wind Farm	Scoping report submitted	2	No publicly available data.	N/A

Project	Status	Tier	Data availability	Reference for apportioned data presented
Shelmalere Offshore Wind Farm	Scoping report submitted	2	No publicly available data.	N/A
TwinHub Floating Offshore Wind Farm	Consented	2	Apportioned impacts presented.	Xodus Group (2018)

1.4.7 Updated HRA methodology for offshore ornithological features

1.4.7.1 The approach undertaken for ornithology Stage 1 HRA Screening in the PEIR set out the Applicant's aim to develop a proportionate HRA whilst making the assessment more accessible for stakeholders. However, the feedback from stakeholders in the offshore ornithology EWG and formally via the Section 42 responses was that this methodology is not what has been applied to other wind farms historically. The Applicant therefore proposed un updated methodology for the ~~Stage 1~~ HRA Stage 1 Screening Report (Document Reference E1.4) and Stage 2 ISAA to be submitted with the application for development consent, in the form of a technical note which was issued to stakeholders as part of the EWG process. The technical note is appended to the Technical Engagement Report (Document Reference E4) alongside the EWG discussion on the document.

1.4.7.2 As part of the EWG process, stakeholders agreed with the following two-step approach to the HRA Stage 2 ISAA for offshore ornithological features outlined below.

1.4.7.3 Step 1 involves a high level initial assessment focusing on the apportioning assessment (Document Reference F6.5.5) to present where there is low risk of an adverse effect on the integrity of an SPA or Ramsar site. Some sites will not be considered further if defined criteria are met (see next two sections Integrity test: Step 1 – sites considered during the breeding and non-breeding seasons (paragraphs 1.4.7.8 to 1.4.7.10) and Integrity test: Step 1 – sites considered during the non-breeding season (paragraphs 1.4.7.11 to 1.4.7.13)), whereas other sites, where an adverse effect on Integrity cannot be ruled out, are taken forward to the integrity test: Step 2. Figure 1.1 provides a diagram of the two-step approach to the HRA Stage 2 ISAA for offshore ornithological features.

1.4.7.4 Within integrity test: Step 2 a more detailed assessment has been undertaken on the SPAs (and Ramsar sites) where there is a risk of an adverse effect on the integrity.

1.4.7.5 Step 2 uses further detailed information from collision risk modelling assessments (Document references F6.5.3, F6.5.4 and F6.5.5), displacement assessments (Document references F.6.5.2) to examine the impacts against each conservation objective for the relevant SPAs in order to make a conclusion with regard to adverse effects on integrity.

1.4.7.6 As shown within Table 1.2 the SPAs and Ramsar sites screened into this Part of the HRA Stage 2 ISAA have relevant qualifying features which can be impacted during the breeding and non-breeding season (i.e. the Mona Offshore Wind Project could impact the species year round). However, some SPAs and Ramsar sites only have the potential to be impacted during the non-breeding season. Criteria for screening in or out a non-breeding season site is presented in the HRA Stage 1~~LSE~~ Screening Report (Document Reference E1.4). Figure 1.1 provides a diagram of the two-step approach to the HRA Stage 2 ISAA for offshore ornithological features.

1.4.7.7 As Liverpool Bay/Bae Lerpwl SPA and the Mona Offshore Cable Corridor and Access Areas overlap, it is not appropriate to undertake the integrity test: Step 1 for this site. Liverpool Bay/Bae Lerpwl SPA is assessed within the integrity test: Step 2, only.

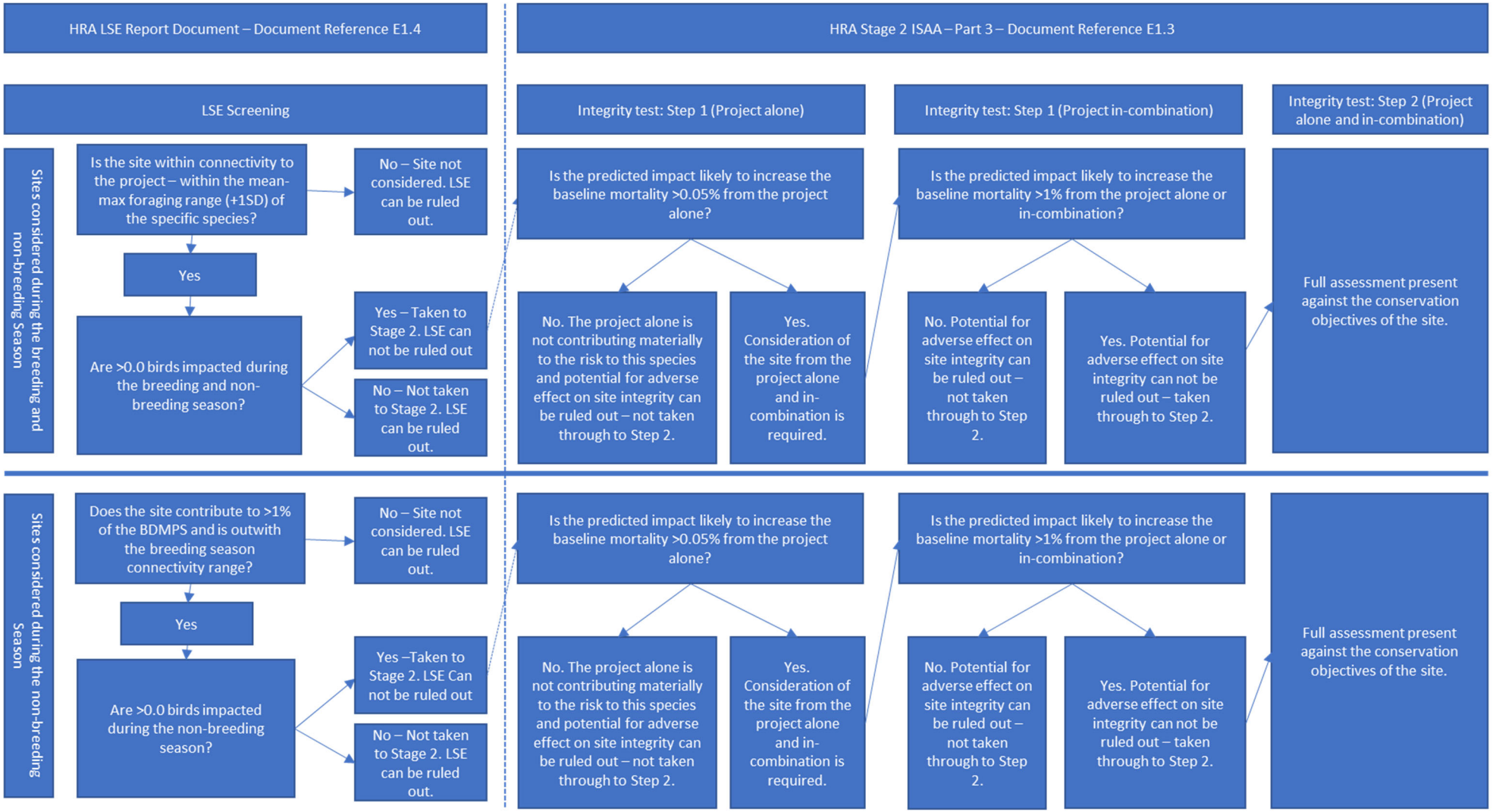

Figure 1.1: Flow diagram of the approach to the HRA for offshore ornithological features.

Integrity test: Step 1 – sites considered during the breeding and non-breeding seasons

1.4.7.8 For sites which could be impacted during the breeding and non-breeding season, (i.e. sites which are within the mean maximum foraging range (+1SD) (taken from Woodward *et al*., 2019)) for the specific qualifying feature, if the predicted impacts for the Mona Offshore Wind Project alone (section 1.5.3) and/or in-combination (section 1.5.4) is predicted to cause a <1% increase in the baseline mortality of the latest population estimate for a qualifying feature, then a high level assessment has been presented. To conclude, at these levels it can be ruled out beyond reasonable scientific doubt that there will be no adverse effect on integrity.

1.4.7.9 If the predicted impact results in a <0.05% increase in baseline mortality from the Mona Offshore Wind Project alone, it is not deemed proportionate to account for this impact within the in-combination assessment. An impact of <0.05% is deemed non-material and within natural fluctuations of the population and therefore has not been taken through to the in-combination assessment (section 1.5.4).

1.4.7.10 If the predicted impact results in a >1% increase in the baseline mortality for either the Mona Offshore Wind Project alone or the Mona Offshore Wind Project in-combination with other projects, an adverse effect on the integrity cannot be ruled out and the SPA (and/or Ramsar) and associated qualifying features have been progressed to the Integrity test: step 2 (section 1.6).

Integrity test: Step 1 – sites considered during non-breeding season only

1.4.7.11 Some sites can only be impacted during the non-breeding season, i.e. sites which are outwith the mean maximum foraging range (+1SD) (taken from Woodward *et al*., 2019) for the specific qualifying feature **AND** contribute >1% of the population of the BDMPS population (Furness, 2015). If the predicted impacts for the Mona Offshore Wind Project alone (section 1.5.3) and/or in-combination (section 1.5.4) is predicted to cause a <1% increase in the baseline mortality of the latest population estimate for a qualifying feature, then a high level assessment has been presented. To conclude, at these levels it can be ruled beyond reasonable scientific doubt that there will be no adverse effect on integrity.

1.4.7.12 If the predicted impact results in a >1% increase in the baseline mortality for either the Mona Offshore Wind Project alone or the Mona Offshore Wind Project in-combination with other projects, an adverse effect on the integrity cannot be ruled out and the SPA (and/or Ramsar site) and associated qualifying features have been progressed to the Integrity test: step 2 (section 1.6).

1.4.7.13 During the non-breeding period species are less spatially restricted and can occur within a BDMPS population (Furness, 2015). As such, if the predicted impact results in a <0.05% increase in baseline mortality from the Mona Offshore Wind Project alone, it is not deemed proportionate to account for this impact within the in-combination assessment. An impact of <0.05% during the non-breeding season is deemed non-material and has not been taken through to the in-combination assessment (section 1.5.4).

1.5 Assessment of potential Adverse Effect on Integrity: Step 1

1.5.1 Sites considered within the assessment of potential Adverse Effect on Integrity: Step 1

1.5.1.1 The HRA Stage 1 Screening Report (Document Reference E1.4) identified the potential for LSEs on the 33 SPAs and Ramsar site and designated offshore ornithological features listed in Table 1.4 and shown in Figure 1.2.

Table 1.4: SPA and/or Ramsar site and relevant offshore ornithological features for which the potential for LSE could not be ruled out and therefore considered in the Appropriate Assessment.

SPA and/or Ramsar site	Offshore ornithological feature and period of impact
Irish Sea Front SPA	Manx shearwater during the breeding and non-breeding season
Ribble and Alt Estuaries SPA and Ramsar site	Lesser black-backed gull during the breeding and non-breeding season
~~Morecambe Bay~~ Morecambe Bay and Duddon Estuary SPA	Lesser black-backed gull during the breeding and non-breeding season
Bowland Fells SPA	Lesser black-backed gull during the breeding and non-breeding season
Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA	Manx shearwater during the breeding and non-breeding season
Lambay Island SPA	Black-legged kittiwake during the breeding and non-breeding season
Howth Head Coast SPA	Black-legged kittiwake during the breeding and non-breeding season
Ireland's Eye SPA	Black-legged kittiwake during the breeding and non-breeding season
Copeland Islands SPA	Manx shearwater during the breeding and non-breeding season
Wicklow Head Coast SPA	Black-legged kittiwake during the breeding and non-breeding season
Grassholm SPA	Gannet during the breeding and non-breeding season
Ailsa Craig SPA	Northern gannet during the breeding and non-breeding season Common guillemot during the non-breeding season
Rathlin Island SPA	Black-legged kittiwake during the breeding and non-breeding season Common guillemot during the non-breeding season Razorbill during the non-breeding season
Skomer, Skokholm and the Seas off Pembrokeshire SPA	Black-legged kittiwake during the breeding and non-breeding season Lesser black-backed gull during the breeding and non-breeding season Manx shearwater during the breeding and non-breeding season Common guillemot during the non-breeding season Razorbill during the non-breeding season
Saltee Islands SPA	Northern gannet during the breeding and non-breeding season
Flamborough and Filey Coast SPA	Black-legged kittiwake during the non-breeding season
North Colonsay and Western Cliffs SPA	Black-legged kittiwake during the breeding and non-breeding season Common guillemot during the non-breeding season
Rum SPA	Manx shearwater during the breeding and non-breeding season
Fowlsheugh SPA	Black-legged kittiwake during the non-breeding season

SPA and/or Ramsar site	Offshore ornithological feature and period of impact
Mingulay and Berneray SPA	Common guillemot during the non-breeding season Razorbill during the non-breeding season
Canna and Sanday SPA	~~Black-legged kittiwake~~Common guillemot during the non-breeding season
Isles of Scilly SPA	Great black-backed gull during the non-breeding season
Buchan Ness to Collieston SPA	Black-legged kittiwake during the non-breeding season
Troup, Pennan and Lion's Heads SPA	Black-legged kittiwake during the non-breeding season
Shiant Isles SPA	Common guillemot during the non-breeding season Razorbill during the non-breeding season
Skelligs SPA	Northern gannet during the breeding and non-breeding season
East Caithness Cliffs SPA	Black-legged kittiwake during the non-breeding season
Handa SPA	Common guillemot during the non-breeding season Razorbill during the non-breeding season
St Kilda SPA	Northern gannet during the breeding and non-breeding season Common guillemot during the non-breeding season
Cape Wrath SPA	Black-legged kittiwake during the non-breeding season Common guillemot during the non-breeding season Razorbill during the non-breeding season
Flannan Isles SPA	Common guillemot during the non-breeding season
North Caithness Cliffs SPA	Black-legged kittiwake during the non-breeding season
Sule Skerry and Sule Stack SPA	Common guillemot during the non-breeding season
North Rona and Sula Sgeir SPA	Common guillemot during the non-breeding season
West Westray SPA	Black-legged kittiwake during the non-breeding season

1.5.2 Impacts considered within the assessment of potential Adverse Effect on Integrity: Step 1

1.5.2.1 The impacts considered within the LSE Screening Document (Document Reference E1.4) and which LSE could not be ruled out for the SPAs and/or Ramsar sites identified within Table 1.4 and are appropriate to assess within integrity test: Step 1 are as follows:

- During the construction and decommissioning phases
  - Disturbance and displacement from airborne sound and presence of vessels and infrastructure
  - In-combination effects
- During the operations and maintenance phase
  - Disturbance and displacement from airborne sound and presence of vessels and infrastructure
  - Collison risk
  - In-combination effects.

1.5.2.2 The following paragraphs provide a brief overview, the impact specific MDS and the mitigation measures proposed for each impact being considered within this assessment of potential Adverse Effect on Integrity: Step 1.

Disturbance and displacement from airborne sound and presence of vessels and infrastructure

1.5.2.3 Airborne sound and the presence of vessels and infrastructure, during the construction, operations and maintenance and decommissioning phases may disturb seabirds from offshore foraging or non-foraging areas (e.g. rafting, moulting). This disturbance and subsequent displacement may cause changes in behaviour and may lead to a reduction in foraging opportunities or increased energy expenditure, resulting in decreased survival rates or productivity in the population.

1.5.2.4 The assessment of LSE during the HRA screening process identified that during construction and decommissioning, LSE could not be ruled out for the potential impact of disturbance and displacement for all SPAs and Ramsar sites considered.

1.5.2.5 The MDS considered within this assessment is shown in Table 1.5.

Table 1.5: MDS considered for the assessment of potential impacts on offshore ornithological features on SPAs and Ramsar sites designated for offshore ornithological features from disturbance and displacement from airborne sound, and presence of vessels and infrastructure during the construction, operations and maintenance and decommissioning phases.

Potential impact	Maximum design scenario	Justification
Construction phase	**Mona Array Area (vessel and helicopter movements)** • Up to 1,929 installation vessel movements (return trips) during construction (521 main installation and support vessels, 74 tug/anchor handlers, 56 cable lay installation and support vessels, 50 guard vessel, 31 survey vessels, 19 seabed preparation vessels, 1,135 Crew Transfer Vessels (CTVs), 41 scour protection installation vessels and 2 cable protection installation vessels) • Up to a total of 69 construction vessels on site at any one time • Up to 1,095 helicopter movements by up to 2 helicopters on site at any one time **Mona Offshore Cable Corridor and Access Areas (vessel movements):** • Up to 126 installation vessel movements (return trips) during construction (10 cable lay installation cycles, 10 trench support vessels rotations and 20 installation support vessel rotations, 18 guard vessel, 4 survey vessels, 24 seabed preparation vessels, 20 CTVs, and 20 cable protection installation vessels). Expected to take one year. • Up to 160 installation vessel movements for installation of the export cable at the landfall area. Maximum offshore construction duration of up to four years.	Represents the maximum number of vessel and helicopter movements that would cause greatest visual and sound disturbance and displacement to birds from the Mona Array Area and the Mona Offshore Cable Corridor and Access Areas.
Operations and maintenance phase	**Mona Array Area (vessel and helicopter movements):** • Presence of up to 96 operating turbines and four offshore substation platforms (OSPs) occupying the Mona Array Area of up to 300 km^2 • Minimum spacing of 1,400 m between wind turbines • Up to 849 operations and maintenance vessel movements (return trips) each year • Up to a total of 21 operations and maintenance vessels on site at any one time • Up to 730 helicopter return trips per year with up to eight on site at any one time • Up to 214 inspection drones return trips per year (operated from vessel, two inspections per wind turbine per year as a maximum) • Operational lifetime of up to 35 years.	Represents the maximum density of wind turbines and structures across the maximum Mona Array Area and the Mona Offshore Cable Corridor and Access Areas that would cause greatest extent of disturbance and displacement to birds or the greatest duration of impact. Represents the maximum number of vessel and helicopter movements that would cause greatest visual and sound disturbance and displacement to birds from the Mona Array Area and the Mona Offshore Cable Corridor and Access Areas.

Potential impact	Maximum design scenario	Justification
	Mona Offshore Cable Corridor (vessel movements) and Access Areas: • A reduced number of vessel movements when/if reburial or cable repairs are needed. The magnitude would be less than during the construction period as the whole length of the Mona Offshore Cable Corridor and Access Areas would not be worked on at once.	
Decommissioning phase	• Vessels used for a range of decommissioning activities such as removal of offshore export cables. Considered to be no greater than during construction. • Sound from vessels assumed to be no greater than vessel activity described for construction phase above.	Represents the maximum number of vessel and helicopter movements that would cause greatest visual and sound disturbance and displacement to birds from the Mona Array Area and the Mona Offshore Cable Corridor and Access Areas.

Measures adopted as part of the Mona Offshore Wind Project

1.5.2.6 Measures adopted as part of the Mona Offshore Wind Project which are of relevance to the assessment of potential impacts on ornithological features from disturbance and displacement from airborne sound, and presence of vessels and infrastructure during construction and decommissioning are presented in Table 1.6.

Table 1.6: Measures adopted as part of the Mona Offshore Wind Project relevant to the assessment of adverse effect on SPAs and Ramsar sites designated for offshore ornithological features from airborne sound and presence of vessels and infrastructure.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
Tertiary measures: Measures required to meet legislative requirements, or adopted standard industry practice		
An Offshore Environmental Management Plan (EMP) that will include measures to minimise disturbance to rafting birds from transiting vessels.	The development of and adherence to an Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.
The Offshore EMP will include a timing restriction of no offshore export cable installation during the period 1st November to 31st March within the Liverpool Bay SPA.	The timing restriction will ensure no installation of offshore export cables during the period of 1st November to 31st March within the Mona Offshore Cable Corridor and Access Areas located within the Liverpool Bay/Bae Lerpwl SPA in order to minimise disturbance to qualifying features within the Mona Offshore Cable Corridor and Access Areas, in particular diver and seaduck species. The period 1st November to 31st March is the period in which the qualifying features of the Liverpool Bay/Bae Lerpwl SPA congregate in their largest numbers.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.
The Offshore EMP will include a Marine Pollution Contingency Plan (MPCP) which will include planning for accidental spills, address all potential contaminant releases and include key emergency details.	The provisions within the MPCP will mean than if a spill event were to occur, then the impacts would be managed and swiftly dealt thing. Following the MPCP means that very few, if any, birds would be impacted if a pollution event were to occur.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence

Collision risk

1.5.2.7 During the operations and maintenance phase of the Mona Offshore Wind Project, the turning rotor blades of the wind turbines may present a risk of collision for seabirds. When a collision occurs between the turning rotor blade and the bird, it is assumed to result in direct mortality of the bird, which potentially could result in population level impacts.

1.5.2.8 The assessment of LSE during the HRA screening process identified that during construction and decommissioning, LSE could not be ruled out for the potential impact of disturbance and displacement for all SPAs and Ramsar sites considered.

1.5.2.9 The MDS considered within this assessment is shown in Table 1.7.

Table 1.7: MDS considered for the assessment of potential effects on SPAs and Ramsar sites designated for offshore ornithological features from collision risk.

Potential impact	Maximum design scenario	Justification
Operations and maintenance phase	**Mona Array Area:** • 96 wind turbines within the Mona Array Area • Lower blade tip height of 34 m above Lowest Astronomical Tide (LAT) • Rotor diameter of 250 m • Chord width of 6.8 m • Maximum rotor speed of 8.4 rpm (with average speed of 6.2 rpm) • Proportion of time operational of 94% • Operational lifetime of up to 35 years.	Represents the MDS which results in the greatest impacts to birds from collisions. Note that the maximum impact to offshore ornithological features comes from the largest number of smaller (in height) turbines. Therefore some of the parameters presented are a minimum. The MDS presented within this table was used for the collision risk model (CRM).

Measures adopted as part of the Mona Offshore Wind Project

1.5.2.10 Measures adopted as part of the Mona Offshore Wind Project which are of relevance to the assessment of potential impacts on ornithological features from disturbance and displacement from airborne sound, and presence of vessels and infrastructure during construction and decommissioning are presented in Table 1.8.

Table 1.8: Measures adopted as part of the Mona Offshore Wind Project relevant to the assessment of adverse effect on SPAs and Ramsar sites designated for offshore ornithological features from collision risk.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
Primary measures: Measures included as part of the project design		
The Applicant has committed to a minimum lower blade tip height (air draught) of 34 m above LAT.	Air draught is known to be an important factor for collision risk, with typically fewer collisions predicted with increasing air draught.	Secured as a requirement of the DCO and within the deemed marine licence in Schedule 14 of the draft DCO.

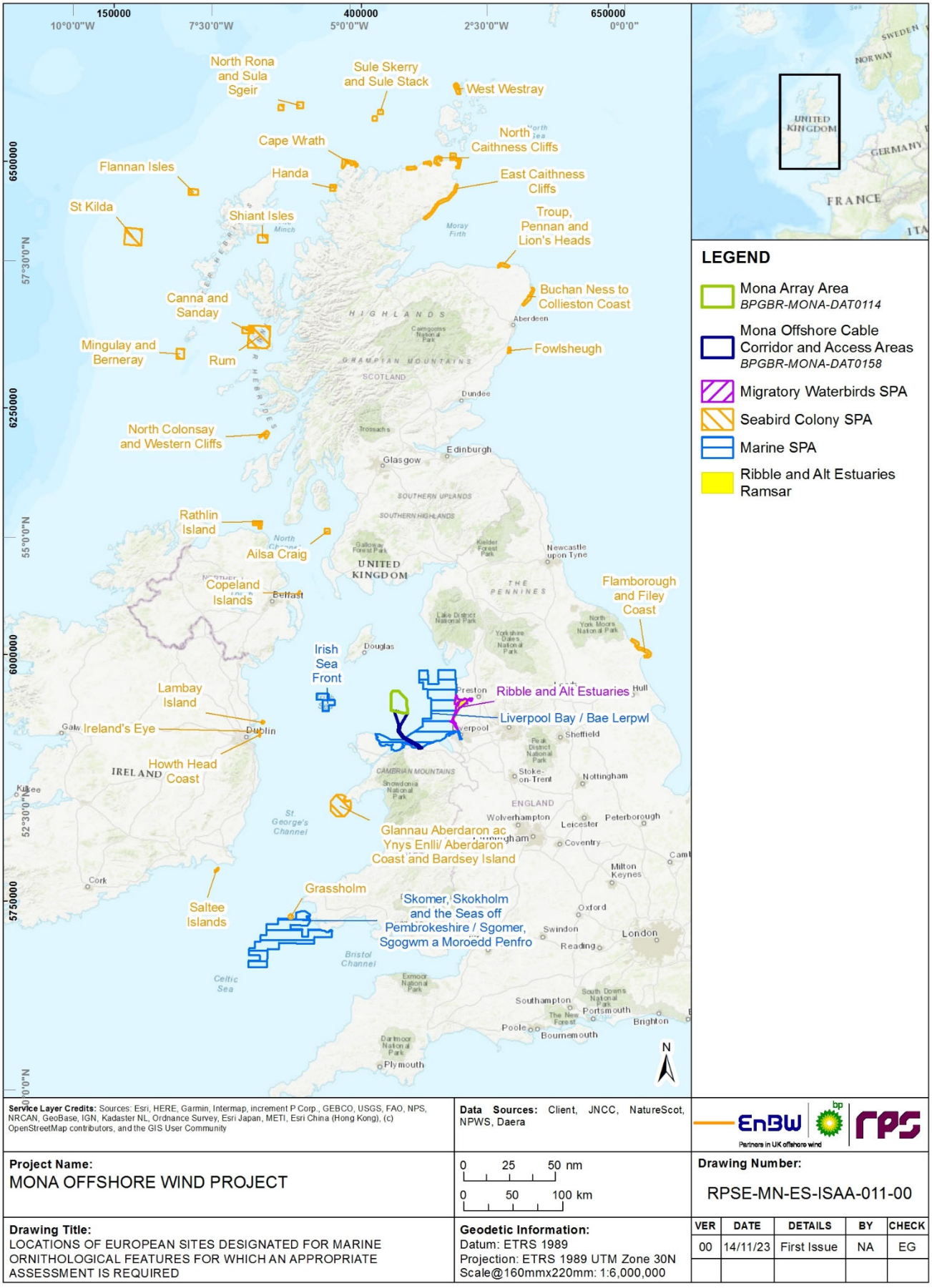

Figure 1.2: Location of the SPAs and Ramsar sites designated for offshore ornithological features for which an Appropriate Assessment is required.

1.5.3 Assessment of potential Adverse Effect on Integrity - Integrity test: Step 1 - assessment of impacts from Mona Offshore Wind Project alone

1.5.3.1 The following integrity test: Step 1 assessments of the effects of the Mona Offshore Wind Project alone on offshore ornithological features have been informed by the detailed technical assessments presented in Volume 2, Chapter 5~~6~~: Offshore ornithology of the Environmental Statement (Document reference F2.5), Volume 6, Annex 5.5: Offshore ornithology apportioning technical report of the Environmental Statement (Document Reference F6.5.5) and Appendix A of the HRA Stage ~~Phase~~ 1 Screening Report (Document Reference E1.4). The assessments also reference the best available literature and evidence with regards to sensitivity. In this regard, the Applicant is confident that the conclusions made on whether an adverse effect on integrity on a European site(s) and qualifying features can or cannot be ruled out have been identified in light of the best scientific knowledge in the field and all reasonable scientific doubt can be ruled out.

1.5.3.2 The calculations of the predicted mortalities for each SPA and Ramsar site are presented within Volume 6, Annex 5.5: Offshore ornithology apportioning technical report of the Environmental Statement (Document Reference F6.5.5) and Appendix A of the HRA Stage 1 Screening Report (Document Reference E1.4).

1.5.3.3 When a range is presented for an impact within the impact table for each site, this is due to the variation within the methods used. For disturbance and displacement, a range of displacement (e.g. 30 – 50% displacement) and mortality (e.g. 1-5% mortality) have been used. For collision risk, the variation occurs between two avoidance rates used. The two avoidance rates used are a species group avoidance rate (e.g. 'large gull species' for great black-backed gull or lesser black-backed gull) and a species specific avoidance rate. Both of the avoidance rates are taken from Ozsanlav-Harris *et al*. (2023). Following EWG meeting 5 in June 2023, it was requested that the species group avoidance rate is presented alongside the species specific rate. A range is not always presented if the impact is the same for the different parameters used.

1.5.3.4 The populations used for assessment are presented within each table for each site. For sites considered during the breeding and non-breeding period the latest population has been used from the Seabird Monitoring Programme database, whereas for the sites considered during the non-breeding period only the populations have been taken from (Furness, 2015). It is acknowledged that the populations of each colony used within Furness (2015) are not current, but it is the latest and most robust evidence review of seabird populations in the UK and without a newer reference for the BDMPS calculations these populations have been used. The use of Furness (2015) as the BDMPS populations was endorsed by the SNCBs at EWG meeting 6 in September 2023 and in the section 42 response to the Applicant's population estimates presented at PEIR.

Ribble and Alt Estuaries SPA and Ramsar site

1.5.3.5 The integrity test: Step 1 for the Ribble and Alt Estuaries SPA and Ramsar site is presented below for the Mona Offshore Wind Project alone (Table 1.9) for lesser black-backed gull from collision risk during the breeding and non-breeding seasons.

Table 1.9: Integrity test: Step 1 for the Ribble and Alt Estuaries SPA and Ramsar site from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Lesser black-backed gull	Annual collision mortality of 0.1~~31~~ to 0.~~01~~2 bird.	8,978 breeding adults 1,032 baseline mortality	0.01 to 0.02%	No risk of an adverse effect on the integrity of the Ribble and Alt Estuaries SPA and Ramsar site from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

1.5.3.6 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.01%. No in-combination assessment has been presented for lesser black-backed gull from the Ribble and Alt Estuaries SPA and Ramsar site as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore, it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

1.5.3.7 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Ribble and Alt Estuaries SPA and Ramsar site as a result of collision risk with respect to operations and maintenance of the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Ribble and Alt Estuaries SPA and Ramsar site are not taken through to the integrity test: Stage 2.

Irish Sea Front SPA

1.5.3.8 The integrity test: Step 1 for the Irish Sea Front SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.10) for Manx shearwater from disturbance and displacement ~~and collision risk~~ during the breeding and non-breeding seasons.

Table 1.10: Integrity test: Step 1 for the Irish Sea Front SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Manx shearwater	Annual ~~collision and~~ displacement mortality of up to 6 birds (during the operations and maintenance phase).	1,204,828 individuals 156,627 baseline mortality	<0.01% when using the combined baseline mortality of the six main colonies which contribute to the Irish Sea Front SPA's population (JNCC, 2023)	No risk of an adverse effect on the integrity of Irish Sea Front SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

1.5.3.9 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.01%. For clarity, the six main colonies which contribute to the Irish Sea Front SPA, as defined by JNCC (2023) are on Copeland Island, Skomer Island, Skokholm Island, Bardsey Island, Rum and Lundy Island. All colonies have proven usage of this area as the population of the source colonies have been studied using GPS tracking devices to determine areas the birds visit during the breeding season.

1.5.3.10 No in-combination assessment has been presented for Manx shearwater from the Irish Sea Front SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

1.5.3.11 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Irish Sea Front SPA as a result of disturbance and displacement ~~and collision risk~~ with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Irish Sea Front SPA is not taken through to the integrity test: Stage 2.

Morecambe Bay and Duddon Estuary SPA

1.5.3.12 The integrity test: Step 1 for the Morecambe Bay and Duddon Estuary SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.12) for lesser black-backed gull from collision risk during the breeding and non-breeding seasons.

Table 1.11: Integrity test: Step 1 for the Morecambe Bay and Duddon Estuary SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Lesser black-backed gull	Annual collision of 0.1 birds.	4,874 individuals 3,314 baseline mortality	Up to 0.02%	No risk of an adverse effect on the integrity of the Morecambe Bay and Duddon Estuary SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

1.5.3.13 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.02%. No in-combination assessment has been presented for lesser black-backed gull from the Morecambe Bay and Duddon Estuary SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

1.5.3.14 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Morecambe Bay and Duddon Estuary SPA as a result of collision risk with respect to operations and maintenance of the Mona Offshore

Wind Project alone and in-combination with other plans and projects. The Morecambe Bay and Duddon Estuary SPA is not taken through to the integrity test: Stage 2, for the Mona Offshore Wind Project alone.

~~1.5.3.11~~

Bowland Fells SPA

~~1.5.3.12~~1.5.3.15 The integrity test: Step 1 for the Bowland Fells SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.12) for lesser black-backed gull from collision risk during the breeding and non-breeding seasons.

Table 1.12: Integrity test: Step 1 for the Bowland Fells SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Lesser black-backed gull	Annual collision of 0.1 to 0.2 birds.	29,254 individuals 3,364 baseline mortality	<0.01%	No risk of an adverse effect on the integrity of the Bowland Fells SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.13~~1.5.3.16 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.01%. No in-combination assessment has been presented for lesser black-backed gull from the Bowland Fells SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.14~~1.5.3.17 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Bowland Fells SPA as a result of collision risk with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Bowland Fells SPA is not taken through to the integrity test: Stage 2~~, for the Mona Offshore Wind Project alone~~.

Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA

~~1.5.3.15~~1.5.3.18 The integrity test: Step 1 for the Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.13) for Manx shearwater from disturbance and displacement ~~and collision risk~~ during the breeding and non-breeding seasons.

Table 1.13: Integrity test: Step 1 for the Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Manx shearwater	Annual ~~collision and~~ displacement mortality of 0.7~~8~~ birds.	32,366 individuals 4,208 baseline mortality	0.02	No risk of an adverse effect on the integrity of the Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.16~~1.5.3.19 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.02%. No in-combination assessment has been presented for Manx shearwater from the Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.17~~1.5.3.20 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA as a result of disturbance and displacement ~~and collision risk~~ with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island SPA is not taken through to the integrity test: Stage 2.

Lambay Island SPA

~~1.5.3.18~~1.5.3.21 The integrity test: Step 1 for the Lambay Island SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.14) for black-legged kittiwake from disturbance and displacement and collision risk during the breeding and non-breeding seasons.

Table 1.14: Integrity test: Step 1 for the Lambay Island SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake	Annual collision ~~and displacement~~ mortality of ~~0.15 to 0.34 birds.~~0.40.2 to 0.6 Annual displacement mortality of 0.1	6,640 breeding adults 969 baseline mortality	Annual collision - ~~0.02 to~~ 0.01 to 0.06%~~4~~ Displacement – 0.01% Combined – 0.02 to 0.07%	No risk of an adverse effect on the integrity of the Lambay Island SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being >0.05%, an in-combination assessment has been undertaken (section 1.5.4).~~As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.~~

1.5.3.22 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of between 0.02 and 0.06% depending on the avoidance rate used. For clarity, the two avoidance rates used are 99.28% as advocated by the SNCBs for the species-group and 99.79% using species-specific rates. Both of the avoidance rates are taken from Ozsanlav-Harris *et al*. (2023).

1.5.3.23 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lambay Island SPA as a result of disturbance and displacement and collision risk with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone ~~and in-combination with other plans and projects~~. The Lambay Island SPA is not taken through to the integrity test: Stage 2, for the project alone.

~~1.5.3.19~~1.5.3.24 As black-legged kittiwake from the Lambay Island SPA are impacted by >0.05% an in-combination assessment is presented within section 1.5.4. Full rationale for inclusion of sites within the in-combination assessment is presented in section 1.4.7.

Howth Head Coast SPA

~~1.5.3.20~~1.5.3.25 The integrity test: Step 1 for the Howth Head Coast SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.15) for black-legged kittiwake from disturbance and displacement and collision risk during the breeding and non-breeding seasons.

