



MachairWind Offshore Windfarm

Windfarm Development Area
Habitats Regulations Appraisal
Screening Report



ScottishPower |
Renewables



MachairWind
Offshore Windfarm

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GLOSSARY OF ACRONYMS

Term	Definition
AA	Appropriate Assessment
ASP	Area of Special Protection
BDMPS	Biologically Defined Minimum Population Scales
CIS	Celtic and Irish Sea
DAERA	Department of Agriculture, Environment and Rural Affairs
DAS	Digital Aerial Survey
EC	European Commission
ECC	Export Cable Corridor
EDRs	Effective Deterrent Ranges
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electro-Magnetic Field
EPS	European Protected Species
ETG	Expert Topic Group
EU	European Union
FCS	Favourable Conservation Status
FeAST	Feature Activity Sensitivity Tool
FLT	Functionally Linked Terrestrial
GW	Gigawatts
HRA	Habitats Regulations Appraisal
IAC	Inter-Array Cable
IAMMWG	Inter-Agency Marine Mammal Working Group
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
KJ	Kilojoules
km	Kilometre
LAT	Lowest Astronomical Tide
LSE	Likely Significant Effects
M	Metres
MD-LOT	Marine Directorate – Licensing Operations Team
MD-SEDD	Marine Directorate – Science, Evidence, Digital and Data



Term	Definition
MU	Management Unit
MW	Megawatt
ncMPA	Nature Conservation Marine Protected Area
nm	Nautical Mile
NPWS	National Parks and Wildlife Service
O&M	Operation and Maintenance
OAA	Option Agreement Area
OCW	Other Marine Carnivores in Water
OnTDA	Onshore Transmission Development Area
OSP	Offshore Substation Platform
PTS	Permanent Threshold Shift
RHDHV	Royal HaskoningDHV
RIAA	Report to Inform Appropriate Assessment
ROI	Republic of Ireland
RTD	Red-throated Diver
SAC	Special Area of Conservation
SCANS	Small Cetaceans in the European Atlantic and the North Sea
SCOS	Special Committee on Seals
SD	Standard Deviation
SELcum	Cumulative Sound Exposure Level
SMP	Sectoral Marine Plan
SMRU	Sea Mammal Research Unit
SNCB	Statutory Nature Conservation Bodies
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SPR	ScottishPower Renewables
TTS	Temporary Threshold Shift
UK	United Kingdom
UXO	Unexploded ordnance
VMPNSP	Vessel Management Plan and Navigational Safety Plan
WDA	Windfarm Development Area
WI	Western Isles
WS	West Scotland



Term	Definition
WTG	Wind Turbine Generator
Zol	Zone of Influence



GLOSSARY OF TERMS

Term	Definition
Breeding season	Furness (2015) defines breeding season as the period from modal return to the colony through to modal departure from the colony at the end of breeding, for birds at UK colonies.
Cable protection	Protective measure to minimise the effects of scour and hazards along the offshore cables (e.g. to prevent cable exposure or snagging of vessel anchors or fishing gear), as well as for protecting these cables at infrastructure crossing points.
Development Area	Application boundary for consenting purposes which, for the Project, consists of a Windfarm Development Area, Offshore Export Cable Corridor, and Onshore Transmission Development Area. Separate consent and marine licence applications will be submitted for each Development Area where applicable.
Embedded mitigation measure	Mitigation measures, including industry good practice measures, that are directly incorporated into the design for the MachairWind Windfarm Development Area to avoid or reduce environmental effects.
Environmental Impact Assessment (EIA)	The process of evaluating the likely significant environmental effects of a proposed development over and above the existing circumstances (or 'baseline').
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive as transposed by the Habitats Regulations and comprise Special Areas of Conservation and Special Protection Areas. In accordance with Scottish Government and UK Government policy, candidate SACs, potential SPAs and Ramsar sites are also afforded equivalent protection for assessment purposes, despite not being formally designated European sites.
Habitats Regulations	A collective term used to describe the Conservation of Habitats and Species Regulations 2017 and The Conservation (Natural Habitats, &c.) Regulations 1994.
Inter-array cables (IACs)	Armoured cable containing electrical and fibre optic cores which link the wind turbine generators to each other and to the offshore substation platform(s).
Landfall	The area from Mean Low Water Springs to a transition bay(s), where the offshore export cable(s) come ashore.
Lowest Astronomical Tide (LAT)	The lowest level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions.
MachairWind Offshore Windfarm	<p>An offshore windfarm capable of exporting around 2 GW of renewable energy to the National Electricity Transmission System. MachairWind Offshore Windfarm comprises three Development Areas:</p> <ul style="list-style-type: none"> • The WDA – located on the west coast of Scotland to the northwest of Islay and west of Colonsay; • The Offshore Export Cable Corridor – a preliminary boundary extending from the WDA to mean high water springs at a landfall location near Girvan, South Ayrshire; and • The Onshore Transmission Development Area – a preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cable(s) and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission. <p>Separate consent and licence applications will be submitted for each Development Area.</p>



Term	Definition
Management Units (MUs)	The MUs provide an indication of the spatial scales at which impacts of plans and projects alone, cumulatively and in-combination, need to be assessed for the marine mammal species in UK waters, with consistency across the UK.
National Electricity Transmission System	The high-voltage electricity power transmission network serving Great Britain which receives electricity from generators (such as offshore windfarms) and transmits that electricity to anywhere on the National Electricity Transmission System to satisfy demand.
Non-breeding season	Furness (2015) defines non-breeding season as the remaining part of the year that is not a part of breeding season.
Offshore export cable	Armoured cable containing electrical cores between the offshore substation platform(s) and landfall. Offshore export cable(s) will include bundled fibre optic cables. The offshore export cable(s) are subject to Marine Licence applications under the Marine (Scotland) Act 2010. The portion of the offshore export cable(s) located within the WDA is assessed as part of this MachairWind WDA EIA and a marine licence application to construct, alter or improve this portion has been submitted alongside the WDA application. A separate marine licence application will be submitted for the portion of the offshore export cable(s) from the WDA boundary to mean high water Mean High Water Springs.
Offshore Export Cable Corridor (ECC)	The preliminary boundary extending from the WDA to mean high water springs near Girvan, South Ayrshire and within which the offshore export cable(s) will be located. A separate marine licence application will be submitted for the offshore export cable(s) located within the Offshore ECC.
Offshore Substation Platform (OSP)	An offshore platform with a fixed foundation located within the WDA which houses electrical equipment such as transformers, switchgear, protection and control systems, and enables the windfarm's renewable electricity to be collected via inter-array cables and exported to the National Electricity Transmission System via offshore export cable(s).
Offshore Substation Platform (OSP) link cables	Electrical cables which link OSPs (if more than one OSP is required). These cables will include fibre optic cores or bundled fibre optic cables. OSP link cables will be wholly located within the WDA.
Onshore Transmission Development Area (OnTDA)	The preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cable(s) and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission. This Transmission Owner is responsible for consenting the high voltage direct current switching station. Onward connections to the National Electricity Transmission System will be consented by National Grid Electricity Transmission and ScottishPower Transmission. Where relevant, these are considered as part of cumulative effects assessment in the EIA.
Operational life	The operational life is the expected length of time from final commissioning of the WDA until the cessation of commercial operations. This is anticipated to be 35 years.
Option Agreement Area (OAA)	The seabed area awarded to ScottishPower Renewables in January 2022 through the ScotWind leasing round.
Permanent Threshold Shift (PTS)	A permanent total or partial loss of hearing sensitivity caused by acoustic trauma. PTS results in irreversible damage to the sensory hair cells of the ear, and thus a permanent reduction of hearing acuity.
Scottish Marine Area	The area of Scotland's territorial sea limit (up to 12 nautical miles from baseline) as defined in the Marine (Scotland) Act 2010.



Term	Definition
ScotWind	A Crown Estate Scotland seabed leasing round which enabled developers to propose offshore wind projects and apply for seabed rights to plan and build windfarms in Scottish waters.
Scour protection	Protective measures to avoid sediment being eroded away from the base of the wind turbine generator foundations as a result of the flow of water.
The Applicant	The legal entity submitting consent applications for the MachairWind Offshore Windfarm, namely MachairWind Limited.
The Project	MachairWind Offshore Windfarm including all its Development Areas and associated infrastructure.
Windfarm Development Area (WDA)	The application boundary within the OAA where consent will be sought for the proposed WDA infrastructure. The WDA infrastructure is subject to Section 36 consent and marine licence applications (generation and transmission) which are being applied for separately from the Offshore ECC infrastructure and OnTDA infrastructure.
WDA infrastructure	The offshore generation and transmission infrastructure located within the WDA including but not limited to: WTGs, WTG fixed foundations (and associated scour protection), OSP(s), OSP fixed foundations (and associated scour protection), IACs, OSP link and offshore export cable(s) and their associated external cable protection (insofar as these are located within the WDA) and fibre optic cables.
Wind Turbine Generator (WTG)	A wind turbine generator which converts wind energy into electrical energy. Each wind turbine generator is a complex system composed of a high number of components. Typically, the main components include the rotor assembly (composed of three blades and a hub); the nacelle (containing a generator, shaft and gearbox, power electronic converter and transformer); and the tower (containing lifting equipment and the switchgear).



1 INTRODUCTION

1. This document provides the Habitats Regulations Appraisal (HRA) Screening for the MachairWind Offshore Windfarm ('the Project') Windfarm Development Area (WDA). The **Report to Inform Appropriate Assessment** is based on this HRA Screening Report and provides the Scottish Ministers with the information on the potential for adverse effect on the integrity of European sites as a result of the WDA infrastructure and activities.
2. This HRA Screening Report has been updated from the previous version submitted alongside the Environmental Impact Assessment (EIA) Scoping Report (Royal HaskoningDHV (2024), available [here](#)). NatureScot stated in the EIA Scoping Opinion that it agreed with the screening conclusions presented in **Sections 4 and 5** for habitats and fish and shellfish respectively. **Section 5** has been updated with consideration of the project-specific underwater noise modelling however there is no change to the screening conclusions presented at scoping. **Sections 6 and 7** on marine mammals and offshore ornithology respectively have been updated to address comments from NatureScot in the EIA Scoping Opinion.

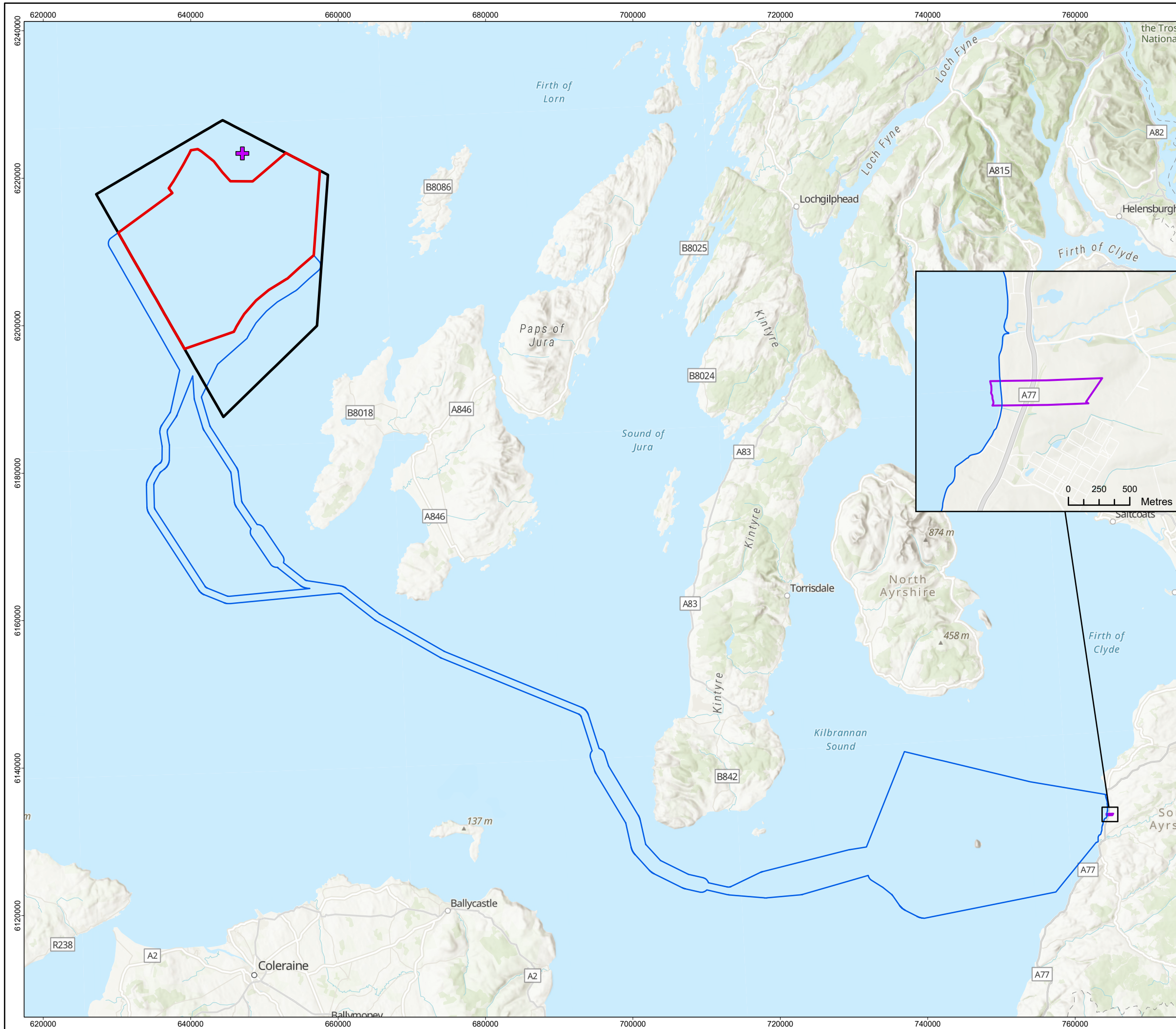
1.1 PROJECT BACKGROUND

3. Crown Estate Scotland awarded MachairWind Limited ('the Applicant') an Option Agreement to develop the W1 Plan Option Area in January 2022 as part of the ScotWind leasing round. The Plan Option Area is one of the sites that the Scottish Government identified in its Sectoral Marine Plan (SMP) for Offshore Wind Energy (Scottish Government, 2020a) following comprehensive review and consultation.
4. Following constraints analysis, a WDA within the awarded Option Agreement Area (OAA) has been defined. Further details of the constraints analysis are provided in **Chapter 3 Site Selection and Alternatives** of the WDA Environmental Impact Assessment Report (EIAR). The OAA and WDA are shown on **Figure 1.1**.
5. The WDA is located on the west coast of Scotland approximately 15 kilometres (km) to the northwest of Islay and approximately 12.4 km west of Colonsay, at its closest point. It is anticipated that the Project will have a capacity of around 2 gigawatts (GW), which will be generated by up to 144 Wind Turbine Generators (WTG). Once operational, it will have the potential to generate renewable energy for around two million homes.
6. Electricity will be transmitted from the WTGs via Inter-Array Cables (IACs) to up to two Offshore Substation Platforms (OSP). If two OSPs are required, OSP link cables between OSPs may be installed. Electricity will be exported through offshore export cable(s) to a landfall near Girvan, in South Ayrshire.
7. For consenting purposes, the Project has been split into the following three Development Areas for which separate consents and/or licences will be sought by the Applicant:
 - The WDA for the installation and operation of the WDA infrastructure (noting this includes the portion of the offshore export cable(s) located therein);
 - The Offshore Export Cable Corridor (ECC), for the installation and operation of the Offshore ECC infrastructure; and
 - The Onshore Transmission Development Area (OnTDA), for the installation and operation of the OnTDA infrastructure.

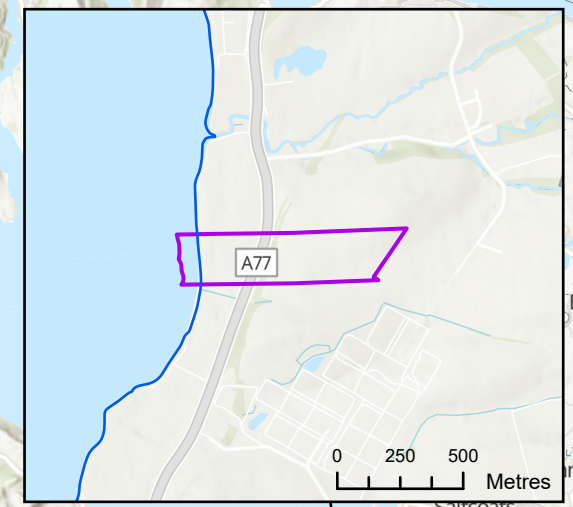
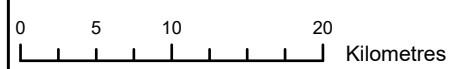


8. On 10 June 2025, the Applicant held a meeting with Marine Directorate – Licensing Operations Team and NatureScot to explain the need for and approach to a split consenting approach. One of the principal reasons was to ensure that the data used to inform the ornithological baseline for EIA and HRA remains valid, and is submitted within the five year period set out in NatureScot’s Guidance Note 2 (‘Guidance to support offshore wind applications: Advice for marine ornithology baseline characterisation surveys and reporting’) which states that NatureScot “*currently accept the use of data up to 5 years old (prior to submission date). Beyond this the relevance of the dataset reduces (due to environmental variations and change).*”
9. Further detail on the consenting approach is provided in **Chapter 1 Introduction** of the EIAR.
10. The entirety of the WDA is located within the Scottish Marine Area / territorial waters which extends to 12 nm from shore. All consents and licences associated with the WDA will therefore be submitted to the Scottish Ministers through the Marine Directorate – Licensing Operations Team (MD-LOT), which is responsible for processing applications on the Scottish Ministers’ behalf.
11. The following consents and licences will be required to authorise the proposed works and licensable activities within the WDA:
 - Section 36 consent under the Electricity Act 1989; and
 - A Marine Licence(s) under the Marine (Scotland) Act 2010.