Table 1.15: Integrity test: Step 1 for the Howth Head Coast SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake	Annual collision ~~and displacement~~ mortality of ~~0.07 to 0.16 birds.~~0.12~~2~~ to ~~<~~0.3~~01~~. Annual Displacement mortality of ~~<~~0.01.	3,586 breeding adults 524 baseline mortality	~~0.01 to~~ Annual collision – 0.01~~3~~ to 0.05%~~10.03~~ Displacement – 0.01% Combined – 0.02~~4~~ to 0.07%~~2~~	No risk of an adverse effect on the integrity of the Lambay Island SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being >0.05%, an in-combination assessment has been undertaken (section 1.5.4).~~As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.~~

1.5.3.26 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of between 0.02 and 0.07% depending on the avoidance rate used. For clarity, the two avoidance rates used are 99.28% as advocated by the SNCBs for the species-group and 99.79% using species-specific rates. Both of the avoidance rates are taken from Ozsanlav-Harris *et al*. (2023).

1.5.3.27 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Howth Head Coast SPA SPA as a result of disturbance and displacement and collision risk with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone. The Howth Head Coast SPA SPA is not taken through to the integrity test: Stage 2, for the Mona Offshore Wind Project ~~project~~ alone.

1.5.3.28 As black-legged kittiwake from the Howth Head Coast SPA SPA are impacted by >0.05% an in-combination assessment is presented within section 1.5.4. Full rationale for inclusion of sites within the in-combination assessment is presented in section 1.4.7.

~~1.5.3.21 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.043%. No in-combination assessment has been presented for black-legged kittiwake from Howth Head Coast SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.~~

~~1.5.3.22 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Howth Head Coast SPA as a result of disturbance and displacement and collision risk with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Howth Head Coast SPA is not taken through to the integrity test: Stage 2.~~

Ireland's Eye SPA

~~1.5.3.23~~1.5.3.29 The integrity test: Step 1 for the Ireland's Eye SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.16) for black-legged kittiwake from disturbance and displacement and collision risk during the breeding and non-breeding seasons.

Table 1.16: Integrity test: Step 1 for the Ireland's Eye SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake	Annual collision ~~and displacement~~ mortality of ~~0.06 to 0.14 birds.~~0.1 to 0.2~~<0.01~~ birds. Annual displacement mortality of <0.01 birds.	3,100 breeding adults 453 baseline mortality	Annual collision - ~~0.01 to 0.03~~0.013~~3~~ to 0.05~~1~~% Displacement – 0.01% -Combined – 0.02~~4~~ to 0.07~~2~~%	No risk of an adverse effect on the integrity of the Ireland's Eye SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being >0.05%, an in-combination assessment has been undertaken (section 1.5.4). ~~As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.~~

1.5.3.30 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of between 0.02 and 0.07% depending on the avoidance rate used. For clarity, the two avoidance rates used are 99.28% as advocated by the SNCBs for the species-group and 99.79% using species-specific rates. Both of the avoidance rates are taken from Ozsanlav-Harris *et al*. (2023).

1.5.3.31 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Ireland's Eye SPA as a result of disturbance and displacement and collision risk with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone. The Ireland's Eye SPA is not taken through to the integrity test: Stage 2, for the Mona Offshore Wind Project ~~project~~ alone.

1.5.3.32 As black-legged kittiwake from the Ireland's Eye SPA are impacted by >0.05% an in-combination assessment is presented within section 1.5.4. Full rationale for inclusion of sites within the in-combination assessment is presented in section 1.4.7.

~~1.5.3.24 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.043%. No in-combination assessment has been presented for black-legged kittiwake from the Ireland's Eye SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.~~

~~1.5.3.25 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Ireland's Eye SPA as a result of disturbance and displacement and collision risk with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone and in-~~

~~combination with other plans and projects. The Ireland's Eye SPA is not taken through to the integrity test: Stage 2.~~

Copeland Islands SPA

~~1.5.3.26~~1.5.3.33 The integrity test: Step 1 for the Copeland Islands SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.17) for Manx shearwater from disturbance and displacement ~~and collision risk~~ during the breeding and non-breeding seasons.

Table 1.17: Integrity test: Step 1 for the Copeland Islands SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Manx shearwater	Annual ~~collision and~~ displacement mortality of 0.1~~3~~ birds.	9,700 individuals 1,261 baseline mortality	0.01%	No risk of an adverse effect on the integrity of the Copeland Islands SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.27~~1.5.3.34 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.01%. No in-combination assessment has been presented for Manx shearwater from the Copeland Islands SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.28~~1.5.3.35 It can be concluded that beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Copeland Islands SPA as a result of disturbance and displacement ~~and collision risk~~ with respect to construction, operations and maintenance and decommissioning of the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Copeland Islands SPA is not taken through to the integrity test: Stage 2.

Rathlin Island SPA

~~1.5.3.29~~1.5.3.36 The integrity test: Step 1 for the Rathlin Island SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.18) for black-legged kittiwake from disturbance and displacement and collision risk during the breeding and non-breeding seasons and common guillemot and razorbill from disturbance and displacement during the non-breeding season.

Table 1.18: Integrity test: Step 1 for the Rathlin Island SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake	Annual collision ~~and displacement~~ mortality of 0.2 to 1.0~~0.1 to 0. 1 to 0.24~~ birds. Annual displacement mortality of 0.~~3~~2.	27,534 breeding adults 4,020 baseline mortality	-Annual collision – ~~- <0.01 to~~ 0.01~~4~~ to 0.01~~4~~3%~~4~~ Displacement – 0.01% Combined – 0.01 to 0.03%	No risk of an adverse effect on the integrity of the Rathlin Island SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 5.1~~2.8~~ birds.	174,796 breeding adults 10,663 baseline mortality	<0.05%~~3~~	
Razorbill (*during the non-breeding season*)	Annual displacement mortality of ~~0.9~~1.1 birds.	30,170 breeding adults 3,233 baseline mortality	0.03%	

~~1.5.3.30~~1.5.3.37 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.0~~1~~3% for black-legged kittiwake, ~~and~~ 0.03% for ~~common guillemot and~~ razorbill and <0.05% for common guillemot.

~~1.5.3.31~~1.5.3.38 No in-combination assessment has been presented for black-legged kittiwake, common guillemot nor razorbill from the Rathlin Island SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.32~~1.5.3.39 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rathlin Island SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake and disturbance and displacement for common guillemot and razorbill from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Rathlin Island SPA is not taken through to the integrity test: Stage 2.

Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA

~~1.5.3.33~~1.5.3.40 The integrity test: Step 1 for the Rathlin Island SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.19) for Manx shearwater from disturbance and displacement ~~and collision risk~~ during the breeding and non-breeding seasons, ~~and~~ common guillemot and razorbill from disturbance and displacement during the non-breeding season, black-legged kittiwake from disturbance and displacement during the non-breeding season and lesser black-backed gull from collision risk during the breeding and non-breeding season.

Table 1.19: Integrity test: Step 1 for the Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Manx shearwater	Annual ~~collision and~~ displacement mortality of 4.5 birds.	910,312 individuals 118,340 baseline mortality	<0.01%	No risk of an adverse effect on the integrity of this SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Lesser black-backed gull	Annual collision mortality of 0.1 to 0.2 birds.	16,214 individuals 1,865 baseline mortality	0.01%	
Black-legged kittiwake – seabird assemblage species	Annual collision mortality of <0.1 to 0.1 birds. Annual displacement mortality of 0.1.	2,014 breeding adults 294 baseline mortality	Annual collision – 0.01 to 0.03% Displacement – 0.01% Combined – 0.02 to 0.04%	
Common guillemot (*during the non-breeding season*) – seabird assemblage species	Annual displacement mortality of 0.8 birds.	29,640 breeding adults 1,989 baseline mortality	0.04%	
Razorbill (*during the non-breeding season*) – seabird assemblage species	Annual displacement mortality of 2.41 birds.	11,762 breeding adults 1,260 baseline mortality	0.03%~~grasshol~~	

~~1.5.3.34~~1.5.3.41 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.01% for Manx shearwater, 0.01% for lesser black-backed gull, 0.02 to 0.04% for black-legged kittiwake, 0.04~~3~~% for common guillemot and 0.03~~2~~% for razorbill.

~~1.5.3.35~~1.5.3.42 No in-combination assessment has been presented for black-legged kittiwake, lesser black-backed gull, Manx shearwater, common guillemot nor razorbill from the Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.36~~1.5.3.43 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake, collision risk to lesser black-backed gull ~~Manx shearwater~~ and disturbance and displacement for Manx shearwater, common guillemot and razorbill from the Mona Offshore Wind Project

alone and in-combination with other plans and projects. The Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA is not taken through to the integrity test: Stage 2.

Grassholm SPA

~~1.5.3.37~~1.5.3.44 The integrity test: Step 1 for the Grassholm SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.20) for northern gannet from disturbance and displacement and collision risk during the breeding and non-breeding seasons.

Table 1.20: Integrity test: Step 1 for the Grassholm SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Northern gannet	Annual collision and displacement mortality of 0.6~~5~~ birds.	72,002 breeding adults 5,834 baseline mortality	0.01%	No risk of an adverse effect on the integrity of the Grassholm SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.38~~1.5.3.45 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.01% for northern gannet.

~~1.5.3.39~~1.5.3.46 No in-combination assessment has been presented for northern gannet from the Grassholm SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.40~~1.5.3.47 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Grassholm SPA as a result of disturbance and displacement and collision risk to northern gannet from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Grassholm SPA is not taken through to the integrity test: Stage 2.

Wicklow Head SPA

~~1.5.3.41~~1.5.3.48 The integrity test: Step 1 for the Wicklow Head SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.18) for black-legged kittiwake from disturbance and displacement and collision risk during the breeding and non-breeding seasons.

Table 1.21: Integrity test: Step 1 for the Wicklow Head SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake	Annual collision mortality of <0.1 to 0.1 birds. Annual displacement mortality of <0.1.	1,348 breeding adults 197 baseline mortality	Annual collision – 0.01 to 0.04% Displacement – <0.01% Combined – 0.02 to <0.05%	No risk of an adverse effect on the integrity of the Wicklow Head SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.42~~1.5.3.49 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.05~~3~~% for black-legged kittiwake.

~~1.5.3.43~~1.5.3.50 No in-combination assessment has been presented for black-legged kittiwake, common guillemot nor razorbill from the Wicklow Head SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.44~~1.5.3.51 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Wicklow Head SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Wicklow Head SPA is not taken through to the integrity test: Stage 2.

Ailsa Craig SPA

~~1.5.3.45~~1.5.3.52 The integrity test: Step 1 for the Ailsa Craig SPA site is presented below (Table 1.22) for the Mona Offshore Wind Project alone for northern gannet from disturbance and displacement and collision risk during the breeding and non-breeding seasons and common guillemot from disturbance and displacement during the non-breeding season.

Table 1.22: Integrity test: Step 1 for the Ailsa Craig SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Northern gannet	Annual collision and displacement mortality of ~~1.4 to~~ 1.~~7~~8 birds.	66,452 breeding adults 5,383 baseline mortality	0.03%	No risk of an adverse effect on the integrity of the Ailsa Craig SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.3~~2~~ birds.	10,494 breeding adults 640 baseline mortality	<0.05%~~3~~	

~~1.5.3.46~~1.5.3.53 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.03% for ~~both~~ northern gannet and <0.05% for common guillemot.

~~1.5.3.47~~1.5.3.54 No in-combination assessment has been presented for northern gannet or common guillemot from the Ailsa Craig SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.48~~1.5.3.55 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Ailsa Craig SPA as a result of disturbance and displacement and collision risk to northern gannet and disturbance and displacement for common guillemot from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Ailsa Craig SPA is not taken through to the integrity test: Stage 2.

Saltee Islands SPA

~~1.5.3.49~~1.5.3.56 The integrity test: Step 1 for the Saltee Islands SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.23) for northern gannet from disturbance and displacement and collision risk during the breeding and non-breeding seasons.

Table 1.23: Integrity test: Step 1 for the Saltee Islands from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Northern gannet	Annual collision and displacement mortality of 0.1 birds.	9,444 breeding adults 765 baseline mortality	0.01%	No risk of an adverse effect on the integrity of the Saltee Islands SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.50~~1.5.3.57 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.01% for northern gannet.

~~1.5.3.51~~1.5.3.58 No in-combination assessment has been presented for northern gannet from the Saltee Islands SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.52~~1.5.3.59 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Saltee Islands SPA as a result of disturbance and displacement and collision risk to northern gannet from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Saltee Islands SPA is not taken through to the integrity test~~:~~ : Stage 2~~, for the Mona Offshore Wind Project alone~~.

Flamborough and Filey Coast SPA

~~1.5.3.53~~1.5.3.60 The integrity test: Step 1 for the Flamborough and Filey Coast SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.24) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season.

Table 1.24: Integrity test: Step 1 for the Flamborough and Filey Coast SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision ~~and displacement~~ mortality of ~~0.1 to 0.6~~0.3~~1~~ to 0.7~~0.3~~ birds. Annual displacement of 0.3 birds.	75,234 breeding adults 10,984 baseline mortality	Annual collision – ~~- <~~<~~0.01 to~~ 0.01 to ~~<~~0.01%~~1~~ Displacement – <0.01% Combined – 0.01%~~ to <0.01~~	No risk of an adverse effect on the integrity of the Flamborough and Filey Coast SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.54~~1.5.3.61 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.01% for black-legged kittiwake.

~~1.5.3.55~~1.5.3.62 No in-combination assessment has been presented for black-legged kittiwake from Flamborough and Filey Coast SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.56~~1.5.3.63 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Flamborough and Filey Coast SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Flamborough and Filey Coast SPA is not taken through to the integrity test: Stage 2.

North Colonsay and Western Cliffs SPA

~~1.5.3.57~~1.5.3.64 The integrity test: Step 1 for the North Colonsay and Western Cliffs SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.25) for northern gannet from disturbance and displacement and collision risk during the breeding and non-breeding seasons and common guillemot from disturbance and displacement during the non-breeding season.

Table 1.25: Integrity test: Step 1 for the North Colonsay and Western Cliffs SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake	Annual collision ~~and displacement mortality~~ of ~~0.03 to 0.07~~ 0.3~~5~~ to 0.6~~01~~ birds. Annual displacement of 0.1 birds.	9,361 breeding adults 1,367 baseline mortality	Annual collision - ~~<0.01 to~~ 0.02~~41~~ to 0.04~~1~~% Displacement – 0.01% Combined – 0.02~~5~~ to 0.04~~02~~%	No risk of an adverse effect on the integrity of the North Colonsay and Western Cliffs SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.8~~4~~ birds.	27,000 breeding adults 1,674 baseline mortality	<0.05~~3~~%	

~~1.5.3.58~~1.5.3.65 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up ~~to 0.01%~~to 0.05% for black-legged kittiwake and ~~0.03% for~~ common guillemot.

~~1.5.3.59~~1.5.3.66 No in-combination assessment has been presented for black-legged kittiwake or common guillemot from the North Colonsay and Western Cliffs SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.60~~1.5.3.67 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Colonsay and Western Cliffs SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake and disturbance and displacement for common guillemot from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The North Colonsay and Western Cliffs SPA is not taken through to the integrity test: Stage 2

Rum SPA

~~1.5.3.61~~1.5.3.68 The integrity test: Step 1 for the Rum SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.26) for Manx shearwater from disturbance and displacement ~~and collision risk~~ during the breeding and non-breeding seasons.

~~Fo~~Table 1.26: Integrity test: Step 1 for the Rum SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Manx shearwater	Annual displacement mortality of ~~1.3~~0.4 birds.	240,000 breeding adults 31,200 baseline mortality	<0.01%	No risk of an adverse effect on the integrity of the Rum SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.62~~1.5.3.69 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.01%.

~~1.5.3.63~~1.5.3.70 No in-combination assessment has been presented for Manx shearwater from the Rum SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.64~~1.5.3.71 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Rum SPA as a result of disturbance and displacement ~~and collision risk~~ to Manx shearwater the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Rum SPA is not taken through to the integrity test: Stage 2.

Fowlsheugh SPA

~~1.5.3.65~~1.5.3.72 The integrity test: Step 1 for the Fowlsheugh SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.24) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season.

Table 1.27: Integrity test: Step 1 for the Fowlsheugh SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision ~~and displacement~~ mortality of ~~0.0 to 0.1~~0.13 ~~to~~ 0.3~~1~~ birds. Annual displacement of 0.01 birds.	18,674 breeding adults 2,726 baseline mortality	Annual collision - <~~<~~0.01 to ~~<~~0.01%~~1~~ Displacement – <0.01% Combined – 0.01% ~~to <0.01%~~	No risk of an adverse effect on the integrity of the Fowlsheugh SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.66~~1.5.3.73 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of ~~<~~0.01~~1~~% for black-legged kittiwake.

~~1.5.3.67~~1.5.3.74 No in-combination assessment has been presented for black-legged kittiwake from the Fowlsheugh SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.68~~1.5.3.75 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Fowlsheugh SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Fowlsheugh SPA is not taken through to the integrity test: Stage 2.

Mingulay and Berneray SPA

~~1.5.3.69~~1.5.3.76 The integrity test: Step 1 for the Mingulay and Berneray SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.28) for common guillemot and razorbill from disturbance and displacement during the non-breeding season.

Table 1.28: Integrity test: Step 1 for the Mingulay and Berneray SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.7~~4~~ birds.	27,054 breeding adults 1,650 baseline mortality	≤0.05%~~2~~	No risk of an adverse effect on the integrity of the Mingulay and Berneray SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Razorbill (*during the non-breeding season*)	Annual displacement mortality of 0.~~7~~6 birds.	20,222 breeding adults 2,123 baseline mortality	0.03%	

~~1.5.3.70~~1.5.3.77 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of ≤0.05~~2~~% for common guillemot and 0.03% for razorbill.

~~1.5.3.71~~1.5.3.78 No in-combination assessment has been presented for common guillemot and razorbill from the Mingulay and Berneray SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.72~~1.5.3.79 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Mingulay and Berneray SPA as a result of disturbance and displacement to common guillemot and razorbill from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Mingulay and Berneray SPA is not taken through to the integrity test: Stage 2.

Canna and Sanday SPA

~~1.5.3.73~~1.5.3.80 The integrity test: Step 1 for the Canna and Sanday SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.29) for common guillemot from disturbance and displacement during the non-breeding season.

Table 1.29: Integrity test: Step 1 for the Canna and Sanday SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.~~1~~2 birds.	7,826 breeding adults 477 baseline mortality	<0.05%~~2~~	No risk of an adverse effect on the integrity of the Canna and Sanday SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.74~~1.5.3.81 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.05~~2~~% for common guillemot.

~~1.5.3.75~~1.5.3.82 No in-combination assessment has been presented for common guillemot from the Canna and Sanday SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.76~~1.5.3.83 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Canna and Sanday SPA as a result of disturbance and displacement to common guillemot from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Canna and Sanday SPA is not taken through to the integrity test: Stage 2.

Isles of Scilly SPA

~~1.5.3.77~~1.5.3.84 The integrity test: Step 1 for the Isles of Scilly SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.30) for great black-backed gull from collision risk during the non-breeding season.

Table 1.30: Integrity test: Step 1 for the Isles of Scilly SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Great black-backed gull (*during the non-breeding season*)	Annual collision mortality of 0.1~~06~~ to 0.6~~40~~ birds.	1,802 breeding adults 126 baseline mortality	0.08~~5~~ to 0.51%~~32~~	No risk of an adverse effect on the integrity of the Isles of Scilly SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being >0.05%, an in-combination assessment has been undertaken (section 1.5.4).

~~1.5.3.78~~1.5.3.85 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of between 0.~~0~~0851% and ~~0.~~0.51~~832~~% depending on the avoidance rate used. For clarity, the two avoidance rates used are 99.39% as advocated by the SNCBs for the species ~~–~~ group 'large gull species' (following EWG meeting 5 in June 2023) and 99.91% using species ~~–~~ specific rates. Both of the avoidance rates are taken from Ozsanlav-Harris *et al*. (2023).

~~1.5.3.79~~1.5.3.86 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly SPA as a result of collision risk with respect to operations and maintenance of the Mona Offshore Wind Project alone. The Isles of Scilly SPA is not taken through to the integrity test: Stage 2, for the Mona Offshore Wind Project alone.

~~1.5.3.80~~1.5.3.87 As great black-backed gull from the Isles of Scilly SPA are impacted by >0.05% an in-combination assessment is presented within section 1.5.4. Full rationale for inclusion of sites within the in-combination assessment is presented in section 1.4.7.

Buchan Ness to Collieston SPA

~~1.5.3.81~~1.5.3.88 The integrity test: Step 1 for the Buchan Ness to Collieston SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.31) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season.

Table 1.31: Integrity test: Step 1 for the Buchan Ness to Collieston SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision ~~and displacement~~ mortality of 0.2~~40~~ to 0.3~~13~~ birds. Annual displacement of 0.~~0~~1 birds.	25,084 breeding adults 3,662 baseline mortality	Annual collision ~~–~~ ~~<0.01 to~~ ≤0.01%~~1~~ Displacement ~~–~~ – <0.01% Combined – ~~0.01 to~~ <0.01%	No risk of an adverse effect on the integrity of the Buchan Ness to Collieston SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.82~~1.5.3.89 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.01% for black-legged kittiwake.

~~1.5.3.83~~1.5.3.90 No in-combination assessment has been presented for black-legged kittiwake from the Buchan Ness to Collieston SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.84~~1.5.3.91 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Buchan Ness to Collieston SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the

Mona Offshore Wind Project alone and in-combination with other plans and projects. The Buchan Ness to Collieston SPA is not taken through to the integrity test: Stage 2.

Troup, Pennan and Lion's Heads SPA

~~1.5.3.85~~1.5.3.92 The integrity test: Step 1 for the Troup, Pennan and Lion's Heads SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.32) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season.

Table 1.32: Integrity test: Step 1 for the Troup, Pennan and Lion's Heads SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision mortality ~~and displacement mortality~~ of 0.1~~40~~ to 0.3~~13~~ birds. Annual displacement of 0.1 birds.	29,792 breeding adults 4,981 baseline mortality	Annual collision - <~~<~~0.01~~1~~ to ~~<~~0.0~~01~~1% Displacement – <0.01% Combined – ~~0.01 to <~~0.01%	No risk of an adverse effect on the integrity of the Troup, Pennan and Lion's Heads SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.86~~1.5.3.93 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.01% for black-legged kittiwake.

~~1.5.3.87~~1.5.3.94 No in-combination assessment has been presented for black-legged kittiwake from the Troup, Pennan and Lion's Heads SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.88~~1.5.3.95 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Troup, Pennan and Lion's Heads SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Troup, Pennan and Lion's Heads SPA is not taken through to the integrity test: Stage 2.

Shiant Isles SPA

~~1.5.3.89~~1.5.3.96 The integrity test: Step 1 for the Shiant Isles SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.33) for razorbill from disturbance and displacement during the non-breeding season.

~~sk~~Table 1.33: Integrity test: Step 1 for the Shiant Isles SPA site from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.3 birds.	10,296 breeding adults 628 baseline mortality	<0.05%	No risk of an adverse effect on the integrity of the Shiant Isles SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Razorbill (*during the non-breeding season*)	Annual displacement mortality of 0.3 birds.	8,496 breeding adults 892 baseline mortality	0.03%	

~~1.5.3.90~~1.5.3.97 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.03% for razorbill and <0.05 for common guillemot.

~~1.5.3.91~~1.5.3.98 No in-combination assessment has been presented for common guillemot and razorbill from the Shiant Isles SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

1.5.3.99 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Shiant Isles SPA as a result of disturbance and displacement to common guillemot and razorbill from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Shiant Isles SPA is not taken through to the integrity test: Stage 2.

Skelligs SPA

1.5.3.100 The integrity test: Step 1 for the Skelligs SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.34) for northern gannet from disturbance and displacement and collision risk during the breeding and non-breeding seasons.

Table 1.34: Integrity test: Step 1 for the Skelligs SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Latest population and baseline mortality	% increase in baseline mortality	Conclusion
Northern gannet	Annual collision and displacement mortality of 0.1 birds. ~~Displacement mortality of birds.~~	70,558 breeding adults 5,718 baseline mortality	~~Annual collision –~~<0.01% ~~Displacement -~~ ~~Combined -~~	No risk of an adverse effect on the integrity of the Skelligs SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

1.5.3.101 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.01% for northern gannet.

1.5.3.102 No in-combination assessment has been presented for northern gannet from the Skelligs SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.92~~1.5.3.103 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Skelligs SPA as a result of disturbance and displacement and collision risk to northern gannet from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Skelligs SPA is not taken through to the integrity test: Stage 2.

East Caithness Cliffs SPA

~~1.5.3.93~~1.5.3.104 The integrity test: Step 1 for the East Caithness Cliffs SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.35) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season.

Table 1.35: Integrity test: Step 1 for the East Caithness Cliffs SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision mortality of 0.3 to 0.8 birds. Displacement mortality of 0.3 birds.~~Annual collision and displacement mortality of 1.20.1 to 0.47 birds.~~ ~~Displacement of 0.3 birds.~~	82,820 breeding adults 11,800 baseline mortality	Annual collision - <~~<~~0.01~~1~~ to ~~<~~0.01%~~1~~ Displacement – <0.01% Combined – 0.01~~ to <0.01~~%	No risk of an adverse effect on the integrity of the East Caithness Cliffs SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.94~~1.5.3.105 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.01% for black-legged kittiwake.

~~1.5.3.95~~1.5.3.106 No in-combination assessment has been presented for black-legged kittiwake from the East Caithness Cliffs SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.96~~1.5.3.107 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of East Caithness Cliffs SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone. The East Caithness Cliffs SPA is not taken through to the integrity test: Stage 2~~, for the Mona Offshore Wind Project alone~~.

Handa SPA

~~1.5.3.97~~1.5.3.108 The integrity test: Step 1 for the Handa SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.36) for common guillemot and razorbill from disturbance and displacement during the non-breeding season.

Table 1.36: Integrity test: Step 1 for the Handa SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 2.1~~1.2~~ birds.	75,986 breeding adults 4,635 baseline mortality	<0.05%~~3~~	No risk of an adverse effect on the integrity of the Handa SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Razorbill (*during the non-breeding season*)	Annual displacement mortality of 0.3 birds.	10,330 breeding adults 1,085 baseline mortality	0.03%	

~~1.5.3.98~~1.5.3.109 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of 0.03% for ~~common guillemot and~~ razorbill and <0.05% for common guillemot.

~~1.5.3.99~~1.5.3.110 No in-combination assessment has been presented for common guillemot and razorbill from the Handa SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.100~~1.5.3.111 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Handa SPA as a result of disturbance and displacement to common guillemot and razorbill from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Handa SPA is not taken through to the integrity test: Stage 2~~, for the Mona Offshore Wind Project alone~~.

St Kilda SPA

~~1.5.3.101~~1.5.3.112 The integrity test: Step 1 for the St Kilda SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.37) for northern gannet from disturbance and displacement and collision risk during the breeding and non-breeding seasons and common guillemot from disturbance and displacement during the non-breeding season.

Table 1.37: Integrity test: Step 1 for the St Kilda SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Northern gannet	Annual collision and displacement mortality of 0.2~~3~~ birds.	120,636 breeding adults 9,772 baseline mortality	<0.01%	No risk of an adverse effect on the integrity of the St Kilda SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.9~~5~~ birds.	31,400 breeding adults 1,915 baseline mortality	≤0.05%~~3~~	

~~1.5.3.102~~1.5.3.113 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.01% for northern gannet and ≤0.05~~3~~% common guillemot.

~~1.5.3.103~~1.5.3.114 No in-combination assessment has been presented for northern gannet or common guillemot from the St Kilda SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.104~~1.5.3.115 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the St Kilda SPA as a result of disturbance and displacement and collision risk to northern gannet and disturbance and displacement for common guillemot from the Mona Offshore Wind Project alone. The St Kilda SPA is not taken through to the integrity test: Stage 2~~, for the Mona Offshore Wind Project alone~~.

Cape Wrath SPA

~~1.5.3.105~~1.5.3.116 The integrity test: Step 1 for the Cape Wrath SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.38) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season and common guillemot from disturbance and displacement during the non-breeding season.

Table 1.38: Integrity test: Step 1 for the Cape Wrath SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision ~~and displacement~~ mortality of 0.3~~81~~ to 0.8~~36~~ birds. Displacement mortality of 0.3 birds.	20,668 breeding adults 3,020 baseline mortality	Annual collision – ~~<~~0.013~~1~~ to 0.0~~1~~3%~~2~~ Displacement – 0.01% Combined – 0.01~~4~~ to 0.03~~2~~%	No risk of an adverse effect on the integrity of the Cape Wrath SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of ~~0~~1.5~~.8~~ birds.	54,718 breeding adults 3,338 baseline mortality	<0.05%~~2~~	
Razorbill (*during the non-breeding season*)	Annual displacement mortality of 0.1 birds.	4,180 breeding adults 439 baseline mortality	0.03%~~2~~	

~~1.5.3.106~~1.5.3.117 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.03~~42~~% for black-legged kittiwake and <0.05~~02~~% for common guillemot and 0.03% for razorbill.

~~1.5.3.107~~1.5.3.118 No in-combination assessment has been presented for black-legged kittiwake, common guillemot or razorbill from the Cape Wrath SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.108~~1.5.3.119 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Cape Wrath SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake and disturbance and displacement to common guillemot and razorbill from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Cape Wrath SPA is not taken through to the integrity test: Stage 2.

Flannan Isles SPA

~~1.5.3.109~~1.5.3.120 The integrity test: Step 1 for the Flannan Isles SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.39) for common guillemot from disturbance and displacement during the non-breeding season.

Table 1.39: Integrity test: Step 1 for the Flannan Isles SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.5~~3~~ birds.	19,614 breeding adults 1,196 baseline mortality	<0.05%~~3~~	No risk of an adverse effect on the integrity of the Flannan Isles SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.110~~1.5.3.121 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.05~~3~~% for common guillemot.

~~1.5.3.111~~1.5.3.122 No in-combination assessment has been presented for common guillemot from the Flannan Isles SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.112~~1.5.3.123 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Flannan Isles SPA as a result of disturbance and displacement to common guillemot from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Flannan Isles SPA is not taken through to the integrity test: Stage 2.

North Caithness Cliffs SPA

~~1.5.3.113~~1.5.3.124 The integrity test: Step 1 for the North Caithness Cliffs SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.40) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season.

Table 1.40: Integrity test: Step 1 for the North Caithness Cliffs SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision ~~and displacement~~ mortality of 0.1~~30~~ to 0.2~~11~~ birds. Displacement mortality of 0.1~~1~~ birds.	20,300 breeding adults ~~3,394~~2,964 baseline mortality	Annual collision –<0.01 to 0.01~~<0.01 to <0.01~~% Displacement – <0.01% Combined – ~~0.01 to~~ <0.01%	No risk of an adverse effect on the integrity of the North Caithness Cliffs SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.114~~1.5.3.125 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to ~~<~~0.01% for black-legged kittiwake.

~~1.5.3.115~~1.5.3.126 No in-combination assessment has been presented for black-legged kittiwake from the North Caithness Cliffs SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.116~~1.5.3.127 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Caithness Cliffs SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The North Caithness Cliffs SPA is not taken through to the integrity test: Stage 2.

Sule Skerry and Sule Stack SPA

~~1.5.3.117~~1.5.3.128 The integrity test: Step 1 for the Sule Skerry and Sule Stack SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.41) for common guillemot from disturbance and displacement during the non-breeding season.

Table 1.41: Integrity test: Step 1 for the Sule Skerry and Sule Stack SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.4~~3~~ birds.	15,266 breeding adults 931 baseline mortality	<0.05%~~3~~	No risk of an adverse effect on the integrity of the Sule Skerry and Sule Stack SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

~~1.5.3.118~~1.5.3.129 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.05~~3~~% for common guillemot.

~~1.5.3.119~~1.5.3.130 No in-combination assessment has been presented for common guillemot from the Sule Skerry and Sule Stack SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.120~~1.5.3.131 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Sule Skerry and Sule Stack SPA as a result of disturbance and displacement to common guillemot from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Sule Skerry and Sule Stack SPA is not taken through to the integrity test: Stage 2.

North Rona and Sula Sgeir SPA

~~1.5.3.121~~1.5.3.132 The integrity test: Step 1 for the North Rona and Sula Sgeir SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.42) for common guillemot from disturbance and displacement during the non-breeding season.

Table 1.42: Integrity test: Step 1 for the North Rona and Sula Sgeir SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Common guillemot (*during the non-breeding season*)	Annual displacement mortality of 0.32 birds.	10,000 breeding adults 610 baseline mortality	<0.05%	No risk of an adverse effect on the integrity of the North Rona and Sula Sgeir SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

1.5.3.122 1.5.3.133 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of <0.053% for common guillemot.

1.5.3.123 1.5.3.134 No in-combination assessment has been presented for common guillemot from the North Rona and Sula Sgeir SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

1.5.3.124 1.5.3.135 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the North Rona and Sula Sgeir SPA as a result of disturbance and displacement to common guillemot from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The North Rona and Sula Sgeir SPA is not taken through to the integrity test: Stage 2.

West Westray SPA

1.5.3.125 1.5.3.136 The integrity test: Step 1 for the West Westray SPA site is presented below for the Mona Offshore Wind Project alone (Table 1.43) for black-legged kittiwake from disturbance and displacement and collision risk during the non-breeding season.

Table 1.43: Integrity test: Step 1 for the West Westray SPA from the Mona Offshore Wind Project acting alone.

Qualifying feature	Predicted mortalities	Population and baseline mortality	% increase in baseline mortality	Conclusion
Black-legged kittiwake (*during the non-breeding season*)	Annual collision ~~and displacement~~ mortality of 0.140 to 0.413 birds. Displacement mortality of 0.1 birds.	67,800 breeding adults 4,136 baseline mortality	Annual collision - <~~<~~0.0111 to 0.011 Displacement – <0.01% Combined – <0.01 to ~~<~~0.01%	No risk of an adverse effect on the integrity of the West Westray SPA from the Mona Offshore Wind Project alone. As outlined in section 1.4.7 and Figure 1.1, due to the increase in baseline mortality being <0.05%, no in-combination assessment has been undertaken.

1.5.3.126 1.5.3.137 The impact from the Mona Offshore Wind Project alone is considered to present an increase in baseline mortality of up to 0.01% for black-legged kittiwake.

~~1.5.3.127~~1.5.3.138 No in-combination assessment has been presented for black-legged kittiwake from the West Westray SPA as the impact is predicted to be a <0.05% increase in baseline mortality (see section 1.4.7 for rationale of undertaking in-combination assessments). A reduction of <0.05% is considered non-material and within the natural fluctuations of the population. Therefore it is not proportionate to consider the Mona Offshore Wind Project within an in-combination assessment.

~~1.5.3.128~~1.5.3.139 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the West Westray SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The West Westray SPA is not taken through to the integrity test: Stage 2.

1.5.4 Assessment of potential Adverse Effect on Integrity - Integrity test: Step 1 - assessment of impacts from Mona Offshore Wind Project in-combination

1.5.4.1 The following integrity test: Step 1 assessments of the effects of the Mona Offshore Wind Project, acting in-combination with other relevant plans and projects, on offshore ornithological features have been informed by the detailed technical assessments presented in Volume 2, Chapter 5~~6~~: Offshore ornithology of the Environmental Statement (Document reference F2.5), Volume 6, Annex 5.5: Offshore ornithology apportioning technical report of the Environmental Statement (Document Reference F6.5.5) and Appendix A of the HRA Stage Phase 1 Screening Report (Document Reference E1.4). The Applicant has also made all reasonable efforts to ensure that the information included in the assessment relating to other projects is correct and sufficiently detailed, with any limitations on the information available acknowledged. The assessments also reference the best available literature and evidence with regards to sensitivity. In this regard, the Applicant is confident that the conclusions made on whether an adverse effect on integrity on a European site(s) and qualifying features can or cannot be ruled out as a result of the Mona Offshore Wind Project in-combination with other plans and projects have been identified in light of the best scientific knowledge in the field and all reasonable scientific doubt can be ruled out.