- Option Agreement Area
- Windfarm Development Area
- Offshore Export Cable Corridor
- Onshore Transmission Development Area
- Dubh Artach Lighthouse



1	24/11/2025	AB	GC	SB	PB
REV	DATE	CREATOR	REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

DRAWING NUMBER: MCW-DWF-ENV-MAP-RHS-000075

DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:500,000	PAGE SIZE	A3

PROJECT TITLE: MachairWind

Figure 1.1: Option Agreement Area and Project Development Areas

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 Service Layer Credits: World Ocean Reference: Sources: Esri, TomTom, Garmin, GEBCO, National Geographic, NOAA, and the GIS User Community
 World_Hillshade: Esri, Intermap, NASA, NGA, USGS
 World_Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS
 World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

NOT TO BE USED FOR NAVIGATION



1.2 THE APPLICANT

12. The Applicant is a wholly owned subsidiary of ScottishPower Renewables (SPR), a leading renewables developer and operator of both offshore and onshore wind assets throughout the UK. Focused on wind energy, smart grids and driving the change to a greener future, ScottishPower is investing £24bn to 2028 on renewable power and transmission and distribution grids.
13. SPR is part of the Iberdrola Group, one of the world's largest utilities and leading wind energy producer. SPR is responsible for progressing Iberdrola's renewable energy projects in the UK, including managing the development, construction, and operation of offshore windfarms.
14. Iberdrola Group is a global energy company and world leader in wind energy production, with an installed renewable power capacity of over 57 GW, of which 37% is onshore wind and 3% is offshore wind. With a committed investment of €8bn from 2025 to 2028, this will give 5.7 GW of installed Offshore capacity in 2028. This is part of the €58bn investment plan announced in 2025 by Iberdrola, 35% of which is being invested to grow the installed capacity of Renewable power to 60GW by 2028.
15. SPR has been actively developing renewable projects in the UK for over 30 years and currently has over 40 operational windfarm sites generating more than 3 GW of renewable energy. SPR's offshore wind portfolio includes the 714 Megawatt (MW) East Anglia ONE project which supported approximately 3,500 jobs at the peak of construction and now supports 100 long term skilled jobs in the operational phase. SPR has created a pathway of development in the East Anglia region with a pipeline of three further projects, consisting of East Anglia ONE North, East Anglia TWO and East Anglia THREE.
16. SPR is one of the largest onshore wind operators in the UK, with over 2GW of operational capacity across 39 sites and a UK onshore wind pipeline of 3.6 Gigawatts (GW). Five of SPR's operational onshore projects are located within Argyll and Bute, namely Clachan Flats, Cruach Mhor and Beinn an Tuirc 1, 2 and 3.
17. MachairWind Offshore Windfarm builds on SPR's long-standing presence and positive track record as a responsible onshore wind developer and good neighbour across Argyll and Bute where it has been working with, and investing in, people, communities, and businesses for more than 20 years to realise the benefits of renewable energy.

1.3 CONSULTANT TEAM

18. Haskoning has been appointed by SPR as the Lead EIA and HRA consultant for the Project and will be providing consenting support. The RHDHV team are supported by specialist ornithology consultants within SLR, in the preparation of this HRA Screening Report.
19. RHDHV is registered with the Institute of Sustainability and Environmental Professionals EIA Quality Mark scheme. The scheme requires companies that lead the co-ordination of EIAs and HRAs to make a commitment to excellence in their impact assessment activities and have this commitment independently reviewed to ensure quality.

1.4 PURPOSE OF THIS DOCUMENT

20. The Habitats Regulations require Applicants to provide the Scottish Ministers with information required to carry out an appropriate assessment. This HRA Screening Report presents information to support screening for LSE from the WDA infrastructure. This document addresses the screening stage by providing information to enable screening of potential LSE on European or Ramsar sites.



21. The Project will comprise both onshore and offshore infrastructure including but not limited to: WTGs, IACs, OSP(s), OSP link cables (if required), offshore export cable(s), and onshore transmission infrastructure connecting to the National Grid.
22. This HRA Screening Report only considers the WDA infrastructure and activities (including potential disturbance/displacement impacts from Project vessels on transit to and from port). As noted in **Section 1.1**, separate consent/planning and licence applications will be submitted for the Offshore ECC and OnTDA at a later date.
23. Potential interactions between the WDA and Offshore ECC and OnTDA effects have been considered as appropriate in the Report to Inform Appropriate Assessment (RIAA) for the WDA where required, in alignment with the approach described for the EIAR in **Chapter 5 EIA Methodology** of the WDA EIAR. A WDA alone assessment has first been undertaken followed by a WDA and Offshore ECC and OnTDA combined assessment (if required) which will consider any potential interactions between likely significant effects and/or potential for additive effects. This approach ensures a whole Project assessment is undertaken in a manner that is meaningful and proportionate. The level of detail of assessment of the Offshore ECC and OnTDA is commensurate with the level of detail that is available at the time of writing. To inform the combined assessment, a set of assumptions were developed which includes a preliminary boundary for the Offshore ECC and OnTDA, anticipated project components and associated construction methods and timelines. These are set out in **Chapter 3 Project Description** of the WDA EIAR, Sections 3.7 and 3.8.
24. Future consenting applications for infrastructure within the ECC and OnTDA will be supported by HRA screenings which will consider all relevant information at the time, including the conclusions of this WDA HRA Screening and the associated WDA RIAA. As with this WDA HRA Screening Report, updated combined assessments will be included in each future HRA screening using the latest available information covering all aspects of the Project.

1.5 REPORT STRUCTURE

25. This HRA Screening Report is structured as follows:
 - HRA Process and Approach to Screening (**Section 2**);
 - Project Description Summary (**Section 3**);
 - Annex I Habitats (**Section 4**);
 - Fish and Shellfish (**Section 5**);
 - Marine Mammals (**Section 6**);
 - Offshore Ornithology (**Section 7**); and
 - Summary of Stage 1: LSE Screening (**Section 8**).
26. **Sections 2 to 6 and 8** have been authored by Haskoning and **Section 7** has been authored by SLR.



2 HABITATS REGULATIONS APPRAISAL PROCESS AND APPROACH TO SCREENING

2.1 LEGISLATIVE CONTEXT

2.1.1 The Habitats Regulations

27. The 'Habitats Directive' (Directive 92/43/EEC), adopted in 1992, enabled European Union (EU) member states to meet the obligations of the Bern Convention (1979). The purpose of the Habitats Directive is to maintain or restore natural habitats and wild species, listed in Annex I and II of the Habitats Directive, at Favourable Conservation Status (FCS). FCS is given by implementing the designation of European Sites, such as Special Areas of Conservation (SAC) which are designated under the Habitats Directive for their habitats and/or species (except birds) of European importance. In addition, the 'Birds Directive' (Directive 2009/147/EC), was implemented to provide a framework for conservation and management of wild birds in Europe. A list of rare, vulnerable, and migratory bird species is provided in Annex I of the Birds Directive. These bird species are protected through the designation of Special Protection Areas (SPAs) which are designated under the Birds Directive.

28. Both the Habitats and Birds Directives are transposed into the relevant Scottish and UK law by:

- The Conservation (Natural Habitats & c.) Regulations 1994 (as amended); and
- The Conservation of Habitats and Species Regulations 2017 (2017 No. 1012) (as amended) which apply to Section 36 applications within the Scottish Marine Area (0 to 12 nm).

29. The "Habitats Regulations" require an Appropriate Assessment (AA) to be undertaken where a project is likely to have significant effects on a designated site, either individually or in-combination with other plans or projects, with respect to the site's conservation objectives.

30. Unless the UK or Scottish governments implement additional legislative changes, which may affect the HRA process, the Habitats Regulations in their existing form will, for the purposes of this HRA Screening Report, be followed.

2.1.1.1 European Sites (Post EU Exit)

31. The Europe-wide network of nature conservation sites that are the subject of the HRA process was established under the Habitats Directive. European sites (SACs and SPAs) located within an EU Member State are combined to create a Europe-wide network of designated sites (the Natura 2000 network) and may be referred to as Natura 2000 Sites.

32. European sites located within the UK no longer belong to the Natura 2000 network but instead combine to form the UK's "National Site Network". The National Site Network comprises of European sites in the UK that were designated as of 31 December 2020 (or that were proposed to the European Commission (EC) before that date), and any new sites designated under the Habitats Regulations under an amended designation process. Post EU exit, the EC is no longer involved in the final stages of the derogation procedure for those sites which are part of the UK National Site Network. In this report, and in accordance with EU Exit guidance issued by the Scottish Government (Scottish Government, 2020a), the term "European site" has been retained to refer to SPAs and SACs protected in European Member States, Scotland and the rest of the UK.

33. Ramsar sites are not included within the National Site Network but are still included within this HRA Screening Report as they remain protected in the same way as SACs and SPAs – see **Section 2.1.2** for further details.



34. National Site Network management objectives are established in the EU Exit Regulations and are referred to as the network objectives. The objectives in relation to the National Site Network are to:
- Maintain or, where appropriate, restore habitats and species listed in Annexes I and II of the Habitats Directive to an FCS; and
 - Contribute to ensuring, in their area of distribution, the survival and reproduction of wild birds and securing compliance with the overarching aims of the Wild Birds directive.

2.1.2 The Convention on Wetlands of International Importance (Ramsar Convention)

35. The Ramsar Convention (United Nations, 1971), adopted in 1971 and ratified by the UK in 1976, is an international mechanism designed to protect sites of global importance. This convention specifically covers all aspects of wetland conservation. Three key uses are outlined in the convention:
- The designation of wetlands of international importance as Ramsar Sites;
 - The promotion of the wise use of all wetlands in the territory of each country; and
 - International co-operation with other countries to further the wise use of wetlands and their resources.

36. The criteria for assessing and designating a Ramsar site includes whether the wetland regularly supports 20,000 or more water birds and/or supports 1% of the populations of individuals of one species or subspecies of water bird.

37. UK Government policy provides the same protection to Ramsar sites as European designations such as SPAs and SACs. As for SPAs and SACs, Ramsar Sites are referred to as National Site Network sites in the UK. The UK has primarily chosen to designate Ramsar sites through implementing these areas as Sites of Special Scientific Interest. In Scotland, under the National Marine Plan, National Planning Framework and Scottish Government (2025a) policy, Ramsar sites are treated as European sites.

2.1.3 Sectoral Marine Plan for Offshore Wind Energy

38. Scotland is committed to ensuring secure, reliable and affordable energy supplies, within the context of long-term decarbonised energy generation. The SMP seeks to contribute to the achievement of Scottish and UK energy targets through the provision of a spatial strategy to inform the seabed leasing process for commercial offshore wind energy in Scottish waters.

39. The SMP identifies 15 plan options across four regions which are capable of generating ca. 28 GW of renewable energy. There is the potential for up to 10 GW to be deployed to reflect the anticipated future demand and market appetite, exceeding the Scottish Offshore Wind Energy Council's goal to deliver at least 8 GW of offshore wind in Scottish waters by 2030 (Scottish Government, 2020b). The final SMP for Offshore Wind Energy will guide relevant consenting bodies with decision making on licence and consent applications but will not predetermine decision-making processes. The Scottish Government (2025b) Draft Updated SMP for Offshore Wind Energy reinforces this by setting out an updated spatial planning framework informed by the ScotWind and INTOG leasing rounds.

40. The SMP was developed together with a strategic plan-level HRA to assess the potential effects of the SMP on internationally protected nature conservation sites. The strategic plan level HRA was undertaken through stages in accordance with established guidance for conducting plan-level HRA that was produced by Scottish Natural Heritage (SNH), now NatureScot, in 2015 (SNH, 2015). The phases of the strategic plan-level HRA were:

- Phase 1 – Pre-Screening Report;
- Phase 2 – Review of Proposed Assessment Methodology; and



- Phase 3 – Screening and RIAA.
41. The Pre-Screening report prepared by Marine Scotland in 2018, before changing their name to the Marine Directorate, presented the evidence base and the proposed methods to be applied for the subsequent screening/scoping and assessment stages of the strategic plan-level HRA. An initial list of 652 European/Ramsar sites, and their qualifying features, for which there could be an LSE (or where the possibility of an LSE could not be excluded – see **Section 2.2.2**) was identified. A 100 km buffer around the plan options was used to identify these European sites to include a maximum foraging distance for bird species. Following the main screening process, a total of 468 European sites were identified which consisted of:
- 267 SACs (including candidate SACs, possible/proposed SACs and Sites of Community Importance);
 - 150 SPAs (including potential/proposed SPAs); and
 - 51 Ramsar sites (Scottish Government, 2019).
42. Of these 468 sites, 107 were non-UK sites, screened in due to the presence of mobile features (e.g. cetaceans and/or birds) with ranges that regularly exceeded 100 km.
43. The strategic plan-level HRA concluded that the SMP would not lead to adverse effects on the integrity of the European site features, either alone or in-combination with other plans and projects. This conclusion was provided on the condition that the project-level HRAs are conducted, and an iterative plan review is undertaken. It should be noted that the strategic plan-level HRA only assessed up to 10 GW of capacity. However, up to 27.6 GW was awarded through ScotWind following the conclusion of the ScotWind clearing process in August 2022. The Scottish Government has been revising the SMP and plan level HRA since 2023 with the Updated Draft SMP and associated HRA Appropriate Assessment Information Report being released in 2025 (Scottish Government 2025b; Scottish Government 2025c). It is expected that the final plan and associated final Appropriate Assessment, including quantitative analysis, will be published in 2026.
44. SPR was awarded an option agreement for the W1 Plan Option area under the ScotWind leasing round in 2022.
45. This HRA Screening Report builds on the conclusions of the plan-level HRA in light of developments on the nature, scale, and location of the WDA.



2.2 THE HABITATS REGULATIONS APPRAISAL PROCESS

2.2.1 Overview

46. HRA is a precautionary, rigorous, and legally binding procedure to protect European sites. HRA considers the potential for LSE to arise as a result of a plan or project, which may affect the integrity of the National Site Network and its associated qualifying features. The following approach and guidance / policy has informed this screening report:
- Habitat Regulations Appraisal of Plans: Guidance for Plan-making Bodies in Scotland (SNH, 2015);
 - Introduction to Habitats Regulations Appraisal (HRA) (NatureScot, 2024a); and
 - European Site Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) (NatureScot, 2024b);
 - Wetlands - protecting Ramsar sites: updated Scottish Government policy (Scottish Government, 2025a).
47. The HRA process typically comprises four stages, with the requirement for each subsequent stage being informed by the previous. The four stages are illustrated in **Plate 2.1** and are set out below:
- Stage 1 Screening (this document);
 - Stage 2 Appropriate Assessment (AA);
 - Stage 3 Assessment of Alternative Solutions; and
 - Stage 4 Imperative Reasons of Overriding Public Interest.
48. Stage 1 is described in **Section 2.2.2**. A summary of Stages 2 to 4 is provided in **Section 2.2.3**.