1.5.4.2 Only SPAs or Ramsar sites which were predicted to be impacted from the Mona Offshore Wind Project alone (section 1.5.3), which resulted in an increase in baseline mortality of >0.05% have been considered within this in-combination section. An impact of <0.05% is considered non-material and within natural fluctuations of the population.

Isles of Scilly SPA

1.5.4.3 The integrity test: Step 1 for the great black-backed gull from the Isles of Scilly SPA is presented below for the Mona Offshore Wind Project in-combination with other plans and projects (Table 1.44). Only projects which have presented an apportioned estimate (see section 1.4.6 and Table 1.3) have been included within the Integrity test: Step 1.

Table 1.44: Integrity test: Step 1 for great black-backed gull from the Isles of Scilly SPA from the Mona Offshore Wind Project acting in-combination.

Plan or pProject	Predicted collision mortalities (adult birds)		Reference
	Species-specific avoidance rate (0.9991)	Species-group avoidance rate (0.9939)	
Awel y Môr Offshore Wind Farm	0.01	0.06	Awel y Môr (2022)
Erebus Floating Offshore Wind Farm	0.01	0.07	Marine Space (2021) and Erebus (2023)
Minesto tidal kite	Great black-backed gull are not considered susceptible to collisions from the underwater structures due foraging behaviour. Minesto's tidal kite is not present from the surface of the water.		Minesto (2016)
Morecambe Offshore Windfarm Generation Assets	0.01	0.04	Morecambe Offshore Wind Ltd. (2023)
Morgan and Morecambe Wind Farms Transmission Assets	Not considered susceptible to collision from the Morgan and Morecambe Wind Farms Transmission Assets due to no permanent infrastructure which the species could interact with.		Morgan Offshore Wind Ltd. (2023)
Morgan Generation Assets	0.05	0.42	Morgan Offshore Wind Ltd. and Morecambe Offshore Windfarm (2023)
Morlais Tidal Demonstration Zone	Great black-backed gull are not considered susceptible to collisions from the underwater structures due foraging behaviour. No tidal device within the Morlais Tidal Demonstration Zone is present on the surface of the water.		Morlais (2019)
Mona Offshore Wind Project	0.096	0.6440	Table 1.30 and Appendix A of the HRA Stage 1 Screening Report (Document Reference E1.4)
Ormonde Offshore Wind Farm	<0.01 (0.002)	0.02	RBA (2005)
Rampion 1 Wind Farm	0.36	2.44	RSK Environmental (2012)
Rampion 2 Wind Farm	0.19	1.26	Rampion 2 Wind Farm (2023)
TwinHub Floating Offshore Wind Farm	0.28	1.91	Xodus Group (2018)
Walney Extension 3 + 4	0.40	2.72	Dong Energy (2013b)
White Cross offshore wind farm	No impact during the non-breeding season as zero birds predicted to collide.		White Cross (2023)
Total predicted mortalities	**1.4037**	**9.5634**	
Increase in baseline mortality (%)	**1.1109**	**7.5940**	

1.5.4.4 The impact from the Mona Offshore Wind Project in-combination is considered to present an increase in baseline mortality of between 1.11~~09~~% and 7.59~~40~~% depending on the avoidance rate used. For clarity, the two avoidance rates used are 99.39% as advocated by the SNCBs for the species-~~-~~group 'large gull species' (following EWG meeting 5 in June 2023) and 99.91% using species-~~-~~specific rate~~s~~. Both of the avoidance rates are taken from Ozsanlav-Harris *et al*. (2023) as discussed in paragraph 1.5.3.3.

1.5.4.5 Additional impacts may also occur from operational wind farms which did not present apportioned impacts at the time of application. These wind farms are considered qualitatively within integrity test: Step 2, alongside the projects presented above.

1.5.4.6 It cannot be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly SPA as a result of collision risk of the Mona Offshore Wind Project in-combination with other projects. The Isles of Scilly SPA is taken through to the integrity test: Step 2, for the Mona Offshore Wind Project in-combination (section 1.6.4).

Lambay Island SPA

1.5.4.7 The integrity test: Step 1 for the black-legged kittiwake from the Lambay Island SPA is presented below for the Mona Offshore Wind Project in-combination with other plans and projects (Table 1.45). Only plans or projects which have presented an apportioned estimate (see section 1.4.6 and Table 1.3) have been included within the Integrity test: Step 1.

1.5.4.8 The pre-breeding and post-breeding apportioning values are calculated for Lambay Island SPA using the population estimate which is representative of the count period of Furness (2015). Furness (2015) did not provide~~d~~ apportioned values for Irish SPAs and presented a combined total for 'Ireland'. The proportion of birds within the BDMPS from Lambay Island SPA is 0.56% during the pre-breeding period and 0.43% during the post-breeding period when using the Seabird 2000 data (Mitchell *et al*, 2004). These proportions are used within this in-combination assessment.

1.5.4.9 The plan or project abundance estimates and collision estimates are taken from section 5.9 of Volume 2, Chapter 5: Offshore Ornithology (Document reference F2.5). The age-class apportioning undertaken on the plan or project abundance estimates and collision estimates used Furness (2015) due to lack of site specific data available over this scale.

Table 1.45: Integrity test: Step 1 for black-legged kittiwake from the Lambay Island SPA from the Mona Offshore Wind Project acting in-combination.

[a] – Projects used the same breeding season apportioning value as Morecambe Offshore Wind Generation Assets

[b] – Projects used the same breeding season ~~apportiong~~apportion value as Erebus Floating Wind Demo

[c] – Only an annual impact is presented in the CEA of Volume 2, Chapter 5: Offshore Ornithology (Document reference F2.5), for ~~precaustion~~precaution ~~the~~ all of the impact has been apportioned to the breeding season.

Plan or project	Apportioning values			Apportioned displacement impact values (50% displacement, 1% mortality)			Apportioned collision values (species-group avoidance rate 99.28)			Combined impact		
	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding
Awel y Môr Offshore Wind Farm	0.0056	0.022	0.004	0.00	0.01	0.00	0.05	0.14	0.02	0.05	0.14	0.02
Burbo Bank Extension Offshore Wind Farm	0.0056	0.0232[a]	0.004	0.00	0.04	0.00	0.00	0.28[c]	0.00	0.00	0.33	0.00
Erebus Floating Wind Demo	0.0056	0.031	0.004	0.00	0.17	0.01	0.04	0.01	0.05	0.04	0.17	0.06
TwinHub (Wave Hub Floating Wind Farm)	0.0056	0.031[b]	0.004	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.16	0.00
Mona Offshore Wind Project	0.0056	0.038	0.004	0.01	0.07	0.01	0.04	0.19	0.02	0.05	0.26	0.03
Morecambe Offshore Windfarm Generation Assets	0.0056	0.0232	0.004	0.02	0.24	0.05	0.02	0.19	0.02	0.03	0.43	0.07

Plan or project	Apportioning values			Apportioned displacement impact values (50% displacement, 1% mortality)			Apportioned collision values (species-group avoidance rate 99.28)			Combined impact		
	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding
Morgan Offshore Wind Project Generation Assets	0.0056	0.033	0.004	0.01	0.04	0.02	0.04	0.09	0.05	0.05	0.13	0.07
Ormonde Wind Farm	0.0056	0.0232[a]	0.004	0.00	0.00	0.00	0.00	0.04[c]	0.00	0.00	0.04	0.00
Rampion Offshore Wind Farm	0.0056	No connectivity	0.004	0.01	-	0.00	0.13	-	0.03	0.14	-	0.04
Rampion 2 (Rampion Extension) Offshore Wind Farm	0.0056	No connectivity	0.004	0.00	-	0.00	0.05	-	0.02	0.05	-	0.02
Walney (3 & 4) Extension Offshore Wind Farm	0.0056	0.0232[a]	0.004	0.02	0.02	0.01	0.05	0.23	0.18	0.07	0.25	0.21
West of Orkney Windfarm	No connectivity	No connectivity	No connectivity	-	-	-	-	-	-	-	-	-
White Cross Offshore Windfarm	0.0056	0.031[b]	0.004	0.01	0.00	0.00	0.03	0.06	0.00	0.04	0.06	0.01
Total predicted impact (adult birds)				**0.09**	**0.59**	**0.10**	**0.43**	**1.39**	**0.43**	**0.52**	**1.98**	**0.53**
Increase in baseline mortality (%)				**0.01%**	**0.06%**	**0.01%**	**0.04%**	**0.14%**	**0.04%**	**0.05%**	**0.20%**	**0.05%**

1.5.4.10 The impact from the Mona Offshore Wind Project in-combination with other plans or projects annually is considered to present an increase in baseline mortality of up to 0.30% when considering both displacement and collision impacts. A reduction of <1% is considered non-significant and unlikely to result in a detectable change in the ~~the~~ population. Therefore it is not proportionate to consider the in-~~cobmbination~~combination impac~~o~~t if Mona Offshore Wind Project alongside other ~~pl~~ans and projects within this in-combination assessment within integrity test: Stage 2.

1.5.4.11 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Lambay Island SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Lambay Island SPA is not taken through to the integrity test: Stage 2.

Howth Head Coast SPA

1.5.4.12 The integrity test: Step 1 for the black-legged kittiwake from the Howth Head Coast SPA is presented below for the Mona Offshore Wind Project in-combination with other plans or projects (~~1~~Table 1.46). Only plans or projects which have presented an apportioned estimate (see section 1.4.6 and Table 1.3) have been included within the Integrity test: Step 1.

1.5.4.13 The pre-breeding and post-breeding apportioning values are calculated for Howth Head Coast SPA using the population estimate which is representative of the count period of Furness (2015). Furness (2015) did not provide~~d~~ apportioned values for Irish SPAs and presented a combined total for 'Ireland'. The proportion of birds within the BDMPS from Howth Head Coast SPA is 0.31% during the pre-breeding period and 0.24% during the post-breeding period when using the Seabird 2000 data (Mitchell *et al*, 2004). These proportions are used within this in-combination assessment.

1.5.4.14 The plan or project abundance estimates and collision estimates are taken from section 5.9 of Volume 2, Chapter 5: Offshore Ornithology (Document reference F2.5). The age-class apportioning undertaken on the plan or project abundance estimates and collision estimates used Furness (2015) due to lack of site specific data available over this scale.

Table 1.46: Integrity test: Step 1 for black-legged kittiwake from the Howth Head Coast SPA from the Mona Offshore Wind Project acting in-combination.

[a] – Projects used the same breeding season apportioning value as Morecambe Offshore Wind Generation Assets

[b] – Projects used the same breeding season ~~apportiong~~apportioning value as Mona Offshore Wind Project

[c] – Only an annual impact is presented in the CEA of Volume 2, Chapter 5: Offshore Ornithology (Document reference F2.5), for ~~precaustion~~precaution all of the impact has been apportioned to the breeding season.

Plan or project	Apportioning values			Apportioned displacement impact values (50% displacement, 1% mortality)			Apportioned collision values (species-group avoidance rate 99.28)			Combined impact		
	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding
Awel y Môr Offshore Wind Farm	0.0031	0.02	0.0024	0.00	0.00	0.00	0.03	0.12	0.01	0.03	0.13	0.01
Burbo Bank Extension Offshore Wind Farm	0.0031	0.0238[a]	0.0024	0.00	0.04	0.00	0.00	0.29	0.00	0.00	0.34	0.00
Erebus Floating Wind Demo	0.0031	0.033	0.0024	0.00	0.18	0.00	0.02	0.01	0.03	0.02	0.19	0.03
TwinHub (Wave Hub Floating Wind Farm)	0.0031	0.033[b]	0.0024	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.17	0.00
Mona Offshore Wind Project	0.0031	0.018	0.0024	0.00	0.03	0.00	0.02	0.09	0.01	0.03	0.12	0.01
Morecambe Offshore Windfarm Generation Assets	0.0031	0.0238	0.0024	0.01	0.25	0.03	0.01	0.19	0.01	0.02	0.44	0.04

Plan or project	Apportioning values			Apportioned displacement impact values (50% displacement, 1% mortality)			Apportioned collision values (species-group avoidance rate 99.28)			Combined impact		
	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding
Morgan Offshore Wind Project Generation Assets	0.0031	0.033	0.0024	0.01	0.03	0.01	0.02	0.07	0.03	0.03	0.10	0.04
Ormonde Wind Farm	0.0031	0.0238[a]	0.0024	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	0.00
Rampion Offshore Wind Farm	0.0031	No connectivity	0.0024	0.01	-	0.00	0.07	-	0.02	0.08	-	0.02
Rampion 2 (Rampion Extension) Offshore Wind Farm	0.0031	No connectivity	0.0024	0.00	-	0.00	0.03	-	0.01	0.03	-	0.01
Walney (3 & 4) Extension Offshore Wind Farm	0.0031	0.0238[a]	0.0024	0.01	0.02	0.01	0.03	0.24	0.11	0.04	0.26	0.12
West of Orkney Windfarm	No connectivity	No connectivity	No connectivity	-	-	-	-	-	-	-	-	-
White Cross Offshore Windfarm	0.0031	0.033[b]	0.0024	0.01	0.00	0.00	0.02	0.06	0.00	0.02	0.07-	0.00
Total predicted impact (adult birds)				**0.05**	**0.57**	**0.05**	**0.24**	**1.29**	**0.24**	**0.29**	**1.86**	**0.30**
Increase in baseline mortality (%)				**0.01%**	**0.11%**	**0.01%**	**0.05%**	**0.25%**	**0.05%**	**0.06%**	**0.36%**	**0.06%**

1.5.4.15 The impact from the Mona Offshore Wind Project in-combination with other plans or projects annually is considered to present an increase in baseline mortality of up to 0.48% when considering both displacement and collision impacts. A reduction of <1% is considered non-significant and unlikely to result in a detectable change in the ~~the~~ population. Therefore it is not proportionate to consider the in-~~cobmbination~~combination ~~imacot~~impact if Mona Offshore Wind Project alongside other plans and projects within this in-combination assessment within integrity test: Stage 2.

1.5.4.16 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Howth Head Coast SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Howth Head Coast SPA is not taken through to the integrity test: Stage 2.

Ireland's Eye SPA

1.5.4.17 The integrity test: Step 1 for the black-legged kittiwake from the Ireland's Eye SPA is presented below for the Mona Offshore Wind Project in-combination with other plans or projects (Table 1.47). Only plans or projects which have presented an apportioned estimate (see section 1.4.6 and Table 1.3) have been included within the Integrity test: Step 1.

1.5.4.18 The pre-breeding and post-breeding apportioning values are calculated for Ireland's Eye SPA using the population estimate which is representative of the count period of Furness (2015). Furness (2015) did not provide~~d~~ apportioned values for Irish SPAs and presented a combined total for 'Ireland'. The proportion of birds within the BDMPS from Ireland's Eye SPA is 0.13% during the pre-breeding period and 0.10% during the post-breeding period when using the Seabird 2000 data (Mitchell *et al*, 2004). These proportions are used within this in-combination assessment.

1.5.4.19 The plan or project abundance estimates and collision estimates are taken from section 5.9 of Volume 2, Chapter 5: Offshore Ornithology (Document reference F2.5). The age-class apportioning undertaken on the plan or project abundance estimates and collision estimates used Furness (2015) due to lack of site specific data available over this scale.

Table 1.47: Integrity test: Step 1 for black-legged kittiwake from the Ireland's Eye SPA from the Mona Offshore Wind Project acting in-combination.

[a] – Projects used the same breeding season apportioning value as Morecambe Offshore Wind Generation Assets

[b] – Projects used the same breeding season ~~apportiong~~apportioingn value as Mona Offshore Wind Project

[c] – Only an annual impact is presented in the CEA of Volume 2, Chapter 5: Offshore Ornithology (Document reference F2.5), for ~~precaustion~~precaution ~~the~~ all of the impact has been apportioned to the breeding season.

Project	Apportioning values			Apportioned displacement impact values (50% displacement, 1% mortality)			Apportioned collision values (species-group avoidance rate 99.28)			Combined impact		
	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding
Awel y Môr Offshore Wind Farm	0.0013	0.01	0.001	0.00	0.00	0.00	0.01	0.06	0.00	0.01	0.06	0.00
Burbo Bank Extension Offshore Wind Farm	0.0013	0.0104[a]	0.001	0.00	0.02	0.00	0.00	0.13	0.00	0.00	0.15	0.00
Erebus Floating Wind Demo	0.0013	0.016	0.001	0.00	0.09	0.00	0.01	0.00	0.01	0.01	0.09	0.01
TwinHub (Wave Hub Floating Wind Farm)	0.0013	0.016[b]	0.001	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.08	0.00
Mona Offshore Wind Project	0.0013	0.016	0.001	0.00	0.03	0.00	0.01	0.08	0.00	0.01	0.11	0.01
Morecambe Offshore Windfarm Generation Assets	0.0013	0.0104	0.001	0.00	0.11	0.01	0.00	0.08	0.01	0.01	0.19	0.02

Project	Apportioning values			Apportioned displacement impact values (50% displacement, 1% mortality)			Apportioned collision values (species-group avoidance rate 99.28)			Combined impact		
	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding	Pre-breeding	Breeding	Post-breeding
Morgan Offshore Wind Project Generation Assets	0.0013	0.013	0.001	0.00	0.02	0.00	0.01	0.03	0.01	0.01	0.05	0.02
Ormonde Wind Farm	0.0013	0.0104[a]	0.001	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.00
Rampion Offshore Wind Farm	0.0013	No connectivity	0.001	0.00	0.00	0.00	0.03	0.00	0.01	0.03	0.00	0.01
Rampion 2 (Rampion Extension) Offshore Wind Farm	0.0013	No connectivity	0.001	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.01
Walney (3 & 4) Extension Offshore Wind Farm	0.0013	0.0104[a]	0.001	0.01	0.01	0.00	0.01	0.10	0.05	0.02	0.11	0.05
West of Orkney Windfarm	No connectivity	No connectivity	No connectivity	-	-	-	-	-	-	-	-	-
White Cross Offshore Windfarm	0.0013	0.016[b]	0.001	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.03	0.00
Total predicted impact (adult birds)				**0.02**	**0.27**	**0.02**	**0.10**	**0.63**	**0.10**	**0.12**	**0.90**	**0.12**
Increase in baseline mortality (%)				**0.00%**	**0.06%**	**0.01%**	**0.02%**	**0.14%**	**0.02%**	**0.03%**	**0.20%**	**0.03%**

1.5.4.20 The impact from the Mona Offshore Wind Project in-combination with other projects annually is considered to present an increase in baseline mortality of up to 0.26% when considering both displacement and collision impacts. A reduction of <1% is considered non-significant and unlikely to result in a detectable change in the ~~the~~ population. Therefore it is not proportionate to consider the in-~~cobmbination~~combination ~~imacot~~impact if Mona Offshore Wind Project alongside other plans and projects within this in-combination assessment within integrity test: Stage 2.

~~1.5.4.6~~1.5.4.21 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Ireland's Eye SPA as a result of disturbance and displacement and collision risk to black-legged kittiwake from the Mona Offshore Wind Project alone and in-combination with other plans and projects. The Ireland's Eye is not taken through to the integrity test: Stage 2.

1.5.5 Summary of integrity test: Step 1

1.5.5.1 It was concluded for the 35~~2~~ sites which were assessed within the integrity test: Step 1, that there was no potential for an adverse effect on site integrity from the Mona Offshore Wind Project alone. It was concluded that there was potential for an adverse effect on site integrity from the Mona Offshore Project in-combination with other projects for the Isles of Scilly SPA, only. For all other sites considered it could be concluded beyond reasonable scientific doubt that there was no risk of an adverse effect on site integrity. Liverpool Bay/Bae Lerpwl SPA was not assessed within Step 1 and was assessed in Step 2 only due to the Mona Offshore Cable Corridor and Access Areas overlapping the designation.

1.6 Assessment of potential Adverse Effect on Integrity: Step 2

1.6.1 Sites considered within the assessment of potential Adverse Effect on Integrity: Step 2

1.6.1.1 The Assessment of potential Adverse Effect on Integrity: Step 2 will include an assessment of the potential for adverse effect on site integrity on two SPAs listed in Table 1.48. Liverpool Bay/Bae Lerpwl SPA was not assessed within Integrity test: Step 1 (section 1.5) due to the Mona Offshore Cable Corridor and Access Areas directly overlapping with this protected area and therefore the site was automatically taken through to in-depth assessment within Step 2. The Isles of Scilly SPA was considered within Integrity test: Step 1 (section 1.5) and as the predicted impact was a >1% increase in baseline mortality it has been included within this Integrity Test: Step 2 against the conservation objectives of the site.

Table 1.48: SPAs and relevant offshore ornithological features for which the potential for LSE could not be ruled out and therefore considered in the Appropriate Assessment.

SPA	Relevant offshore ornithological feature and period of impact	Impact(s) included in assessment
Liverpool Bay/Bae Lerpwl SPA	Red-throated diver during the non-breeding season Little gull during the non-breeding season Common scoter during the non-breeding season Little tern during the breeding season Common tern during the breeding season Waterbird assemblage during the non-breeding season	Temporary habitat loss/disturbance and increase in SSCs Disturbance and displacement from airborne sound and presence of vessels and infrastructure Changes in prey availability Accidental pollution
Isles of Scilly SPA	Great black-backed gull during the non-breeding season	Collision risk

1.6.2 Baseline information of sites considered within integrity test: Step 2

1.6.2.1 Baseline information on the offshore ornithological features of the SPAs and Ramsar sites identified for further assessment within the HRA process (Step 2) has been gathered through a comprehensive desktop study of existing studies and datasets and supported by 24-month site-specific aerial survey data full details of which are presented within Volume 2, Chapter ~~6~~5: Offshore ornithology of the Environmental Statement (Document reference F2.5).

Liverpool Bay/Bae Lerpwl SPA

Site description

1.6.2.2 The Liverpool Bay/Bae Lerpwl SPA is situated in the east of the Irish Sea, bordering the northwest of England and the north of Wales, and running as a broad arc from Morecambe Bay to the east coast of Anglesey. It covers an area of approximately 2,528 km^2, designated for the protection of red-throated diver, common scoter, and little gull during the non-breeding season, as well as a waterbird assemblage, and foraging areas for little tern and common tern breeding within coastal SPAs.

1.6.2.3 The SPA is located 10 km from the Mona Array Area and overlaps the Mona Offshore Cable Corridor and Access Areas (Figure 1.3). The Mona Offshore Cable Corridor and Access Areas covers 102.8 km^2 when applying a 2 km buffer around the corridor. This area of overlap is approximately 4% of the total area of the Liverpool Bay/Bae Lerpwl SPA. A 2 km buffer was applied as the minimum distance over which species can be displaced (SNCB, 2022).

1.6.2.4 The seabed of Liverpool Bay/Bae Lerpwl SPA contains a wide range of mobile sediments. Sand is the most common substrate, with a concentrated area of gravelly sand located off the Mersey Estuary.

1.6.2.5 The Liverpool Bay/Bae Lerpwl SPA was designated by the UK Government to meet obligations set out in the Birds Directive (2009/147/EC) in 2010 and extended in 2017 to cover a larger area.

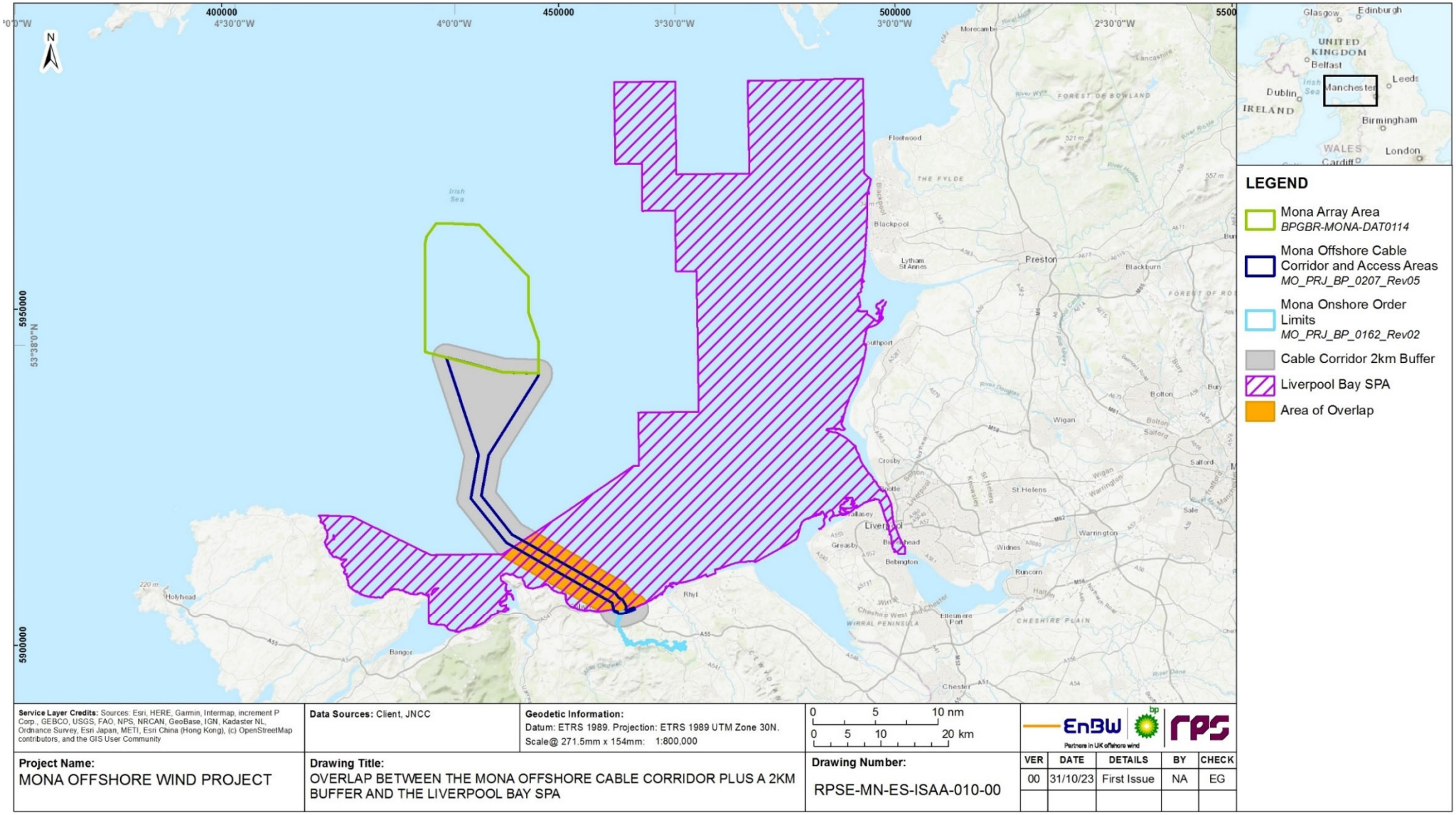

Figure 1.3: The Liverpool Bay/Bae Lerpwl SPA, Mona Offshore Cable Corridor and Access Areas, 2 km buffer and overlap.

Feature accounts

Red-throated diver

1.6.2.6 Red throated diver *Gavia stellata* are listed as a Schedule 1 species under The Wildlife and Countryside Act. Red-throated diver are also listed on Annex I of the Wild Birds Directive. The SPA protects the third largest aggregation of red-throated diver in the UK during the non-breeding season, with 6.89% of the UK population, with a classified red-throated diver population of 1,171 individuals (Lawson *et al.* 2016 and JNCC, 2017). Webb *et al.* (2006) and Lawson *et al.* (2016) have found large concentrations of red-throated diver along the north Wales coast. During the most recent surveys of the entirety of Liverpool Bay/Bae Lerpwl SPA undertaken over four winters (2015, 2018, 2019 and 2020), the population estimates throughout the survey period ranged from 372 birds in January 2018 to 2,073 birds in March 2020. This equates to densities of 0.22 birds/ km^2 and 1.22 birds/ km^2, respectively (Figure 1.5 and HiDef, 2023). The four-year peak mean was 1,800 individuals from the latest surveys.

1.6.2.7 Since designation the number of wintering population of red-throated diver has increased from the Lawson *et al*. (2016) estimate of 1,171 to the latest estimate from HiDef (2023) of 1,800 individuals.

1.6.2.8 Densities of red-throated diver in the Liverpool Bay/Bae Lerpwl SPA were derived from wintering aerial surveys carried out between 2004 and 2011 (Lawson *et al*. 2016; Figure 1.4 (it should be noted that all Lawson *et al*., 2016 figures contain the historic Liverpool Bay/Bae Lerpwl SPA boundary) and 2015 to 2020 (HiDef, 2023; Figure 1.5).

1.6.2.9 As the site-specific aerial surveys did not cover the entire Mona Offshore Cable Corridor and Access Areas, the densities from the latest survey of Liverpool Bay/Bae Lerpwl SPA provide an indication of the importance of this area to red-throated diver. Densities in the Liverpool Bay/Bae Lerpwl SPA which is crossed by the Mona Offshore Cable Corridor and Access Areas varied between 0.08 (January 2018) and 1.22 (February 2019) birds per km^2 using the latest density estimates (Figure 1.5; HiDef, 2023).

1.6.2.10 During summer months (April to September) the highest densities of birds present within the Mona Offshore Cable Corridor and Access Areas are close to the coast at Colwyn Bay, where up to 0.099 birds per km^2 were present (Bradbury *et al*., 2014). Birds recorded during April to September are likely to be on migration, as there are no breeding sites within England, Wales or Ireland.

1.6.2.11 During digital aerial surveys of the Mona Offshore Ornithology Array Area Study Area (outwith the Liverpool Bay/Bae Lerpwl SPA), only four observations of single red-throated diver were recorded in August 2020, October 2020, November 2020 and December 2021. Red-throated diver are near absent within the Mona Offshore Ornithology Array Area study area (the Mona Array Area plus a 7 km to 16.5 km buffer). Three birds were recorded sitting, while one red-throated diver was observed in flight.

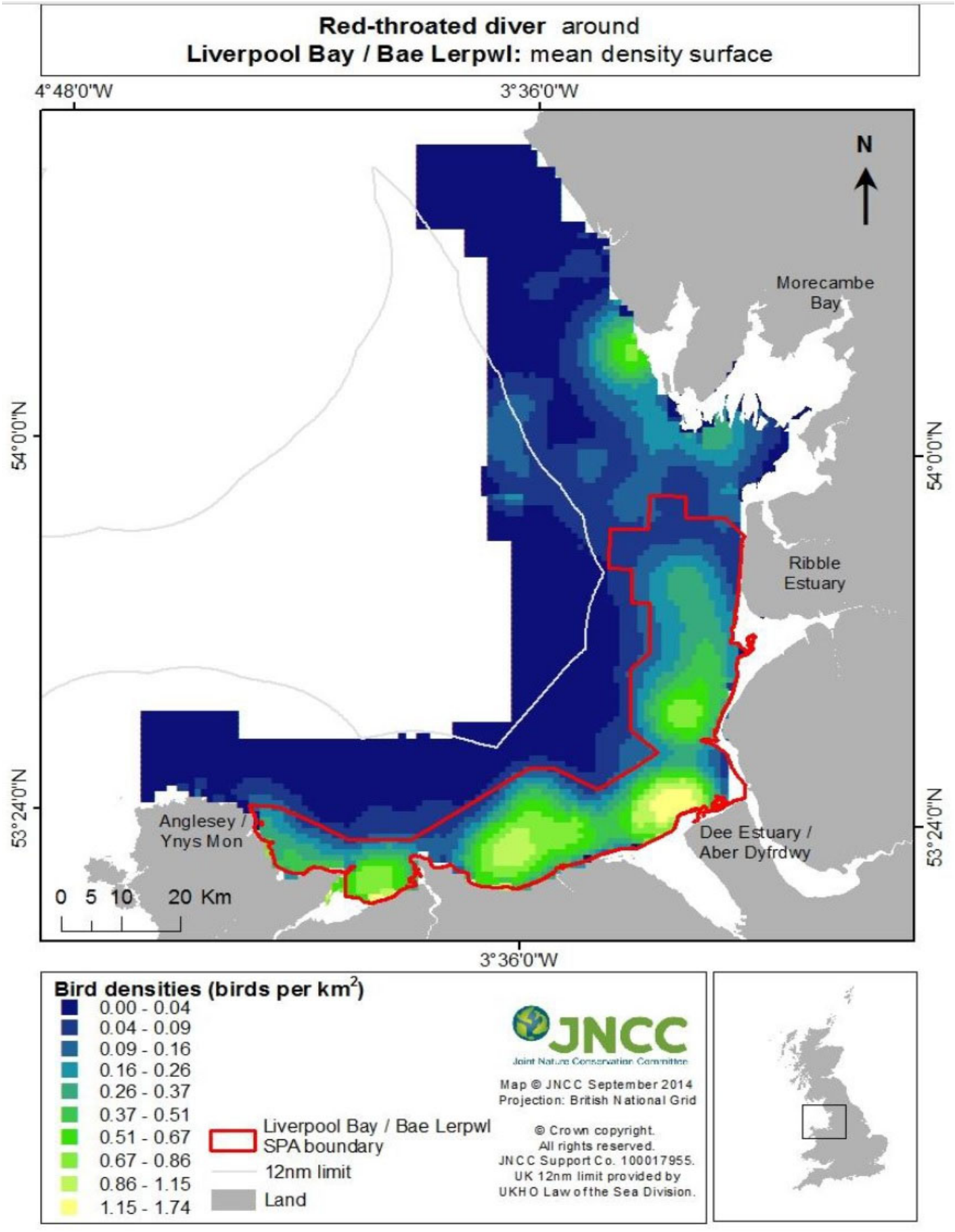

Figure 1.4: Red-throated diver densities in Liverpool Bay/Bae Lerpwl SPA from five years of winter aerial survey data recorded between 2005 and 2011 (Lawson *et al*, 2016).

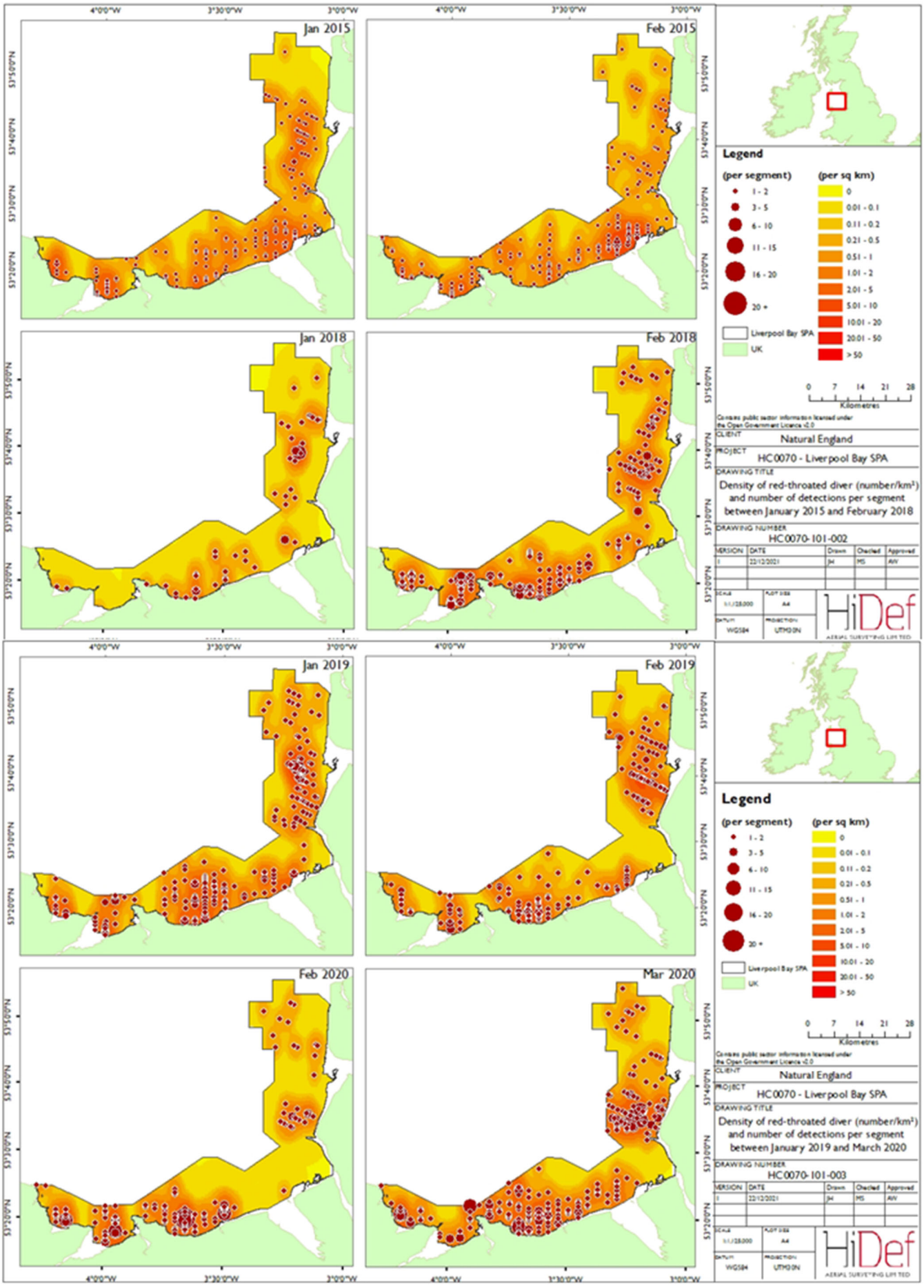

Figure 1.5: Red-throated diver densities in Liverpool Bay/Bae Lerpwl SPA from four years of winter aerial survey data recorded between 2015 and 2020 (HiDef, 2023).

Little gull

1.6.2.12 The SPA protects the largest marine aggregation of little gull in the UK during the non-breeding season. Little gull is listed on Annex I of the Wild Birds Directive.

1.6.2.13 A mean peak population estimate of 319 individuals was produced from Lawson *et al*. (2016). Observations of little gull were consistently recorded at a well-defined location in the Liverpool Bay/Bae Lerpwl SPA and the species was distributed close to the 12nm limit as shown in Figure 1.6 (Lawson *et al*., 2016). Population estimates of little gull fluctuated during the most recent estimates (HiDef, 2023; Figure 1.7), ranging from zero birds in February 2015, January 2019 and February 2020, to 286 birds in February 2019, equating to 0.17 birds per km^2.

1.6.2.14 A total of 28 little gull were recorded between December 2020 to February 2021 (16 birds) and November 2021 to February 2022 (12 birds) during the digital aerial surveys of the Mona Offshore Ornithology Array Area Study Area.

1.6.2.15 The only impact pathway which may impact little gull associated with Liverpool Bay/Bae Lerpwl SPA is disturbance and displacement. The area of Liverpool Bay/Bae Lerpwl SPA which could be impacted by disturbance and displacement is restricted to where there is overlap with the Mona Offshore Cable Corridor and Access Areas (Figure 1.3). The highest density of little gull within Liverpool Bay/Bae Lerpwl SPA is outwith this overlap area.

1.6.2.16 In addition, there is no empirical evidence that little gull are sensitive to disturbance and displacement from airborne sound and presence of vessels and infrastructure (MMO, 2018), with Humphreys *et al*. (2015) stating they have a low displacement score. Furness *et al.* (2012) also concluded that gull species have “very low vulnerability” to disturbance from vessels.

1.6.2.17 As there is little to no potential for little gull to be impacted due to the small number of birds present within the vicinity of any activity associated with the construction, operations and maintenance or decommissioning of the Mona Offshore Wind Project, it can be concluded that there is no potential for adverse effect on little gull.

1.6.2.18 For completeness, little gull are included within the conservation objectives tables of each impact pathway and phase of development within the alone assessment (section 1.6.3), but no specific text for that impact pathway or phase of development is provided to avoid repeating the text presented here,

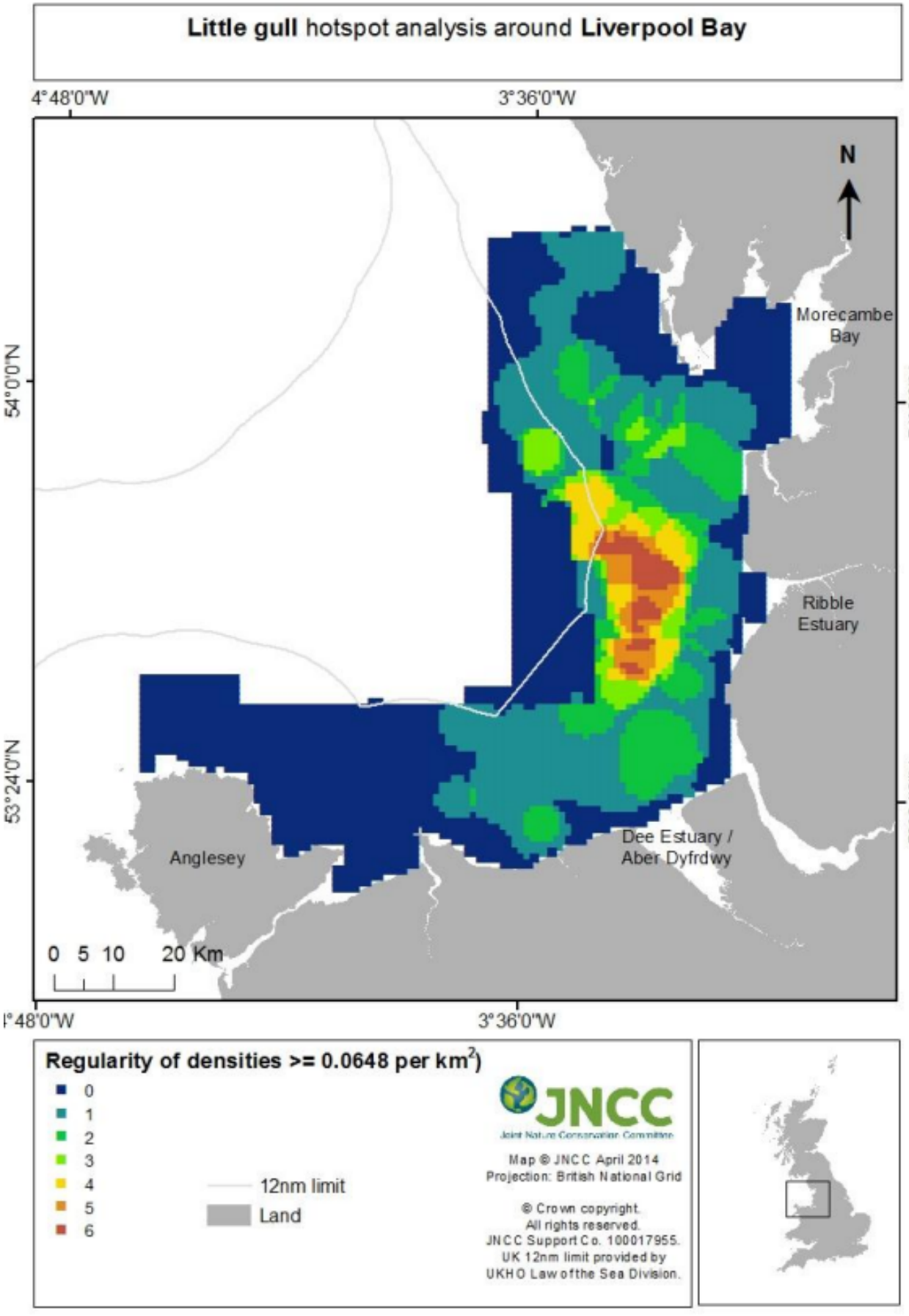

Figure 1.6: Little gull densities in Liverpool Bay/Bae Lerpwl SPA from five years of winter aerial survey data recorded between 2005 and 2011(Lawson *et al*, 2016).

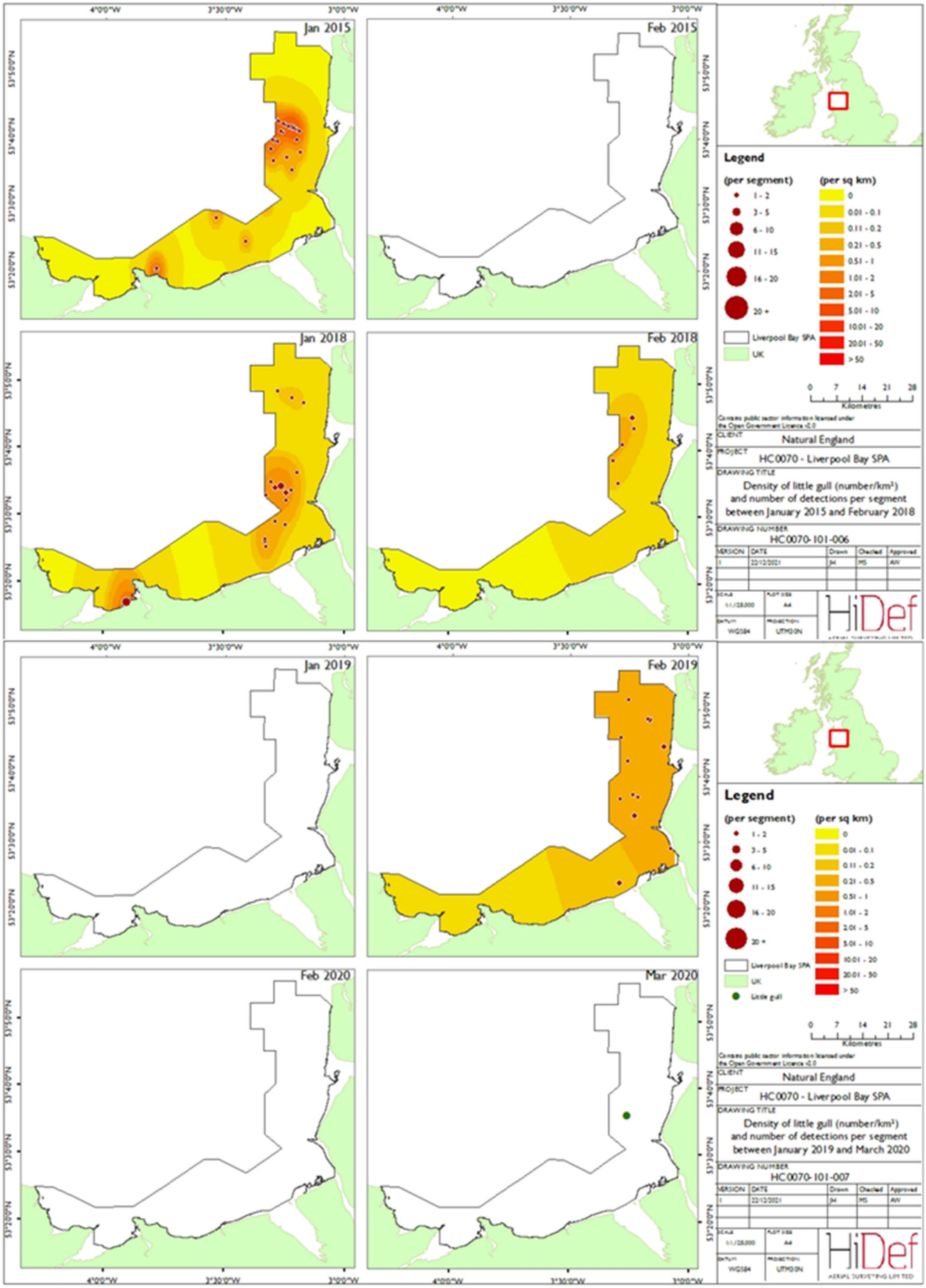

Figure 1.7: Little gull densities in Liverpool Bay/Bae Lerpwl SPA from four years of winter aerial survey data recorded between 2015 and 2020 (HiDef, 2023).

Common scoter

1.6.2.19 Common scoter is a red-listed species in the UK due to severe declines in their long-term breeding population and range, being a rare breeder, and supporting an important non-breeding population. The species is a regularly occurring migratory species under the Wild Birds Directive (not listed in Annex I). The SPA protects the largest aggregation of common scoter in the UK, and it supports 10.31% of the northwest European population, with a classified common scoter population of 56,679 individuals.

1.6.2.20 Webb *et al*. (2006) and Lawson *et al.* (2016) found concentrations of common scoter along the north Wales coast. The nearshore waters between the Dee Estuary and Colwyn Bay were a stronghold for the species within the Liverpool Bay/Bae Lerpwl SPA (Lawson *et al*, 2016) (Figure 1.8).

1.6.2.21 Since designation the number of wintering population of common scoter has increased from the Lawson *et al*. (2016) estimate of 56,679 to the latest estimate from HiDef (2023) of 87,364 individuals.

1.6.2.22 Kaiser *et al*. (2006) collected data on the distribution and behaviour of common scoter in Liverpool Bay/Bae Lerpwl SPA and found concentrations in the nearshore waters off the north Wales coast. Kaiser *et al*. (2006) also used bathymetry to model the seafloor and collected data on prey distribution. The authors found that the north Wales seafloor falls away relatively steeply and that the highest prey densities along this coastline were located at a depth of 7.88 m. Common scoter were most frequently found in water between 7 to 15 m deep and it is widely accepted that common scoter forage in water less than 20 m deep.

1.6.2.23 Common scoter were the most abundant species recorded during the most recent surveys of the entirety of Liverpool Bay/Bae Lerpwl SPA (HiDef, 2023), with population estimates ranging between 78,797 birds in March 2020 and 202,224 birds in February 2015, equating to densities of 46.41 birds/ km^2 and 119.12 birds/ km^2, respectively.

1.6.2.24 Densities of common scoter in the Liverpool Bay/Bae Lerpwl SPA are shown between 2005 and 2011 (Lawson *et al*.,2016; Figure 1.8) and 2015 to 2020 (HiDef, 2023; Figure 1.9). The densities in the area crossed by the Mona Offshore Cable Corridor and Access Areas (Figure 1.3) varied between 2.2 birds per km^2 in January 2018 and 31.6 birds per km^2 in February 2019.

1.6.2.25 During summer months (April to September) no birds were present within the Mona Offshore Cable Corridor and Access Areas (Bradbury *et al*., 2014).

1.6.2.26 No common scoter were recorded during the digital aerial surveys of the Mona Offshore Ornithology Array Area Study Area due to common scoter's coastal habitat preference.

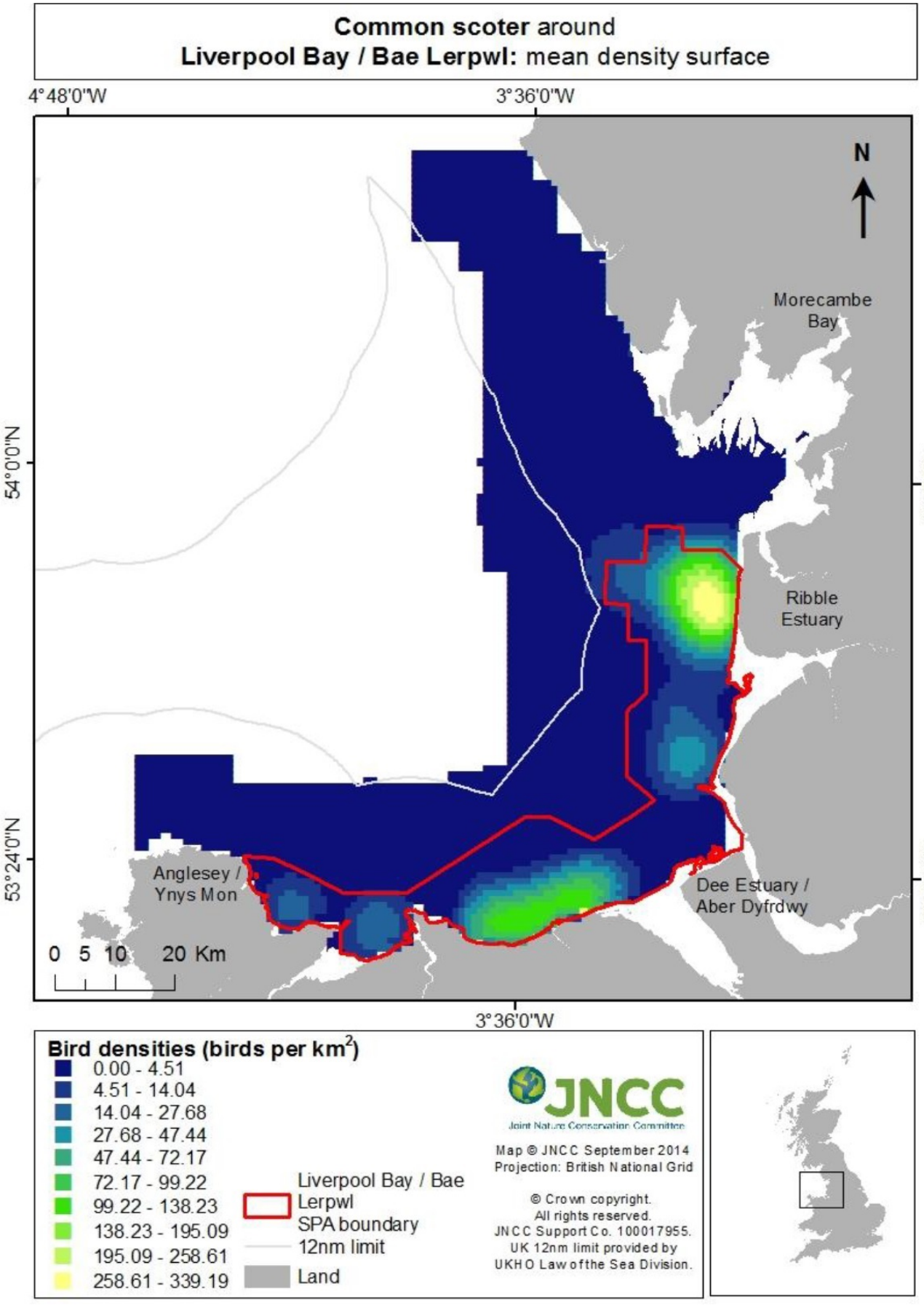

Figure 1.8: Common scoter densities in Liverpool Bay/Bae Lerpwl SPA from five years of winter aerial survey data recorded between 2005 and 2011 (Lawson *et al*, 2016).

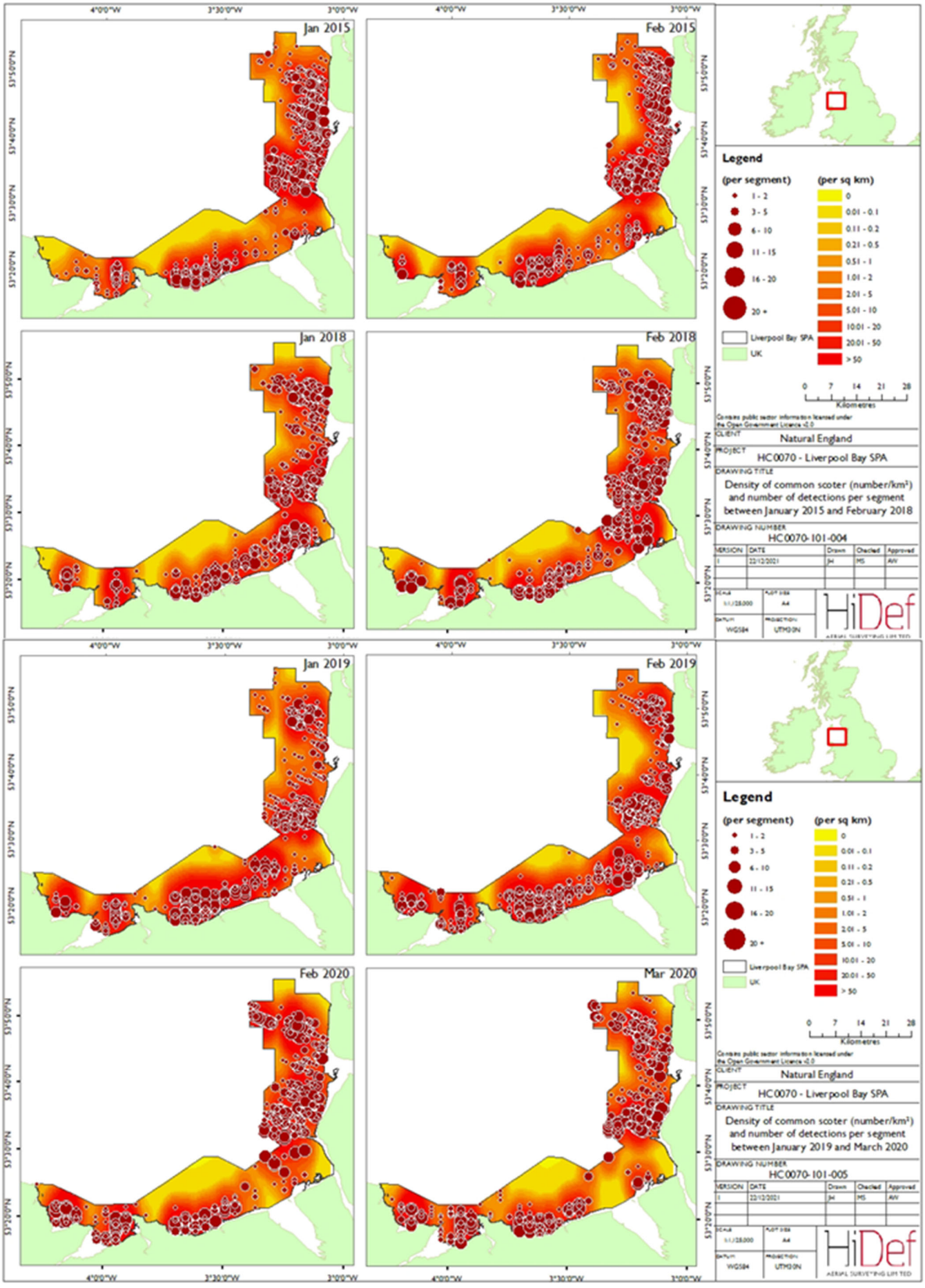

Figure 1.9: Common scoter densities in Liverpool Bay/Bae Lerpwl SPA from four years of winter aerial survey data recorded between 2015 and 2020 (HiDef, 2023).

Little tern

1.6.2.27 Little tern is the smallest species of tern breeding in the UK, nesting exclusively on the coast in well-camouflaged shallow scrapes on beaches, spits or inshore islets (Mitchell *et al.,* 2004). The Liverpool Bay/Bae Lerpwl SPA supports foraging areas for nearly 7% of the UK population of little tern. Little tern is listed on Annex I of the Wild Birds Directive.

1.6.2.28 Little tern forage close to their breeding site (Woodward *et al*., 2019), and therefore require shallow, sheltered feeding areas close their breeding site. The maximum foraging range recorded was up to 5 km from the natal colony. Specific data collected at the Dee Estuary colony indicated a mean maximum range of 1.8 km from the colony (Parsons *et al*., 2015).

1.6.2.29 The dune system near Gronant in Denbighshire and the Point Ayre on the Dee Estuary supported a combined total of 212 pairs in 2023. During the breeding season, these birds are likely to use the very nearshore areas of the Liverpool Bay/Bae Lerpwl SPA to forage. The colony at Gronant dunes is approximately 16 km from the boundary of the Mona Offshore Cable Corridor and Access Areas and approximately 46 km to the Mona Array Area.

1.6.2.30 During the digital aerial surveys of the Mona Offshore Ornithology Array Area Study Area no little tern were recorded; this was as expected as the species has a preference to forage within the nearshore environment.

1.6.2.31 The nearshore environment (the preferred habitat of little tern) was surveyed as part of the intertidal surveys which were undertaken for the terrestrial ornithology assessment (Document Reference F7.4.2). No little tern were observed roosting on the exposed mud or foraging over the shallow intertidal where the Mona Offshore Cable Corridor and Access Areas could make landfall. This absence from surveys provides additional evidence that the area of Liverpool Bay/Bae Lerpwl SPA impacted by the Mona Offshore Wind Project is of little habitual importance to little tern.

1.6.2.32 As there is little to no potential for little tern to be within the vicinity of any activity associated with the construction, operations and maintenance or decommissioning of the Mona Offshore Wind Project, it can be concluded that there is no potential for adverse effect on little tern.

1.6.2.33 For completeness, little tern are included within the conservation objectives tables of each impact pathway and phase of development within the alone assessment (section 1.6.3), but no specific text for that impact pathway or phase of development is provided to avoid repeating the text presented here.

Common tern

1.6.2.34 The Liverpool Bay/Bae Lerpwl SPA supports nearly 2% of the UK population of common tern at the time of designation. The species is listed on Annex I of the Wild Birds Directive. The main colony for which the Liverpool Bay/Bae Lerpwl SPA was designated for is the breeding common tern colony at Seaforth within the Mersey Narrows and North Wirral Foreshore SPA (Natural England, NRW and JNCC, 2016). This colony is approximately 55 km from the Mona Offshore Wind Project.

1.6.2.35 There are two other colonies which are closer to the Mona Offshore Wind Project, one at Shotton Lagoons (approximately 36 km away) and Cemlyn Lagoon on Anglesey (approximately 39 km away).. Birds foraging from the Shotton Lagoons are not likely to utilise the Liverpool Bay/Bae Lerpwl SPA as Shotton Lagoons is approximately 20 km away from the Liverpool Bay/Bae Lerpwl SPA. Similarly the birds foraging from

Cemlyn Lagoon would be present within the Anglesey Terns/Morwenoliaid Ynys Môn SPA.

1.6.2.36 Common tern has a small foraging range, with a mean-maximum foraging range of 18.0 km + 8.9 km (Woodward *et al*., 2019). Therefore none of the colonies closest to the project are within foraging range of the Mona Offshore Wind Project.

1.6.2.37 During the digital aerial surveys of the Mona Offshore Ornithology Array Area Study Area a total of 13 common tern were recorded, 12 in June 2020 and one in May 2021.

1.6.2.38 The nearshore environment was surveyed as part of the intertidal surveys which were undertaken for the terrestrial ornithology assessment (Document Reference F7.4.2). No common tern were observed roosting on the exposed mud or foraging over the shallow intertidal where the Mona Offshore Cable Corridor and Access Areas could make landfall.

1.6.2.39 As there is little to no potential for common tern to be impacted due to the small number of birds present within the vicinity of any activity associated with the construction, operations and maintenance or decommissioning of the Mona Offshore Wind Project, it can be concluded that there is no potential for adverse effect on common tern.

1.6.2.40 For completeness, common tern are included within the conservation objectives table of each impact pathway and phase of development within the alone assessment (section 1.6.3), but no specific text for that impact pathway or phase of development is provided to avoid repeating the text presented here.

Waterbird assemblage

1.6.2.41 The main components of the assemblage include all the non-breeding qualifying features listed above, as well as an additional two species present in numbers exceeding 1% of the UK total: red-breasted merganser *Mergus serrator* and great cormorant *Phalacrocorax carbo*. Only red-breasted merganser and great cormorant have been assessed within the assessments below due to their presence within the Mona Offshore Cable Corridor and Access Areas (Figure 1.10 and Figure 1.11).

1.6.2.42 The latest population estimates indicated between 11 and 156 red-breasted merganser were present during the winter surveys by HiDef (2023; Figure 1.10); with the average estimate per survey of 64 birds. Similarly, the monthly estimates of great cormorant within the Liverpool Bay/Bae Lerpwl SPA fluctuated each survey, from 3,180 birds in February 2015 to 234 birds in December 2020 (Figure 1.11). The average estimate per survey was 1,217 great cormorant. Both species were generally found in coastal areas.

1.6.2.43 The densities in the area crossed by the Mona Offshore Cable Corridor and Access Areas (Figure 1.3) was up to 0.7 birds per km^2 in January 2018 for great cormorant and up to 0.2 birds per km^2 in February 2019 for red-breasted merganser.

1.6.2.44 During the site specific surveys of the Mona Offshore Ornithology Array Area Study Area, there was one record of a single great cormorant during the April 2021 survey, and no records of red-breasted merganser.

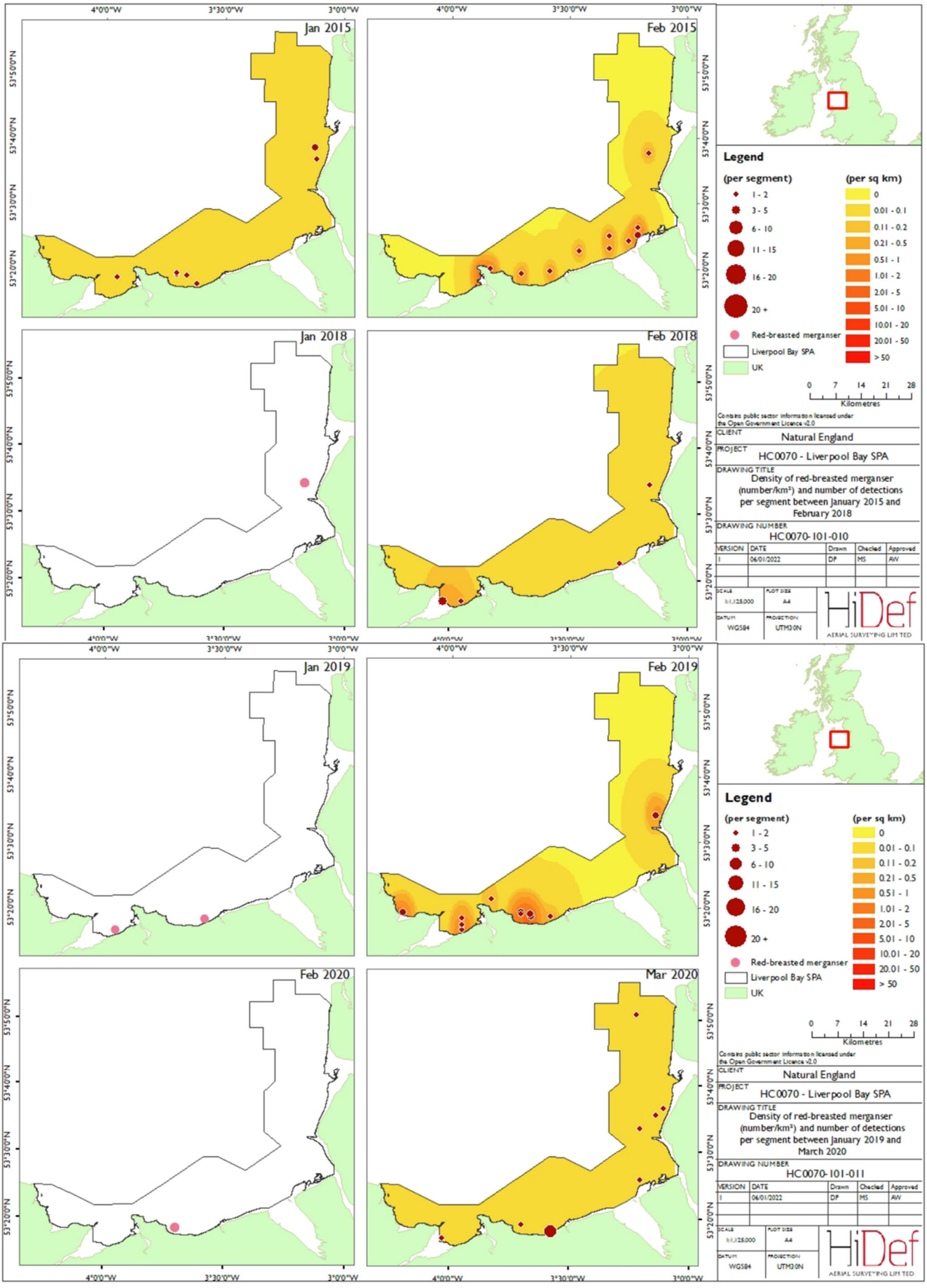

Figure 1.10: Red-breasted merganser densities in Liverpool Bay/Bae Lerpwl SPA from four years of winter aerial survey data recorded between 2015 and 2020 (HiDef, 2023).

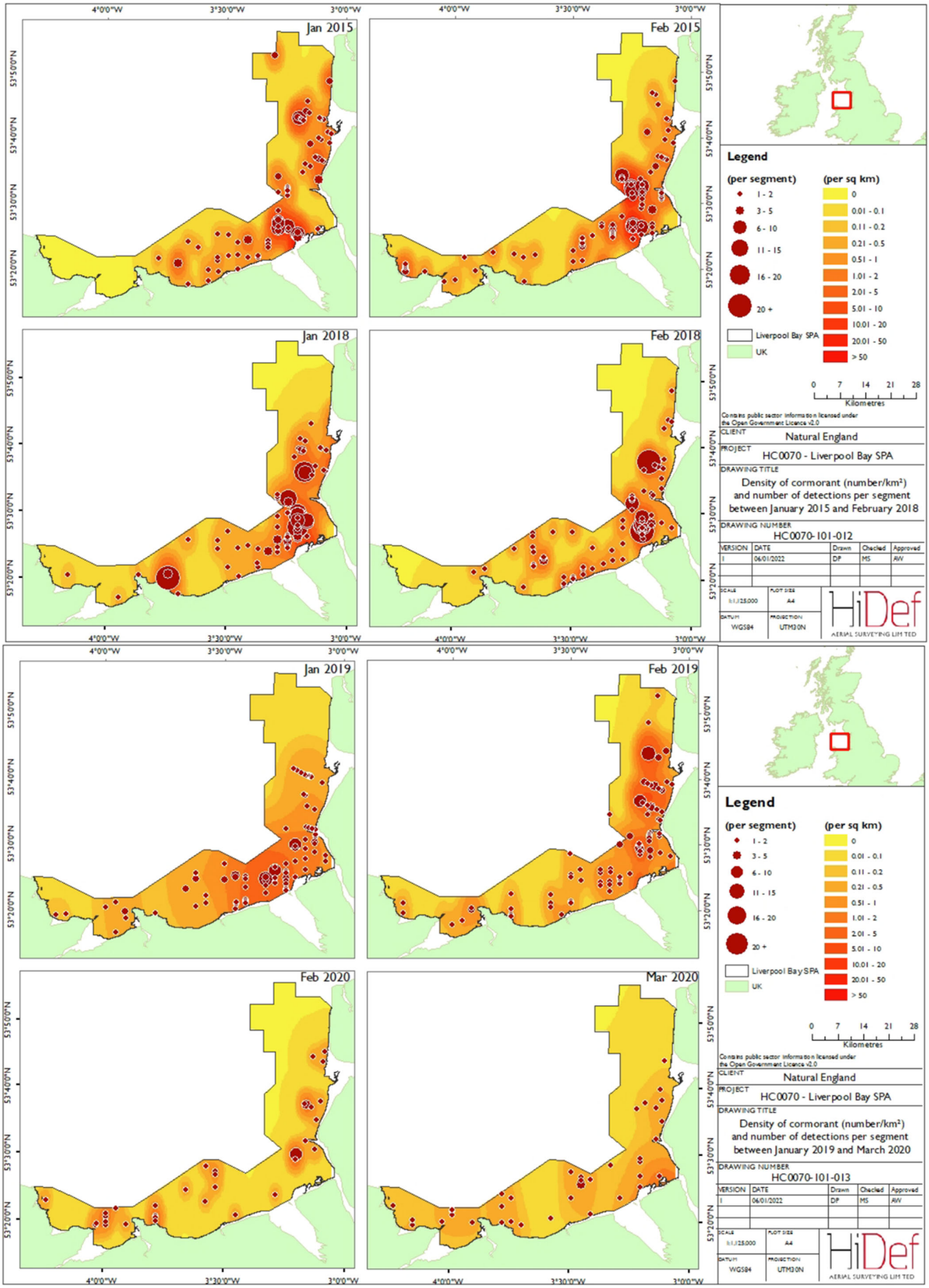

Figure 1.11: Great cormorant densities in Liverpool Bay/Bae Lerpwl SPA from four years of winter aerial survey data recorded between 2015 and 2020 (HiDef, 2023).