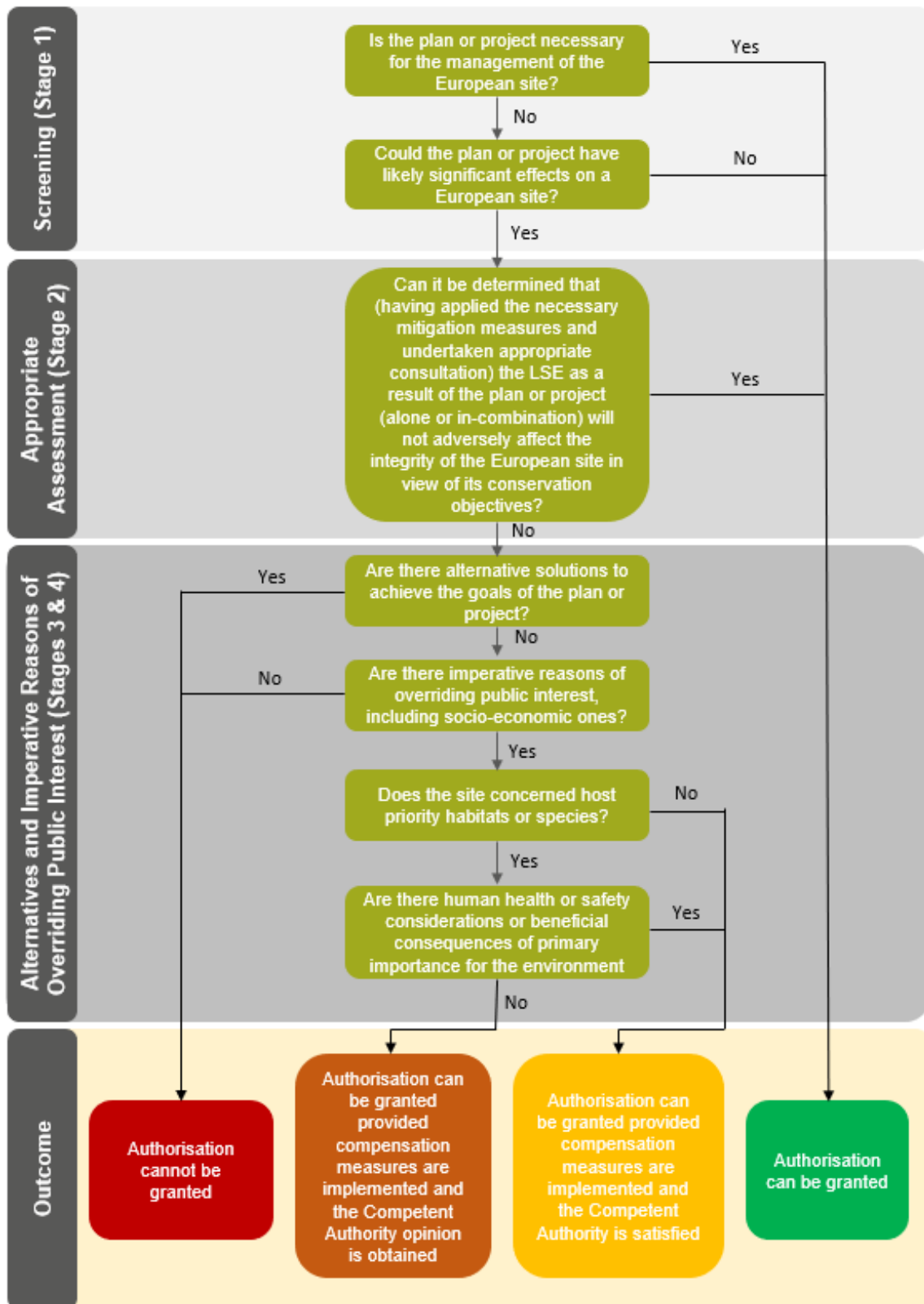


Plate 2.1 Stages in the Habitats Regulations Appraisal Process

* Although the United Kingdom is no longer part of the European Union, the approach presented here is still undertaken and is therefore applicable to this Likely Significant Effects Screening Report



2.2.2 Stage 1 – Screening (This Document)

49. In Stage 1, European sites are screened for LSE. A ‘likely’ effect is one that cannot be ruled out on the basis of objective information. The test of significance is where a plan or project could undermine the site’s conservation objectives (NatureScot, 2023). This will be undertaken for the WDA either alone or in-combination with other plans or projects. If it is determined that there is no potential for LSE to occur to the site’s qualifying features, the site will be proposed to be ‘screened out’. Evidence will be provided to demonstrate that there will be no LSE on the identified site. If the effect may cause LSE, or this is uncertain, Stage 2: AA will be implemented.
50. As outlined in the Habitats Regulations, an AA must be carried out on all plans and projects that are likely to have significant effects on European sites. The designations considered within this HRA Screening Report are:
- SPAs (some of which are also Ramsar sites);
 - Potential/proposed SPAs - SPAs that are approved by the UK Government but are still in the process of being classified;
 - SACs;
 - Possible/proposed SACs - A site which has been identified and approved to go out to formal consultation;
 - Candidate SACs – Sites that were submitted to the EC before the end of the Transition Period following the UK’s exit from the EU, but not yet formally adopted by the UK government;
 - Sites of Community Importance – Sites that were adopted by the EC before the end of the Transition Period following the UK’s exit from the EU, but not yet formally designated by the government of each country; and
 - Ramsar sites (protecting wetland areas and extend only to ‘areas of marine water the depth of which at low tide does not exceed six metres’).
51. In terms of the consideration of mitigation measures at the HRA Screening stage, the European Court of Justice issued a judgement in the People Over Wind and Sweetman case (Case C323/17) in April 2018, clarifying the stage in a HRA process when mitigation measures can be taken into account when assessing impacts on a European site. The ruling stated that “*it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*”. However, this does not mean that essential or intrinsic elements of the project design which could reduce or eliminate potential impacts on European sites when screening for LSE are to be ignored (see NatureScot, 2019). Examples of the intrinsic elements of a proposal which would not be considered a ‘measure’ and could be taken into account in screening would usually be related to design, location, layout or standard conditions. These ‘embedded mitigation measures’ are not specifically designed to avoid or reduce effects on a European site but do so incidentally.
52. As such, embedded mitigation measures are taken into account in this HRA Screening Report but mitigation measures which are specifically implemented to reduce or avoid effects on a European site are not. The embedded mitigation measures taken into account include standard industry practice and post-consent management plans for accidental release of hazardous substances, such as the Project’s Environmental Management Plan, that would be in place regardless of the possible effects on European sites.
53. If there is an element of doubt about potential effects on qualifying features then the conclusion of “LSE” will be made, with progression to AA.



54. Stage 1 Screening is undertaken in this WDA HRA Screening Report, and the Applicant is seeking comment and feedback from relevant consultees on whether they agree with the proposed approach.

2.2.3 Stages 2 to 4 – Summary of Habitats Regulations Appraisal

55. Stages 2 to 4 of the HRA process comprise:

- **Stage 2 Appropriate Assessment** – for Stage 1 sites where LSE cannot be excluded, further information to inform a Stage 2 AA is prepared. This is commonly presented in a RIAA. The RIAA assesses the potential for the Project, alone or in-combination, to adversely affect the integrity of the screened in European site in view of its individual conservation objectives;
- **Stage 3 Assessment of Alternative Solutions** – Stage 3 will be implemented should avoidance or mitigation measures be unable to prevent adverse effects. It examines alternative ways of achieving the Project's objectives that avoid adverse effects on the integrity of European sites; and
- **Stage 4 Imperative Reasons of Overriding Public Interest** – where it cannot be ascertained that a plan or project will not adversely affect the integrity of a European site, and there are no alternative solutions, a plan or project can only proceed if there are Imperative Reasons of Overriding Public Interest (IROPI) for doing so. Where a plan or project is to proceed for IROPI, the Scottish Ministers have a duty to secure any compensatory measures necessary to ensure the overall coherence of the UK National Site Network is protected.

2.3 SCREENING METHODOLOGY

2.3.1 Approach to Identifying Sites and Features

56. To facilitate the identification of the European sites and features to be considered in this HRA screening report, an initial pre-screening of European sites and effects has been undertaken. This is considered an appropriate approach due to the scale of the Project and the extensive ranges of European site features which may be affected (marine mammals and birds).

57. The criteria adopted for the initial pre-screening of European sites are outlined in **Table 2.1**. This approach takes account of the location of the European sites (including Ramsar sites) in relation to the WDA, the anticipated Zone of Influence (Zol) of potential effects associated with the WDA, and the ecology and distribution of qualifying features. The Zol differs depending on the receptor and is described for Annex I Habitats, Annex II Fish and Shellfish, Annex II Marine Mammals and Offshore Ornithology features in **Sections 4, 5, 6 and 7** respectively.

58. For pre-screening Criterion 1, initial consideration is given to whether there is a physical boundary overlap between the WDA and any European sites; with all overlapping sites screened in to be taken forward for determination of LSE.

59. Pre-screening Criterion 2 identifies any European sites, not already screened in using criterion 1, where there is an overlap between the WDA and the range of any qualifying mobile species of the European site. All sites where the WDA overlaps with the range of one (or more) features of a European site are taken forward for determination of LSE.

60. Pre-screening Criterion 3 identifies any European sites, not already screened in by criteria 1 or 2, where the predicted Zol of the WDA overlaps with a European site and/or qualifying features of the site. For receptors associated with ornithology, consideration is also given to factors that inform the probable extent to which the different qualifying features will occur in the WDA.



Table 2.1 Criteria for initial identification of European sites

Criterion	Definition for Identification of Relevant European Sites
1	The Windfarm Development Area (WDA) overlaps with one or more European or Ramsar site.
2	European or Ramsar sites with qualifying mobile features/species (e.g. Annex I birds, Annex II marine mammals, migratory fish) whose range (e.g. foraging, migratory, overwintering, breeding or natural habitat range) overlaps with the WDA.
3	European or Ramsar sites and/or qualifying interest features located within the Zol of effects associated with the WDA (e.g. habitat loss or disturbance, noise and collision risk).

61. The types of effects associated with the WDA will vary in their magnitude and significance, depending on a range of factors including the technology type deployed, process involved and the location and timing of the activity. In respect of designated habitats and species populations, these effects may be direct (e.g. habitat loss associated with infrastructure installation) or indirect (e.g. via changes in water quality).
62. Screening is based on a conceptual 'source-pathway-receptor' approach:
- Source: the origin of a potential effect (noting that one source may have several pathways and receptors), e.g. piling;
 - Pathway: the means by which the effect of the activity could impact a receptor, e.g. noise from piling; and
 - Receptor: the element of the receiving environment that is impacted, e.g. marine mammals within direct range of the noise disturbance.
63. This approach identifies potential effects resulting from the proposed construction, Operation and Maintenance (O&M), and decommissioning of the WDA infrastructure. Where there is no pathway, or the pathway has sufficient distance such that the effect from the source has dissipated to a negligible level before reaching the receptor, there may be justification for the screening out of that particular receptor (i.e. qualifying feature) for the site in question.
64. Sites are screened in if, for any one of their qualifying features (i.e. a species or habitat), a source-pathway-receptor relationship and potential for LSE cannot be ruled out (including in-combination effects). Each qualifying feature of that site will be considered separately, and it may be that the screening process rules out LSE for some features at this stage.
65. As described in **Section 2.2.2**, additional mitigation is not considered at this stage but will be considered where relevant in Stage 2 AA.
66. The approach to screening for each receptor is outlined in **Sections 4 to 7** and is based on the known distribution, ecology and sensitivities of each receptor group and therefore, the potential for them to be affected by the WDA. Where there is insufficient information available at this stage to screen out a site, the site is screened in for further consideration.



2.3.2 In-Combination Screening Methodology

67. The Habitats Regulations require that the potential effects of a project on designated sites are considered both alone and in-combination with other plans or projects.
68. Offshore plans or projects that may be considered include, but are not limited to:
- Other Offshore Windfarms;
 - Other renewables developments;
 - Mariculture;
 - Aggregate extraction and dredging;
 - Licenced disposal sites;
 - Shipping and navigation;
 - Planned construction sub-sea cables and pipelines;
 - Potential port/harbour development;
 - Carbon capture storage;
 - Oil and gas development and operation, including seismic surveys; and
 - Unexploded Ordnance (UXO) clearance.
69. MD-LOT has reviewed a cumulative long-list of projects which includes the relevant plans and projects that should be included in the in-combination assessments within the RIAA (see **Appendix 5.1 Cumulative Long and Short Lists** of the EIAR). For offshore ornithology, additional details are provided in **Appendix 11.5 Cumulative and In-Combination Mortality Calculations** of the EIAR. For marine mammals, additional details are provided in **Appendix 10.5 Marine Mammal Cumulative Effects Assessment (CEA) Screening**. For each project, a review of all available information has taken place and the current position with the plan or project identified.
70. Relevant in-combination effects from other plans or projects have been assessed in the RIAA using the following approach. This approach provides a list of criteria for types of other plans and projects that may be used to indicate the certainty that can be applied to each 'other existing development and/or approved development':
- a) the incomplete parts of projects that have been started, but which are not yet completed;
 - b) projects given consent but not yet started;
 - c) projects that are subject to applications for consent;
 - d) projects that are subject to outstanding appeal procedures;
 - e) any known unregulated projects that are not subject to any consent;
 - f) ongoing projects subject to regulatory reviews, such as discharge consents or waste management licences;
 - g) development that has recently been completed, but where any residual effects may not form part of the environmental baseline;
 - h) policies and proposals that are not yet fully implemented in plans that are still in force; and
 - i) draft plans that are being brought forward by other public bodies and agencies.
71. All other relevant plans or projects that are publicly available six months prior to submission of the WDA application have been considered in the in-combination assessment.



3 PROJECT DESCRIPTION SUMMARY

72. This section provides a summary description of the project design. A detailed project description is provided in **Chapter 3 Project Description** of the EIAR and is not repeated here.

73. The WDA is shown **Figure 1.1** and its key characteristics summarised in **Table 3.1**.

Table 3.1 WDA parameters summary

Indicative Parameters	Values
Lease period (years)	60
Indicative WDA construction duration (years)	5
Anticipated operational life (years)	35
WDA (km ²)	448
WDA closest distance to shore (Colonsay) (km)	12.4
Maximum water depth in the WDA (m LAT)	81.7
Average water depth in the WDA (m LAT)	53.8
Number of WTGs	91-144
WTG foundation type options	<ul style="list-style-type: none"> • Monopiles • Pin-pile jacket • Suction bucket jacket
Maximum length of all inter-array cables (km)	572
Maximum length of one OSP link cable (km)	68
Maximum number of OSP link cables	4
Maximum length of all OSP link cables (km)	272
Maximum number of export cable(s)	4
Maximum length of individual offshore export cable(s) located wholly within the WDA boundary (km)	50
Maximum total length of offshore export cable(s) located wholly within the WDA boundary (km)	200
Maximum number of OSPs located within the WDA	2
OSP foundation type options	<ul style="list-style-type: none"> • Pin-pile jacket • Suction bucket jacket • Gravity Base Structure
Maximum piling hammer energy (kJ)	<ul style="list-style-type: none"> • Monopiles = 6,600 • Pin-piles = 4,400



4 SITES DESIGNATED FOR ANNEX I HABITATS

74. This section details the results of the process to identify European/Ramsar sites with qualifying Annex I habitat features to be taken forward for determination of LSE. This section has been updated from the version submitted alongside the Scoping Report in September 2023, to include consideration of an updated Zol based on the reduced WDA. Additionally, consideration of sites to be taken forward for determination of LSE due to the Offshore ECC has been undertaken. None of the screening conclusions have changed since it was first submitted.
75. The approach used to identify European sites with relevant Annex I habitat qualifying features to be carried forward for further assessment is detailed below. This is based on the methodology outlined in **Section 2.3**.
76. Criterion 1 relates to the potential for overlaps of the WDA with one or more European/Ramsar site. There is no potential for impacts from the WDA to directly affect any SAC designated for Annex I habitat features, with the closest site situated approximately 34 km east of the WDA (i.e. Firth of Lorn SAC designated for reefs). Therefore, no sites or Annex I habitats are screened in based on criterion 1. There would also be no overlap of the Offshore ECC (**Figure 1.1**) with SACs designated for Annex I habitat features
77. Criterion 2 relates to the potential for overlaps of the WDA with the ranges of qualifying mobile species of one or more European/Ramsar site. There are no European sites which meet Criterion 2 for relevant qualifying Annex I habitats, as Annex I habitats do not contain mobile features. Therefore, no sites are screened in based on Criterion 2 for the WDA or Offshore ECC.
78. Criterion 3 relates to the potential for one or more European/Ramsar site and/or their qualifying features to be located within the potential Zol of impacts associated with the WDA. The Zol for indirect effects is defined as the extent of one mean tidal excursion, which applies a reasonable and suitable level of precaution. The tidal excursion extends from the WDA in a southerly direction by approximately 7-11 km (i.e. the average distance travelled by tidal flow between low-water slack tide and high-water slack tide before the current direction reverses). The tidal excursion traverses only a short distance in all other directions (including approximately 4-7 km in the north and centre of the WDA). This encompasses the area over which suspended sediment could be transported following disturbance from the seabed (see **Chapter 8 Benthic Ecology**). As noted above, the nearest SAC is the Firth of Lorn SAC located approximately 34 km east of the WDA. The nearest SAC for Annex I habitat features to the Offshore ECC is Rathlin Island SAC which is approximately 16 km to the west at the closest point and therefore, based on the tidal excursion distance for the WDA (which is precautionary), there would be no potential for suspended sediment to interact with the reefs feature of the SAC. Therefore, there are no European sites which meet criterion 3 for Annex I habitats and no sites have been screened in.



5 SITES DESIGNATED FOR ANNEX II FISH AND SHELLFISH

79. This section details the results of the process to identify European sites with qualifying Annex II fish and shellfish features to be taken forward for determination of LSE. This section has been updated from the version submitted alongside the Scoping Report in September 2023 to include consideration of the underwater noise modelling results (**Appendix 10.1 Underwater Noise Modelling Report** of the EIAR). Additionally, consideration of sites to be taken forward for determination of LSE due to the Offshore ECC has been undertaken. None of the screening conclusions have changed since it was first submitted.
80. The approach used to identify European sites with relevant Annex II fish and shellfish qualifying features to be carried forward for further assessment is detailed below. This is based on the methodology outlined in **Section 2.3**.
81. The greatest impact ranges from offshore windfarm projects on fish and shellfish result from underwater noise, specifically noise produced by pile driving, but also seabed preparation, dredging, rock berm installation, UXO clearance, offshore cable installation, vessel presence and operational WTG sound. **Appendix 10.1 Underwater Noise Modelling Report** of the WDA EIAR provides site-specific underwater noise modelling for the Project. The modelling location closest to an SAC designated for fish and shellfish features is the northeast location, which is approximately 80 km from Loch Creran SAC, designated for Horse mussel (*Modiolus modiolus*) beds. The maximum impact range based on Popper et al. (2014) thresholds, is for Temporary Threshold Shifts (TTS) from cumulative sound exposure level (SEL_{cum}) from six pin piles, piled sequentially, assuming stationary fish receptors (and therefore conservative for an invertebrate). This maximum impact range from the northeast location (i.e. that closest to Loch Creran SAC) is 62 km. The nearest SAC designated for Annex II fish and shellfish qualifying features to Offshore ECC is also Loch Creran SAC and no piling would be undertaken within the Offshore ECC. Therefore, no sites or fish/shellfish species are screened in based on criterion 1. This leaves a remaining potential for the WDA / Offshore ECC to impact on migratory diadromous fish species (Atlantic salmon (*Salmo salar*), Sea trout (*Salmo trutta*), Sea lamprey (*Petromyzon marinus*), River lamprey (*Lampetra fluviatilis*), European eel (*Anguilla Anguilla*)) as they move into the ZoI of the WDA / Offshore ECC during migrations to, or from, an SAC that they form part of a designated population (criterion 2 and 3) (the nearest SAC designated for diadromous fish is Endrick Water SAC 119.5 km east of the WDA).
84. However, as per the MD-LOT and NatureScot feedback in the Scoping Opinion, it is the current position that the at-sea migrations of Annex II diadromous fish species are not well enough understood to enable apportioning of at-sea individuals to any SAC, thereby an HRA for these species is not possible. Potential impacts on diadromous fish are instead considered as part of EIA (see **Chapter 9 Fish (including Basking Shark) and Shellfish** of the WDA EIAR).
85. Therefore, no sites or Annex II fish and shellfish species are screened in based on Criterion 2 and 3.