Conservation objectives

1.6.2.45 A Conservation Advice Package (CAP) for the Liverpool Bay/Bae Lerpwl SPA was released on the 24 January 2023 (Natural England, NRW and JNCC, 2022)[1]. The CAP contains revised conservation objectives for each feature of the site, site-specific clarifications and advice in order for the conservation objectives to be achieved, and advice on management requirements to achieve the conservation objectives.

1.6.2.46 The conservation objectives for the protected features of the SPA (as outlined in Natural England, NRW and JNCC, 2022) are to ensure that subject to natural change, the integrity of the site is maintained or restored as appropriate and ensure that the site contributes to achieving the aims of the Birds Directive (Table 1.49).

Table 1.49: Conservation objectives of the Liverpool Bay/Bae Lerpwl SPA

Feature	Attribute	Target/Conservation Objective
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).
Little gull	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 319 individuals (mean peak 2004/5 – 2010/11).
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.

[1] http://publications.naturalengland.org.uk/publication/3236717

Feature	Attribute	Target/Conservation Objective
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between roosting and feeding areas.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).
Common tern	Breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 180 pairs (2011 – 2015).
	Breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).
Little tern	Breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 69 pairs (1995-1999).
	Breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).
Waterbird assemblage	Assemblage of species: abundance	**Maintain** the size of the non-breeding population of component species at a level which is at or above 157,952 individuals (mean peak 2015, 2018, 2019 and 2020).
	Assemblage of species: diversity	**Maintain** the species diversity of the bird assemblage which should include common scoter, red-throated diver, little gull, red-breasted merganser and great cormorant.

Feature	Attribute	Target/Conservation Objective
	Assemblage of species: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.
	Supporting habitat: extent, distribution, and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).

Isles of Scilly SPA

Site description

1.6.2.47 The Isle of Scilly SPA is situated 45 km off the south west tip of Cornwall. It covers an area of approximately 133 km^2 and encompasses most of the islands and islets within the Isles of Scilly archipelago, including the most important nesting locations for breeding seabirds. The SPA is designated for breeding populations of great black-backed gull, lesser black-backed gull, shag, European storm petrel and it's general seabird assemblage.

1.6.2.48 The isolated nature of the islands and rocks, together with their low levels of disturbance, make them particularly suitable for nesting seabirds, with the SPA supporting a breeding seabird assemblage of European importance. The waters adjacent to the colonies are used by large numbers of seabirds for a wide range of activities, including bathing, preening, displaying, loafing and local foraging.

1.6.2.49 In the HRA Stage 1 Screening Report (Document Reference E1.4), only great-black backed gull during the non-breeding period were screened in for further assessment within this ISAA.

Feature accounts

Great black-backed gull

1.6.2.50 Great black-backed gull breed on 45 islands across the Isles of Scilly SPA, with the biggest colonies on Annet, Gweal, Rosevear and the Eastern Isles (Heaney and St. Pierre, 2017). All-island surveys in 2015 and 2016 recorded a total of 984 breeding pairs, within the SPA. The latest estimate from Seabird Count (Burnell *et al*, 2023) was 809 breeding pairs within the SPA.

1.6.2.51 Great black-backed gull from the Isles of Scilly SPA form a large proportion of the 'UK South-west and Channel' BDMPS (Furness, 2015), therefore the impact during the wintering period within this region is largely apportioned the Isles of Scilly SPA.

Conservation objectives

1.6.2.52 The supplementary advice on conservation objectives (SACOs) was updated by Natural England in October 2023 (Natural England, 2023). The SACOs present attributes which are ecological characteristics or requirements of great black-backed gull from the Isles of Scilly SPA. The listed attributes are considered to be those which best describe the site's ecological integrity and which if safeguarded will enable

achievement of the conservation objectives. The conservation objectives are presented in Table 1.50

Table 1.50: Conservation objectives of the Isles of Scilly SPA

Feature	Attribute	Target/Conservation Objective
Great black-backed gull	Breeding population: abundance	**Maintain** the size of the breeding population at a level which is above 941 (Apparently Occupied Nests, equivalent to pairs), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.
	Disturbance caused by human activity	Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed.
	Predation – all habitats	**Reduce** predation and disturbance caused by native and non-native predators.
	Productivity	**Maintain** or **recover** productivity so that breeding success is maximised within the constraints of the site.
	Supporting habitat: air quality	**Maintain** concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System.
	Supporting habitat: conservation measures	**Maintain** the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised.
	Supporting habitat: extent, distribution and availability of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding). Refer to site specific supporting notes for extent details.
	Supporting habitat: food availability (bird)	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish, rabbit, seabirds, nestlings, eggs) at preferred sizes.
	Supporting habitat: vegetation characteristics for nesting	**Maintain** vegetation heights (generally 10-30 cm) in areas used for nesting.
	Supporting habitat: water quality – contaminants	**Reduce** aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the Water Framework Directive (WFD), avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.
	Supporting habitat: water quality – dissolved oxygen	**Maintain** the dissolved oxygen (DO) concentration at levels equating to High Ecological Status (specifically ≥ 5.7 mg L-1 (at 35 salinity) for 95 % of year) avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.
	Supporting habitat: water quality – nutrients	**Maintain** water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.
	Supporting habitat: water quality – turbidity	**Maintain** natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat.

1.6.3 Assessment of potential Adverse Effect on Integrity – Integrity test: Step 2 – Assessment of adverse impacts alone

1.6.3.1 The assessment of adverse effect on integrity – integrity test: Step 2 is set out in the following way:

- Impact
- MDS for the impact
- Measures adopted as part of the Mona Offshore Wind Project to reduce the impact
- Phase of Mona Offshore Wind Project in which the impact occurs
- Qualifying feature being assessed

1.6.3.2 The following integrity test: Step 2 assessments of the effects of the Mona Offshore Wind Project alone on offshore ornithological features have been informed by the detailed technical assessments presented in Volume 2, Chapter ~~6~~5: Offshore ornithology of the Environmental Statement (Document reference F2.5), Volume 6, Annex 5.5: Offshore ornithology apportioning technical report of the Environmental Statement (Document Reference F6.5.5) and Appendix A of the HRA Stage Phase 1 Screening Report (Document Reference E1.4). The assessments also reference the best available literature and evidence with regards to sensitivity. In this regard, the Applicant is confident that the conclusions made on whether an adverse effect on integrity on a European site(s) and qualifying features can or cannot be ruled out have been identified in light of the best scientific knowledge in the field and all reasonable scientific doubt can be ruled out.

Temporary habitat loss/disturbance and increased SSCs

1.6.3.3 Seabirds may be indirectly displaced during the construction phase as a result of direct impacts on their habitat and increased SSCs, which may result in the loss of a food resource to birds in the Mona Array Area and along the Mona Offshore Cable Corridor and Access Areas. An increase in SSC would reduce visibility and therefore the foraging success of pursuit diving species could be impacted.

1.6.3.4 There is potential for temporary, direct habitat loss/disturbance as a result of site preparation activities in advance of construction activities, cable installation activities (including Unexploded Ordnance (UXO) detonation), pre-cabling seabed clearance, anchor placements and decommissioning activities such as export cable removal.

1.6.3.5 There is also the potential for temporary, direct habitat loss/disturbance and increased SSC during the operations and maintenance phase of the Mona Offshore Wind Project. This may occur if reburial or maintenance of the cable is required within the SPA.

1.6.3.6 This impact will be spatially restricted to within the area of overlap between the Mona Offshore Cable Corridor and Access Areas and the Liverpool Bay/Bae Lerpwl SPA (Figure 1.3). Due to the small spatial extent of which this impact can occur, any impact outwith the designated site boundary would not have ramifications within the SPA.

1.6.3.7 The assessment of LSE during the HRA screening process identified that during construction and decommissioning, LSE could not be ruled out for the potential impact of temporary habitat loss/disturbance and increased SSC within Liverpool Bay/Bae Lerpwl SPA, only. Considering the baseline conditions of the Liverpool Bay/Bae Lerpwl SPA, only certain qualifying features are present in densities where an impact could

affect the conservation objectives (see section 1.6.2). This relates to the following relevant offshore ornithological features:

- Red-throated diver
- Common scoter; and
- Waterbird assemblage (red-breasted merganser and great cormorant in addition to species listed above).

1.6.3.8 The MDS considered within this assessment is shown in Table 1.51.

Table 1.51: MDS considered for the assessment of potential impacts on offshore ornithological features from temporary habitat loss/disturbance and increased SSCs during the construction, operations and maintenance and decommissioning phases.

Potential impact	MDS	Justification
Construction phase	• Up to 7.2 km^2 of temporary habitat loss/disturbance from installation of up to 360 km of buried Mona offshore export cables (most of which will occur outside the Liverpool Bay/Bae Lerpwl SPA) – Each export cable will be up to 90 km long, with ~20 km within the Liverpool Bay/Bae Lerpwl SPA. A 20 m area of disturbance around each of cables due to the installation tool – Up to four export cables. • Approximately 1.58 km^2 of temporary habitat disturbance from installation will be within Liverpool Bay/Bae Lerpwl SPA • No offshore export cable installation activities to occur within the Liverpool Bay/Bae Lerpwl SPA between November 1st to March 31st (apart from eight vessels movements at the landfall for intertidal export cable installation).	Maximum footprint of seabed within the Mona Offshore Cable Corridor and Access Areas which would be affected during the construction phase.
Operations and mainenance phase	• Up to two repairs every five years per export cable and maximum repair of 4 km. Average is therefore 6.4 km a year • Up to one reburial event every five years. Average reburial is approximately 15 km • Total of 0.428 km^2 of temporary habitat disturbance comprising: – Up to 0.128 km^2 of temporary habitat disturbance/loss per year for repairs, if 20 m of habitat disturbance/loss is caused as stated for construction – Up to 0.3 km^2 of temporary habitat disturbance/loss per reburial event, if 20 m of disturbance/loss is caused as stated for construction.	The greatest footprint of seabed within the Mona Offshore Cable Corridor and Access Areas which would be affected during each reburial or repair event. The assessed MDS presumed that the temporary habitat loss/displacement during a repair or reburial event would be wholly within the Liverpool Bay/Bae Lerpwl SPA for precaution. However, a repair or reburial event could occur at any point of the Mona Offshore Cable Corridor and Access Areas, including those areas outwith the Liverpool Bay/Bae Lerpwl SPA.
Decommissioning phase	• The cables would be retrieved and disposed of onshore	Parameters for temporary habitat loss/disturbance associated with decommissioning will be significantly lower than for the construction phase as sandwave clearance and pre-lay

Potential impact	MDS	Justification
	• It is considered that any impact during the decommissioning phase would be of equal or lesser magnitude than the construction phase.	preparation will not be required in advance of cable removal.

Measures adopted as part of the Mona Offshore Wind Project

1.6.3.9 Measures adopted as part of the Mona Offshore Wind Project which are of relevance to the assessment of potential impacts on ornithological features from temporary habitat loss/disturbance and increased SSCs during construction and decommissioning are presented in Table 1.52.

Table 1.52: Measures adopted as part of the Mona Offshore Wind Project relevant to the assessment of adverse effect on European sites designated for offshore ornithological features from temporary habitat loss/disturbance and increased SSCs.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
Tertiary measures: Measures required to meet legislative requirements, or adopted standard industry practice		
An Offshore EMP that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the Wildlife Safe (WiSe) Scheme to ensure key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs.	The development of and adherence to an Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.
The Offshore EMP will include a timing restriction of no offshore export cable installation during the period 1st November to 31st March within the Liverpool Bay/Bae Lerpwl SPA.	The timing restriction will ensure no installation of offshore export cables during the period of 1st November to 31st March within the Mona Offshore Cable Corridor and Access Areas located within the Liverpool Bay SPA in order to minimise disturbance to qualifying features within the Mona Offshore Cable Corridor and Access Areas, in particular diver and seaduck species. The period 1st November to 31st March is the period in which the qualifying features of the Liverpool Bay/Bae Lerpwl SPA congregate in their largest numbers.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.

Construction and decommissioning phases

Liverpool Bay/Bae Lerpwl SPA

1.6.3.10 As stated within Table 1.51, the MDS predicts up to 1.58 km^2 of habitat would be temporarily lost/disturbed from the installation of up to four Mona offshore export cables within the Liverpool Bay/Bae Lerpwl SPA. Each of the four cables would have approximately 20 km within the Liverpool Bay/Bae Lerpwl SPA, out of a total length of up to 90 km. An area of 1.58 km^2 represents approximately 0.06% of the total area of the SPA (Liverpool Bay/Bae Lerpwl SPA is approximately 2,528 km^2). Therefore a large proportion of the seabed within the wider Liverpool Bay/Bae Lerpwl SPA would be left undisturbed.

1.6.3.11 The restriction of Mona offshore export cable installation activities within the Liverpool Bay/Bae Lerpwl SPA to between 1st April to 31st October each year, as outlined in Table 1.52, greatly reduces the potential for temporary habitat loss/disturbance and increased SSC to impact the qualifying features of the Liverpool Bay/Bae Lerpwl SPA.

Red-throated diver, common scoter, red-breasted merganser and great cormorant

1.6.3.12 Red-throated diver, common scoter and the waterbird assemblage species red-breasted merganser and great cormorant are non-breeding features of the Liverpool Bay/Bae Lerpwl SPA that were screened into the assessment as LSE could not be ruled out for construction/decommissioning activities associated Mona Offshore Cable Corridor and Access Areas in the HRA Stage 1 Screening Report (Document Reference E1.4).

1.6.3.13 All species would temporarily lose 1.58 km^2 of suitable foraging habitat during the construction and decommissioning phases as a result of direct impacts on the habitat. When habitat is disturbed an increase in SSCs is highly likely, which may result in the loss of a food resource to birds along the Mona Offshore Cable Corridor and Access Areas.

1.6.3.14 As a result, displaced birds may move to areas already occupied by other birds and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource (Jarrett *et al.*, 2018 and Goodship and Furness, 2019). Alternatively, displaced birds may be forced to move into areas of lower quality (e.g. areas of lower prey availability). In addition, the increase in SSCs may lead to a short-term avoidance of affected areas that support fish and shellfish species which are susceptible to respond to increases in SSCs. However, many fish and shellfish species are considered to be tolerant of turbid environments and regularly experience changes in the SSC due to the natural variability in the Irish Sea (Sinclair *et al.*, 2020).

1.6.3.15 The impact is predicted to be of local spatial extent, short term duration, intermittent and highly reversible.

1.6.3.16 These four species are widely distributed in the inshore areas of the Liverpool Bay/Bae Lerpwl SPA (see Figure 1.4, Figure 1.5, Figure 1.8, Figure 1.9, Figure 1.10 and Figure 1.11 taken from Lawson *et al.*, 2016 and HiDef, 2023). The temporary loss/disturbance of this very small portion of the Liverpool Bay/Bae Lerpwl SPA (approximately 0.06% of the total SPA) is considered to be minor in context of the habitats available to support these qualifying features. If birds temporarily move from the impacted area, there is a large area of undisturbed habitat in the vicinity of the works which the birds could temporarily use. The habitat loss/disturbance is temporary and once the burial has occurred, there is no permanent impact on the qualifying features.

1.6.3.17 In addition, as outlined in Table 1.52, a measure has been adopted as part of the Mona Offshore Wind Project that ensures no offshore export cable installation works will occur during the months in which red-throated diver, common scoter, red-breasted merganser and great cormorant are present in their greatest numbers (1st November to 31st March) within the Liverpool Bay/Bae Lerpwl SPA. All four species are designated for their non-breeding aggregations whereby birds congregate in wintering areas, which is usually away from their breeding locations. As no offshore export cable installation works are due to take place within the Liverpool Bay/Bae Lerpwl SPA between 1st November to 31st March, there is no potential for an adverse effect on site integrity as there is minimal potential for a receptor-impact pathway, which would not impact the conservation objectives of the site.

Table 1.53: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases.

Feature	Attribute	Target/Conservation Objective	Conclusion
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	During the construction and decommissioning phases the impacts from temporary habitat loss/disturbance as a result of cable installation associated activities will be temporary, local, short-term and reversible, if it were to occur during winter when the largest number of birds are present. The total area impacted would be minute in comparison to the entire SPA. However, as outlined in Table 1.52, no offshore export cable installation works will occur within the Liverpool Bay/Bae Lerpwl SPA between 1st November to 31st March and therefore there is minimal potential for the species to be impacted. Works would occur when a vastly reduced number of birds are potentially present. Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the population of each of the qualifying features from being maintained or restored.
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	The small fraction of benthic habitats (up to 0.06% of the SPA when considering a 20 m buffer around 20 km of offshore cable, per cable within the Liverpool Bay/Bae Lerpwl SPA) temporarily lost/disturbed by offshore cable installation are expected to fully recover or retain their function for the ornithological features. This would be a temporary impact with recovery occurring following the cessation of construction. The cable is fully buried and therefore the function of the habitats (both seabed and water column) will not be permanently changed and will recover within a short timeframe as discussed in Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2). Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the structure and function of the habitats of the qualifying features from being restored.
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).	During the construction and decommissioning phases the impacts from temporary habitat loss/disturbance as a result of offshore export cable installation associated activities will be temporary, local, short-

Feature	Attribute	Target/Conservation Objective	Conclusion
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	term and reversible, if it were to occurring during winter when the largest number of birds are present. The total area impacted is minute in comparison to the entire SPA. However, as outlined in Table 1.52, no offshore export cable installation works will occur within the Liverpool Bay/Bae Lerpwl SPA between 1st November to 31st March and therefore there is minimal potential for the species to be impacted. Works would occur when a vastly reduced number of birds are potentially present. Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the population of each of the qualifying features from being maintained or restored.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	The small fraction of benthic habitats (up to 0.06% of the SPA when considering a 20 m buffer around 20 km of offshore cable, per cable within the Liverpool Bay/Bae Lerpwl SPA) temporarily lost/disturbed by offshore cable installation are expected to fully recover or retain their function for the ornithological features within a short timeframe following the cessation of construction. The cable is fully buried and therefore the function of the habitats (both seabed and water column) will not be permanently changed and will recover within a short timeframe as discussed in Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2). Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the structure and function of the habitats of the qualifying features from being maintained.
Little gull	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 319 individuals (mean peak 2004/5 – 2010/11).	As stated within paragraph 1.6.2.17 there is no potential for impact to little gull within the Liverpool Bay/Bae Lerpwl SPA from the Mona Offshore Wind project due to lack of birds present within the areas impacted, and no adverse effect on site integrity can be concluded.
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between roosting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Common tern	Breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 180 pairs (2011 – 2015).	As stated within paragraph 1.6.2.32 there is no potential for impact to common tern within the Liverpool Bay/Bae Lerpwl SPA from the Mona Offshore Wind project due to lack of birds present within the areas impacted, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Little tern	Breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 69 pairs (1995-1999).	As stated within paragraph 1.6.2.39 there is no potential for impact to little tern within the Liverpool Bay/Bae Lerpwl SPA from the Mona Offshore Wind project due to lack of birds present within the areas impacted, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Waterbird assemblage	Assemblage of species: abundance	**Maintain** the size of the non-breeding population of component species at a level which is at or above 157,952 individuals (mean peak 2015, 2018, 2019 and 2020).	During the construction and decommissioning phases the impacts from temporary habitat loss/disturbance as a result of cable installation associated activities will be temporary, local, short-term and reversible, if it were to occur during winter when the largest number of birds are present. The total area impacted is minute in comparison to the entire SPA. However, as outlined in Table 1.52, no offshore export cable installation works will occur within the Liverpool Bay/Bae Lerpwl SPA between 1st November to 31st March and therefore there is no potential for the species to be impacted. Works would occur when a vastly reduced number of birds are potentially present. Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the population of each of the qualifying features from being maintained or restored.
	Assemblage of species: diversity	**Maintain** the species diversity of the bird assemblage which should include common scoter, red-throated diver, little gull, red-breasted merganser and great cormorant.	
	Assemblage of species: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: extent, distribution, and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	The small fraction of benthic habitats (up to 0.06% of the SPA when considering a 20 m buffer around 20 km of offshore cable, per cable within the Liverpool Bay/Bae Lerpwl SPA) temporarily disturbed by offshore cable installation are expected to fully recover or retain their function for the ornithological features within a short timeframe following the cessation of construction. The cable is fully buried and therefore the function of the habitats (both seabed and water column) will not be permanently changed and will recover within a short timeframe as discussed in Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2). Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the structure and function of the habitats of the qualifying features from being maintained.

Conclusions – construction and decommissioning phases

1.6.3.18 Adverse effects on the qualifying seabird features of the Liverpool Bay/Bae Lerpwl SPA which undermine the conservation objectives of the SPA will not occur as a result of temporary habitat loss/disturbance and increased SSC during construction and decommissioning activities due to the marginal area over which the impact will occur (approximately 0.06% of the SPA) and the commitment of no offshore export cable installation in the winter month which coincide greatest number of birds are present. Potential effects from this activity on the relevant conservation objectives are discussed in turn within Table 1.53.

1.6.3.19 So it can be concluded beyond reasonable scientific doubt that there is **no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA** as a result of temporary habitat loss/disturbance and increased SSC with respect to the construction and decommissioning phases of the Mona Offshore Wind Project alone. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).

Operations and maintenance phase

Liverpool Bay/Bae Lerpwl SPA

1.6.3.20 As stated within Table 1.51, the MDS predicts up to 0.428 km^2 of habitat would be temporarily lost/disturbed from each repair/maintenance of up to four Mona offshore export cables within the Liverpool Bay/Bae Lerpwl SPA. Each of the four cables would have approximately 20 km within the Liverpool Bay/Bae Lerpwl SPA, out of a total length of up to 90 km. This maximum impact would occur if both a repair (predicted two events every five years) and a reburial event (predicted one event every five years) occurred concurrently which is highly unlikely and therefore precautionary. An area of 0.428 km^2 represents approximately 0.02% of the total area of the SPA (Liverpool Bay/Bae Lerpwl SPA is approximately 2,528 km^2). However, the predicted impact is for a repair event and reburial event to happen concurrently anywhere along the Mona Offshore Cable Corridor and Access Areas, which potentially may not be within the Liverpool Bay/Bae Lerpwl SPA. For precaution the assessment is based on 0.428 km^2 of temporary habitat disturbance/loss occurring within Liverpool Bay/Bae Lerpwl SPA wholly.

Red-throated diver, common scoter, red-breasted merganser and great cormorant

1.6.3.21 Red-throated diver, common scoter and the waterbird assemblage species red-breasted merganser and great cormorant are non-breeding features of the Liverpool Bay/Bae Lerpwl SPA that were screened into the assessment as LSE could not be ruled out for operations and maintenance activities associated Mona Offshore Cable Corridor and Access Areas in the HRA Stage 1 Screening (Document Reference E1.4).

1.6.3.22 All species are predicted to temporarily lose up to 0.428 km^2 of suitable foraging habitat during the operations and maintenance phase as a result of direct impacts on the habitat during reburial and maintenance events. When habitat is disturbed an increase in SSCs is highly likely, which may result in the loss of a food resource to birds along the Mona Offshore Cable Corridor and Access Areas.

1.6.3.23 As a result, displaced birds may move to areas already occupied by other birds and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource (Jarrett *et al*., 2018 and Goodship and Furness, 2019). Alternatively, displaced birds may be forced to move into areas of lower quality (e.g. areas of lower prey availability). The increase in SSCs may lead to a short-term avoidance of affected areas that support fish and shellfish species which are susceptible to respond to increase SSCs. However, many fish and shellfish species are considered to be tolerant of turbid environments and regularly experience changes in the SSC due to the natural variability in the Irish Sea (Sinclair *et al*, 2020).

1.6.3.24 The impact is predicted to be of local spatial extent, short term duration, intermittent and highly reversible.

1.6.3.25 All of these species are widely distributed in the inshore areas of the Liverpool Bay/Bae Lerpwl SPA (see Figure 1.4, Figure 1.5, Figure 1.8, Figure 1.9, Figure 1.10 and Figure 1.11 from Lawson *et al*., 2016 and HiDef, 2023). The temporary loss/disturbance of this very small portion of appropriate habitat (approximately 0.02% of the total SPA) is considered to be minor in context of the habitats available to support the qualifying features in the Liverpool Bay/Bae Lerpwl SPA. If birds temporarily move from the impacted area, there is a large area of undisturbed habitat in the vicinity of the works which the birds could temporarily use. The habitat disturbance is temporary and once the burial has occurred, there is no permanent impact on the qualifying features.

Table 1.54: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for temporary habitat loss/disturbance and increased SSC during the operations and maintenance phase.

Feature	Attribute	Target/Conservation Objective	Conclusion
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	During the operations and maintenance phase the impacts from temporary habitat loss/disturbance as a result of offshore export cable reburial and repair associated activities will be temporary, local, short-term and reversible. If a reburial or repair event were to occur during winter when the largest number of red-throated diver are present the total area impacted during a repair or reburial event is minute in comparison to the entire SPA and the birds would easily be able to redistribute into adjacent, non-impacted areas. If the event were to occur in summer, as described in the baseline section (paragraph 1.6.2.10), the number of birds is vastly reduced, and an impact would be highly unlikely to occur. Therefore, temporary habitat loss/disturbance and increased SSC during the operations and maintenance phase will not prevent the population of each of the qualifying features from being maintained or restored.
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	The small fraction of habitats (approximately 0.02% of the SPA) lost/disturbed by offshore export cable installation are expected to fully recover or retain their function for the ornithological features within a short time frame following the cessation of activity. The cable is fully buried and therefore the function of the habitats will not be permanently changed. Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the structure and function of the habitats of the qualifying features from being restored.
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).	During the operations and maintenance phase the impacts of temporary habitat loss/disturbance as a result of offshore export cable reburial and repair associated activities will be temporary, local, short-term and reversible. If a reburial or repair event it were to occur during winter the total area impacted during a repair or reburial event is minute in comparison to the entire SPA and the birds would
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	easily be able to redistribute into adjacent, non-impacted areas. No common scoter were recorded during the summer months (paragraph 1.6.2.25) and therefore no impact would occur if a reburial or repair event occurred during summer. Therefore, temporary habitat loss/disturbance and increased SSC during the operations and maintenance phase will not prevent the population of each of the qualifying features from being maintained or restored.
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	The small fraction of habitats (approximately 0.02% of the SPA) lost/disturbed by offshore export cable installation are expected to fully recover or retain their function for the ornithological features within a short period of time following the cessation of the activity. The cable is fully buried and therefore the function of the habitats will not be permanently changed. Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the structure and function of the habitats of the qualifying features from being maintained.
Little gull	Non-breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 319 individuals (mean peak 2004/5 – 2010/11).	As stated within paragraph 1.6.2.17 there is no potential for impact to little gull within the Liverpool Bay/Bae Lerpwl SPA from the Mona Offshore Wind project due to lack of birds present within the areas impacted, and no adverse effect on site integrity can be concluded.
	Non-breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between roosting and feeding areas.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Common tern	Breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 180 pairs (2011 – 2015).	As stated within paragraph 1.6.2.32 there is no potential for impact to common tern within the Liverpool Bay/Bae Lerpwl SPA from the Mona Offshore Wind project due to lack of birds present within the areas impacted, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Little tern	Breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 69 pairs (1995-1999).	As stated within paragraph 1.6.2.39 there is no potential for impact to little tern within the Liverpool Bay/Bae Lerpwl SPA from the Mona Offshore Wind project due to lack of birds present within the areas impacted, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Waterbird assemblage	Assemblage of species: abundance	**Maintain** the size of the non-breeding population of component species at a level which is at or above 157,952 individuals (mean peak 2015, 2018, 2019 and 2020).	During the operations and maintenance phase the impacts from temporary habitat loss/disturbance as a result of offshore export cable reburial and repair associated activities will be temporary, local, short-term and reversible, if it were to occur during winter when the largest number of birds are present. If the works were to occur during summer, the waterbird assemblage is present in Liverpool Bay/Bae Lerpwl SPA in vastly reduced numbers. The total area impacted is minute in comparison to the entire SPA. Therefore, temporary habitat loss/disturbance and increased SSC during the operations and maintenance phase will not prevent the population of each of the qualifying features from being maintained or restored.
	Assemblage of species: diversity	**Maintain** the species diversity of the bird assemblage which should include common scoter, red-throated diver, little gull, red-breasted merganser and great cormorant.	
	Assemblage of species: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: extent, distribution, and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	The small fraction of habitats (approximately 0.02% of the SPA) lost/disturbed by offshore export cable installation are expected to fully recover or retain their function for the ornithological features within a short period of time following the cessation of the activity. The cable is fully buried and therefore the function of the habitats will not be permanently changed. Therefore, temporary habitat loss/disturbance and increased SSC during the construction and decommissioning phases will not prevent the structure and function of the habitats of the qualifying features from being maintained.

Conclusions – operations and maintenance phase

1.6.3.26 Adverse effects on the qualifying seabird features of the Liverpool Bay/Bae Lerpwl SPA which undermine the conservation objectives of the SPA will not occur as a result of temporary habitat disturbance during operations and maintenance activities due to the marginal area over which the impact will occur (approximately 0.02% of the SPA). Potential effects from this activity on the relevant conservation objectives are discussed in turn within Table 1.54.

1.6.3.27 So it can be concluded that there is no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA as a result of temporary habitat loss/disturbance and increased SSC with respect to the operations and maintenance of the Mona Offshore Wind Project alone. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).

Disturbance and displacement from airborne sound and presence of vessels and infrastructure

1.6.3.28 Airborne sound and the presence of vessels and infrastructure, during the construction and decommissioning phases and operations and maintenance phase may disturb seabirds from foraging or non-foraging areas (e.g. rafting, moulting). This disturbance and subsequent displacement may cause changes in behaviour and may lead to a reduction in foraging opportunities or increased energy expenditure, resulting in decreased survival rates or productivity in the population.

1.6.3.29 The assessment of LSE during the HRA screening process identified that during construction and decommissioning phases, LSE could not be ruled out for the potential impact of temporary habitat loss and disturbance. Considering the baseline conditions of the Liverpool Bay/Bae Lerpwl SPA, only certain qualifying features are present in densities where an adverse impact on site integrity could not be ruled out. As described within section 1.6.2, little gull, little tern and common tern are not recorded within densities which, if impacted, could lead to an adverse effect and no further assessment has been undertaken. However, these species are included within the conservation objectives tables for completeness.

1.6.3.30 The assessment of disturbance and displacement from airborne sound and presence of vessels and infrastructure was undertaken for the following designated site and relevant offshore ornithological features:

- Liverpool Bay/Bae Lerpwl SPA:
  - Red-throated diver
  - Common scoter
  - Waterbird assemblage (red-breasted merganser and great cormorant in addition to species listed above).

1.6.3.31 The MDS considered within this assessment is shown in Table 1.55.

Table 1.55: MDS considered for the assessment of potential impacts on offshore ornithological features Liverpool Bay SPA from disturbance and displacement from airborne sound, and presence of vessels and infrastructure during the construction, operations and maintenance and decommissioning phases.

Potential impact	Maximum design scenario	Justification
Construction phase	**Mona Array Area (vessel and helicopter movements)** • Up to 1,929 installation vessel movements (return trips) during construction (521 main installation and support vessels, 74 tug/anchor handlers, 56 cable lay installation and support vessels, 50 guard vessel, 31 survey vessels, 19 seabed preparation vessels, 1,135 CTVs, 41 scour protection installation vessels and 2 cable protection installation vessels) • Up to a total of 69 construction vessels on site at any one time • Up to 1,095 helicopter movements by up to 2 helicopters on site at any one time **Mona Offshore Cable Corridor and Access Areas (vessel movements):** • Up to 126 installation vessel movements (return trips) during construction (10 cable lay installation cycles, 10 trench support vessels rotations and 20 installation support vessel rotations, 18 guard vessel, 4 survey vessels, 24 seabed preparation vessels, 20 CTVs, and 20 cable protection installation vessels). Expected to take 12 months. • Up to 160 installation vessel movements for installation of the export cable within the intertidal area. • No offshore export cable installation works will occur within the Liverpool Bay/Bae Lerpwl SPA between 1st November and 31st March. Maximum offshore construction duration of up to four years.	Represents the maximum impact from vessel movements to, from and within the Mona Array Area and the Mona Offshore Cable Corridor and Access Areas that would cause the greatest extent of disturbance and displacement to birds or the greatest duration of impact.
Operations and maintenance phase	**Mona Array Area (vessel and helicopter movements):** • Presence of up to 96 operating turbines and four OSPs occupying the Mona Array Area of up to 300 km^2 • Minimum spacing of 1,400 m between wind turbines • Up to 849 operations and maintenance vessel movements (return trips) each year • Up to a total of 21 operations and maintenance vessels on site at any one time • Up to 730 helicopter return trips per year with up to eight on site at any one time • Operational lifetime of up to 35 years.	Represents the maximum number of vessel and helicopter movements that would cause greatest visual and sound disturbance and displacement to birds from the Mona Array Area and the Mona Offshore Cable Corridor and Access Areas.

Potential impact	Maximum design scenario	Justification
	Mona Offshore Cable Corridor and Access Areas (vessel movements): • A reduced number of vessel movements when/if reburial or cable repairs are needed. The magnitude would be less than during the construction period as the whole length of the Mona Offshore Cable Corridor and Access Areas would not be worked on at once.	
Decommissioning phase	• The cables would be retrieved and disposed of onshore. • Vessels used for a range of decommissioning activities such as removal of offshore export cables. Considered to be no greater than during construction. • Sound from vessels assumed to be as per vessel activity described for construction phase above.	The number of vessels and the duration of impact would be no greater than that of construction.

Measures adopted as part of the Mona Offshore Wind Project

1.6.3.32 Measures adopted as part of the Mona Offshore Wind Project which are of relevance to the assessment of potential impacts on ornithological features from disturbance and displacement from airborne sound, and presence of vessels and infrastructure during construction and decommissioning are presented in Table 1.56.

Table 1.56: Measures adopted as part of the Mona Offshore Wind Project relevant to the assessment of adverse effect on European sites designated for offshore ornithological features from airborne sound and presence of vessels and infrastructure.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
Tertiary measures: Measures required to meet legislative requirements, or adopted standard industry practice		
Development and adherence to an Offshore EMP that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds	The development of and adherence to an Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
visible at the water surface, or as otherwise agreed with the SNCBs.		
The Offshore EMP will include a timing restriction of no offshore export cable installation during the period 1st November to 31st March within the Liverpool Bay/Bae Lerpwl SPA.	The timing restriction will ensure no installation of offshore export cables during the period of 1st November to 31st March within the Mona Offshore Cable Corridor and Access Areas located within the Liverpool Bay SPA in order to minimise disturbance to qualifying features within the Mona Offshore Cable Corridor and Access Areas, in particular diver and seaduck species. The period 1st November to 31st March is the period in which the qualifying features of the Liverpool Bay/Bae Lerpwl SPA congregate in their largest numbers.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.

Construction and decommissioning phases

Liverpool Bay/Bae Lerpwl SPA

Red-throated diver

1.6.3.33 Red-throated diver is a non-breeding feature of the Liverpool Bay/Bae Lerpwl SPA and was screened into the assessment as LSE could not be ruled out for disturbance and displacement from airborne sound, and presence of vessels and infrastructure.

1.6.3.34 Of the UK seabird species, red-throated diver has the highest vulnerability score to disturbance and displacement caused by offshore wind farms and associated vessel movements (Furness *et al*., 2013 and Wade *et al.,* 2016). More specifically, the species has a score of 5 (out of 5) for displacement due to visual and noise presence of vessels (Wade *et al*., 2016).

1.6.3.35 Red-throated diver may be disturbed and displaced as the result of the presence of vessels/infrastructure and airborne sound associated with the Mona Offshore Cable Corridor and Access Areas during the construction and decommissioning phases.

1.6.3.36 Vessels transiting through the Liverpool Bay/Bae Lerpwl SPA enroute to the Mona Array Area during the construction and decommissioning phases will spend a far shorter amount of time within the SPA than those associated with the Mona offshore export cable. Therefore the conclusions presented for impacts within the Mona Offshore Cable Corridor and Access Areas, whereby the greatest impact would occur, are considered sufficient to present the greatest risk to the Liverpool Bay/Bae Lerpwl SPA.

1.6.3.37 As outlined in Table 1.56, all vessels transiting through Liverpool Bay/Bae Lerpwl SPA will adhere to the Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce

for reducing the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.

1.6.3.38 As a result, displaced red-throated diver may move to areas already occupied by other birds and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource. Alternatively, displaced birds may be forced to move into areas of lower quality (e.g. areas of lower prey availability).

1.6.3.39 Although the species is highly sensitive to vessel movement, the species shows a high level of flexibility in habitat use (Wade *et al.*, 2016). Webb *et al.* (2006), Lawson *et al.* (2016) and HiDef (2023) have identified important aggregations of red-throated diver off the coast of north Wales which overlapped with the Mona Offshore Cable Corridor and Access Areas.

1.6.3.40 Mortality caused by displacement from cable installation has been quantified with precautionary parameters (presented within Volume 6, Annex 5.2: Offshore ornithology displacement assessment of the Environmental Statement (Document Reference F6.5.2)). Vessel activity is not expected to cause the same magnitude of displacement as permanent structures. A conservative buffer of 2 km around the entire Mona Offshore Cable Corridor and Access Areas (Figure 1.3) has been assumed, as red-throated diver have been shown to fly away from approaching vessels at a distance over 1 km (Garthe and Hüppop 2004, Schwemmer *et al.,* 2011). Conservatively, all red-throated diver are assumed to be displaced by this activity (displacement rate of 100%). The evidence for the impacts of mortality currently do not support that displacement causes increased mortality among red-throated diver (Dierschke *et al.*, 2017; MacArthur Green, 2019). At the request of NRW between 0.5% and 1% mortality from displacement has been assumed.

1.6.3.41 The overlap between the Mona Offshore Cable Corridor and Access Areas plus a 2 km buffer and the Liverpool Bay SPA is 102.8 km^2 (Figure 1.3). The total area of the Liverpool Bay/Bae Lerpwl SPA is 2,528 km^2, which equates to the overlap being 4.1% of the total Liverpool Bay/Bae Lerpwl SPA. Within this area of overlap, there will be vessels intermittently laying the offshore export cables, which will occur in only part of this area at any one time.

1.6.3.42 NRW requested that a 2 km radial displacement buffer for red-throated diver be applied around the cable laying vessel. Within the MDS up to two cable laying vessel will be present with up to four support vessels at any one time. Any support vessels will be in the immediate vicinity of the cable laying vessels and so any displacement effect from those vessels is likely to be included within the 2 km buffer. Therefore, 12.57 km^2 would be disturbed around each construction vessel, so two vessels working independently would disturb a total area of 25.14 km^2. However, during construction, vessel activity will be clustered around the area of cable laying and the areas of potential disturbance from each vessel will overlap. Therefore, the overall area of disturbance will likely be smaller than 25.14 km^2.

1.6.3.43 During the winter months (October to March) the highest densities of birds present within the Mona Offshore Cable Corridor and Access Areas are close to the coast at Colwyn Bay, where up to 1.22 birds per km^2 were present (HiDef, 2023) and therefore up to 30.67 birds could be temporarily displaced.

1.6.3.44 During summer months (April to September) the highest densities of birds present within the Mona Offshore Cable Corridor and Access Areas are close to the coast at Colwyn Bay, where up to 0.099 birds per km^2 were present (Bradbury *et al.*, 2014) and

therefore up to 2.49 birds could be temporarily displaced. Birds recorded during April to September (the breeding season of red-throated diver, NatureScot, 2024) are likely to be on migration, as there are no breeding sites within England, Wales or Ireland. Birds on migration are not specifically part of the Liverpool Bay/Bae Lerpwl SPA citation and are not considered part of the non-breeding season assemblage.

1.6.3.45 At the request of NRW, via their Section 42 response, between 0.5% and 1% mortality from displacement has been assumed for red-throated diver. Therefore, in the winter months between 0.15 and 0.31 birds may experience mortality, whereas in the summer months between 0.01 to 0.02 birds may experience mortality.

1.6.3.46 Using the baseline adult mortality of 0.160 and an immature mortality of 0.600 and 0.620 of first- and second-year birds respectively (Horswill and Robinson, 2015), a stable population viability analysis model gave an average baseline mortality estimate of 0.233. With a non-breeding population of 1,800 (HiDef, 2023) this would lead to a baseline mortality of 419 individuals annually. The increased mortality of up to 0.31 birds equates to an increase in baseline mortality of 0.07% during the non-breeding period. The increased mortality of up to 0.02 birds equates to an increase in baseline mortality of <0.01% during the breeding (migration) period This is below a 1% increase in baseline mortality and therefore is expected to be within the natural variability for this SPA. This potential impact would occur if no mitigation was put in place.

1.6.3.47 As outlined in Table 1.56, there is a commitment that there will be no offshore export cable installation works during the period 1st November to 31st March within the Liverpool Bay/Bae Lerpwl SPA. As mitigation is proposed to avoid the winter months, the impact on red-throated diver would equate to a <0.01% increase in baseline mortality.

1.6.3.48 The trenchless works on the intertidal zone will be supported by up to eight vessel movements at the landfall over the winter period. Given the very low frequency of vessel movements, vessel activity is not considered to contribute to an increase in the baseline mortality of red-throated divers.

1.6.3.49 As stated within Table 1.55 the decommissioning phase is predicted to have an equal or less impact on the population and therefore the conclusion for both construction and decommissioning phases are the same. Similarly, the calculations presented above can be used for both phases of the Mona Offshore Wind Project.

1.6.3.50 Thus, the local spatial extent, short term duration, intermittent nature of vessel activities associated with the construction and decommissioning of the offshore export cables is deemed to have minimal impact on red-throated diver during the construction and decommissioning phases of the Mona Offshore Wind Project.

Common scoter

1.6.3.51 Common scoter is a non-breeding feature of the Liverpool Bay/Bae Lerpwl SPA and was screened into the assessment as LSE could not be ruled out for disturbance and displacement from airborne sound and presence of vessels and infrastructure.

1.6.3.52 Common scoter are very vulnerable to disturbance and displacement caused by offshore wind farms. The species has a vulnerability score of 5 (out of 5) for displacement due to visual and noise presence of vessels (Wade *et al*., 2016).

1.6.3.53 Common scoter may be disturbed and displaced as the result of the presence of vessels and infrastructure and airborne sound associated with cable trenching within the Mona Offshore Cable Corridor and Access Areas during the construction and decommissioning phases.

1.6.3.54 Vessels transiting through the Liverpool Bay/Bae Lerpwl SPA enroute to the Mona Array Area during the construction and decommissioning phases will spend a far shorter amount of time within the SPA than those associated with the Mona Offshore Cable Corridor and Access Areas. Therefore the conclusions presented for impacts within the Mona Offshore Cable Corridor and Access Areas, whereby the greatest impact would occur, are considered sufficient to present the greatest risk to the Liverpool Bay/Bae Lerpwl SPA.

1.6.3.55 As outlined in Table 1.56, all vessels transiting through Liverpool Bay/Bae Lerpwl SPA will adhere to the Offshore EMP which has measures to minimise disturbance to rafting birds from transiting vessels (Table 1.56). The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.

1.6.3.56 As a result, displaced common scoter may move to areas already occupied by other birds and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource. Alternatively, displaced birds may be forced to move into areas of lower quality (e.g. areas of lower prey availability). Such disturbance and resulting displacement could ultimately affect distribution and population size within the Liverpool Bay/Bae Lerpwl SPA.

1.6.3.57 JNCC requested, via their Section 42 consultation, that a 2.5 km radial buffer for common scoter be applied around the cable laying vessel. Within the MDS up to two cable laying vessel will be present with up to four support vessels at any one time. Any support vessels will be in the immediate vicinity of the cable laying vessels and so any displacement effect from those vessels is likely to be included within the 2.5 km buffer. Therefore 19.63 km^2 would be disturbed around each construction vessel, so two vessels working independently would disturb a total area of 39.26 km^2. However, during construction, vessel activity will be clustered around the area of cable laying and the areas of potential disturbance from each vessel will overlap so the overall area of disturbance will likely be smaller than 39.27 km^2.

1.6.3.58 During the winter months (October to March) the highest densities of birds present within the Mona Offshore Cable Corridor and Access Areas are close to the coast, where up to 31.6 birds per km^2 were present (HiDef, 2023) and therefore up to 1,240 birds could be temporary displaced.

1.6.3.59 During summer months (April to September) no birds were present within the Mona Offshore Cable Corridor and Access Areas (Bradbury *et al.*, 2014) and therefore no birds would be temporarily displaced and increase in baseline mortality would be 0.00%.

1.6.3.60 All common scoter are assumed to be displaced by vessel activity (displacement rate of 100%). No guidance was given for a mortality rate, but using the red-throated diver rate of between 0.5% and 1% mortality was assumed so between 6.2 and 12.4 birds may experience morality.

1.6.3.61 Based on a baseline adult mortality of 0.217 and an immature mortality of 0.251 (Horswill and Robinson 2015), a stable population viability analysis model calculated the average mortality for common scoter to be 0.238. In a population of 87,364 (HiDef, 2023), the baseline mortality would be 20,792 birds. The increase in baseline mortality using the potential impact from the Mona Offshore Wind Project (up to 12.4 birds) equates to an increase between 0.03% and 0.06%. This is below a 1% increase in

baseline mortality and therefore is expected to be within the natural variability for this SPA. This potential impact would occur if no mitigation was put in place.

1.6.3.62 As outlined in Table 1.56, there is a commitment that there will be no offshore export cable installation works during the period 1st November to 31st March within the Liverpool Bay/Bae Lerpwl SPA. As mitigation is proposed to avoid the winter months, the impact on common scoter would equate to a <0.01% increase in baseline mortality.

1.6.3.63 The trenchless works on the intertidal zone will be supported by up to eight vessel movements at the landfall over the winter period. Given the very low frequency of vessel movements, vessel activity is not considered to contribute to an increase in the baseline mortality of common scoter.

1.6.3.64 As stated within Table 1.55 the decommissioning phase is predicted to have an equal or less impact on the population and therefore the conclusion for both construction and decommissioning phases are the same. Similarly, the calculations presented above can be used for both phases of the Mona Offshore Wind Project.

1.6.3.65 Thus, the local spatial extent, short term duration, intermittent nature of vessel activities associated with the construction and decommissioning of the offshore export cables is deemed to have minimal to no impact on common scoter during the construction and decommissioning phases.

Waterbird assemblage

1.6.3.66 In addition to the qualifying species assessed above, great cormorant and red-breasted merganser are part of the waterbird assemblage in the Liverpool Bay/Bae Lerpwl SPA.

1.6.3.67 Both species are considered moderately to highly sensitive to visual and noise disturbance. Red-breasted merganser has a vulnerability score of 3 (out of 5) and great cormorant has a vulnerability score of 4 (out of 5) (Bradbury *et al*., 2014).

1.6.3.68 Great cormorant and red-breasted merganser may be disturbed and displaced as the result of the presence of vessels and infrastructure and airborne sound associated with cable trenching within the Mona Offshore Export Cable during the construction and decommissioning phases.

1.6.3.69 As a result, displaced birds may move to areas already occupied by other birds and thus face higher intra/inter-specific competition due to a higher density of individuals competing for the same resource. Alternatively, displaced birds may be forced to move into areas of lower quality (e.g. areas of lower prey availability). Such disturbance and resulting displacement could ultimately affect distribution and population size within the Liverpool Bay/Bae Lerpwl SPA.

1.6.3.70 As both species are less sensitive to vessel disturbance (than red-throated diver and common scoter) according to Bradbury *et al*. (2014), a 1 km radial buffer for these species was applied around the cable laying vessel. Within the MDS up to two cable laying vessels will be present with up to four support vessels at any one time. Any support vessels will be in the immediate vicinity of the cable laying vessels and so any displacement effect from those vessels is likely to be included within the 1 km buffer. Therefore, 3.14 km^2 would be disturbed around each construction vessel, so two vessels working independently would disturb a total area of 6.28 km^2. However, during construction, vessel activity will be clustered around the area of cable laying and the areas of potential disturbance from each vessel will overlap. Therefore, the overall area of disturbance will likely be smaller than 6.28 km^2.

1.6.3.71 Peak densities of great cormorant within the overlap area were up to 0.7 birds per km^2 (when using HiDef (2023) data), meaning up to 4.4 birds could be displaced in this zone if the Mona offshore export cable installation works were to occur during the peak winter months. There is no guidance on level of mortality associated with the displaced great cormorant, but using the precautionary 0.5% mortality rate, which is recommended for the more sensitive red-throated diver and common scoter, the potential additional mortality would be 0.02 birds.

1.6.3.72 Peak densities of red-breasted merganser within the overlap area were up to 0.2 birds per km^2 (when using HiDef (2023) data), meaning up to 1.3 birds could be displaced in this zone if the offshore export cable installation works were to occur during the peak winter months. There is no guidance on level of mortality associated with the displaced red-breasted merganser, but using the precautionary 0.5% mortality rate, which is recommended for the more sensitive red-throated diver and common scoter, the potential additional mortality would be 0.01 birds.

1.6.3.73 Based on a baseline average mortality of red-breasted merganser 0.475 (Pearce *et al*., 2005) and a peak population of 156 (HiDef, 2023), the baseline mortality would be 74 birds. The increase in baseline mortality using the potential impact from the Mona Offshore Wind Project (up to 0.01) equates to an increase of 0.01%. This is below a 1% increase in baseline mortality and therefore is expected to be within the natural variability for this SPA. This potential impact would occur if no mitigation was put in place.

1.6.3.74 Based on a baseline adult mortality of 0.868 and an immature mortality of 0.540 (Horswill and Robinson 2015), a stable population viability analysis model calculated the average mortality for great cormorant to be 0.238. In a peak population of 3,180 (HiDef, 2023), the baseline mortality would be 757 birds. The increase in baseline mortality using the potential impact from the Mona Offshore Wind Project (up to 0.02 birds) equates to an increase of up to <0.01%. This is below a 1% increase in baseline mortality and therefore is expected to be within the natural variability for this SPA. This potential impact would occur if no mitigation was put in place.

1.6.3.75 As outlined in Table 1.56, there is a commitment that there will be no offshore export cable installation works during the period 1st November to 31st March within the Liverpool Bay/Bae Lerpwl SPA. As mitigation is proposed to avoid the winter months, the impact on red-breasted merganser and great cormorant would equate to a lesser impact with fewer birds present in the summer months.

1.6.3.76 The trenchless works on the intertidal zone will be supported by up to eight vessel movements at the landfall over the winter period. Given the very low frequency of vessel movements, vessel activity is not considered to contribute to an increase in the baseline mortality of great cormorant or red-breasted merganser.

1.6.3.77 As stated within Table 1.55 the decommissioning phase is predicted to have an equal or less impact on the population and therefore the conclusion for both construction and decommissioning phases are the same. Similarly, the calculations presented above can be used for both phases of the Mona Offshore Wind Project.

1.6.3.78 As such, the local spatial extent, short term duration, intermittent nature of vessel activities associated with the Mona Offshore Export Cable is deemed to have minimal impact on these qualifying species.

Table 1.57: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases.

Feature	Attribute	Target/Conservation Objective	Conclusion
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	Displacement and disturbance associated with construction and decommissioning activities on red-throated diver is expected to occur as a result of vessels associated with the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. The impact on the population of red-throated diver has been assessed to result in a minor increase in baseline mortality of 0.07% increase in baseline mortality if works were to occur during the winter period, when number of red-throated diver are at their highest. However, as outlined in Table 1.56, a commitment from the Applicant means no offshore export cable works will occur within the Liverpool Bay/Bae Lerpwl SPA between November 1st and March 31st. This mitigation reduces the risk to this species and the predicted impact would be a 0.01% increase in baseline mortality during the summer months. At this level of mortality increase, the population will be maintained. In addition all vessels transiting through Liverpool Bay/Bae Lerpwl SPA will adhere to the Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the population of the qualifying feature from being maintained.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	Displacement and disturbance associated with construction and decommissioning activities on red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. Due to the temporary nature over which the birds would be impacted, it is not predicted that a permanent disturbance would occur and therefore this impact would not affect the ability for the distribution to be restored. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the distribution of the qualifying feature from being restored.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance associated with construction and decommissioning activities on red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. The applicant has committed to no offshore export cable works within the Liverpool Bay/Bae Lerpwl SPA between November 1st and March 31st. This mitigation reduces the risk to this species and minimised the disturbance potential. Similarly, as outlined in Table 1.56, an Offshore EMP will be developed and adhered to that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats (and food availability). Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the extent and distribution, structure and function or the supporting processes of the habitats of the qualifying features from being maintained or restored.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).	Displacement and disturbance associated with construction and decommissioning activities on common scoter is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. The impact on the population of common scoter has been assessed to be result in a minor increase in baseline mortality of 0.06% increase in baseline mortality if works were to occur during the winter period, when number of common scoter are at their highest. However, as outlined in Table 1.50 a commitment from the Applicant means no offshore export cable works will occur within the Liverpool Bay/Bae Lerpwl SPA between November 1st and March 31st. This mitigation reduces the risk to this species and the predicted impact to zero as Bradury *et al.* (2014) recorded no birds during the summer months. At this level of mortality increase, the population will be maintained. In addition all vessels transiting through Liverpool Bay/Bae Lerpwl SPA will adhere to the Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the population of the qualifying feature from being maintained.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	Displacement and disturbance associated with construction and decommissioning activities on common scoter is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. Due to the temporary nature over which the birds would be impacted, it is not predicted that a permanent disturbance would occur and therefore this impact would not affect the ability for the distribution to be restored. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the distribution of the qualifying feature from being maintained.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance associated with construction and decommissioning activities on red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. The applicant has committed to no offshore export cable works will occur within the Liverpool Bay/Bae Lerpwl SPA between November 1st and March 31st. This mitigation reduces the risk to this species and minimised the disturbance potential. Similarly, as outlined in Table 1.56, an Offshore EMP will be developed and adhered to that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats (and food availability). Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the extent and distribution, structure and function or the supporting processes of the habitats of the qualifying features from being maintained or restored.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Little gull	Non-breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 319 individuals (mean peak 2004/5 – 2010/11).	As stated within paragraph 1.6.2.17 there is no potential for impact to little gull from the Mona Offshore Wind project, and no adverse effect on site integrity can be concluded.
	Non-breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between roosting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Common tern	Breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 180 pairs (2011 – 2015).	As stated within paragraph 1.6.2.32 there is no potential for impact to common tern from the Mona Offshore Wind project, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Little tern	Breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 69 pairs (1995-1999).	As stated within paragraph 1.6.2.39 there is no potential for impact to little tern from the Mona Offshore Wind project, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	

Feature	Attribute	Target/Conservation Objective	Conclusion
Waterbird assemblage	Assemblage of species: abundance	**Maintain** the size of the non-breeding population of component species at a level which is at or above 157,952 individuals (mean peak 2015, 2018, 2019 and 2020).	Displacement and disturbance associated with construction and decommissioning activities on the non-breeding waterbird assemblage is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. The impact on the population of non-breeding waterbird assemblage has been assessed specifically for red-throated diver, common scoter, red-breasted merganser and great cormorant as the most sensitive species to disturbance and displacement. The resulting increase in mortality of these species was always predicted to be <0.1%, which is considered insignificant and minor. This maximum impact might occur if the construction and decommissioning works were to occur in winter. However, a commitment from the Applicant means no offshore export cable works will occur within the Liverpool Bay/Bae Lerpwl SPA between November 1st and March 31st. This mitigation reduces the risk to the non0breeding waterbird assemblage. At this level of mortality increase, the population will be maintained. In addition all vessels transiting through Liverpool Bay/Bae Lerpwl SPA will adhere to the Offshore EMP which will include measures to minimise disturbance to rafting birds from transiting vessels. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the population of the qualifying feature from being maintained.
	Assemblage of species: diversity	**Maintain** the species diversity of the bird assemblage which should include common scoter, red-throated diver, little gull, red-breasted merganser and great cormorant.	There is no effect of airborne sound, underwater sound, and presence of vessels on the ability to maintain the species diversity. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the species diversity of the bird assemblage from being maintained.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Assemblage of species: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	Displacement and disturbance associated with construction and decommissioning activities on the non-breeding waterbird assemblage is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. Due to the temporary nature over which the birds would be impacted, it is not predicted that a permanent disturbance would occur and therefore this impact would not affect the ability for the distribution to be restored. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the distribution of the qualifying feature from being maintained.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance associated with construction and decommissioning activities on the non-breeding waterbird assemblage is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. By its nature, the impact would be temporary, local, short-term, and reversible. The applicant has committed to no offshore export cable works within the Liverpool Bay/Bae Lerpwl SPA between November 1st and March 31st. This mitigation reduces the risk to this species and minimised the disturbance potential. Similarly, as outlined in Table 1.56, an Offshore EMP will be developed and adhered to that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/), is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: extent, distribution, and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the construction and decommissioning phases will not prevent the extent and distribution, structure and function or the supporting habitats of the qualifying features from being maintained or restored.

Conclusions – construction and decommissioning phases

1.6.3.79 Adverse effects on the qualifying seabird features of the Liverpool Bay/Bae Lerpwl SPA which undermine the conservation objectives of the SPA will not occur as a result of disturbance and displacement from airborne sound and presence of vessels and infrastructure during construction and decommissioning activities. Potential effects from this activity on the relevant conservation objectives (as presented in paragraph 1.6.2.46) are discussed in turn below in Table 1.57. Where the justifications and supporting evidence are the same for more than one conservation objective, the assessments have been grouped.

1.6.3.80 So it can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA as a result of disturbance and displacement from airborne sound, underwater sound and presence of vessels and infrastructure with respect to the construction and decommissioning of the Mona Offshore Wind Project alone. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).

Operations and maintenance phase

Liverpool Bay/Bae Lerpwl SPA

Red-throated diver

1.6.3.81 The overall vulnerability of red-throated diver to displacement and disturbance is explained within the construction phase section (from paragraph 1.6.3.33).

1.6.3.82 To assess the potential impacts of disturbance and displacement during the operations and maintenance phase it should be separated into two distinct geographical areas, firstly within the Mona Offshore Cable Corridor and Access Areas and secondly within the area of increased vessel movement from an operations and maintenance facility to the Mona Array Area. The Mona Offshore Cable Corridor and Access Areas overlaps the Liverpool Bay/Bae Lerpwl SPA, however the location of the operations and maintenance facility is not yet confirmed and therefore the transit route may or may not go through the Liverpool Bay/Bae Lerpwl SPA.

1.6.3.83 The impact within the first area mentioned above, the Mona Offshore Cable Corridor and Access Areas, during the operations and maintenance phase will be to a lesser extent than during construction as defined by the MDS (Table 1.55). To avoid repetition of the full calculation (presented in paragraphs 1.6.3.42 to 1.6.3.46) the impact during construction was deemed to be up to 0.31 birds, or an estimated 0.07% increase in baseline mortality during the winter months. A lesser impact was predicted during the summer months (up to 0.02 birds), as less birds are present within the area with no breeding occurring close to Liverpool Bay. As the magnitude of the impact is predicted to be lower during the operations and maintenance phase, the worst case scenario of impact would be up to a 0.07% increase in baseline mortality. An impact of <1% increase in baseline mortality can be considered insignificant and within the natural fluctuations of the population.

1.6.3.84 The second area with increased vessel movement is from an operations and maintenance facility to the Mona Array Area. Liverpool Bay is currently heavily used by vessels (Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement (Document Reference F2.7)). One example of an area of high usage is vessels from the Port of Mostyn transiting the Gwynt y Môr, North Hoyle and Rhyl Flats offshore wind farms. Similar high use areas are centred around the Liverpool Port. The

vessel movement survey (presented in Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement (Document Reference F2.7)) indicated a baseline impact of 55 to 61 vessels per day within the Mona Array Area plus 10 nm.

1.6.3.85 The MDS for the operations phase is up to 849 operations and maintenance vessel movements a year (Table 1.55), which is approximately three a day (six transits through Liverpool Bay/Bae Lerpwl SPA). This would be approximately a 5% increase in the number of vessels present within the area around the Mona Array Area when compared to the baseline survey. The areas where the additional movements will occur are likely to be situated within the areas of highest current use (i.e. to and from ports situated close to Liverpool Bay). Vessels transiting through Liverpool Bay/Bae Lerpwl SPA to the Mona Array Area would increase the number of vessel movements. Figure 7.4 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement (Document Reference F2.7)) provides an estimation of >640 vessel movements within the areas of highest current usage (i.e. to and from port locations).

1.6.3.86 There is already a level of habituation to the vessel movement around the Dee Estuary (shown in Figure 1.4 and Figure 1.5). Vessels transiting from the Port of Mostyn to operational offshore wind farms such as Gwynt y Môr, North Hoyle and Rhyl Flats is one of the areas of highest vessel traffic within Liverpool Bay. As shown within the data presented for Liverpool Bay/Bae Lerpwl SPA at designation (shown in Figure 1.4) there is a reduction of red-throated diver around the mouth of the Dee Estuary and the existing transit routes compared to adjacent areas in the Liverpool Bay/Bae Lerpwl SPA, presumably due to the number of vessel movements which were present at the time of designation. The number of red-throated diver recorded within this area indicate that it is still used during the most recent surveys (HiDef, 2023), however it replicates what was recorded at designation that this area of high vessel movements is used to a lesser extent than adjacent areas. The additional impact from the Mona Offshore Wind Project is highly likely to come via an existing port location to the Mona Array Area and therefore into an area of already high vessel movements.

1.6.3.87 Within the Offshore EMP, there are measures which will provide additional mitigation to non-breeding red-throated diver, whereby vessels will not approach rafting birds and will adhere to known routes. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on rafting birds. Maintaining known routes will reduce the additive impact to birds which are likely to already be displaced. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.

1.6.3.88 As such, there is no indication that temporary disturbance/displacement will lead to a reduction in the population and distribution of red-throated diver. As such, this qualifying species will not be adversely affected.

Common scoter

1.6.3.89 The overall vulnerability of common scoter to displacement and disturbance is explained within the construction phase section (from paragraph 1.6.3.51).

1.6.3.90 To assess the potential impacts of disturbance and displacement during the operations and maintenance phase it should be separated into two distinct geographical areas, firstly within the area of overlap between the Mona Offshore Cable Corridor and

Access Areas and the Liverpool Bay/Bae Lerpwl SPA (shown in Figure 1.3 and impact described in paragraph 1.6.3.91) and secondly within the area of increased vessel movement from an operations and maintenance facility to the Mona Array Area (impact described in paragraph 1.6.3.92). The Mona Offshore Cable Corridor and Access Areas overlaps the Liverpool Bay/Bae Lerpwl SPA (Figure 1.3), however the location of the operations and maintenance facility is not yet confirmed and therefore the transit route may or may not go through the Liverpool Bay/Bae Lerpwl SPA.

1.6.3.91 The impact within the first area mentioned above, within the overlap between the Mona Offshore Cable Corridor and Access Areas and Liverpool Bay/Bae Lerpwl SPA, during the operations and maintenance phase will be to a lesser extent than during construction as defined by the MDS (Table 1.55). To avoid repetition of the full calculation (presented in paragraphs 1.6.3.57 to 1.6.3.60) the impact during construction was deemed to be up to 12.41 birds, or an estimated 0.06% increase in baseline mortality during the winter months. A lesser impact was predicted during the summer months, as very few birds are present within the area with no breeding occurring close to Liverpool Bay. As the magnitude of the impact is predicted to be lower during the operations and maintenance phase, the worst case scenario of impact would be up to a 0.06% increase in baseline mortality. An impact of <1% increase in baseline mortality can be considered insignificant and within the natural fluctuations of the population.

1.6.3.92 The second area with increased vessel movement as a result of the Mona Offshore Wind Project is from an operations and maintenance facility to the Mona Array Area. Liverpool Bay is currently heavily used by vessels (see Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement (Document Reference F2.7)). One example of an area of high usage is vessels from the Port of Mostyn transiting the Gwynt y Môr, North Hoyle and Rhyl Flats offshore wind farms. Similar high use areas are centred around the Liverpool Port. The vessel movement survey (presented in Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement (Document Reference F2.7)) indicated a baseline impact of 55 to 61 vessels per day within the Mona Array Area plus 10 nm.

1.6.3.93 The MDS for the operations phase is up to 849 operations and maintenance vessel movements a year (Table 1.55), which is approximately three a day (six transits through Liverpool Bay/Bae Lerpwl SPA). This would be approximately a 5% increase in the number of vessels present within the area around the Mona Array Area when compared to the baseline survey. The areas where the additional movements will occur are likely to be situated within the areas of highest current use (i.e. to and from ports situated close to Liverpool Bay). Vessels transiting through Liverpool Bay/Bae Lerpwl SPA to the Mona Array Area would increase the number of vessel movements. Figure 7.4 of Volume 2, Chapter 7: Shipping and Navigation of the Environmental Statement (Document Reference F2.7)) provides an estimation of >640 vessel movements within the areas of highest current usage (i.e. to and from port locations).

1.6.3.94 There is already a level of habituation to the vessel movement around the Dee Estuary (shown in Figure 1.8 and Figure 1.9). Vessels transiting from the Port of Mostyn to the historic offshore wind farms (Gwynt y Môr, North Hoyle and Rhyl Flats) represents one of the areas of highest vessel traffic within Liverpool Bay. As shown within the data presented for Liverpool Bay/Bae Lerpwl SPA at designation there is a reduction of common scoter around the mouth of the Dee Estuary (see Figure 1.8) and the existing transit routes compared to adjacent areas in the Liverpool Bay/Bae Lerpwl SPA, presumably due to the number of vessel movements which were present at the time of designation. The number of common scoter recorded within this area indicate that it is still used, but by a lesser number of birds. The additional impact from the Mona

Offshore Wind Project is highly likely to come via an existing port location to the Mona Array Area and therefore into an area of already high vessel movements.

1.6.3.95 Within the Offshore EMP, there are measures which will provide additional mitigation to common scoter, whereby vessels will not approach rafting birds and also will adhere to known routes (see Table 1.56). The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP. Maintaining known routes will reduce the additive impact to birds which are likely to already be displaced.

1.6.3.96 As such, there is no indication that temporary disturbance/displacement will lead to a reduction in the population and distribution of red-throated diver. Therefore, this qualifying species will not be adversely affected.

Waterbird assemblage

1.6.3.97 In addition to the qualifying species assessed above, great cormorant and red-breasted merganser are part of the waterbird assemblage in Liverpool Bay.

1.6.3.98 The latest population estimates for great cormorant and red-breasted were 1,217 and 64 individuals respectively (HiDef, 2023). Both species have a very near-shore distribution in Liverpool Bay, with little overlap with the Mona Offshore Cable Corridor and Access Areas (Lawson *et al*., 2016 and HiDef, 2023). As described during the construction and decommissioning phases up to 17.6 great cormorant and five red-breasted merganser are present within the Mona Offshore Cable Corridor and Access Areas. A similar density is present throughout the Liverpool Bay/Bae Lerpwl SPA. As such, the local spatial extent, short term duration, intermittent nature of vessel activities associated with the Mona offshore export cable reburial events and repairs is deemed to have little impact on these qualifying species during the operations and maintenance phase.

1.6.3.99 With regard to the conservation objectives for the SPA, there is therefore no indication that disturbance/displacement will lead to a reduction in the population and distribution of red-breasted merganser and/or great cormorant. As such, these qualifying species will not be adversely affected.

Table 1.58: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase.

Feature	Attribute	Target/Conservation Objective	Conclusion
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	Displacement and disturbance associated with operations and maintenance activities on red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. The impact on the population of red-throated diver has been assessed to result in a minor increase in baseline mortality of 0.07% during winter and 0.01% during summer. Operations and maintenance will occur year round and therefore 0.07% is considered the most likely impact. At this level of mortality increase, the population will be maintained. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the population of the qualifying feature from being maintained.
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	Displacement and disturbance associated with operations and maintenance activities on red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. During the operations and maintenance phase, the increase of vessel movement produces an increase in the number of vessels by 5% within the areas of highest usage, which is considered minor. The likely impact will occur within areas of high usage already, where birds already show a level of habituation. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the distribution of the qualifying feature from being restored.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance associated with operations and maintenance activities on red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. The Offshore EMP provided multiple mitigation measures as to how to minimise the frequency, duration and/or intensity of disturbance events and therefore this conservation objective would be achieved. As outlined in Table 1.56, an Offshore EMP will be developed and adhered to that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats (and food availability). Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the extent and distribution, structure and function or the supporting processes of the habitats of the qualifying features from being maintained or restored.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	

Feature	Attribute	Target/Conservation Objective	Conclusion
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).	Displacement and disturbance associated with operations and maintenance activities on common scoter is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. The impact on the population of common scoter has been assessed to result in a minor increase in baseline mortality of 0.06% during winter and no increase during summer (as birds are no present). Operations and maintenance will occur year round and therefore 0.06% is considered the most likely impact. At this level of mortality increase, the population will be maintained. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the population of the qualifying feature from being maintained.
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	Displacement and disturbance associated with operations and maintenance activities on common scoter is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. During the operations and maintenance phase, the increase of vessel movement produces an increase in the number of vessels by 5% within the areas of highest usage, which is considered minor. The likely impact will occur within areas of high usage already, where birds already show a level of habituation. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the distribution of the qualifying feature from being maintained.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance associated with operations and maintenance activities on common scoter is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. The Offshore EMP provided multiple mitigation measures as to how to minimise the frequency, duration and/or intensity of disturbance events and therefore this conservation objective would be achieved. As outlined in Table 1.56, an Offshore EMP will be developed and adhered to that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats (and food availability). Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the extent and distribution, structure and function or the supporting processes of the habitats of the qualifying features from being maintained or restored.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Little gull	Non-breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 319 individuals (mean peak 2004/5 – 2010/11).	As stated within paragraph 1.6.2.17 there is no potential for impact to little gull from the Mona Offshore Wind Project, and no adverse effect on site integrity can be concluded.
	Non-breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between roosting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Common tern	Breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 180 pairs (2011 – 2015).	As stated within paragraph 1.6.2.32 there is no potential for impact to common tern from the Mona Offshore Wind Project, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	

Feature	Attribute	Target/Conservation Objective	Conclusion
Little tern	Breeding population: abundance	Maintain the size of the non-breeding population at a level which is at or above 69 pairs (1995-1999).	As stated within paragraph 1.6.2.39 there is no potential for impact to little tern from the Mona Offshore Wind Project, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	Maintain the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	Minimise the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	Maintain safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	Maintain the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Waterbird assemblage	Assemblage of species: abundance	**Maintain** the size of the non-breeding population of component species at a level which is at or above 157,952 individuals (mean peak 2015, 2018, 2019 and 2020).	Displacement and disturbance associated with operations and maintenance activities on the non-breeding waterbird assemblage is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. The impact on the population of non-breeding waterbird assemblage has been assessed specifically for red-throated diver, common scoter, red-breasted merganser and great cormorant as the most sensitive species to disturbance and displacement. The resulting increase in mortality of these species was always predicted to be <0.1%, which is considered insignificant and minor. At this level of mortality increase, the population will be maintained. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the population of the qualifying feature from being maintained.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Assemblage of species: diversity	**Maintain** the species diversity of the bird assemblage which should include common scoter, red-throated diver, little gull, red-breasted merganser and great cormorant.	There is no effect of airborne sound, underwater sound, and presence of vessels on the ability to maintain the species diversity. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the species diversity of the non-breeding waterbird assemblage from being maintained.
	Assemblage of species: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	Displacement and disturbance associated with operations and maintenance activities on the non-breeding waterbird assemblage is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. During the operations and maintenance phase, the increase of vessel movement produces an increase in the number of vessels by 5% within the areas of highest usage, which is considered minor. The likely impact will occur within areas of high usage already, where birds already show a level of habituation. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the distribution of the qualifying feature from being maintained.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance associated with operations and maintenance activities on the non-breeding waterbird assemblage is expected to occur as a result of vessels associated of the Mona Offshore Wind Project. The effect is expected to have the potential to be permanent, local and long-term. The offshore EMP provided multiple mitigation measures as to how to minimise the frequency, duration and/or intensity of disturbance events and therefore this conservation objective would be achieved. As outlined in Table 1.56, an Offshore EMP will be developed and adhered to that will include measures to minimise disturbance to rafting birds from transiting vessels. The Offshore EMP will include a commitment that the site induction process will incorporate the principles of the WiSe Scheme to ensure that key personnel are aware of the need to follow the WiSe Code of Conduct. The WiSe Scheme (https://www.wisescheme.org/) is a UK national training scheme for minimising disturbance to marine life. Key measures from the scheme will reduce the disturbance of vessel transits on marine mammals and rafting birds visible at the water surface, or as otherwise agreed with the SNCBs. The Measures to minimise disturbance to marine mammals and rafting birds from transiting vessels (Document Reference J17) has been submitted with the application for consent and will be an annex to the Offshore EMP.
	Supporting habitat: extent, distribution, and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the extent and distribution, structure and function or the supporting habitats of the qualifying features from being maintained or restored.