6 SITES DESIGNATED FOR ANNEX II MARINE MAMMALS

86. Since this HRA Screening Report was submitted alongside the Scoping Report in September 2024, updates to this section have been undertaken to incorporate the refined WDA boundary. Distances have been recalculated and the figures amended accordingly. The refinement of the WDA has not resulted in any changes to the screening outcomes for designated sites for marine mammals. However, following consideration of indicative ports (see Chapter 3 Project Description of the EIAR), the Sound of Barra SAC and Ascrib, Isay and Dunvegan SAC have been screened in for potential vessel interaction (collision risk) and disturbance at seal haul-out sites to account for potential vessel transit routes. Additionally, preliminary consideration of potential LSE associated with the Offshore ECC infrastructure and activities has been provided for harbour porpoise in **Section 6.3.1** and grey seal in **Section 6.3.2**. Based on the current boundary of the Offshore ECC there would be no LSE with harbour seal SACs.

6.1 APPROACH TO SCREENING

87. Direct or indirect effects on Annex II marine mammal species may arise from activities relating to the construction, O&M, or decommissioning of the WDA infrastructure.

88. This HRA screening exercise considers sites which meet the following criteria as described in **Section 2.3**:

- Criterion 1: The WDA overlaps with one or more European or Ramsar site;
- Criterion 2: European or Ramsar sites with qualifying mobile features/species (e.g. Annex II marine mammals) whose range (e.g. foraging or natural habitat range) overlaps with the WDA; and
- Criterion 3: European or Ramsar sites and/or qualifying interest features located within the potential area of effects associated with the WDA (e.g. underwater noise disturbance).

89. The Zol for marine mammals HRA Screening is defined as follows:

- 100 km for Special Areas of Conservation (SACs) designated for harbour porpoise (*Phocoena phocoena*);
- 20 km for SACs designated for breeding grey seal (*Halichoerus grypus*) or 100 km if the SAC is designated for grey seal foraging activity; and
- 50 km for SACs designated for breeding harbour seal (*Phoca vitulina*) or 100 km if the SAC is designated for harbour seal foraging activity.

6.2 CONSULTATION

90. To date, consultation with respect to marine mammals has been undertaken as part of a marine mammals Expert Topic Group (ETG) with ETG Meeting 1 held on 04 December 2023 and ETG 2 held on 14 October 2025 (note ETG 2 discussions were largely focussed on EIA matters). ETG members include NatureScot, MD-LOT, Marine Directorate – Science, Evidence, Digital and Data (MD-SEDD), Department of Agriculture, Environment and Rural Affairs (DAERA) and Islay Natural History Trust. MD-LOT and MD-SEDD were unable to attend both meetings, however relevant documents produced for each ETG and meeting minutes were provided to these organisations. The ETGs aimed to agree the relevance, appropriateness and sufficiency of baseline data, key issues for marine mammals to be considered, and the approach to assessment. Further consultation was undertaken with NatureScot following each ETG through written correspondence.




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91. In addition, a Scoping Workshop was held on 01 May 2024 which provided the opportunity for the Applicant to present its proposed approach to HRA Screening and to seek feedback from stakeholders.
 92. On 09 January 2025, the Applicant received the Scoping Opinion. Feedback received has been incorporated into this HRA Screening and, where appropriate, will inform development of the RIAA.
 93. **Table 6.1** sets out consultation matters relevant to HRA screening alongside the Applicant's response.
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Table 6.1 Consultation relevant to HRA screening for marine mammals

Consultee	Key Comment/Discussion Topic	Applicant Response
Expert Topic Group (ETG) Meeting 1 - 04 December 2023		
Department of Agriculture, Environment and Rural Affairs (DAERA)	DAERA highlighted that the North Channel Special Area of Conservation (SAC) and the Maidens SAC can be screened out of the Habitats Regulations Appraisal (HRA) as they are greater than 100 km from the Windfarm Development Area (WDA) and the qualifying features of these would already be assessed as part of the HRA.	Noted. All Northern Ireland designated sites have been screened out if they are further than 100 km from the WDA.
NatureScot	NatureScot enquired how the designated sites were identified for screening and whether these would be all the sites shown. NatureScot indicated that the distance data for the designated sites need to be reviewed as there appeared to be errors in the distances presented.	Noted, all distances have been checked and recalculated where required (Table 6.2).
NatureScot	NatureScot enquired whether the Project had considered SAC's designated for otters.	As noted below, later consultation with NatureScot determined that otter would be considered as part of the terrestrial ecology screening. Also, see response to Scoping Opinion comments regarding otters below.
NatureScot advice following MachairWind Marine Mammals ETG Meeting 1 on 04 December 2023 in addition to NatureScot advice on the Approach to Assessment document that was circulated in advance of the ETG meeting		
NatureScot	Regarding designated sites screening for grey seals, we advise screening in sites for assessment if the project site/impact radius is within 20 km of the SAC. For harbour seals, we advise screening sites in for assessment if the project site/impact radius is within 50 km of the SAC. However, for both species, we appreciate the use of telemetry data and while this could provide evidence of seals travelling through the proposed development site, we are content for seal SACs to be screened out unless there is evidence of hotspots or regular foraging areas within the project boundary. We advise the use of Sea Mammal Research Unit (SMRU) telemetry data, particularly from the Islay Skerries.	Within this HRA screening report, the final screened in sites are based on advice received from DAERA and NatureScot; sites within 100 km are included to account for harbour porpoise and for foraging ranges of seals (Table 6.2). Also see the Applicant's response on this point under 'Scoping Workshop comments' in this table.
NatureScot	For cetaceans, we are generally content with the screening approach. We are content that designated sites within the Management Unit (MU) of each species of marine mammal are considered and agree that everything within 100 km is	The initial screening for designated sites for cetacean species (harbour porpoise and bottlenose dolphin (<i>Tursiops truncatus</i>)) has been based on both their relevant MUs, and a distance of

Consultee	Key Comment/Discussion Topic	Applicant Response
	included for screening purposes. Once impact pathways, coverage and connectivity are better understood, we would be content for additional sites to be screened out, following appropriate justification and communication between the Applicant and NatureScot.	100 km. All sites within that range have been further screened based on known movements and potential areas of effect.
NatureScot	For impacts during Operation and Maintenance (O&M), NatureScot confirmed that direct Electro-Magnetic Field (EMF) effects on marine mammals could be scoped out of the assessment with only indirect effects of EMF on prey species being required to be assessed in the HRA.	Direct EMF effects on marine mammals has been scoped out, however EMF effects on prey species is Screened in (see Table 6.3).
NatureScot	Whilst there is a small resident population of bottlenose dolphins in the Sound of Barra, they are not a designated feature for this SAC.	Noted. Only harbour seal is a feature of the Sound of Barra SAC which has been screened in for vessel interaction (collision risk) and disturbance at seal haul-out sites (Section 6.5).
NatureScot	For Northern Ireland sites, these should be discussed with DAERA.	<p>The Applicant notes that DAERA are a member of the ETG for marine mammals and have been consulted throughout the EIA / HRA process.</p> <p>During ETG Meeting 1 (04 December 2023), DAERA noted that some harbour porpoise SACs could be screened out as they are further than 100 km from the WDA. A 100 km screening distance has been used for Northern Ireland SACs with marine mammals as qualifying features.</p>
NatureScot	Furthermore, we briefly discussed sites designated for otter during the meeting and took an action to feedback on screening distances. We have considered this action further and advise that otters (<i>Lutra lutra</i>) should be covered by the onshore sections of the Scoping Report and subsequent EIAR. As such, advice should be sought from onshore colleagues / stakeholders.	Noted. Otters will be considered within the onshore Scoping Report and EIAR. Also, see response to Scoping Opinion comments regarding otters below.
Scoping Workshop 01 May 2024		
NatureScot	NatureScot's advice on the screening of designated sites for seals was 20 km for grey seal and 50 km for harbour seal, as 20 km is appropriate for grey seal because sites designated for grey seal are in respect of breeding colonies when	Acknowledged. Given the advice that these distances be used to screen in any sites that are within that distance of the impact radius of the Project (i.e. for grey seals, this would be 20 km plus



Consultee	Key Comment/Discussion Topic	Applicant Response
	they do not forage over greater distances. For harbour seal these are not exclusively breeding colonies (i.e., also foraging) hence the larger distance. SMRU telemetry data should be available for Machair.	the maximum predicted effect range), an initial screening distance of 100 km has been used within this HRA Screening report (see Sections 6.3.2 and 6.3.3 . The screening has been further refined based on SMRU's telemetry data and on the potential effect ranges from underwater noise presented in Appendix 10.1 Underwater Noise Modelling Report of the EIAR (Sections 6.3.2 and 6.3.3).
NatureScot	For in-combination effects, geophysical surveys should be added in.	Geophysical surveys have been included in the in-combination assessment of the Report to Inform Appropriate Assessment .
23 May 2024: Scoping Workshop written feedback		
NatureScot	NatureScot agree with the SAC's proposed to be screened into the assessment.	Acknowledged.
Scoping Opinion January 2025		
NatureScot	As noted above, it is intended that otters will be considered as part of the onshore assessment so have not been included within this Scoping Report or HRA Screening Report. Having reviewed the indicative design envelope parameters for the monopile foundations in Table 3.3, we advise that until underwater noise modelling is undertaken, potential impacts to otters should be scoped into the EIA and HRA. Although the WDA is approximately 9 km away from the coast, underwater noise impacts (particularly from piling), could reach the inshore area which otters rely on for foraging and cause disturbance. Therefore, we advise that SACs designated for otter, that have connectivity to the coast and fall within the range of potential impact, are included for further assessment.	The three closest otter SACs to the WDA are Tayvallich Juniper and Coast SAC, approximately 80 km east; Taynish and Knapdale woods SAC, approximately 63 km east and Sunart SAC, approximately 90 km northeast (distances by sea). Due to the distance, it is highly unlikely that activities occurring in the WDA will have any impact on otters. Underwater noise modelling did not include the 'other marine carnivores in water (OCW)' hearing group as both Southall et al. (2019) and NMFS (2024) state that information on auditory injury thresholds is limited. Therefore, OCW is not included in the INSPIRE model (currently version 6.0), which was used for the underwater noise modelling. Ghoul and Reichmuth (2014) conducted controlled experiments measuring aerial and underwater hearing thresholds in otters and found that underwater hearing is significantly poorer in water compared to air. Furthermore, Ghoul and Reichmuth (2021) measured absolute sensitivity and masking thresholds in sea otters and concluded: " <i>Sea otter hearing appears to be primarily</i>



Consultee	Key Comment/Discussion Topic	Applicant Response
		<p><i>air-adapted and not specialised for detecting signals in background noise underwater."</i></p> <p>For this reason, and due to the distance between the SACs and the WDA, SACs designated for otters have been screened out of the HRA.</p>
NatureScot	Table 6.2 summarises the SACs and qualifying species that have been screened into the HRA – we are content with this, subject to our comment above regarding otters. However, we note and agree that this list should be reviewed once the underwater noise modelling has been undertaken.	All marine mammal SACs have been reviewed, and all five will remain screened into the HRA. The Sound of Barra SAC has also now been screened in. See Applicant responses above regarding otters and below regarding other mammals.
NatureScot	Just to note, we advise that screening of cetaceans (100km and seals (50km for harbour and 20km for grey seal) should be from the impact rather than the WDA boundary for Scottish sites. We also advise the Applicant to look at telemetry studies (SMRU) to understand connectivity beyond the screening ranges used for seals (50km/20km as detailed above).	<p>See Section 6.3.4 for marine mammal SACs screened into the HRA.</p> <p>Although Eileanan agus Sgeiran Lios mor SAC and South-East Islay Skerries SAC are greater than 50 km from the WDA, Cunningham et al. (2009) found that harbour seals in West Scotland often travelled over 100 km from haul-out sites, and Paterson et al. (2015) focused on haul-out monitoring in the Sound of Islay and found that harbour seals showed high site fidelity, but were capable of transiting between haul-out sites. For this reason, there is likely to be connectivity within the WDA, therefore both Eileanan agus Sgeiran Lios mor SAC and South-East Islay Skerries SAC have been screened into the HRA.</p> <p>SMRU consulting found connectivity with tagged grey seal travelling via the Treshnish Isles SAC and within vicinity of the WDA (SMRU, 2016). For that reason, following NatureScot advice, the Treshnish Isles SAC has been screened into the HRA.</p>
NatureScot	Potential impacts screened in and out of assessment for marine mammals are detailed in Table 6.3 – all impacts considered for HRA screening should be the same as those considered for the EIA Report.	Table 6.3 has been updated to include the same impacts as those assessed in the EIAR.



Consultee	Key Comment/Discussion Topic	Applicant Response
NatureScot	In relation to the proposed assessment of in-combination effects (Section 6.4.1), all impacts screened in for Likely Significant Effect (LSE) should be included and we are content with the approach set out. As highlighted above for the CEA, if underwater noise outputs are not available for other projects, we can accept the use of EDRs for the in-combination assessment.	Section 6.4.1 has been updated to include more detail on the in-combination assessment. EDRs will be used where applicable.
NatureScot	We are generally content with the approach set out for assessing cross border effects (Section 6.4.2) and welcome further agreement with us and DAERA, once more detail is available on the potential impacts from the proposal. We also advise liaison with the Irish Parks and Wildlife Section to ensure any transboundary issues are adequately addressed.	The Applicant has sought to engage with National Parks and Wildlife Service (NPWS) throughout the pre-application period but was unable to secure a meeting to discuss the Project.
MD-LOT	In regard to the HRA Screening Report, the Scottish Ministers refer to the representation from NatureScot and advise that until underwater noise modelling is undertaken, potential impacts to otters should be scoped into the HRA. The Scottish Ministers are content with the Special Area of Conservations and qualifying species that have been screened into the HRA but recommend that this list should be reviewed once underwater noise modelling has been undertaken.	See the Applicant's response on this point to NatureScot above.
MD-LOT	The Scottish Ministers also direct the Developer to the representation from NatureScot with regards to the screening of cetaceans and seals and advise that these comments should be fully considered.	See the Applicant's response on this point to NatureScot above.
MD-LOT	In addition, the Scottish Ministers refer the Developer to the representation from Natural England who confirm that they do not expect to provide further comments or advice on marine mammal receptors unless the project changes substantially.	Acknowledged.
MD-LOT	Finally, the Scottish Ministers direct the Developer to the representation from the DAERA with regards to an error in the given area of the Skerries and Causeway SAC and request that this is addressed in the HRA Report.	The spatial area of the Skerries and Causeway SAC has been updated to 108.62 km ² in Paragraph 111 .
DAERA	DAERA Marine and Fisheries Division welcome the opportunity to comment on this proposal. After reviewing the associated documents, we are content that	



Consultee	Key Comment/Discussion Topic	Applicant Response
	<p>those Northern Ireland Marine Protected Areas that are within the screening ranges for marine mammals have been included.</p> <p>We would highlight an error in section 10.5 of the HRA Screening Report which states: Harbour porpoise is a qualifying species for the Skerries and Causeway SAC which is located on the north coast of Northern Ireland covering 0.1 km² – this is incorrect the value should be 108.62km².</p>	
Argyll and Bute Council	<p>In terms of the Applicant's HRA screening report, I am in agreement with the European sites identified, of which include Chapter 4 - Sites Designated for Annex I Habitats, Chapter 5 - Sites Designated for Annex II Diadromous Fish, and Chapter 6 -Sites Designated for Annex II Marine Mammals. In addition, I am in general agreement with the range of potential impacts on marine mammal receptors that have been identified during the construction, O&M and decommissioning phases of the WDA as per discussed in Table 6.3 Potential impacts screened in or screened out for marine mammals.</p>	Acknowledged.



6.3 IDENTIFICATION OF SITES AND FEATURES

94. Two cetacean species (harbour porpoise and bottlenose dolphin) and two seal species (grey seal and harbour seal) are present in UK waters and are listed in Annex II of the Habitats Directive. These species are therefore afforded protection through the designation of SACs.
95. In addition, all species of cetacean occurring in UK waters are listed in Annex IV of the Habitats Directive as European Protected Species (EPS), which prohibits the deliberate killing, disturbance or the destruction of these species or their habitat. EPS are considered further in the WDA EIAR (**Chapter 10 Marine Mammals and Leatherback Turtle**).
96. The following Annex II marine mammal species are considered likely to be present in the vicinity of the WDA, and are considered in this HRA Screening Report:
- Harbour porpoise;
 - Grey seal; and
 - Harbour seal.
97. Although bottlenose dolphin is an Annex II listed species, there is no SAC designated for bottlenose dolphin within the Inner and Outer Hebrides, therefore this species is not considered further.
98. The following sections describe the process used to define the list of SACs for which there is possible connectivity and therefore potential for a source – pathway – receptor relationship for marine mammal qualifying SAC features, i.e. harbour porpoise (**Section 6.3.1**), grey seal (**Section 6.3.2**) and harbour seal (**Section 6.3.3**) in line with the criteria set out in **Section 6**. No designated sites for marine mammals overlap with the WDA, and therefore, no sites have been screened in on the basis of Criterion 1.