Conclusions – operations and maintenance phase

1.6.3.100 Adverse effects on the qualifying seabird features of the Liverpool Bay/Bae Lerpwl SPA which undermine the conservation objectives of the SPA will not occur as a result of temporary disturbance during operations and maintenance activities. Potential effects from this activity on the relevant conservation objectives (as presented in paragraph 1.6.2.46) are discussed in turn below in Table 1.58. Where the justifications and supporting evidence are the same for more than one conservation objective, the assessments have been grouped.

1.6.3.101 So it can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA as a result of disturbance and displacement from airborne sound and presence of vessels and infrastructure with respect to the operations and maintenance of the Mona Offshore Wind Project alone. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2023).

Changes in prey availability

1.6.3.102 There is the potential for changes in prey (e.g. fish species) abundance and distribution to arise as a result of construction activities. The main impact pathways assessed for fish and shellfish included underwater sound, increased SSC and associated deposition, temporary habitat loss/disturbance and accidental pollution. Reduction or disruption to prey availability to seabirds may cause displacement from foraging grounds or reduced energy intake, affecting survival rates or productivity in the population in the short-term.

1.6.3.103 The assessment of LSE during the HRA screening process identified that during construction, LSE could not be ruled out for the potential impact of changes in prey availability. Considering the baseline conditions of the Liverpool Bay/Bae Lerpwl SPA, only certain qualifying features are present in densities where an impact could affect the conservation objectives. This relates to the following designated site and relevant offshore ornithological features:

- Red-throated diver
- Common scoter
- Waterbird assemblage (red-breasted merganser and great cormorant in addition to species listed above).

1.6.3.104 The MDS considered within this assessment is shown in Table 1.59.

Table 1.59: MDS considered for the assessment of potential impacts on offshore ornithological features from changes in prey availability during the construction phase.

Potential impact	Maximum design scenario	Justification
Changes in prey availability	• As described in HRA Stage 2 ISAA Part Two – Consideration of SACs • Up to 7.2 km^2 of temporary habitat disturbance from installation of up to 360 km of buried Mona offshore export cables (most of which will occur outside the Liverpool Bay SPA) – Each export cable will be up to 90 km long, with ~20 km within the Liverpool Bay/Bae Lerpwl SPA – Up to four export cables needed. • Approximately 1.58 km^2 of temporary habitat disturbance from installation within Liverpool Bay/Bae Lerpwl SPA • No offshore export cable installation activities to occur within the Liverpool Bay/Bae Lerpwl SPA between November 1st to March 31st (apart from eight vessels movements at the landfall for intertidal export cable installation).	As described in HRA Stage 2 ISAA Part Two – Consideration of SACs (Document Reference E1.2). Maximum footprint of seabed within the Mona Offshore Cable Corridor and Access Areas which would be affected during the construction, phase.

Measures adopted as part of the Mona Offshore Wind Project

1.6.3.105 There are no measures adopted as part of the Mona Offshore Wind Project which are of relevance to the assessment of potential impacts on offshore ornithological features from changes in prey availability during construction. There are measures adopted to reduce the impact of underwater sound on marine mammals and fish species that are sensitive to underwater sound presented within the HRA Stage 2 ISAA Part Two – Consideration of SACs (Document Reference E1.2), which will reduce the impact on some prey species. However, these measures are not designed to protect the ornithological features and therefore are not presented here.

Liverpool Bay/Bae Lerpwl SPA

Red-throated diver

1.6.3.106 During the non-breeding season, red-throated diver are primarily fish-eaters. Although they feed predominantly on small fish such as herring *Clupea harengus*, sprats *Sprattus* and sandeels *Ammodytes marinus*, they can switch to alternative small prey, depending on the species of fish available, e.g. cod *Gadus morhua* and flounder *Platichthys flesus* (Cramp and Simmons, 1977; Guse *et al.*, 2009; Dierschke *et al.*, 2017). Herring and sandeel are sensitive to offshore wind development (including underwater sound) and there is the potential for the abundance and distribution of these prey species to be affected during installation of the Mona Offshore Export Cable and piling activities. In the absence of quantitative information available, the magnitude of the impact is considered qualitatively for red-throated diver.

1.6.3.107 Local displacement of prey species is expected to arise primarily due to underwater sound from piling operations at the within the Mona Array Area. This might potentially lead to localised displacement of red-throated diver in inshore areas where effects of underwater sound and seabed disturbance (e.g. during cabling) extends into areas of importance for red-throated diver in Liverpool Bay. The underwater sound assessment and contours presented in Volume 2, Chapter 3~~8~~: Fish and shellfish ecology of the

Environmental Statement (Document reference F2.3) did not predict that the level of sound would affect fish within the areas of highest usage by red-throated diver. Webb *et al*. (2006), Lawson *et al.* (2016) and HiDef (2023) have identified aggregations of red-throated diver off the coast of north Wales which overlapped with the Mona Offshore Cable Corridor and Access Areas. However, as the footprint of the cable laying is small and the operation slow moving, it is assumed that prey species will be subjected to only a brief period of impact. As a result, it is anticipated that prey species will return to the area. As such, the local spatial extent, short term duration, intermittent nature of underwater sound associated with the Mona Offshore Cable Corridor and Access Areas, associated vessel activity and piling activities within the Mona Array Area will not adversely affect the red-throated diver qualifying feature.

Common scoter

1.6.3.108 Common scoter feed by diving to seabed to exploit prey species that live upon or within the upper few centimetres of the substratum. The diet of common scoter is thought to comprise mainly bivalve molluscs with crabs, small fishes and gastropods also incorporated but less frequently (Stott and Olson, 1973; Bourne, 1984; Ferns, 1984; Stempniewicz, 1986; Vaitkus and Bubinas, 2001; Kaiser *et al*., 2006). In Liverpool Bay, the highest numbers of common scoter coincided with sites that had a high abundance and biomass of bivalve prey species (Kaiser *et al*., 2006).

1.6.3.109 One of the highest concentrations of common scoter in the Liverpool Bay/Bae Lerpwl SPA is located in the nearshore waters between the Dee Estuary and Colwyn Bay (Lawson *et al.,* 2016 and HiDef, 2023). Although the Mona Offshore Cable Corridor and Access Areas intersects this area of importance for common scoter, impact from underwater sound affecting prey species is predicted to be negligible. There is no indication that bivalve molluscs, the main prey items of common scoter, are sensitive to underwater sound.

Waterbird assemblage

1.6.3.110 In addition to the qualifying species assessed above, great cormorant and red-breasted merganser are part of the waterbird assemblage in Liverpool Bay. Both species have a very nearshore distribution in Liverpool Bay, with therefore reduced overlap with the Mona Offshore Cable Corridor and Access Areas. As such, the local spatial extent, short term duration, intermittent nature of vessel activities associated with the Mona Offshore Cable Corridor and Access Areas will not result in an adverse impact on these qualifying species.

Table 1.60: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for changes in prey availability during the construction phase.

Feature	Attribute	Target/Conservation Objective	Conclusion
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	The impact of the Mona Offshore Export Cable installation will be temporary, short-term, and reversible, affecting only a small fraction of suitable habitat and prey species for qualifying ornithological features. Prey species are expected to quickly recolonise suitable habitat and recover to pre-construction levels. Therefore, changes in prey availability during the construction phase will not prevent the extent and distribution of the habitats of the qualifying features from being maintained or restored.
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	There is no potential for this impact pathway to affect this conservation objective.
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).	The impact of the Mona Offshore Export Cable installation will be temporary, short-term, and reversible, affecting only a small fraction of suitable habitat and prey species for qualifying ornithological features. Prey species are expected to quickly recolonise suitable habitat and recover to pre-construction levels. Therefore, changes in prey availability during the construction phase will not prevent the extent and distribution of the habitats of the qualifying features from being maintained or restored.
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	There is no potential for this impact pathway to affect this conservation objective.
Little gull	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 319 individuals (mean peak 2004/5 – 2010/11).	As stated within paragraph 1.6.2.17 there is no potential for impact to little gull from the Mona Offshore Wind project, and no adverse effect on site integrity can be concluded.
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between roosting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Common tern	Breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 180 pairs (2011 – 2015).	As stated within paragraph 1.6.2.32 there is no potential for impact to common tern from the Mona Offshore Wind project, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Little tern	Breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 69 pairs (1995-1999).	As stated within paragraph 1.6.2.39 there is no potential for impact to little tern from the Mona Offshore Wind project, and no adverse effect on site integrity can be concluded.
	Breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Waterbird assemblage	Assemblage of species: abundance	**Maintain** the size of the non-breeding population of component species at a level which is at or above 157,952 individuals (mean peak 2015, 2018, 2019 and 2020).	The impact of the Mona Offshore Export Cable installation will be temporary, short-term, and reversible, affecting only a small fraction of suitable habitat and prey species for qualifying ornithological features. Prey species are expected to quickly recolonise suitable habitat and recover to pre-construction levels. Therefore, changes in prey availability during the construction phase will not prevent the
	Assemblage of species: diversity	**Maintain** the species diversity of the bird assemblage which should include common scoter, red-throated diver, little gull, red-breasted merganser and great cormorant.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Assemblage of species: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	extent and distribution of the habitats of the qualifying features from being maintained or restored.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: extent, distribution, and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	There is no potential for this impact pathway to affect this conservation objective.

Conclusions

1.6.3.111 Adverse effects on the qualifying seabird features of the Liverpool Bay/Bae Lerpwl SPA which undermine the conservation objectives of the SPA will not occur as a result of changes in prey availability. Potential effects from this activity on the relevant conservation objectives (as presented in paragraph 1.6.2.46) are discussed in turn below in Table 1.60.

1.6.3.112 So it can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA as a result of changes in prey availability with respect to the construction and decommissioning of the Mona Offshore Wind Project alone. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).

Accidental pollution

1.6.3.113 There is a risk of pollution being accidentally released during the construction, operations and maintenance and decommissioning phases of the Mona Offshore Wind Project from sources including vessels/vehicles and equipment/machinery. Seabirds utilising the environment in the vicinity of a pollution incident may be vulnerable to either direct mortality from oil coverage preventing flight for example, or indirectly via a reduction in ability to forage.

1.6.3.114 Species that spend large amounts of time in the water (e.g. divers and pursuit feeders such as auks) or on the sea surface (loafing) (auks) are considered to be more vulnerable to pollution incidents (such as the accidental release of synthetic compounds, fuels or other substances) than surface feeding species such as kittiwake and fulmar.

1.6.3.115 The assessment of LSE during the HRA screening process identified that during construction and decommissioning, LSE could not be ruled out for the potential impact of accidental pollution. Considering the baseline conditions of the Liverpool Bay/Bae Lerpwl SPA, only certain qualifying features are present in densities where an impact could affect the conservation objectives. This relates to the following relevant offshore ornithological features:

- Red-throated diver
- Common scoter
- Waterbird assemblage (red-breasted merganser and great cormorant in addition to species listed above).

1.6.3.116 The HRA Stage 1 Screening Report (Document Reference E1.4) determined that this impact will be spatially restricted to within the boundaries of the Mona Offshore Cable Corridor and Access Areas only, due to the Mona Array Area being located well outside the Liverpool Bay/Bae Lerpwl SPA boundary.

1.6.3.117 The MDS for this impact for the Mona Offshore Wind Project as a whole is associated with the consumables that may be contained within the wind turbines, including for example grease (up to 2,000 litres), synthetic oil (up to 1,000 litres), hydraulic oil (up to 1,200 litres), gear oil (up to 4,000 litres), glycerol (up to 100,000 litres), transformer silicon/ester oil (up to 8,000 litres) and coolants (up to 2,000 litres). As there will be no foundations within the Mona Offshore Cable Corridor and Access Areas, the MDS for the impact is associated with the potential spill of these consumables from vessels

operating in, or transiting through, the Liverpool Bay/Bae Lerpwl SPA during all phases of the Mona Offshore Wind Project.

Measures adopted as part of the Mona Offshore Wind Project

1.6.3.118 Measures adopted as part of the Mona Offshore Wind Project which are of relevance to the assessment of potential impacts on ornithological features from accidental pollution during construction are presented in Table 1.61.

Table 1.61: Measures adopted as part of the Mona Offshore Wind Project relevant to the assessment of adverse effect on European sites designated for offshore ornithological features from accidental pollution during the construction phase.

Measures adopted as part of the Mona Offshore Wind Project	Justification	How the measure will be secured
Tertiary measures: Measures required to meet legislative requirements, or adopted standard industry practice		
The Offshore EMP that will include a MPCP.	The provisions within the MPCP will mean than if a spill event were to occur, then the impacts would be managed and swiftly dealt thing. Following the MPCP means that very few, if any, birds would be impacted if an pollution event were to occur.	The Offshore EMP is secured within the deemed marine licence in Schedule 14 of the draft DCO and expected to be secured within the standalone NRW marine licence.

All phases

Liverpool Bay/Bae Lerpwl SPA

1.6.3.119 With regard to the Mona Offshore Cable Corridor and Access Areas, the main source of pollution is potential leaks or spills of fuel supply (diesel or oil) from vessels involved in construction, operations and maintenance and operational activities. The quantities of potentially polluting substances associated with the cables (e.g. lubricants and grout) are limited, and if released would be of insufficient quantities to result in a population level effect.

1.6.3.120 If a spill or leak were to occur (which is considered highly unlikely as would involve a vessel collision or significant damage to a vessel), the quantities of fuel released are likely to also be limited to what is stated above. Furthermore, in the unlikely event that a pollution incident does occur, it is likely that any released substances will be rapidly diluted, dispersed and broken down by natural hydrodynamic processes.

1.6.3.121 Should a pollution incident occur, the potential for this to have a population level effect is limited due to the low quantities of pollutants that are likely to ever be released. Although the likelihood of an accidental pollution event occurring is very low, with the implementation of measures such as an MPCP and EMP, should an event occur, effects would be temporary, reversible and limited in spatial extent due to procedures and processes put in place therefore minimise the potential effects of any incidents. Adverse effects on offshore ornithological features in Liverpool Bay/Bae Lerpwl SPA can therefore be ruled out.

Table 1.62: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for accidental pollution during the construction phase.

Feature	Attribute	Target/Conservation Objective	Conclusion
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	The risk of accidental pollution is very low, and this risk is further reduced by the implementation of measures adopted as part of the Mona Offshore Wind Project, such as the MPCP secured as part of the Offshore EMP (see Table 1.61). By following the MPCP should a pollution event occur, effects will be temporary, over a short term duration and limited in spatial extent. Therefore, accidental pollution during the construction phase will not prevent the extent and distribution, the structure and function or the supporting processes on which the habitats of the qualifying features rely from being maintained or restored. It will also not prevent the population or distribution of each of the qualifying features from being maintained or restored.
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).	
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Little tern	Breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 69 pairs (1995-1999).	
	Breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	
	Connectivity with supporting habitats	**Maintain** safe passage of birds moving between nesting and feeding areas.	
	Supporting habitat: extent, distribution and quality of supporting habitat for the breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	
Waterbird assemblage	Assemblage of species: abundance	**Maintain** the size of the non-breeding population of component species at a level which is at or above 157,952 individuals (mean peak 2015, 2018, 2019 and 2020).	
	Assemblage of species: diversity	**Maintain** the species diversity of the bird assemblage which should include common scoter, red-throated diver, little gull, red-breasted merganser and great cormorant.	
	Assemblage of species: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	
	Supporting habitat: extent, distribution, and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	

Conclusions

1.6.3.122 Adverse effects on the qualifying ornithological features of the Liverpool Bay/Bae Lerpwl SPA which undermine the conservation objectives of the SPA will not occur as a result of accidental pollution. Potential effects from this impact on the relevant conservation objectives (as presented in section 1.5.3) are discussed in turn below in Table 1.62. Where the justifications and supporting evidence are the same for more than one conservation objective, the assessments have been grouped.

1.6.3.123 So it can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA as a result of accidental pollution with respect to the construction, operations and maintenance and decommissioning phases of the Mona Offshore Wind Project alone. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).

1.6.4 Assessment of potential Adverse Effect on Integrity – Integrity test: Step 2 – Assessment of adverse impacts in-combination

1.6.4.1 The other developments (projects/plans) that could result in-combination effects associated with the Mona Offshore Wind Project on offshore ornithological features of the designated sites identified have been summarised in Table 1.3 and further detail provided in Table 1.63. All Tier 1 and 2 projects included within this in-combination assessment are displayed in Figure 1.12. For the ornithology in-combination assessment, impacts from Tier 1 and Tier 2 projects have been assessed together.

1.6.4.2 Following the screening out of multiple SPAs and Ramsar sites within Integrity test: Step 1 (section 1.5) only Isles of Scilly SPA is included within Integrity test: Step 2 – Assessment of adverse impacts in-combination.

1.6.4.3 Following the Integrity test: Step 2 assessment of the Liverpool Bay/Bae Lerpwl SPA against the Mona Offshore Wind Project alone, only one impact pathway has potential to have an in-combination impact on the offshore ornithology qualifying features. The one impact is disturbance and displacement from airborne sound and presence of vessels and infrastructure.

1.6.4.4 Other plans/projects, identified within Table 1.3 and Table 1.63 have the potential to impact the qualifying features of the Liverpool Bay/Bae Lerpwl SPA and Isles of Scilly SPA during different phases of the projects. Projects/plans can only have an in-combination impact if there is temporal or spatial overlap.

1.6.4.5 Table 1.63 presents which projects will have an overlap with which phase of the development of the Mona Offshore Wind Project.

1.6.4.6 In summary, within this integrity test: Step 2 in-combination assessment the following SPAs and qualifying features are assessed for the following pathways:

- Disturbance and displacement from airborne sound and presence of vessels and infrastructure for:
  - Red-throated diver and common scoter within the Liverpool Bay/Bae Lerpwl SPA during the construction, operations and maintenance and decommissioning phases
- Collision risk for:
  - Great black-backed gull from the Isles of Scilly SPA during the operations and maintenance phase during the non-breeding season.

1.6.4.7 The following integrity test: Step 2 assessments of the effects of the Mona Offshore Wind Project, acting in-combination with other relevant plans and projects, on offshore ornithological features have been informed by the detailed technical assessments presented in Volume 2, Chapter ~~6~~5: Offshore ornithology of the Environmental Statement (Document reference F2.5), Volume 6, Annex 5.5: Offshore ornithology apportioning technical report of the Environmental Statement (Document Reference F6.5.5) and Appendix A of the HRA Stage ~~Phase~~ 1 Screening Report (Document Reference E1.4). The Applicant has also made all reasonable efforts to ensure that the information included in the assessment relating to other projects is correct and sufficiently detailed, with any limitations on the information available acknowledged. The assessments also reference the best available literature and evidence with regards to sensitivity. In this regard, the Applicant is confident that the conclusions made on whether an adverse effect on integrity on a European site(s) and qualifying features can or cannot be ruled out as a result of the Mona Offshore Wind Project in-combination with other plans and projects have been identified in light of the best scientific knowledge in the field and all reasonable scientific doubt can be ruled out.

Table 1.63: List of other projects and plans with potential for in-combination effects on offshore ornithology.

Project/plan	Status	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor and Access Areas (km)	Description of project/plan	Date of construction (C) and/or operations and mainteance (O & M)	Overlap with the Mona Offshore Wind Project
Tier 1 – Offshore Wind Projects and Associated Cables						
Awel y Môr Offshore Wind Farm	Consented	12.2	0.0	Greater than 350 MW (up to 50 wind turbines)	C: 2026 to 2029 O & M: 2030 to 2055	Construction and operations and maintenance activities for the Mona Offshore Wind Project may overlap with construction and operations activities of Awel y Môr Offshore Wind Farm
Gwynt y Môr Offshore Wind Farm	Operational	13.8	9.9	160 3 MW wind turbines. Hub height 98 m. Rotor diameter 107 m.	O & M: 2015 to 2033	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Gwynt y Môr Offshore Wind Farm
Rhyl Flats Offshore Wind Farm	Operational	23.3	3.8	25 3.6 MW wind turbines. Hub height 80 m. Rotor diameter 107 m.	O & M: 2009 to 2027	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Rhyl Flats offshore wind farm
Burbo Bank Extension Offshore Wind Farm	Operational	24.7	13.6	30 2 MW wind turbines. Hub height 70 m. Rotor diameter 80 m.	O & M: 2017 to 2045	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Burbo Bank Extension offshore wind farm
North Hoyle Offshore Wind Farm	Operational	27.2	47.8	47 7 MW wind turbines. Hub height 111 m. Rotor diameter 154 m.	O & M: 2004 to 2028	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of North Hoyle offshore wind farm

Project/plan	Status	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor and Access Areas (km)	Description of project/plan	Date of construction (C) and/or operations and mainteance (O & M)	Overlap with the Mona Offshore Wind Project
Walney Extension 4 Offshore Wind Farm	Operational	27.3	53.6	40 8.25 MW wind turbines. Hub height 113 m. Rotor diameter 164 m.	O & M: 2018 to 2039	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Walney Extension 4 offshore wind farm
Walney Extension 3 Offshore Wind Farm	Operational	30.4	43.9	108 3.6 MW wind turbines. Hub height 90 m Rotor diameter 120 m.	O & M: 2018 to 2039	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Walney Extension 3 offshore wind farm
West of Duddon Sands Offshore Wind Farm	Operational	31.0	51.5	51 3.6 MW wind turbines. Hub height 84 m. Rotor diameter 107 m.	O & M: 2014 to 2033	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of West of Duddon Sands offshore wind farm
Walney 2 Offshore Wind Farm	Operational	32.8	49.6	51 3.6 MW wind turbines. Hub height 84 m. Rotor diameter 107 m.	O & M: 2012 to 2032	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Walney 2 offshore wind farm
Walney 1 Offshore Wind Farm	Operational	34.0	32.8	23 3.6 MW wind turbines. Hub height 78 m. Rotor diameters 107 m.	O & M: 2011 to 2032	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Walney 1 offshore wind farm
Burbo Bank Offshore Wind Farm	Operational	24.7	13.6	30 2 MW wind turbines. Hub height 70 m. Rotor diameter 80 m.	O & M: 2007 to 2039	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Burbo Bank offshore wind farm

Project/plan	Status	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor and Access Areas (km)	Description of project/plan	Date of construction (C) and/or operations and mainteance (O & M)	Overlap with the Mona Offshore Wind Project
Ormonde Offshore Wind Farm	Operational	41.2	58.0	30 5 MW wind turbines. Hub Height 100 m. Rotor diameter 126 m.	O & M: 2012 to 2036	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Ormonde offshore wind farm
Barrow Offshore Wind Farm	Operational	42.9	53.9	30 3 MW wind turbines. Hub height 75 m. Rotor diameter 90 m.	O & M: 2006 to 2028	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Barrow offshore wind farm
Robin Rigg Offshore Wind Farm	Operational	98.6	126.0	58 3 MW wind turbines. Hub height 80 m Rotor diameter 90 m.	O & M: 2010 to 2023	No activities for the Mona Offshore Wind Project would overlap with operations activities of Robin Rigg offshore wind farm
Arklow Bank Phase 1 Offshore Wind Farm	Operational	156.1	150.9	7 3.6 MW wind turbines. Hub height 73.5 m. Rotor diameter 124 m.	O & M: 2004 to 2028	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Arklow Bank Phase 1 offshore wind farm
Erebus Offshore Wind Farm	Submitted application	258.9	240.2	100 MW capacity.	C: 2025 O & M: 2026 to 2051	Construction and operations and maintenance activities for the Mona Offshore Wind Project may overlap with construction and operations activities of Erebus offshore wind farm
White Cross Offshore Wind Farm	Pre-application	287.7	264.1	Test and Demonstration Floating Wind Farm	unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of White Cross offshore wind farm

Project/plan	Status	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor and Access Areas (km)	Description of project/plan	Date of construction (C) and/or operations and mainteance (O & M)	Overlap with the Mona Offshore Wind Project
Rampion 1 Wind Farm	Operational	401.2	365.1	160 3 MW wind turbines. Hub height 98 m. Rotor diameter 107 m.	O & M: 2017 to 2042	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Rampion 1 Wind Farm
Rampion 2 Wind Farm	Application submitted	394.8 km	358.1 km	Up to 1,200 MW capacity.	C: 2025 O & M: 2029 to unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Rampion 2 Wind Farm
Tier 2 – Offshore Wind Projects and Associated Cables						
Morgan Generation Assets	Pre-application	5.52	32.93	Up to 107 wind turbines.	C: 2026 to 2029 O & M: 2030 to 2065	Construction and operations and maintenance activities for the Mona Offshore Wind Project may overlap with construction and operations activities of Morgan Generation Assets Offshore Wind Project
Morecambe Offshore Wind Farm Generation Assets	Pre-application	8.9	21.5	480 MW capacity, Area: 497 km^2	C: 2026 to 2028 O & M: 2029 to 2064	Construction and operations and maintenance activities for the Mona Offshore Wind Project may overlap with construction and operations activities of Morecambe Offshore Windfarm Generation Assets
Morgan and Morecambe Wind Farms Transmission Assets	Pre-application	8.92	21.53	n/a	C: 2026 to 2029 O & M: 2029 to 2065	Construction and operations and maintenance activities for the Mona Offshore Wind Project may overlap with construction activities

Project/plan	Status	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor and Access Areas (km)	Description of project/plan	Date of construction (C) and/or operations and maintenance (O & M)	Overlap with the Mona Offshore Wind Project
						of Morgan and Morecambe Wind Farms Transmission Assets
Mooir Vannin Offshore Wind Farm	Pre-application	34.5	59.90	Orsted have signed an agreement for lease to develop a 700 MW (annual output 3,000 GWh) wind farm on the east coast of the Isle of Man and have undertaken initial surveys since 2016.	C: 2030 to 2032 O & M: 2032 to unknown	Construction and operations and maintenance activities for the Mona Offshore Wind Project may overlap with construction activities of Mooir Vannin Offshore Wind Farm
North Irish Sea Array Offshore Wind Farm	Pre-application	112.7	118.6	500 MW capacity.	Unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of North Irish Sea Array offshore wind farm
Codling Wind Park Offshore Wind Farm	Pre-application	125.1	123.6	900 MW planned capacity, off of the coast Wicklow. Spread over an area of 125 km^2	unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Codling Wind Park offshore wind farm
Dublin Array Offshore Wind Farm	Pre-application	126.1	129.0	600 MW offshore wind power project. Area of 54 km^2.	Unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Dublin Array offshore wind farm
Oriel Offshore Wind Farm	Pre-application	130.4	138.1	375 MW capacity, spread over 28 km^2.	Unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Oriel offshore wind farm

Project/plan	Status	Distance from the Mona Array Area (km)	Distance from the Mona Offshore Cable Corridor and Access Areas (km)	Description of project/plan	Date of construction (C) and/or operations and mainteance (O & M)	Overlap with the Mona Offshore Wind Project
Arklow Bank Phase 2 Offshore Wind Farm	Pre-application	146.7	142.8	800 MW capacity.	Unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Arklow Bank Phase 2 offshore wind farm
Shelmalere Offshore Wind Farm	Pre-application	177.1	168.9	1,000 MW capacity.	Unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Shelmalere offshore wind farm
Llyr 1 Offshore Wind Farm	Pre-application	267.0	245.9	100 MW capacity.	C: 2024 to 2025 O & M: 2026 to 2051	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Llyr 1 offshore wind farm
Llyr 2 Offshore Wind Farm	Pre-application	263.17	240.12	1,000 MW capacity.	C: 2024 to 2025 O & M: 2026 to 2051	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Llyr 2 offshore wind farm
Inis Ealga Marine Energy Park Offshore Wind Farm	Pre-application	302.1	292.0	1,000 MW capacity.	Unknown	Operations and maintenance activities for the Mona Offshore Wind Project may overlap with operations activities of Inis Ealga Marine Energy Park offshore wind farm

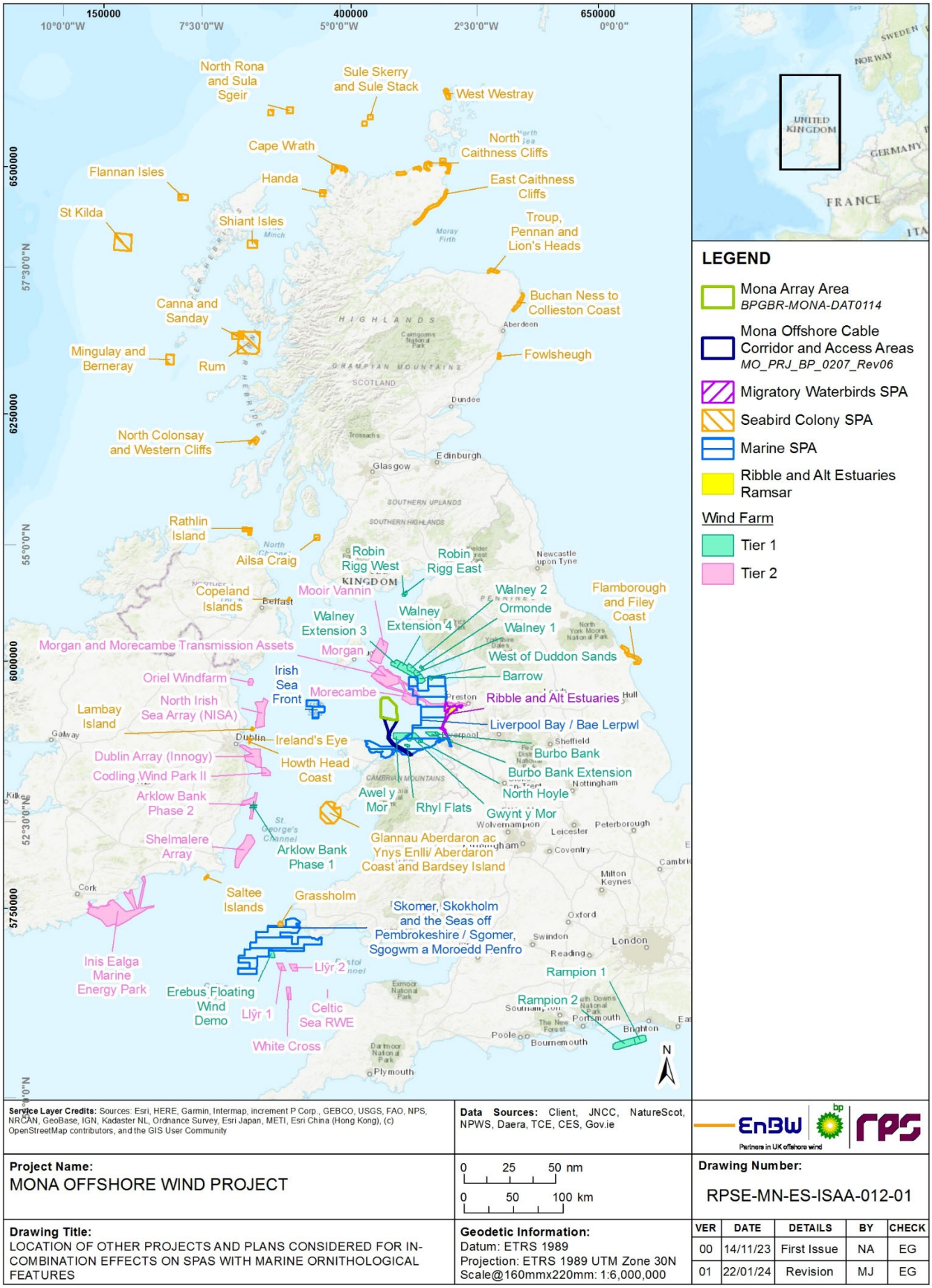

Figure 1.12: Location of other projects and plans considered for in-combination effects on SPAs and Ramsar sites with offshore ornithological features.

In-combination disturbance and displacement from airborne sound and presence of vessels and infrastructure

Liverpool Bay/Bae Lerpwl SPA

1.6.4.8 The spatial extent of in-combination effects is defined as the area within the Liverpool Bay/Bae Lerpwl SPA which overlaps with other plans and projects, and for which the species is a designated feature. This includes the following projects:

- Awel y Môr Offshore Wind Farm during the construction, operations and maintenance and decommissioning phases
- Burbo Bank Offshore Wind Farm during the operations and maintenance and decommissioning phases
- Burbo Bank Extension Offshore Wind Farm during the operations and maintenance and decommissioning phases
- Gwynt y Môr Offshore Wind Farm during the operations and maintenance and decommissioning phases
- North Hoyle Offshore Wind Farm during the operations and maintenance and decommissioning phases
- Rhyl Flats Offshore Wind Farm during the operations and maintenance and decommissioning phases
- Morgan and Morecambe Wind Farms Transmission Assets during the construction, operations and maintenance and decommissioning phases

1.6.4.9 As only two other projects have the potential to have an in-combination impact during the construction phase it was not deemed proportionate to present a separate calculation. The greatest impact occurs during the construction phase of the Mona Offshore Wind Project and the operations and maintenance phase of the in-combination projects. The greatest predicted impacted is presented within this assessment.

1.6.4.10 The disturbance and displacement from vessel movements will be temporary and intermittent; therefore it is not expected that there will be permanent habitat loss or deterioration of habitat quality as a result of the vessel movements.