6.3.1 Harbour Porpoise

99. Harbour porpoise are the most common cetacean in UK waters, are resident in Scottish waters all year round, and are found mainly in coastal areas, shallow bays, estuaries, sea lochs, tidal channels and occasionally up rivers. Harbour porpoises appear to favour the continental shelf but may make seasonal movements to the coast often connected with the feeding of calves in shallower waters in early summer.
100. The Inter-Agency Marine Mammal Working Group (IAMMWG) defined three MUs for harbour porpoise: North Sea; West Scotland (WS); and the Celtic and Irish Sea (CIS). The WDA is located in the WS MU (**Plate 6.1**), which has an estimated abundance of 24,305 individuals within the UK portion (Coefficient of Variation = 0.18; 95% Confidence Interval = 17,121-34,505) (IAMMWG, 2023). The boundary with the CIS MU is arbitrary (**Plate 6.1**), therefore there will be an interchange of animals in between the WS and CIS MU (IAMMWG, 2023). For that reason, it is important to include in the HRA, SACs in both MU's (WS and CIS MU) where harbour porpoise is a qualifying species as connectivity is possible between WDA and the designated sites in both MU's.



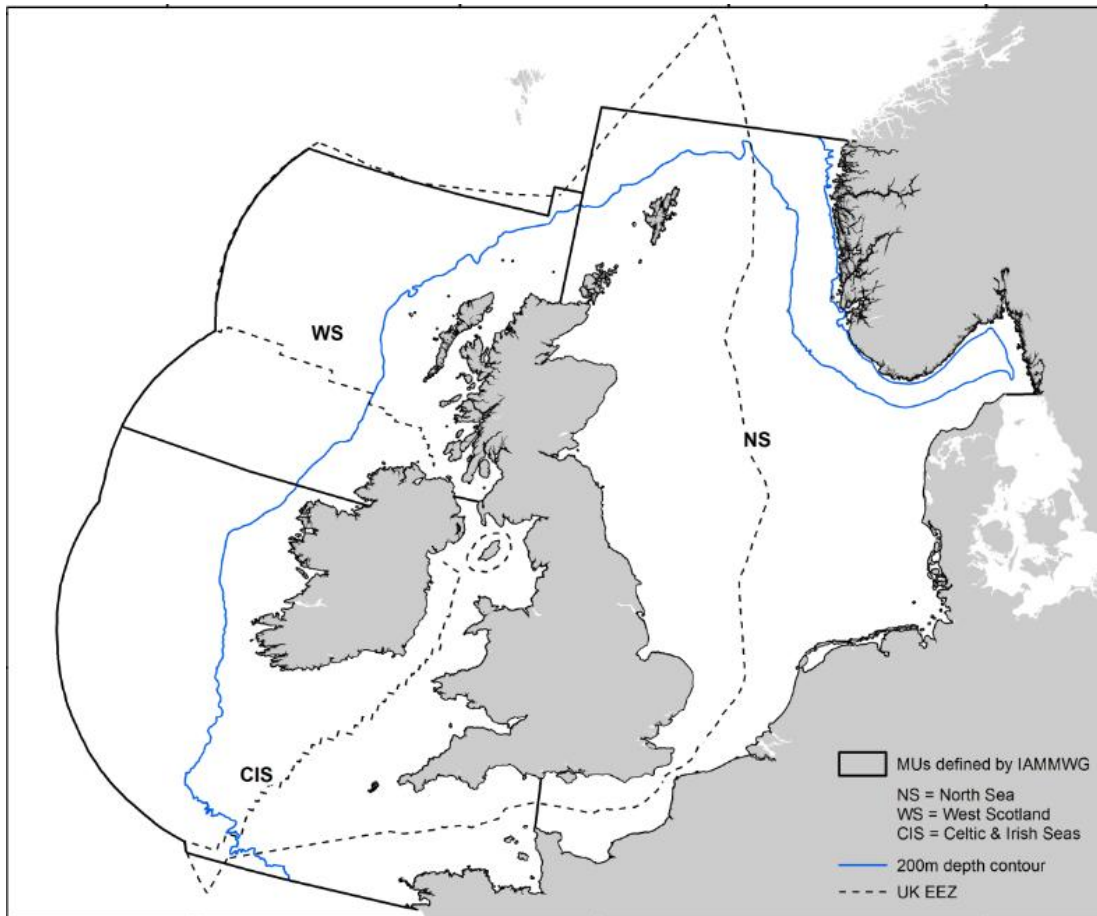


Plate 6.1 Management Units of harbour porpoise

101. Small Cetaceans in the European Atlantic and the North Sea (SCANS)-IV reported an estimated abundance of 24,699 individuals (95% Confidence Limit = 14,626 - 38,996), although only partial coverage of this MU was achieved in the SCANS-IV survey.
102. Harbour porpoise were frequently detected in the Project's site-specific Digital Aerial Surveys (DAS) (30 months from April 2021 to September 2023) and were the second most common species after common dolphin. The Project's DAS recorded a total of 265 harbour porpoise. The highest number was 42 individuals recorded in March 2022, resulting in the highest density estimate of 0.771/km². However, based on written feedback from NatureScot received on 14 November 2025, in response to questions posed by the Applicant at ETG 2 on 15 October 2025 (see Table 10.2 in **Chapter 10 Marine Mammals and Leatherback Turtle**), the highest seasonal average density estimate from the Project's DAS (0.42/km²) is used in **Chapter 10 Marine Mammals and Leatherback Turtle**. The highest seasonal average density estimate was recorded in the summer season (April to September) with the highest over the three summer seasons (2021, 2022, and 2023) being 0.42 harbour porpoise per km². During the site-specific geophysical surveys, no harbour porpoises were detected.
103. This HRA screening considers any designated sites within the harbour porpoise WS and CIS MUs, where the species is considered as a Grade A, B or C feature (Joint Nature Conservation Committee; JNCC, 2009), and further screened based on the distance to the WDA. These represent populations equivalent to the following:



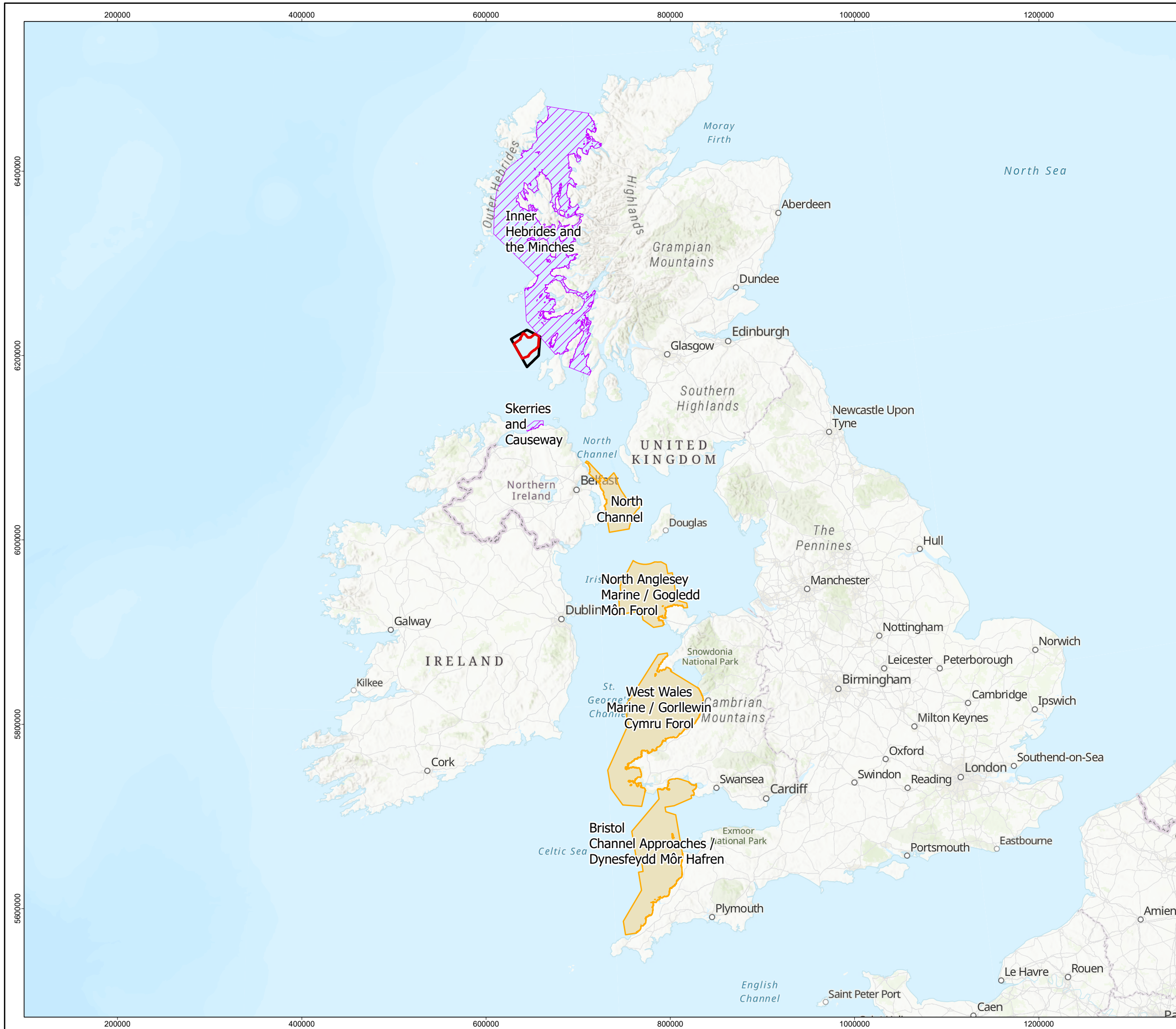
- Grade A: excellent representativity;
 - Grade B: good representativity; and
 - Grade C: significant representativity.
104. Grade D indicates a non-significant population and has therefore not been considered further.
105. Within the WS MU, the following SACs are present (**Figure 6.1**):
- Inner Hebrides and the Minches SAC; and
 - Skerries and Causeway SAC.
106. Within the CIS MU, the following SACs are present:
- North Channel SAC;
 - North Anglesey Marine SAC;
 - West Wales Marine SAC; and
 - Bristol Channel Approaches SAC.
107. As noted in **Table 6.1**, a distance of 100 km is used to determine the initial list of screened in SACs for harbour porpoise. Applying this screening distance (to the WDA) results in the following list of SACs for initial screening:
- Inner Hebrides and the Minches SAC; and
 - Skerries and Causeway SAC.
108. It is noted that the North Channel SAC (within Northern Ireland), is approximately 40 km south of the Offshore ECC at the closest point and therefore will require detailed assessment as part of the Offshore ECC consent application which will be based on the final Offshore ECC boundary. However, the following impact pathways assessed for the Inner Hebrides and the Minches SAC and Skerries and the Causeway SAC within the **WDA RIAA** are likely to also require assessment for the North Channel SAC:
- Underwater noise during geophysical surveys;
 - Underwater noise during UXO clearance;
 - Auditory injury and behavioural impacts resulting from noise associated with non-piling activities;
 - Auditory injury and behavioural response resulting from vessel noise;
 - Vessel interaction (collision risk); and
 - Changes to prey availability.
109. Agreement of the appropriate density estimates and reference populations to be used for the assessment will be sought as part of the Offshore ECC consent application.
110. Harbour porpoise is a qualifying feature of the Inner Hebrides and Minches SAC; which comprises an area of 13,807.99 km². It is the only designated site for harbour porpoise in Scottish waters and is categorised as Grade A due to the population size. The Inner Hebrides and the Minches SAC was identified as being within the top 10% of persistent high density areas for harbour porpoise in UK waters during the summer season (Heinänen & Skov, 2015) and it incorporates virtually all of the top 20% of harbour porpoise density derived using data presented in Booth et al. (2013) and some areas that were in the top 50% (SNH, 2016). The site has a regular presence of harbour porpoise, with calves being recorded regularly by the Hebridean Whale and Dolphin Trust (Hebridean Whale and Dolphin Trust unpublished). It is estimated (based on the SCANS-II survey which took place in July 2005 only) that the site supports approximately 5,438 individuals (95% Confidence Interval: 2,426-12,191) for at least part of the year, as seasonal differences are likely to occur, and represents approximately 32% of the population within the UK part of the WS MU (in water depths of 200 metres







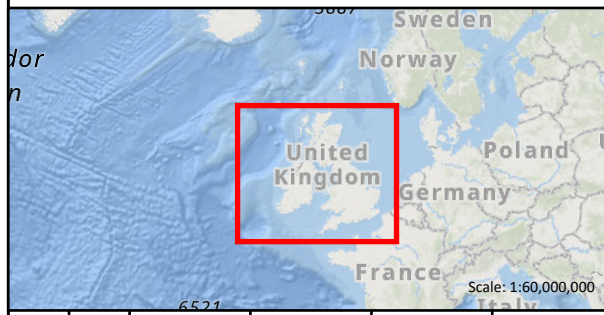
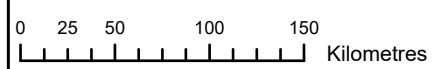
(m) or less). As these numbers have come from a one-month survey in a single year it cannot be considered as a specific population number for the site (Hall et al., 2016). The Inner Hebrides and Minches SAC is approximately 0.4 km from the WDA and therefore has been **screened into** the HRA (**Table 6.2**).

111. Harbour porpoise is a qualifying species for the Skerries and Causeway SAC which is located on the north coast of Northern Ireland covering 108.62 km². It is the eastern part of a 30 km wide embayment that has the Inishowen peninsula to the west and Benbane Head towards the east. The warming gulf stream along with strong tidal current makes this area rich in rare and priority species (Pothanikat and Breen, 2017). Harbour porpoise are resident in the SAC all year round, with a continuous presence and is graded A for harbour porpoise population (excellent representivity). The Skerries and Causeway SAC is approximately 68 km from the WDA, therefore the site has been screened into the HRA (**Table 6.2**).





-  Option Agreement Area
-  Windfarm Development Area
-  Screened in SACs for Harbour porpoise
-  Screened out SACs for Harbour porpoise



1	24/11/2025	AB	GC	SB	PB
REV	DATE	CREATOR	REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

DRAWING NUMBER: MCW-DWF-ENV-MAP-RHS-000076

DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:4,000,000	PAGE SIZE	A3

PROJECT TITLE: MachairWind

Figure 6.1: Screening of harbour porpoise Special Areas of Conservation

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 World Ocean Reference: Sources: Esri, TomTom, Garmin, GEBCO, National Geographic, NOAA, and the GIS User Community
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6.3.2 Grey Seal

112. Approximately 36% of the world's grey seals breed in the UK, and 81% of these breed at colonies in Scotland with main concentrations in the Outer Hebrides. Grey seals are wide ranging and can breed and forage in different areas (Russell and McConnell, 2014).
113. Grey seals will typically forage in the open sea and return regularly to land to haul-out. Foraging trips generally occur within 100 km of their haul-out sites, although grey seal can travel up to 448 km to forage (Special Committee on Seals (SCOS), 2022; Carter et al., 2022).
114. In the UK, there are 14 seal MU's (IAMMWG, 2013; SCOS, 2022) (**Plate 6.2**), as well as five regions in the Republic of Ireland. The WDA is within the WS MU as described in **Chapter 10 Marine Mammals and Leatherback Turtle** of the WDA EIA Scoping Report (Royal HaskoningDHV, 2024).



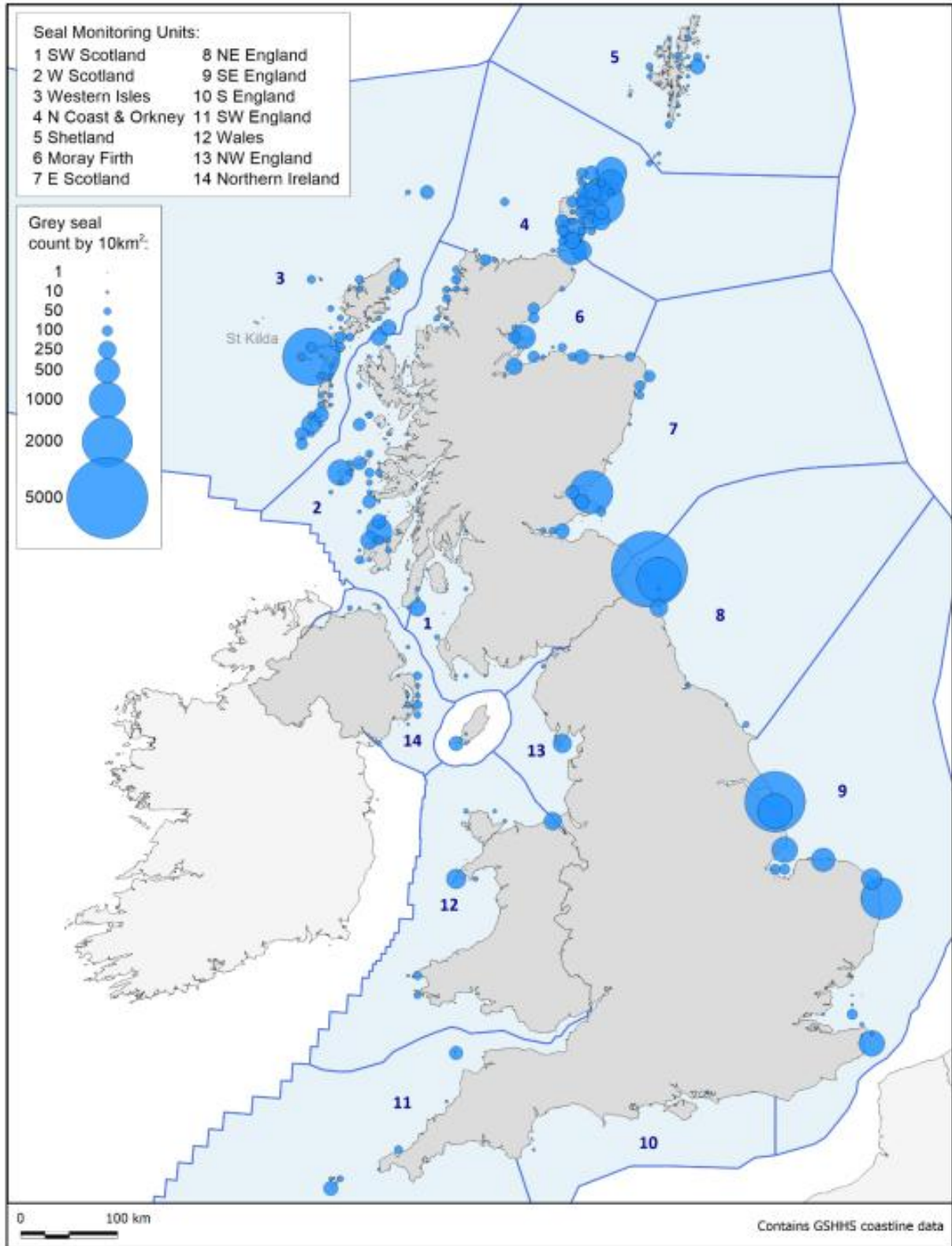


Plate 6.2 Seal Management Units for the United Kingdom coast and grey seal counts

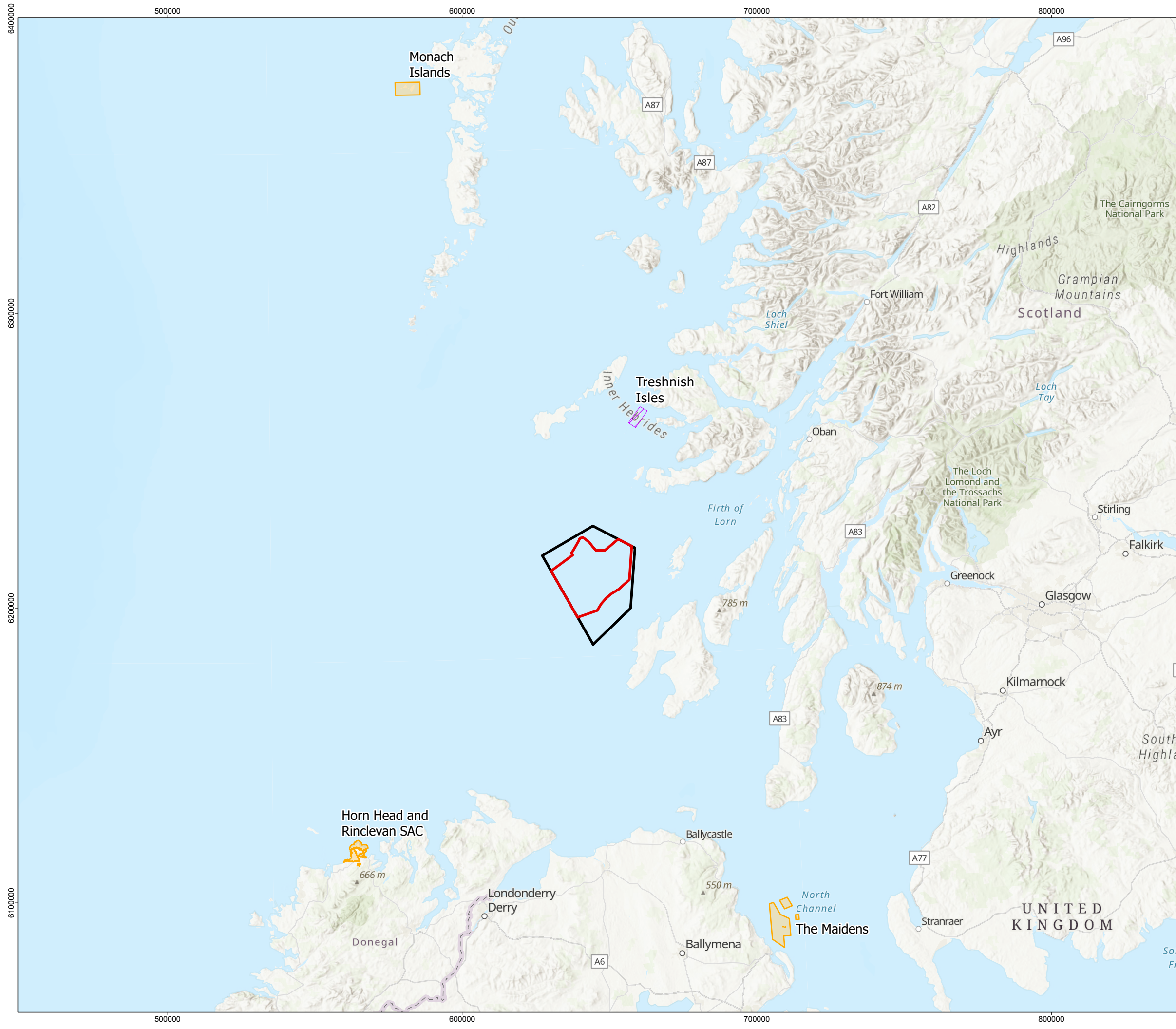






115. For designated sites where grey seal is a qualifying feature, this is most likely due to it being an important breeding site for grey seal. Therefore, for any SACs screened in, consideration will be given to the differences in grey seal distributions during their breeding and non-breeding seasons. Consideration will be given to the potential for effects on grey seals that may be foraging at-sea and effects to grey seals that may be hauled-out, and the increased sensitivities at certain times of the year (e.g. increased sensitivity to disturbance at haul-out sites during the breeding season).
116. To take into account the wide range and movements of grey seal, all designated sites where grey seal is a qualifying feature in the WS MU, Southwest Scotland MU, Western Isles (WI) MU, and the Northern Ireland MUs, alongside the Republic of Ireland North and West regions were initially considered. All designated sites outside this region were screened out from further consideration due to distance and a lack of evidence of connectivity. For grey seal, the screening process includes any designated site where the species is a Grade A, B or C feature.
117. Within the WS MU, the following SACs are present: (**Figure 6.2**)
- Treshnish Isles SAC.
118. Within the WI MU, the following SACs are present:
- Monach Islands SAC.
119. Within the Northern Ireland MU, the following SACs are present:
- The Maidens SAC.
120. Within the Republic of Ireland North and West regions, the following SACs are present:
- Horn Head and Rinclevan SAC;
 - Slieve Tooy/Tormore Island/Loughros Beg Bay SAC;
 - Inishkea Islands SAC;
 - Duvillaun Islands SAC;
 - Inishbofin and Inishshark SAC; and
 - Slyne Head Islands SAC.
121. North Rona is also located within the WI MU, however, due to its distance from the WDA (of 341km), this site is not considered within the initial screening.
122. As noted in **Table 6.1**, a distance of 100 km is used to determine the initial list of screened in SACs for seal species. Applying this screening distance (to the WDA) results in the Treshnish Isles SAC being **screened into** the HRA for grey seal. Due to the distance of the Monach Islands SAC, approximately 173 km from the WDA and The Maidens SAC 117 km away (see **Figure 6.2** and **Table 6.4**), both SACs have been **screened out**. Given the distance to North Rona at approximately 636 km, this SAC is not considered further.
123. It is noted that the Maidens SAC is approximately 18 km south of the Offshore ECC at the closest point and therefore will require detailed assessment as part of the Offshore ECC consent application which will be based on the final Offshore ECC boundary. However, the following impact pathways assessed for the other seal SACs within the **WDA RIAA** are likely to also require assessment for the Maidens SAC:
- Vessel interaction (collision risk); and
 - Disturbance at seal haul out sites.

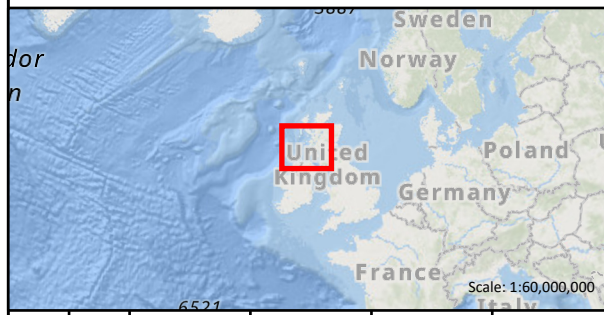
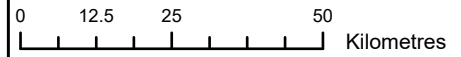


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124. Agreement of the appropriate density estimates and reference populations to be used for the assessment will be sought as part of the Offshore ECC consent application.
125. Of the listed Republic of Ireland SACs designated for grey seal, Horn Head and Rinclaven SAC is the closest at 103 km from the WDA; therefore, no Republic of Ireland SAC are considered further within this initial screening, and all are **screened out**. This initial screening will be updated to take account of NatureScot advice following determination of the WDA's potential effect ranges.
126. The Treshnish Isles SAC is approximately 40 km north of the WDA at its closest point and is 19.63 km². The Treshnish Isles are a remote chain of uninhabited volcanic islands and skerries situated in WS. The islands, abundant skerries, islets and reefs support a breeding colony of grey seals, which supports up to 3% of annual UK pup production, equating to 1,100 pups per year (JNCC, 2024b). As an important area for grey seal and within vicinity of WDA, the Treshnish Isles SAC has been **screened into** the HRA (**Table 6.2**). Given the distance to this SAC, it is likely that the Treshnish Isles SAC will remain **screened into** the HRA following the update in line with NatureScot advice (see response in **Table 6.1**).





-  Option Agreement Area
-  Windfarm Development Area
-  Screened in SACs for Grey seal
-  Screened out SACs for Grey seal



1	24/11/2025	AB	GC	SB	PB
REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER

DRAWING NUMBER MCW-DWF-ENV-MAP-RHS-000077

DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:1,250,000	PAGE SIZE	A3

PROJECT TITLE MachairWind

Figure 6.2: Screening of grey seal Special Areas of Conservation

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6.3.3 Harbour Seal

127. Harbour seals are wide-ranging around the west coast of Scotland and throughout the Hebrides and Northern Isles. The SMRU, in collaboration with others, deployed telemetry tags on harbour seals around the UK. The spatial distributions indicate harbour seals persist in discrete regional populations, display heterogeneous usage, and generally stay within 50 km of the coast (Russell and McConnell, 2014). Tagged harbour seals were observed to have a more coastal distribution compared to grey seals and do not travel as far from haul-outs (Russell and McConnell, 2014).
128. Harbour seals generally make smaller foraging trips than grey seal. The typical and average foraging range for harbour seal is 50-80 km (SCOS, 2022). Tracking studies have shown that harbour seals travel 50-100 km offshore and can travel up to 273 km on foraging trips (Carter et al., 2022). The range of these trips varies depending on the location and surrounding marine habitat.
129. As described in **Section 6.3.2**, there are 14 Seal MUs (**Plate 6.3**). Genetic analysis of harbour seals around the UK and continental Europe (Carroll et al., 2020) found there to be two metapopulations within Europe; one being the southern population (incorporating the South-East England MU and continental Europe) and one being the northern population (including all other UK MUs). Within the northern population itself, there was also genetic differences between most of the MUs, except for between the WS and WI MU, and between the North Coast Scotland & Orkney and Moray Firth MUs. This genetic analysis also revealed movement of harbour seal from the WS MU to the Southwest Scotland MU and the WI MU (Carroll et al., 2020). Pup-tracking data indicated a higher degree of connectivity between the seal MUs and local populations compared with non-pups; in total 26% moved between seal MUs, of which 19% changed local population (Carroll et al., 2020).



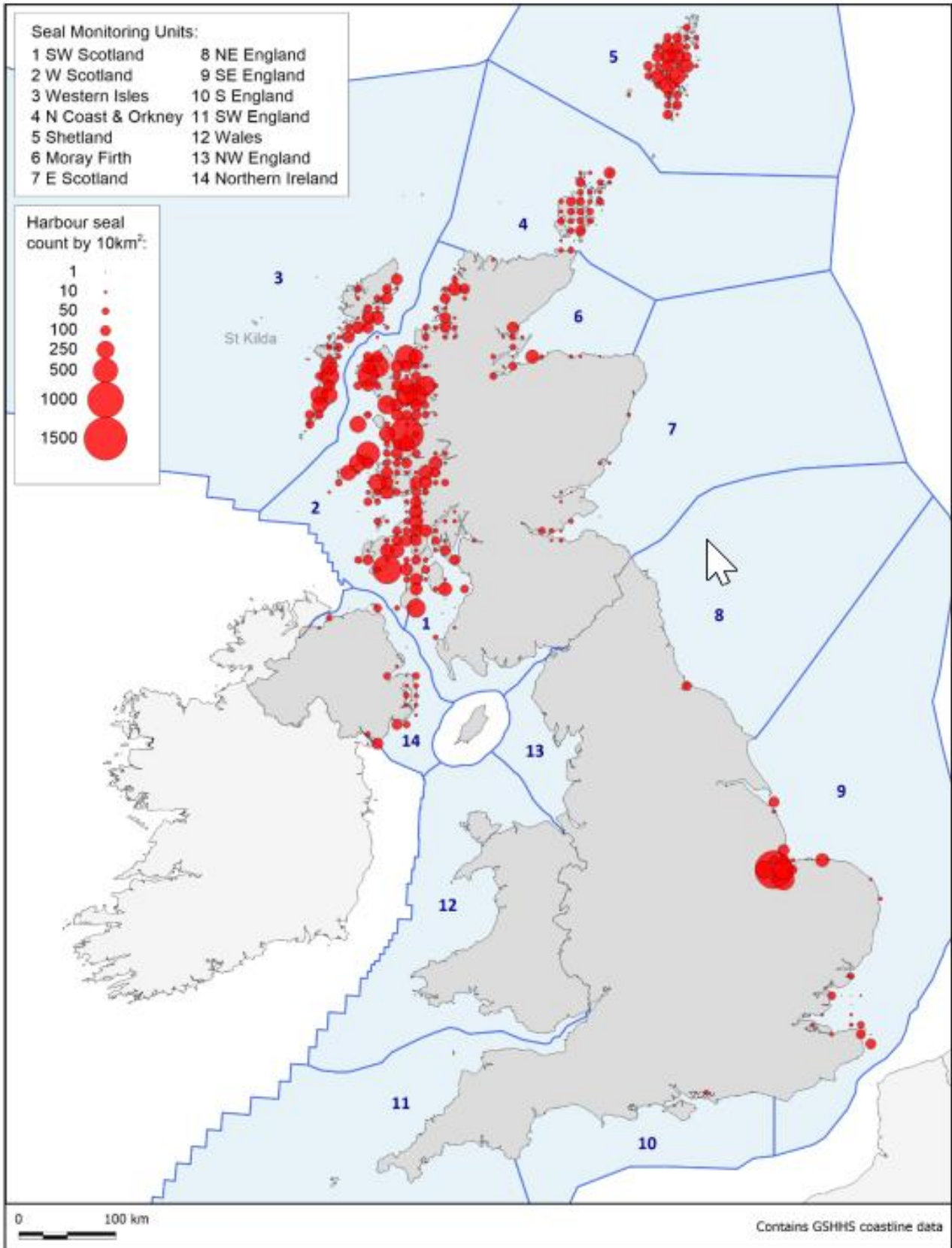


Plate 6.3 Seal Management Units for the United Kingdom coast and harbour seal counts