Red-throated diver

1.6.4.11 The expected number of red-throated diver mortalities per annum due to displacement from other projects/plan included in the in-combination assessment is given in Table 1.64. Numbers presented within Table 1.64 have been taken from Awel y Môr's Report to Inform the Appropriate Assessment (Awel y Môr, 2022) and the PEIR documents for the Morecambe and Morgan Wind Farms Transmission Assets (Morgan Offshore Wind Ltd. and Morecambe Offshore Windfarm Ltd., 2023).

1.6.4.12 Effects outside the non-breeding period are unlikely to be significant, as most birds move to their breeding areas, away from Liverpool Bay and so, impacts are only considered during the non-breeding season.

Table 1.64: Predicted annual mortalities of red-throated diver resulting from disturbance and displacement from projects considered in-combination.

Plan/project	Predicted Mortalities		Reference
	Construction phase of Mona Offshore Wind Project	Operations and maintenance phase	
Awel y Môr	0.7	1.2	Awel y Môr, 2022.
Burbo Bank Extension	0.3	0.3	
Burbo Bank	0.11	0.11	
Gwynt y Môr	0.35	0.35	
Mona Offshore Wind Project (specifically the Mona Offshore Cable Corridor and Access Areas)	0.15 to 0.31 if construction occurs during winter or 0.01 to 0.02 if construction during summer	Up to 0.31 (impact predicted during operations and maintenance phase would be no greater than construction phase)	This document.
Morgan and Morecambe Wind Farms Transmission Assets	0.08	Up to 0.08 (impact predicted during operations and maintenance phase would be no greater than construction phase)	Morgan Offshore Wind Ltd. and Morecambe Offshore Windfarm Ltd., 2023.
North Hoyle	0	0	Awel y Môr, 2022.
Rhyl Flats	0.24	0.24	
Total predicted mortalities	Up to 2.09 if construction occurs during winter Up to 1.8 if construction occurs during summer	Up to 2.59	
Increase in baseline mortality (%)	0.49 if construction occurs during winter 0.43 if construction occurs during summer	0.62	

1.6.4.13 The in-combination predicted mortality resulting from temporary disturbance/displacement from airborne sound and presence of vessels and infrastructure within the Liverpool Bay/Bae Lerpwl SPA totals up to 2.59 individuals per annum when considering the greatest impact (during the operations and maintenance phase).

1.6.4.14 Using the baseline adult mortality of 0.160 and an immature mortality of 0.600 and 0.620 of first- and second-year birds respectively (Horswill and Robinson, 2015), a stable population viability analysis model gave an average baseline mortality estimate of 0.233. With a non-breeding population of 1,800 (HiDef, 2023) this would lead to a baseline mortality of 419 individuals annually. The increased mortality of up to 2.59 birds equates to an increase in baseline mortality of 0.62%. This is below a 1% increase in baseline mortality and therefore is expected to be within the natural variability for this SPA.

1.6.4.15 There is therefore no indication that disturbance and displacement from airborne sound and presence of vessels and infrastructure will lead to a significant reduction in the population and distribution of red-throated diver from in-combination impacts

during the all phases due to the small impact. The species will therefore not be adversely affected.

Common scoter

1.6.4.16 The expected number of common scoter displaced from other developments is given in Table 1.65. Effects outside the non-breeding period are unlikely to be significant, as most birds move away from the SPA and so, impacts are only considered during the non-breeding season. Additionally, as the vessels move, it has been assumed that displaced birds return and therefore any individual will be subjected to only a brief period of impact.

1.6.4.17 The precautionary increase in baseline mortality from the Mona Offshore Cable Corridor and Access Areas alone was 12.4 common scoters (see paragraph 1.6.3.40 for detailed methodology) based on a displacement rate of 100% and a mortality of 0.5%.

Table 1.65: Predicted annual mortalities of common scoter resulting from disturbance and displacement from projects considered in-combination during construction/decommissioning.

Plan/project	Predicted Mortalities		Reference
	Construction phase of Mona Offshore Wind Project	Operations and maintenance phase	
Awel y Môr	17.5	0.3	Awel y Môr, 2022.
Burbo Bank Extension	4	4	
Burbo Bank	0	0	
Gwynt y Môr	0	0	
Mona Offshore Wind Project (specifically the Mona Offshore Cable Corridor and Access Areas)	12.4 if construction occurs in winter 0 if the construction occurs in summer	Up to 12.4 (impact predicted during operations and maintenance phase would be no greater than construction phase)	This document.
Morgan and Morecambe Wind Farms Transmission Assets	Unknown	Unknown	Morgan Offshore Wind Ltd. and Morecambe Offshore Windfarm Ltd., 2023.
North Hoyle	0.1	0.1	Awel y Môr, 2022.
Rhyl Flats	1.3	1.3	
Total predicted mortalities	35.3 if construction occurs in winter 22.9 if construction occurs in summer	Up to 18.1	
Increase in baseline mortality (%)	0.17 if construction occurs in winter 0.11 if construction occurs in summer	Up to 0.09	

1.6.4.18 Based on a baseline adult mortality of 0.217 and an immature mortality of 0.251 (Horswill and Robinson 2015), a stable population viability analysis model calculated the average mortality for common scoters to be 0.238. In a population of 87,364 (HiDef, 2023), the baseline mortality would be 20,792 birds. The increase in baseline mortality using the potential impact from the Mona Offshore Wind Project in-combination with other plans and projects (up to 35.3) equates to an increase of up to 0.17%. The greatest impact would occur if the construction of Awel y Môr Offshore Wind Farm Project occurred concurrently with the construction of the Mona Offshore Wind Project and the operations and maintenance of the other plans and projects. The in-combination impact is predicted to be below a 1% increase in baseline mortality and therefore is expected to be within the natural variability for this SPA.

1.6.4.19 There is therefore no indication that disturbance and displacement from airborne sound and presence of vessels and infrastructure will lead to a significant reduction in the population and distribution of common scoter from in-combination impacts during the all phases due to the small impact. The species will therefore not be adversely affected.

Table 1.66: Conclusions against the conservation objectives of the Liverpool Bay/Bae Lerpwl SPA for disturbance and displacement from airborne sound and presence of vessels and infrastructure from the Mona Offshore Wind Project in-combination with other plans/projects.

Feature	Attribute	Target/Conservation Objective	Conclusion
Red-throated diver	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 1,800 individuals (mean peak, 2015, 2018, 2019 and 2020).	Displacement and disturbance on red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project and other plans and projects in-combination during all phases of development. The effect is expected to have the potential to be permanent, local and long-term. The impact on the population of red-throated diver has been assessed to be result in an increase in baseline mortality of 0.62%. This impact occurred during the operations and maintenance phases for all projects. As the increase in baseline mortality is <1% it is highly unlikely that at this level of mortality increase, the population will decline. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during all phases will not prevent the population of each of the qualifying features from being maintained.
	Non-breeding population: distribution	**Restore** the distribution of the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting feature distribution.	Displacement and disturbance associated with the in-combination plans and projects on red-throated diver is expected to occur as a result of vessels movements. Due to the temporary nature over which the birds would be impacted (as a vessels transits through the SPA), it is not predicted that a permanent disturbance would occur and therefore this impact would not affect the ability for the distribution to be restored. However with the levels of vessels continuing to increase their will get to a limit whereby the distribution of birds would avoid the navigation channels. Red-throated diver already exhibited this behaviour when the SPA was designated (Figure 1.4) and therefore it would be considered part of the baseline distribution. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during all phases will not prevent the distribution of the qualifying feature from being restored.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance from red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project in-combination with other plans and projects. Some other plans and projects have adopted an EMP, similar to Mona Offshore Wind Project which minimises the disturbance. Following of set routes and set times in co-ordination with other plans and projects to the offshore wind farms could reduce the frequency, duration and intensity of disturbance.
	Supporting habitat: Food availability and quality of prey	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. fish) to maintain the population.	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats (and food availability). Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the extent and distribution, structure and function or the supporting processes of the habitats of the qualifying features from being maintained or restored.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Restore** the extent, distribution and availability of suitable habitat which supports the feature; preventing further deterioration, and where possible, reduce any existing anthropogenic influences impacting the extent and quality (including water quality).	
Common scoter	Non-breeding population: abundance	**Maintain** the size of the non-breeding population at a level which is at or above 141,801 individuals (mean peak, 2015, 2018, 2019 and 2020).	Displacement and disturbance on common scoter is expected to occur as a result of vessels associated of the Mona Offshore Wind Project and other plans and projects in-combination during all phases of development. The effect is expected to have the potential to be permanent, local and long-term. The impact on the population of common scoter has been assessed to be result in an increase in baseline mortality of 0.17%. This impact occurred during the construction of Awel y Môr Offshore Wind Farm Project, the construction of the Mona Offshore Wind Project and the operations and maintenance of the other plans and projects operations and maintenance phases for all projects. As the increase in baseline mortality is <1% it is highly unlikely that at this level of mortality increase, the population will decline. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during all phases will not prevent the population of each of the qualifying features from being maintained.

Feature	Attribute	Target/Conservation Objective	Conclusion
	Non-breeding population: distribution	**Maintain** the distribution of the feature; the extent should not be reduced by anthropogenic factors.	Displacement and disturbance associated with the in-combination plans and projects on common scoter is expected to occur as a result of vessels movements. Due to the temporary nature over which the birds would be impacted (as a vessels transits through the SPA), it is not predicted that a permanent disturbance would occur and therefore this impact would not affect the ability for the distribution to be maintained. However with the levels of vessels continuing to increase their will get to a limit whereby the distribution of birds would avoid the navigation channels. Common scoter already exhibited this behaviour when the SPA was designated (Figure 1.8) and therefore it would be considered part of the baseline distribution. Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during all phases will not prevent the distribution of the qualifying feature from being restored.
	Disturbance caused by human activity	**Minimise** the frequency, duration and/or intensity of disturbance affecting the feature so that the population, its distribution within the site, or its use of the habitat is not significantly affected.	Displacement and disturbance from red-throated diver is expected to occur as a result of vessels associated of the Mona Offshore Wind Project in-combination with other plans and projects. Some other plans and projects have adopted a EMP, similar to Mona Offshore Wind Project which minimises the disturbance. Following of set routes and set times in co-ordination with other plans and projects to the offshore wind farms could reduce the frequency, duration and intensity of disturbance.
	Supporting habitat: Food availability	**Maintain** the distribution, abundance and availability of key food and prey items (e.g. molluscs and bivalves) to maintain the population.	There is no effect of airborne sound, underwater sound, and presence of vessels on the supporting habitats (and food availability). Therefore, disturbance and displacement from airborne sound and presence of vessels and infrastructure during the operations and maintenance phase will not prevent the extent and distribution, structure and function or the supporting processes of the habitats of the qualifying features from being maintained or restored.
	Supporting habitat: extent, distribution and quality of supporting habitat for the non-breeding season	**Maintain** the extent, distribution and availability of suitable habitat which supports the feature; the quality and extent should not deteriorate by anthropogenic factors (including water quality).	

Conclusions – all project phases

1.6.4.20 Adverse effects on the qualifying features which undermine the conservation objectives of the SPA will not occur as a result of in-combination disturbance and displacement from airborne sound, and presence of vessels and infrastructure impacts. An assessment of the impact 'disturbance and displacement from airborne sound, and presence of vessels and infrastructure' against each relevant conservation objective (as presented in paragraph 1.6.2.46) is presented in Table 1.66. Where the justifications and supporting evidence are the same for more than one conservation objective, the assessments have been grouped.

1.6.4.21 So it can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA as a result of disturbance and displacement from airborne sound and presence of vessels and infrastructure with respect to all phase of development of the Mona Offshore Wind Project in-combination with other plans/projects. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).

Collision risk during the operations and maintenance phase

Isles of Scilly SPA

Great black-backed gull

1.6.4.22 As discussed within section 1.5.4 (Integrity test: Step 1 in-combination), the in-combination impact on great black-backed gull from the Isles of Scilly SPA during the non-breeding season could increase the baseline mortality between 1.11~~09~~% and 7.59~~40~~% (1.40~~37~~ to 9.56~~34~~ birds), depending on the avoidance rate used. For clarity, the two avoidance rates used are 99.39% as advocated by the SNCBs for the species -group 'large gull species' (following EWG meeting 5 in June 2023; see Table 1.1) and 99.91% using species- ~~-~~specific rates. Both of the avoidance rates are taken from Ozsanlav-Harris *et al*. (2023).

1.6.4.23 As the impact presented within the Integrity test: Step 1 in combination results in an increase in baseline mortality of >1% for both the species specific and species group avoidance rate, population viability analysis (PVA) was undertaken. The PVA was undertaken to assess the impact on the population over the lifetime of the Mona Offshore Wind Project. A PVA predicts how a population would respond to a change in the mortality of the species over a set number of years. The outputs of the PVA predict a population size and population growth rate at the end of a set period for an unimpacted (baseline) and impacted (with additional mortality risk) population. The inputs and outputs from the PVA are presented in detail within Appendix A.

1.6.4.24 The PVA predicted that the addition of great black-backed gull collision mortalities from cumulative wind farms would reduce the growth rate of the non-breeding/wintering population by 0.001 for avoidance rate of 0.9991 and 0.006 for avoidance rate of 0.9939 after 35 years of operation. The model predicts a positive rate of growth for the population based on growth rates of 1.120 (1.098 to 1.139, lower and upper confidence intervals)~~19~~ for the non-impacted population, 1.119~~8~~ (1.097 to 1.138) per annum when using the 0.9991 avoidance rate and 1.112 (1.091 to 1.132)~~3~~ per annum when using the 0.9939 avoidance rate after 35 years of operation (between 2030 to 2065).

~~1.6.4.25 Despite any additional mortality, the population is still expected to continue to grow and is predicted to be larger after 35 years than the currently recorded size. The reduced growth rate of 1.113 (lower confidence interval 1.091, upper confidence interval 1.133) for avoidance rate of 0.9939 and of 1.118 (lower confidence interval 1.097, upper confidence interval 1.139) would not trigger a risk of population decline and would only result in a slight reduction in the growth rate currently seen in the population.~~

~~1.6.4.26~~1.6.4.25 The in-combination assessment of collision risk considered only projects which presented an apportioned or total impact (see Table 1.44 within section 1.5.4). Additional historic projects which are operational but have not presented a quantitative impact were considered qualitatively. Specifically, Burbo Bank Offshore Wind Farm, Burbo Bank Extension Offshore Wind Farm, Walney 1 & 2 Offshore Wind Farms, West of Duddon Sands Offshore Wind Farm and Gwynt y Môr Offshore Wind Farm could result in additional impacts. These qualitative sites are considered within Table 1.67.

~~1.6.4.27~~1.6.4.26 Following review of the available data from these projects, due to the low number of great black-backed gull recorded during the surveys for these other projects (as presented within Table 1.67), it is not considered that an additional risk exists if quantitative impacts were presented. All projects recorded great black-backed gull in such low numbers that it did not warrant those projects undertaking collision risk modelling. It can be concluded that there would not be a material difference to this in-combination assessment and the conclusions remain valid with or without a quantitative impact presented for these historic projects.

Table 1.67: Qualitative assessment of operational wind farms which could impact great black-backed gull from the Isles of Scilly SPA during the non-breeding season.

Project	Reason for estimates being unavailable	Qualitative assessment	Final conclusion
Burbo Bank (Seascape Energy, 2002)	Species not included in collision risk modelling	The assessment of collision risk was undertaken on a qualitative basis by investigating flight heights of birds at the project site and was undertaken for species considered to be of international or national importance in the context of the assessments undertaken for the project. Great black-backed gull was not considered to be a species of international or national importance. Surveys of the project comprised aerial and boat-based surveys both of which were undertaken during winter months (aerial = November to April and boat-based = December and February). Great black-backed gull was not recorded during boat-based surveys with relatively low numbers recorded during aerial surveys.	No assessment was conducted for great black-backed gull in relation to collision risk impacts because great black-backed gull was not considered to be a species of international or national importance in the context of the assessments undertaken for Burbo Bank. The great black-backed gull feature of the Isles of Scilly SPA was not specifically considered in the assessments presented. As no collision risk assessment was undertaken due to low risk to this species, there is unlikely to be a measurable in-combination impact and the conclusions presented within this ISAA are unlikely to change.
Burbo Bank Extension (DONG Energy, 2013)	Species not included in collision risk modelling	Collision risk modelling was undertaken however great black-backed gull was not included. Site-specific data consisted of six boat-based surveys undertaken between April and September 2011 and six aerial surveys undertaken between November 2010 and April 2011. The peak population of great black-backed gull recorded during boat-based surveys was 18 bids with an average of 8 birds. During aerial surveys, great black-backed gulls were recorded in all but one but in small numbers (peak population of 90 birds). The species was considered to be of regional/local importance in the context of the assessment for the project.	No assessment was conducted for great black-backed gull in relation to collision risk impacts within the impact assessment for Burbo Bank Extension. The great black-backed gull feature of the Isles of Scilly SPA was not specifically considered in the assessments presented. As no collision risk assessment was undertaken due to low risk to this species, there is unlikely to be a measurable in-combination impact and the conclusions presented within this ISAA are unlikely to change.

Project	Reason for estimates being unavailable	Qualitative assessment	Final conclusion
Walney 1 & 2 (RPS, 2006a)	Species not included in collision risk modelling	Site-specific surveys included boat-based surveys undertaken across an area of 512 km2 in the vicinity of the project between May 2004 and September 2005. The project also utilised survey data collected by regional aerial surveys, undertaken across the NW3 aerial survey area between 2002 and 2006 and radar survey data collected between 01 October and 29 October 2005. The peak population of great black-backed gull recorded in the project area plus 2 km buffer during aerial surveys was 43 birds. In boat-based surveys the equivalent population was 65 birds. The proportion of flying great black-backed gulls recorded above 15 m was 28.7 % across all boat-based surveys, although the total number of flying birds was low (108 records). Great black-backed gull was deemed to be a species of medium importance (termed sensitivity in the Walney 1 & 2 assessments). Great black-backed gull was not included in collision risk modelling, and it was considered that, due to the very low numbers of birds recorded at rotor height, that the magnitude of collision was negligible.	Within the Walney 1 & 2 EIA, it was concluded that impacts on great black-backed gull was of very low significance. The great black-backed gull feature of the Isles of Scilly SPA was not specifically considered in the assessments presented. As no collision risk assessment was undertaken due to low risk to this species, there is unlikely to be a measurable in-combination impact and the conclusions presented within this ISAA are unlikely to change.
West of Duddon Sands (RPS, 2006b)	Species not included in collision risk modelling	Site-specific surveys included boat-based surveys undertaken across an area of 512 km2 in the vicinity of the project between May 2004 and September 2005. The project also utilised survey data collected by regional aerial surveys, undertaken across the NW3 aerial survey area between 2002 and 2006 and radar survey data collected between 01 October and 29 October 2005. The peak population of great black-backed gull recorded in the project area plus 2 km buffer during aerial surveys was 2 birds. In boat-based surveys the equivalent population was 661 birds. The proportion of flying great black-backed gulls recorded above 15 m was 28.7 % across all boat-based surveys, although the total number of flying birds was low (108 records). Great black-backed gull was deemed to be a species of medium importance (termed sensitivity in the West of Duddon Sands assessments).	Within the West of Duddon Sands EIA, it was concluded that impacts on great black-backed gull was of very low significance. The great black-backed gull feature of the Isles of Scilly SPA was not specifically considered in the assessments presented. As no collision risk assessment was undertaken due to low risk to this species, there is unlikely to be a measurable in-combination impact and the conclusions presented within this ISAA are unlikely to change.

Project	Reason for estimates being unavailable	Qualitative assessment	Final conclusion
Gwynt y Môr (RWE Group and Npower Renewables, 2005)	Species not included in collision risk modelling	Site-specific surveys undertaken in support of the project included boat-based surveys undertaken between February 2003 and March 2005. Surveys between February 2003 and February 2004 covered a large area along the Welsh coast incorporating the project area with surveys between March 2004 and March 2005 more focussed on the project area. The assessment also used data from aerial surveys undertaken between 2000 and 2005 which were targeted at recording common scoter. During boat-based surveys used to characterise the project undertaken between 2004 to 2005, covering an area considered by the project assessment to better represent the behaviour of birds than in 2003-04, 8,900 observations were obtained with only 22 flights recorded at a height of greater than 20 m. In 2004-05 surveys, 70 great black-backed gull were recorded in flight with only 2.9% of these flying above 20 m.	Within the Gwynt y Môr EIA, it was concluded that impacts on great black-backed gull were of low significance due to low proportion of flight heights recorded at collision height. The great black-backed gull feature of the Isles of Scilly SPA was not specifically considered in the assessments presented. As no collision risk assessment was undertaken due to low risk to this species, there is unlikely to be a measurable in-combination impact and the conclusions presented within this ISAA are unlikely to change.

Table 1.68: Conclusions against the conservation objectives of the Isles of Scilly SPA for collision risk during the operations and maintenance phase of the Mona Offshore Wind Project in-combination with other plans/projects.

Feature	Target/Conservation Objective	Conclusion
Great black-backed gull	**Maintain** the size of the breeding population at a level which is above 941 (Apparently Occupied Nests, equivalent to pairs), whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	In-combination between 1.4037 and 9.5634 birds were predicted to collide when all plans/projects were considered (Table 1.44). An increase of 1.4037 or 9.5634 birds would present an increase in the baseline mortality of 1.1109 or 7.5940% and therefore PVA was undertaken. The results of the PVA concluded that with or without the predicted impact the population of the Isles of Scilly SPA will continue to increase over the lifetime of the Mona Offshore Wind Project (an estimated 35 year lifetime of between 2030 to 2065 was modelled within the PVA). Therefore collision risk from the Mona Offshore Wind project in-combination with other plans and projects will not prevent the population of the great black-backed gull from being maintained or restored. The additional impact from non-quantified projects is not considered to make a material change to this conclusion. There was overall low levels of birds recorded during the surveys for the other projects.

Feature	Target/Conservation Objective	Conclusion
	Maintain safe passage of birds moving between nesting and feeding areas.	The impact 'collision risk' is unable to affect these conservation objectives of the site. Therefore collision risk will not prevent any of the conservation objectives from being maintained or restored.
	Restrict the frequency, duration and / or intensity of disturbance affecting roosting, nesting, foraging, feeding, moulting and/or loafing birds so that they are not significantly disturbed	
	Reduce predation and disturbance caused by native and non-native predators	
	Maintain or **recover** productivity so that breeding success is maximised within the constraints of the site.	
	Maintain concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System	
	Maintain the structure, function and supporting processes associated with the feature and its supporting habitat through management or other measures (whether within and/or outside the site boundary as appropriate) and ensure these measures are not being undermined or compromised.	
	Maintain the extent, distribution and availability of suitable habitat (either within or outside the site boundary) which supports the feature for all necessary stages of its breeding cycle (courtship, nesting, feeding).	
	Maintain the distribution, abundance and availability of key food and prey items (e.g. fish, rabbit, seabirds, nestlings, eggs) at preferred sizes.	
	Maintain vegetation heights (generally 10-30 cm) in areas used for nesting.	
	Reduce aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the WFD, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.	
	Maintain the dissolved oxygen (DO) concentration at levels equating to High Ecological Status (specifically ≥ 5.7 mg L-1 (at 35 salinity) for 95 % of year) avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.	
	Maintain water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data.	
	Maintain natural levels of turbidity (e.g. concentrations of suspended sediment, plankton and other material) across the habitat	

Conclusions – operations and maintenance phase

~~1.6.4.28~~1.6.4.27 Adverse effects on the qualifying features which undermine the conservation objectives of the Isles of Scilly SPA will not occur as a result of in-combination collision risk. An assessment of the impact 'collisions risk' against each relevant conservation objective is presented in Table 1.68. Where the justifications and supporting evidence are the same for more than one conservation objective, the assessments have been grouped.

~~1.6.4.29~~1.6.4.28 It can be concluded beyond reasonable scientific doubt that there is no risk of an adverse effect on the integrity of the Isles of Scilly SPA as a result of collision risk with respect to the operations and maintenance phase of the Mona Offshore Wind Project in-combination with other plans and projects. The conclusions of no risk of an adverse effect on the integrity of the Isles of Scilly SPA have been made with reference to the site's conservation objectives.

1.6.5 Summary of integrity test: Step 2

Effects on site integrity

1.6.5.1 A summary of the assessments presented in this HRA Stage 2 ISAA, considering the relevant SPAs and Ramsar sites, is provided in the sections below. Table 1.69 presents the conclusions of Adverse Effects on Integrity in relation to the Mona Offshore Wind Project alone and in-combination with other plans and projects.

Liverpool Bay/Bae Lerpwl SPA

1.6.5.2 Based on the information presented in sections 1.6.3 and 1.6.4, no Adverse Effect on Integrity of the Liverpool Bay/Bae Lerpwl SPA, with specific regard to the qualifying offshore ornithological features for which LSE could not be excluded, is predicted as a result of the Mona Offshore Wind Project, either alone or in-combination with other plans and projects. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).

Isles of Scilly SPA

1.6.5.3 Based on the information presented in sections 1.6.3 and 1.6.4, no Adverse Effect on Integrity of the Isles of Scilly SPA, with specific regard to the qualifying offshore ornithological features for which LSE could not be excluded, is predicted as a result of the Mona Offshore Wind Project, either alone or in-combination with other plans and projects. The conclusions of no risk of an adverse effect on the integrity of the Isles of Scilly SPA have been made with reference to the conservation objectives of the site.

Table 1.69: Summary of conclusions of sites considered within Step 2.

ID	European Site	Relevant qualifying features	Project phase	Impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project in-combination with other plans and projects
1	Liverpool Bay/Bae Lerpwl SPA	Red-throated diver Common scoter	Construction and 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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).
			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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site. The conclusions of no risk of an adverse effect on the integrity of the Liverpool Bay/Bae Lerpwl SPA have been made with reference to the conservation objectives detailed in Natural England, NRW and JNCC (2022).
2	Isles of Scilly SPA	Great black-backed gull	Operations and maintenance	• Collision risk	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site. The conclusions of no risk of an adverse effect on the integrity of the Isles of Scilly SPA have been made with reference to the Conservation Objective.

1.7 Summary

1.7.1.1 Table 1.70 presents the conclusions of Adverse Effects on Integrity in relation to the Mona Offshore Wind Project alone and in-combination with other plans and projects.

Table 1.70: Summary of conclusions.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
Liverpool Bay/Bae Lerpwl SPA	Red-throated diver ~~*Gavia stellata*~~ Little gull ~~*Hydrocoloeus minutus*~~ Common scoter ~~*Melanitta nigra*~~ Little tern ~~*Sternula albifrons*~~ Common tern Waterbird assemblage	Construction Operations and maintenance Decommissioning	Temporary habitat loss/disturbance and increased suspended sediment concentration (SSC) Disturbance and displacement from airborne sound and presence of vessels and infrastructure Changes in prey availability (construction only) Accidental pollution In-combination effects.	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Ribble and Alt Estuaries SPA and Ramsar site	Lesser black-backed gull ~~*Larus fuscus*~~	Operations and maintenance	Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Irish Sea Front SPA	Manx shearwater	Construction Operations and maintenance Decommissioning	Disturbance and displacement from airborne sound and presence of vessels and infrastructure In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Morecambe Bay and Duddon Estuary	Lesser black-backed gull	Operations and maintenance	Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
Bowland Fells SPA	Lesser black-backed gull	Operations and maintenance	Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Lambay Island SPA	Black-legged kittiwake ~~*Rissa tridactyla*~~	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Ireland's Eye SPA	Black-legged kittiwake	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
Copeland Islands SPA	Manx shearwater	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Ailsa Craig SPA	Northern gannet Common guillemot (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk (northern gannet only) In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Rathlin Island SPA	Black-legged kittiwake Common guillemot (non-breeding season only) Razorbill (non-breeding season 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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro SPA	Manx shearwater Lesser black-backed gull Black-legged kittiwake – assemblage species Common guillemot (non-breeding season only) – assemblage species	Construction Operations and maintenance Decommissioning	Disturbance and displacement from airborne sound and presence of vessels and infrastructure (not lesser black-backed gull)	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
	Razorbill (non-breeding season only) – assemblage species		Collison risk (lesser black-backed gull and black-legged kittiwake only) In-combination effects		
Grassholm SPA	Northern gannet ~~*Morus bassanus*~~	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Saltee Islands SPA	Northern gannet	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Flamborough and Filey Coast SPA	Black-legged kittiwake (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
			presence of vessels and infrastructure Collision risk In-combination effects		
North Colonsay and Western Cliffs SPA	Black-legged kittiwake Common guillemot (non-breeding season 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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Rum SPA	Manx shearwater	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Fowlsheugh SPA	Black-legged kittiwake (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Mingulay and Berneray SPA	Common guillemot (non-breeding season only) Razorbill (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
			presence of vessels and infrastructure In-combination effects		
Canna and Sanday SPA	~~Black-legged kittiwake~~Common guillemot (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure ~~Collision risk~~ In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Isles of Scilly SPA	Great black-backed gull ~~*Larus marinus*~~ (non-breeding season only)	Operations and maintenance	Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Buchan Ness to Collieston SPA	Black-legged kittiwake (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Troup, Pennan and Lion's Heads SPA	Black-legged kittiwake (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Shiant Isles SPA	Common guillemot (non-breeding season only)	Operations and maintenance	Disturbance and displacement from	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
	Razorbill (non-breeding season only)		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 In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
East Caithness Cliffs SPA	Black-legged kittiwake (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Handa SPA	Common guillemot (non-breeding season only) Razorbill (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
			Collision risk (northern gannet only) In-combination effects		
Cape Wrath SPA	Black-legged kittiwake (non-breeding season 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	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Flannan Isles SPA	Common guillemot (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
North Caithness Cliffs SPA	Black-legged kittiwake (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
Sule Skerry and Sule Stack SPA	Common guillemot (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

European Site	Relevant qualifying features	Project phase	Potential impact	Conclusion – Mona Offshore Wind Project alone	Conclusion – Mona Offshore Wind Project alone in-combination with other plans and projects
			In-combination effects		
North Rona and Sula Sgeir SPA	Common guillemot (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.
West Westray SPA.	Black-legged kittiwake (non-breeding season only)	Operations and maintenance	Disturbance and displacement from airborne sound and presence of vessels and infrastructure Collision risk In-combination effects	No adverse effect on the integrity of the site.	No adverse effect on the integrity of the site.

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Appendix A Inputs and outputs from the in-combination PVA of great black-backed gull from the Isles of Scilly SPA

A.1 Input parameters

The log file was created on: 2024-081-1508 2012:0528:10 using Tool version 2, with R version 3.5.1, PVA package version: 4.18 (with UI version 1.7)

```
##                Package           Version
## popbio         "popbio"          "2.4.4"
## shiny          "shiny"           "1.1.0"
## shinyjs        "shinyjs"         "1.0"
## shinydashboard "shinydashboard" "0.7.1"
## shinyWidgets   "shinyWidgets"    "0.4.5"
## DT             "DT"              "0.5"
## plotly         "plotly"          "4.8.0"
## rmarkdown      "rmarkdown"       "1.10"
## dplyr          "dplyr"           "0.7.6"
## tidyr          "tidyr"           "0.8.1"
```

A.1.1 Basic information

This run had reference name "Isles of Scilly SPA_GBBG_Update".
PVA model run type: simplescenarios.
Model to use for environmental stochasticity: betagamma.
Model for density dependence: nodd.
Include demographic stochasticity in model?: Yes.
Number of simulations: 5000
Random seed: 12345.
Years for burn-in: 05.
Case study selected: None.

A.1.2 Baseline demographic rates

Species chosen to set initial values: Great Black-Backed Gull.
Region type to use for breeding success data: Reg.Seas.
Available colony-specific survival rate: National.
Sector to use within breeding success region: Irish Sea.
Age at first breeding: 5.
Is there an upper constraint on productivity in the model?: Yes, constrained to 3 per pair.
Number of subpopulations: 1.
Are demographic rates applied separately to each subpopulation?: No.
Units for initial population size: all.individuals
Are baseline demographic rates specified separately for immatures?: Yes.

A.1.3 Population 1

Initial population values: Initial population 1,618 in 2021

Productivity rate per pair: mean: 1.011012 , sd: 0.4724585

Adult survival rate: mean: 0.93 , sd: 0.0001

Immatures survival rates:

Age class 0 to 1 – mean: 0.798 , sd: 0.188 , DD: NA

Age class 1 to 2 – mean: 0.93 , sd: 0.0001 , DD: NA

Age class 2 to 3 – mean: 0.93 , sd: 0.0001, DD: NA

Age class 3 to 4 – mean: 0.93 , sd: 0.0001 , DD: NA

Age class 4 to 5 – mean: 0.93 , sd: 0.0001 , DD: NA

A.1.4 Impact scenario inputs

Number of impact scenarios: 2.

Are impacts applied separately to each subpopulation?: No

Are impacts of scenarios specified separately for immatures?: No

Are standard errors of impacts available?: No

Should random seeds be matched for impact scenarios?: No

Are impacts specified as a relative value or absolute harvest?: relative

Years in which impacts are assumed to begin and end: 2030 to 2065

A.1.5 Impact on Demographic Rates

A.1.5.1 Scenario A – Name: 0.9939 avoidance

Impact on productivity rate mean: 0 , se: NA

Impact on adult survival rate mean: ~~0.~~ 0.005908529~~005260821~~, se: NA

A.1.5.2 Scenario B – Name: 0.9991 avoidance

Impact on productivity rate mean: 0 , se: NA

Impact on adult survival rate mean: 0.0008652660~~.000837958~~, se: NA

A.1.6 PVA Log Output

First year to include in outputs: 2023
Final year to include in outputs: 2065
How should outputs be produced, in terms of ages?: breeding.adults
Target population size to use in calculating impact metrics: NA
Quasi-extinction threshold to use in calculating impact metrics: NA

A.2 Output tables

The results of the PVA runs for impacts from the Mona Offshore Wind Project cumulatively with other offshore wind farms to the great black-backed gull South-west and English Channel BDMPS in the non-breeding season at the start of operation (2030) and for the duration of the project (35 years) are presented in Table A.1 using the SNCBs advised species-group~~ed~~ avoidance rate~~s~~ (0.9939) and using the species-specific avoidance rate~~s~~ (0.9991). The baseline 'unimpacted' scenario (i.e. assuming no additional mortality other than baseline mortality exists) is also shown for comparison purposes.

Table A. 1: Great black-backed gull PVA results for the Isles of Scilly SPA using ~~SNCB advised~~species-group avoidance rate~~s~~ (0.9939) and species-specific avoidance rate~~s~~ (0.9991).

Year	Impact scenario	Simulated adult population size	Percentage population change since 2021	Mean growth rate	2.5 percentile of simulated growth rate	97.5 percentile of simulated growth rate	Mean counterfactual of population size	Mean counterfactual of growth rate
2030	Baseline	4,751 ~~4,353~~	194%~~169%~~	1.114~~1.126~~	0.926~~0.963~~	1.386~~1.412~~	-	-
2030	0.9939 avoidance	4,721 ~~4,330~~	192%~~168%~~	1.107~~1.120~~	0.920~~0.957~~	1.377~~1.403~~	0.9945	0.9934
2030	0.9991 avoidance	4,745 ~~4,350~~	193%~~169%~~	1.113~~1.125~~	0.924~~0.963~~	1.383~~1.408~~	1.000	0.999
2065	Baseline	258,187 ~~236,862~~	15,857%~~14,539%~~	1.120~~1.119~~	1.098~~1.097~~	1.139~~1.140~~	-	-
2065	0.9939 avoidance	204,660 ~~192,565~~	12,549%~~11,801%~~	1.112~~1.113~~	1.091~~1.091~~	1.132~~1.133~~	0.792~~813~~	0.994
2065	0.9991 avoidance	249,553 ~~229,274~~	15,324%~~14,070%~~	1.119~~1.118~~	1.097~~1.097~~	1.138~~1.139~~	0.968	0.999