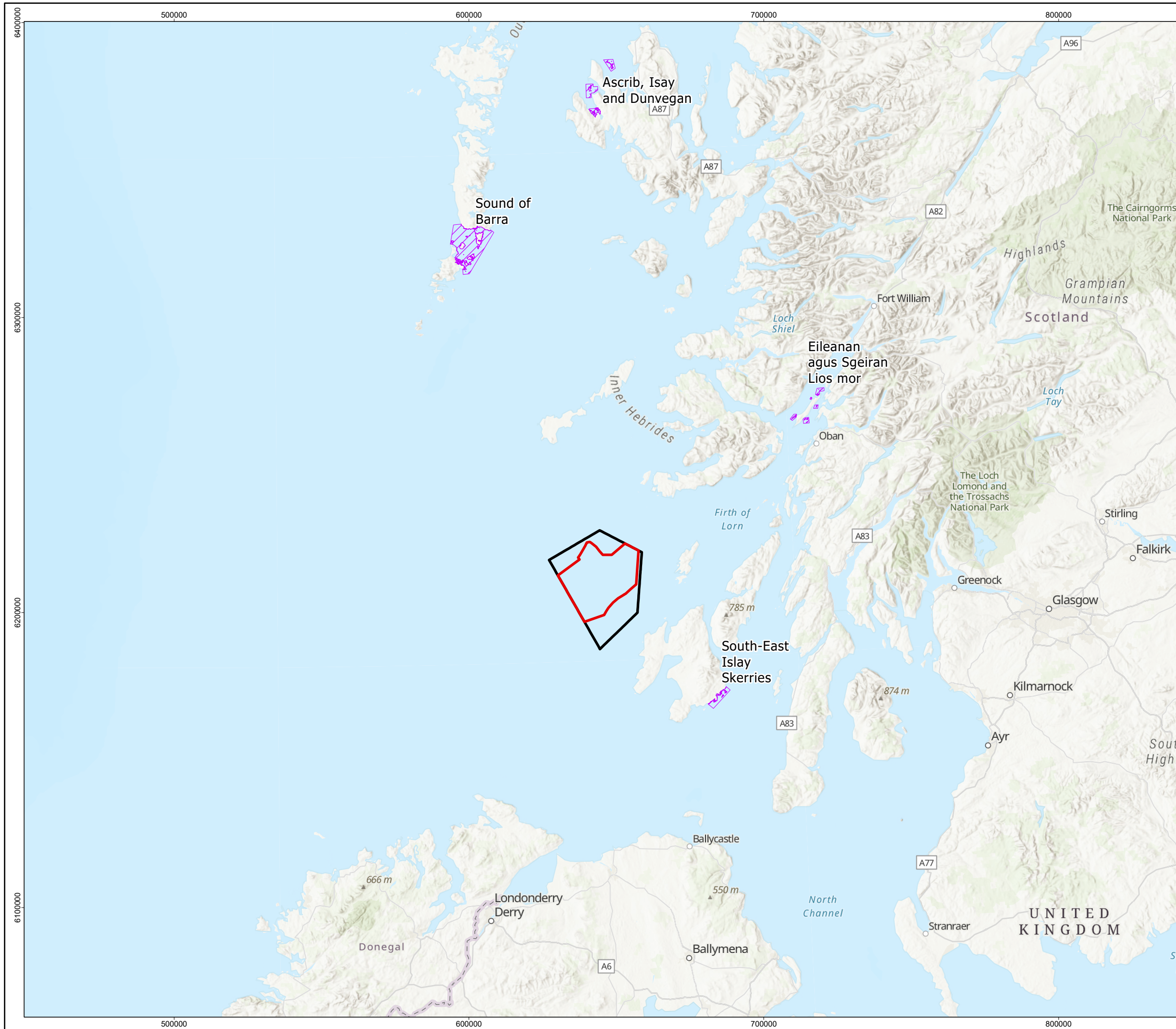


130. To take account of the wide range and movements of harbour seal, all designated sites where harbour seal are a qualifying feature in the Inner and Outer Hebrides were initially considered. All designated sites outwith this region were screened out from further consideration as there was no recorded connectivity between the harbour seals at these sites and the WDA. For harbour seal, the screening process includes any designated site where the species is a Grade A, B or C feature.
131. Harbour seals could come from any of the designated sites considered to have potential connectivity. As a result, any potential effects to harbour seal will be assessed based on them being from a designated site with potential connectivity, and that they have travelled away from the site(s) to forage.
132. Within the WS MU, the following SACs are present:
- South-East Islay Skerries SAC;
 - Eileanan agus Sgeiran Lios mor SAC; and
 - Ascrib, Isay and Dunvegan SAC.
133. Within the WI MU, the following SACs are present:
- The Sound Barra SAC.
134. **Figure 6.3** shows the SACs which are **screened in** for harbour seals.
135. As noted in **Table 6.1** a distance of 100 km is used to determine the initial list of screened in SACs for seals. Applying this screening distance (to the WDA) results in the following list of SACs for initial screening:
- South-East Islay Skerries SAC;
 - Eileanan agus Sgeiran Lios mor SAC;
 - Sound of Barra SAC; and
 - Ascrib, Islay and Dunvegan SAC.
136. Harbour seal is a qualifying feature of the South-East Islay Skerries SAC, where harbour seal utilises the islands and skerries for pupping in June to August and moulting as well as resting haul-out sites. The SAC supports up to 600 harbour seal, representing up to 2% of the UK population (JNCC, 2024c). The last count of harbour seal in the South-East Islay Skerries SAC was 706 in 2018 (SCOS, 2019) which was 35% lower than previous counts in 2015, and the overall contribution to the WS MU has also remained stable between 10-14% throughout, suggesting that the SAC is a good indicator of overall harbour seal numbers (NatureScot, 2020).
137. South-East Islay Skerries SAC is approximately 66.5 km from the WDA at its closest point and therefore has been **screened into** the HRA (**Table 6.2**). Given the distance to this SAC, it is likely that the South-East Islay Skerries SAC will remain **screened into** the HRA following the update in line with NatureScot advice (see response in **Table 6.1**).
138. The Eileanan agus Sgeiran Lios mor SAC provides a sheltered and enclosed sites for harbour seal, representing just over 1% of the UK population and the seals are present all year round (JNCC, 2024d). Within the Eileanan agus Sgeiran Lios mor SAC, harbour seal numbers have remained fairly stable. The survey results from 2009 to 2018 suggest there may be a decline, however, this is likely to be down to natural fluctuations, due to movements between other nearby haul-out sites (Morris et al., 2021).

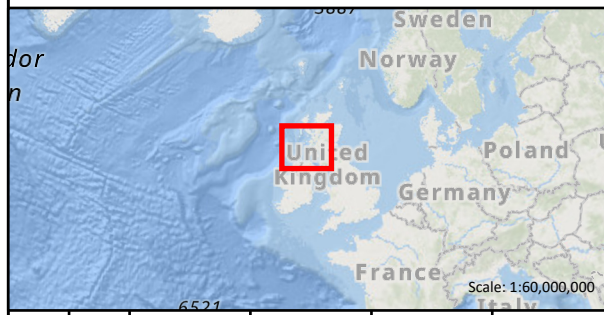
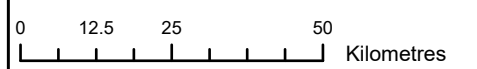


139. The Eileanan agus Sgeiran Lios mor SAC is approximately 77 km from the WDA at its closest point and therefore has been initially **screened into** the HRA (**Table 6.2**). Given the distance to this SAC, there is potential that the Eileanan agus Sgeiran Lios mor SAC could be either screened in or out of the HRA following the update in line with NatureScot advice (see response in **Table 6.1**), depending on the Projects' specific effect ranges.
140. Although Sound of Barra SAC is approximately 100 km from the WDA, and Ascrib, Islay and Dunvegan SAC is approximately 175 km from the WDA it has been **screened in** for disturbance from transiting vessels only. Vessels transiting to and from the WDA can cause disturbance to marine mammals and can significantly disturb seals when hauled out. The port location has not yet been finalised. Indicative list of port locations during construction is:
- **Marshalling & Assembly (Construction):**
 - Kishorn;
 - Arnish/Stornoway; and
 - Hunterston.
 - **Marine Operations (Construction):**
 - Oban;
 - Port Ellen; and
 - Bendoran (Mull).
141. If Stornoway or Kishorn port is used for the construction phase of the WDA, the increased number of transiting vessels may cause negative impacts to the population of harbour seal at either the Sound of Barra SAC and/or the Ascrib, Islay and Dunvegan SAC.
142. As vessel movements associated with the O&M phase are not predicted to result in LSE on the Sound of Barra SAC and Ascrib, Islay and Dunvegan SAC, only vessel activity during the construction phase is screened in for further assessment.





Option Agreement Area
 Windfarm Development Area
 Screened in SACs for Harbour seal



1	24/11/2025	AB	GC	SB	PB
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PROJECT TITLE: MachairWind

Figure 6.3: Screening of harbour seal Special Area of Conservation

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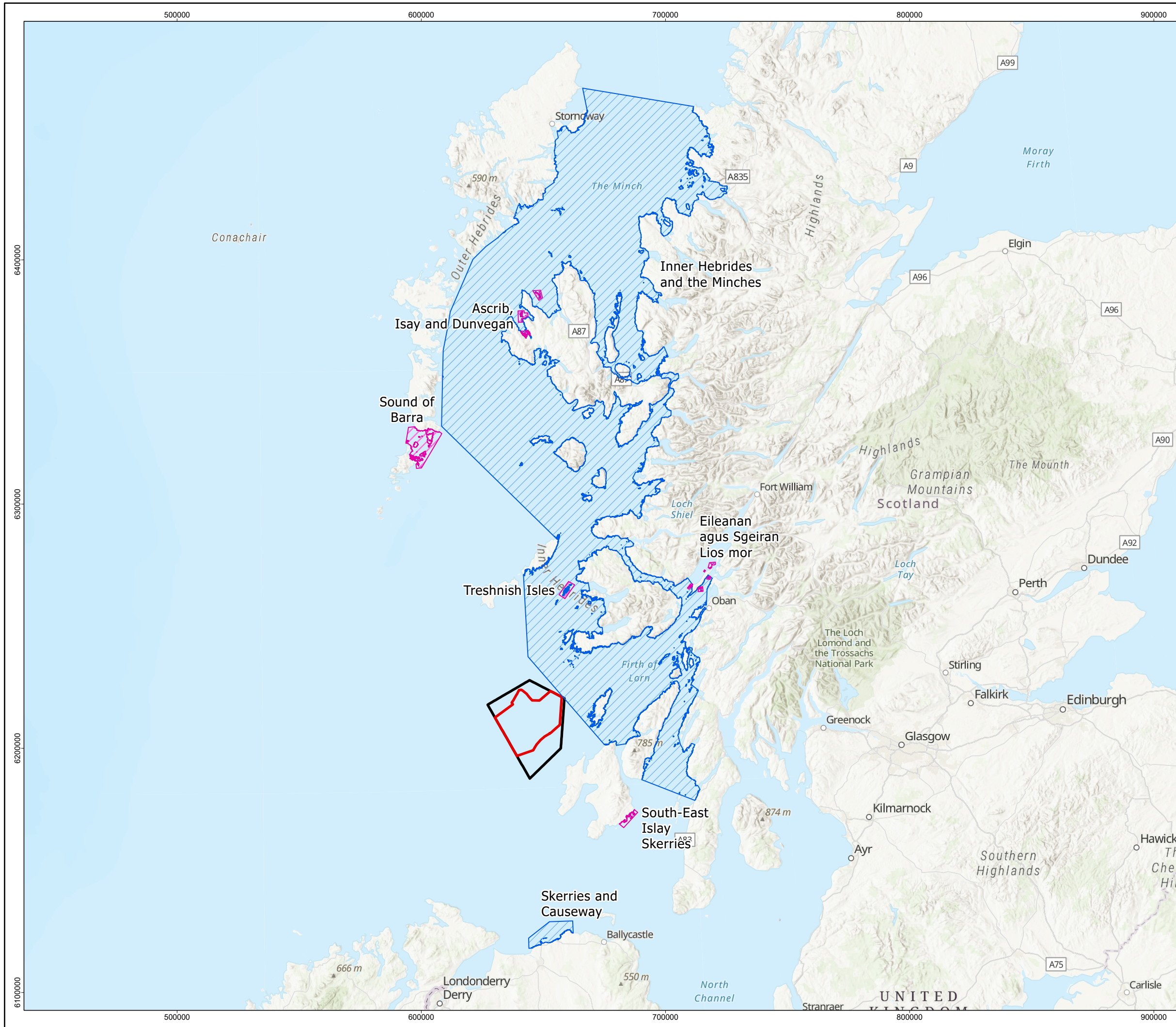
6.3.4 Summary of Annex II Marine Mammals Site Screening





143. **Table 6.2** summarises the SACs that have been screened into the HRA. At this stage, seven SACs have been screened in due to the distance from WDA. All SACs to be screened in are presented in **Figure 6.4**.

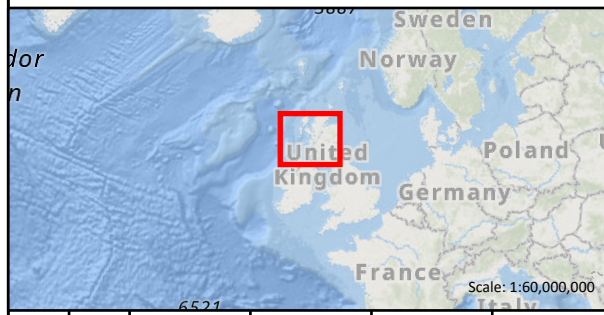
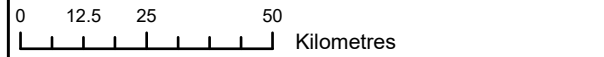
Table 6.2 Summary of designated sites to be screened in or screened out of the Habitats Regulations Appraisal

Designated Site	Qualifying feature(s)	Closest distance from Windfarm Development Area (WDA) (km)	Screened in (✓) or screened out (✗)
Inner Hebrides and the Minches Special Areas of Conservation (SAC)	Harbour porpoise	0.4	✓
Treshnish Isles SAC	Grey seal	40	✓
South-East Islay Skerries SAC	Harbour seal	66.5	✓
Skerries and Causeway SAC	Harbour porpoise	68	✓
Eileanan agus Sgeiran Lios mor SAC	Harbour seal	77	✓
Sound of Barra SAC	Harbour seal	100	✓
Horn Head and Rinclevan SAC	Grey seal	103	✗
The Maidens SAC	Grey seal	117	✗
North Channel SAC	Harbour porpoise	132	✗
Ascrib, Isay and Dunvegan SAC	Harbour seal	175	✓
Monach Islands SAC	Grey seal	173	✗
Slieve Toey/Tormore Island/Loughros Beg Bay SAC	Grey seal	188	✗
Inishkea Islands SAC	Grey seal	298	✗
Duvillaun Islands SAC	Grey seal	303	✗
Inishbofin and Inishshark SAC	Grey seal	356	✗
Slyne Head Islands SAC	Grey seal	381	✗





-  Option Agreement Area
-  Windfarm Development Area
-  Proposed Seal SACs to be Screened into the HRA
-  Proposed Harbour Porpoise SAC's to be Screened into the HRA



1	24/11/2025	AB	GC	SB	PM
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Figure 6.4: Proposed Marine Mammal SACs to be Screened into the HRA

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6.4 PATHWAYS FOR LSE

144. Direct or indirect effects to marine mammals may arise from the permanent or temporary physical presence of the project and / or activities relating to the construction, O&M or decommissioning of the WDA infrastructure. Potential effects include indirect effects, for example through impacts on prey species, and direct effects, for example from underwater noise and vessel interactions. The key factors considered during the HRA screening process are:
- Potential effects (source); and
 - Proximity of source to feature (i.e. the distance between the potential effects and marine mammals from designated sites) (pathway and receptor).
145. A range of potential impacts on marine mammal receptors may occur during the construction, O&M and decommissioning phase of the WDA. These are described below, together with a justification for the conclusion regarding the potential for LSE.
146. The potential impacts on marine mammals during construction are described in **Chapter 10 Marine Mammals and Leatherback Turtle** of the WDA EIA Scoping Report (Royal HaskoningDHV, 2024) and presented in **Table 6.3**.



Table 6.3 Potential impacts screened in or screened out for marine mammals.

Potential Impact	Project Phase*			Justification
	Screened In (✓) / Screened Out (x)			
	C	O&M	D	
Changes to water quality	x	x	x	<p>During the construction phase of the Project, the potential changes in water quality could occur through:</p> <ul style="list-style-type: none"> • Deterioration in water quality due to an increase in suspended sediment associated with seabed preparation for the installation of foundations and cables; • Deterioration in water quality due to an increase in suspended sediment concentrations due to drill arisings for installation of piled foundations for Wind Turbine Generator (WTGs) and Offshore Substation Platforms (OSPs); and • Deterioration in water quality associated with release of sediment bound contaminants. <p>The increases in suspended sediments and the risk of accidental release of contamination during construction has the potential to impact marine mammals, and their prey. The potential for water quality changes will be determined in the marine geology, oceanography, and physical processes chapters of the Windfarm Development Area (WDA) Environmental Impact Assessment Report (EIAR), including the best practice and management measures that would be put in place. Any changes to water quality would be localised and short lived, and the potential for any impacts from changes in water quality on marine mammals is not expected to be significant. Potential impacts on marine mammals related to changes in water quality during construction are screened out of the Habitats Regulations Appraisal (HRA).</p> <p>As described in Chapter 6 Marine Physical Environment of the WDA Environmental Impact Assessment (EIA) Scoping Report (Royal HaskoningDHV, 2024), contaminants survey data collected across the Option Agreement Area (OAA) shows that the seabed sediments within the WDA do not contain contaminants in concentrations that would pose a risk to water quality should the seabed sediments be suspended during construction, Operation and Maintenance (O&M) and decommissioning activities.</p> <p>Therefore, any changes to water quality during all Project phases would be localised and short lived, and the potential for any effects from changes in water quality on marine mammals is not expected to have the potential for Likely Significant Effects (LSE) and is therefore screened out of the HRA.</p>
Direct Electro-Magnetic Field (EMF) Effects	x	x	x	<p>Subsea electrical cabling produces EMFs which have the potential to affect marine mammals both directly and indirectly (i.e. through prey interaction pathways). This particularly relates to non-buried cables (either dynamic Inter-Array Cable(s) (IACs) in the water column, or cables laid directly on the seabed). The Project will use fixed WTG foundations and therefore EMFs from dynamic IACs in the water column would not occur. Additionally, unbundled cables would very likely be covered with external cable protection which would attenuate EMFs. Studies indicate that magnetic fields decrease rapidly with vertical and horizontal distance from subsea cables, and that the reduction is greater the deeper cables are buried (Normandeau et al., 2011).</p>



Potential Impact	Project Phase*			Justification
	Screened In (✓) / Screened Out (x)			
	C	O&M	D	
				<p>Although it is assumed that marine mammals are capable of detecting small differences in magnetic field strength, this is unproven and is based on circumstantial information. There is also, at present, no evidence to suggest that existing subsea cables influence cetacean movements, and there are no regulatory thresholds or guidelines that define acceptable levels of EMF emissions into the marine environment (Copping et al., 2020).</p> <p>For impacts during O&M, NatureScot confirmed during the scoping workshop on 01 May 2024 that direct EMF effects on marine mammals could be scoped out of the EIA with only indirect effects of EMF on prey species being required to be assessed (see Table 6.1).</p> <p>Therefore, the direct effects of EMF on marine mammals have been screened out as it is not expected to be significant and therefore, not considered to have the potential for LSE. However, as a precautionary approach, the potential for EMF to affect marine mammal prey resources is screened in (see below).</p>
Barrier effects (Physical presence of the WDA infrastructure)	N/A	x	N/A	<p>The presence of the WDA infrastructure could be perceived as having the potential to create a physical barrier, preventing movement or migration of marine mammals between important feeding and/or breeding areas, or potentially increasing swimming distances if marine mammals avoid the site and go round it.</p> <p>Tagged harbour seals have been recorded within two operational Offshore Windfarms (Alpha Ventus in Germany and Sheringham Shoal in UK), with the movement of several of the seals suggesting foraging behaviour around WTG fixed foundation structures (Russell and McConnell, 2014).</p> <p>Therefore, the potential for a barrier effect from the physical presence of the WDA infrastructure is not expected to have the potential for LSE and is therefore screened out of the HRA.</p>
Underwater noise during construction: <ul style="list-style-type: none"> Unexploded Ordnance (UXO) clearance; Impact pile driving; Other construction activities; and** Increased vessel activity. 	✓	x	x	<p>Underwater noise modelling will be undertaken by Subacoustech Environmental Ltd. The underwater noise modelling will include modelling for auditory injury Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS). The potential for disturbance will be assessed using dose response curves as described in Section 10.3 of Chapter 10 Marine Mammals and Leatherback Turtle of the WDA EIA Scoping Report (Royal HaskoningDHV, 2024). It is proposed that the potential effect ranges for PTS and TTS will be based on the Southall et al., (2019) metrics and criteria.</p> <p>The underwater noise modelling for piling will provide the range and area of the potential effects for each species group. The maximum predicted effect areas, based on the worst-case scenario, will be used to estimate the potential number of individuals that could be affected, based on the species or Special Areas of Conservation (SAC) density estimates. The number of individuals of each species that could be affected will be considered as a proportion of the appropriate reference population (i.e. SAC population for seals).</p>



Potential Impact	Project Phase*			Justification
	Screened In (✓) / Screened Out (x)			
	C	O&M	D	
				<p>For other construction activities and vessels, it should be noted that the potential for auditory injury may be later ruled out on the basis of underwater noise modelling results, which are expected to show extremely localised areas of potential effect.</p> <p>Underwater noise during construction activities could have the potential to create a barrier effect preventing movement or migration of marine mammals between important feeding and/or breeding areas, or potential increased swimming distances if marine mammals avoid the area and go around it. Barrier effects can prevent harbour porpoise accessing foraging areas and grey and harbour seal as they move in-between haul-out sites. The dose response curve assessments will use the most appropriate density estimate for wider-scale effects (e.g. either Waggitt et al., (2019) or Gilles et al., (2023) for harbour porpoise, and the SAC specific Carter et al., (2022) density estimates for both seal species). The disturbance assessment for other activities and vessels will be based on a literature review of potential effect ranges and areas and will be undertaken quantitatively wherever possible.</p> <p>A Marine Mammal Mitigation Protocol will be produced to reduce the risk of permanent auditory injury (PTS) in marine mammals from both UXO clearance and impact piling (see Section 10.8 of Chapter 10 Marine Mammals and Leatherback Turtle and of the WDA EIA Scoping Report (Royal HaskoningDHV, 2024)).</p> <p>It is important to note, if there is the potential for significant disturbance to result in a population-level effect, then alternative mitigation options will be considered, and a European Protected Species (EPS) license application submitted.</p> <p>All underwater noise related effects, as discussed above, are considered to have the potential for LSE and are therefore screened into the HRA for the construction phase.</p>
<p>Underwater noise from O&M</p> <p>Operational noise from WTGs:</p> <ul style="list-style-type: none"> O&M preventive and corrective activities underwater, such as surveys, repairs, IAC re-burial (if buried) and any additional rock placement; and O&M vessel activity. 	x	✓	x	<p>Underwater noise modelling will be undertaken to determine the potential effects on marine mammals during the above activities and will include modelling for auditory injury. For all underwater noise sources during the operational phase, the potential for auditory injury may be later ruled out based on underwater noise modelling results which are expected to show extremely localised areas of potential effect.</p> <p>The disturbance assessment for all potential noise sources during O&M will be based on a literature review of potential effect ranges and areas and will be undertaken quantitatively wherever possible.</p> <p>All underwater noise related effects, as discussed above, are considered to have the potential for LSE and are therefore screened into the HRA for the operation and maintenance phase.</p>



Potential Impact	Project Phase*			Justification
	Screened In (✓) / Screened Out (x)			
	C	O&M	D	
<p>Underwater noise during decommissioning:</p> <ul style="list-style-type: none"> Decommissioning activities underwater, such as foundation removal, cutting etc; and Decommissioning vessel activity. 	x	x	✓	<p>During the decommissioning phase, there is a potential risk of auditory injury or behaviour disturbance from noise associated with foundation removal (e.g. cutting) depending on the methods used. Underwater noise modelling will be undertaken to determine the risk of auditory injury.</p> <p>Potential impacts on marine mammals associated with decommissioning will be assessed, based on the potential impacts during construction; however, further assessment will be carried out ahead of any decommissioning works taking account of known information at that time, including all relevant guidance and legislation.</p> <p>All underwater noise related effects, as discussed above, are considered to have the potential for LSE and are therefore screened into the HRA for the decommissioning phase.</p>
Underwater noise from operating turbines	x	✓	x	<p>Underwater noise modelling will be undertaken to determine the potential effects on marine mammals and will include modelling for auditory injury from underwater noise from operating WTG. For underwater noise sources during the operational phase, the potential for auditory injury may be later ruled out based on underwater noise modelling results which are expected to show extremely localised areas of potential effect.</p> <p>The disturbance assessment for all potential noise sources from operating WTG, will be based on a qualitative assessment based on a literature review.</p> <p>Underwater noise related effects from operating WTG, are considered to have the potential for LSE and are therefore screened into the HRA for the operational phase.</p>
Barrier effects due to underwater noise	✓	✓	✓	<p>Underwater noise during construction, O&M and decommissioning could have the potential to create a barrier effect preventing movement or migration of marine mammals between important feeding and/or breeding areas, or potential increased swimming distances if marine mammals avoid the area and go around it.</p> <p>The marine mammal species that could potentially be most affected by barrier effects from underwater noise are harbour porpoise accessing foraging areas, baleen whales and dolphin species if they are moving between areas, and grey and harbour seal as they move to and from haul-out sites.</p> <p>Harbour porpoise have relatively high daily energy demands and need to capture enough prey to meet daily energy requirements. It has been estimated that, depending on the environmental conditions, harbour porpoise can rely on stored energy (primarily blubber) for three to five days, depending on body condition (Kastelein et al., 1997). Underwater noise during construction could have the potential to create a barrier effect, preventing movement or migration of grey and harbour seals between important feeding and / or breeding areas, or potentially increasing swimming distances if seals avoid the site and go around it.</p> <p>Therefore, the potential for barrier effects which could restrict access to foraging areas and could have implications for individual animals are</p>

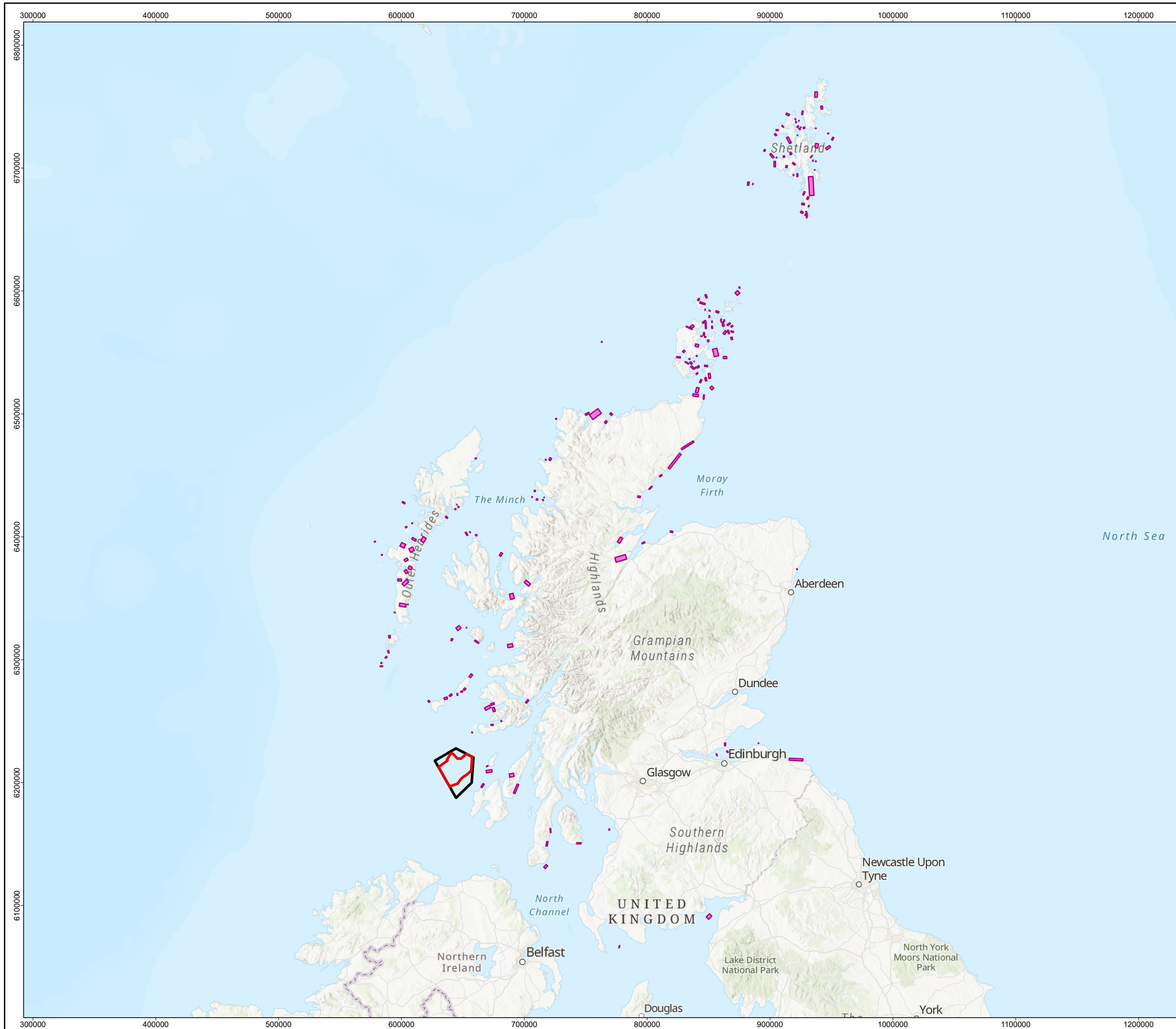





Potential Impact	Project Phase*			Justification
	Screened In (✓) / Screened Out (x)			
	C	O&M	D	
				considered to have the potential for LSE and are therefore screened into the HRA for all phases.
Vessel interaction (increase in risk of collision)	✓	✓	✓	<p>An increase in vessel presence during the construction phase could lead to a potential increase in the risk of vessel collision. The risk of vessel collision is associated with the vessels within the WDA, as well as those vessels in transit to and from site. Despite the potential for marine mammals to detect and avoid vessels, ship strikes are known to occur (Wilson et al., 2007; Schoeman et al., 2020).</p> <p>Vessel best practice measures such as the Scottish Marine Wildlife Watching Code (SNH [now NatureScot], 2017) approach will be followed where safe to do so to minimise the risk of disturbance, by reducing vessel transit speeds and by maintaining speed and course when in the presence of marine mammal species. This code will be followed for all vessels transiting to and from the WDA.</p> <p>The assessment of the potential effect of vessel interaction will take into account the type and number of vessels to be used during the construction, O&M and decommissioning period and the potential collision risk associated with those vessels. A literature review will be undertaken to determine the sensitivity of each marine mammal species to vessel collisions (and their ability to avoid vessels), alongside a review of the risk of collision due to the type, size, and speed of vessels associated with the Project.</p> <p>The increase in vessel movements during all phases of the Project will be put into the context of current vessel movements in and around the WDA.</p> <p>The increased risk of vessel interaction (collision risk) with marine mammals during all phases has the potential for LSE and has therefore been screened into the HRA for all phases, taking into account the most recent and robust research, guidance and information available.</p>
Disturbance at seal haul-out sites	✓	✓	✓	<p>Seal haul-out sites are coastal locations that seals use to breed, moult and rest. Almost 200 seal haul-out sites have been designated through The Protection of Seals (Designation of Haul-Out Sites) (Scotland) Order 2014 which was amended with additional sites in 2017 (Figure 6.5). These haul-out sites are protected under Section 117 of the Marine (Scotland) Act 2010. The Act is designed to assist in protecting the seals when they are at their most vulnerable, and as such provide additional protection from intentional or reckless harassment.</p> <p>Disturbance from vessel transits to and from the WDA and with the construction, O&M and decommissioning ports (yet to be determined) has the potential to disturb seals at haul-out sites, depending on the route and proximity to the haul-out sites.</p> <p>The likelihood of increased vessels near to the locations of nearby seal haul-out sites will be used to determine the level of potential disruption and behavioural impact caused to the seals. Expert judgement will be made using current scientific knowledge. A literature review of the latest research and evidence of disturbance at seal haul-out sites will be undertaken to determine the potential magnitude and sensitivity of effect.</p>

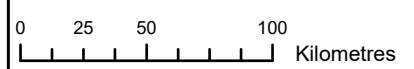


Potential Impact	Project Phase*			Justification
	Screened In (✓) / Screened Out (x)			
	C	O&M	D	
				<p>The worst-case duration of construction vessel movement to and from the WDA will be assessed. The increase in vessel movements during construction will be put into the context of current vessel movements in and around the Inner and Outer Hebrides.</p> <p>As the port(s) for all phases of the Project is not yet known, the potential for any disturbance of seals at or from seal haul-out sites during all phases (due to vessel transits) has the potential for LSE and has been screened into the HRA for all phases. Only seals at haul-out sites with potential connectivity to the relevant designated site will be considered and assessed, taking into account the most recent and robust research, guidance and information available.</p>
Changes to prey resources	✓	✓	✓	<p>Chapter 9 Fish (Including Basking Shark) and Shellfish of the WDA EIA Scoping Report (Royal HaskoningDHV, 2024) outlines the potential impacts on fish species and therefore the prey resource for marine mammals during construction.</p> <p>The potential for any changes to marine mammal prey resources during all phases is currently unknown and therefore has the potential for LSE and has been screened into the HRA for all phases. Assessments will be based on the assessments in the fish (including basking shark) and shellfish ecology chapter of the EIAR.</p>
<p>*C, O&M, D = Construction, Operation and Maintenance and Decommissioning respectively.</p> <p>** Where there is limited information available on the potential for disturbance from other construction activities, underwater noise thresholds for TTS / fleeing response may be used as a proxy.</p>				





-  Option Agreement Area
-  Windfarm Development Area
-  Seal haul outs sites



1	24/11/2025	AB	GC	SB	PM
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Figure 6.5: Protected seal haul out sites

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 World Ocean Base: Esri, GEBCO, Garmin, NaturalVue
NOT TO BE USED FOR NAVIGATION



6.4.1 Potential for In-Combination Effects (All Phases)

147. The in-combination assessment will consider plans or projects where their predicted effects have the potential to interact with effects from the proposed construction, O&M or decommissioning of the Project.
148. Screening of the plans and projects will be based on whether:
- They are located in the relevant marine mammal MU; and
 - There is the potential for connectivity and a clear pathway for the in-combination effect and marine mammals from the designated sites, e.g. the distance between the potential effect and a designated site with marine mammals as a qualifying feature is within the range for which there could be an interaction.
149. The marine mammal in-combination assessment will consider projects, plans and activities which have sufficient information available to undertake the assessment, and will include the potential effects of:
- Underwater noise;
 - Vessel interaction (collision risk);
 - Disturbance to seal haul-outs;
 - Barrier effects due to underwater noise; and
 - Changes to prey availability.
150. The approach to identifying projects for potential in-combination assessment with the Project will be agreed in consultation with Statutory Nature Conservation Bodies.

6.4.2 Potential for Transboundary Effects (All Phases)

151. Populations of marine mammals are highly mobile and there is potential for transboundary effects especially when considering underwater noise impacts.
152. Transboundary effects will be assessed, where possible, in consultation with developers in the Republic of Ireland to obtain up to date project information to feed into the assessment.
153. The potential for transboundary effects will be addressed by considering the marine mammal MU's and potential linkages to international designated sites as identified through telemetry studies for seals and ranges and movements of cetacean species.
154. The assessment of the effect on the integrity of the transboundary European sites as a result of effects on the designated marine mammal populations will be undertaken and presented in the RIAA.

6.4.3 Summary of Likely Significant Effect Screening

155. A summary of the potential impacts during construction, O&M and decommissioning is presented in **Table 6.4**.



Table 6.4 Summary of potential effects on marine mammals screened in or out of the Habitats Regulations Appraisal

Potential Impact	Project Phase*		
	C	O&M	D
Auditory injury (Permanent Threshold Shift (PTS) / Temporary Threshold Shift (TTS)) resulting from underwater noise (will be assessed separately for geophysical surveys, UXO clearance and piling)	✓	✓	✓
Behavioural impacts resulting from underwater noise (will be assessed separately for geophysical surveys, UXO clearance and piling)	✓	✓	✓
Disturbance from vessels due to the presence and underwater noise	✓	✓	✓
Barrier effects from underwater noise	✓	✓	✓
Vessel interaction (collision risk)	✓	✓	✓
Disturbance at seal haul-out sites	✓	✓	✓
Barrier effects due to the physical presence of Windfarm Development Area (WDA) infrastructure	✗	✗	✗
Changes to prey resources	✓	✓	✓
Direct Electro-Magnetic Field (EMF) effects	N/A	✗	N/A
Changes to water quality	✗	✗	✗
In-combination effects	✓	✓	✓
Transboundary impacts	✓	✓	✓
* Screened in (✓) or screened out (✗), C = Construction, O&M = Operation and Maintenance, D = Decommissioning			

6.5 SUMMARY OF SCREENING OF SITES FOR ANNEX II MARINE MAMMAL FEATURES

156. In total, five SACs (**Figure 6.3**) have been screened in for further assessment to determine the potential for any adverse effects on the integrity of the European sites in relation to the conservation objectives, as a result of the WDA alone or in-combination with other projects and activities (**Table 6.5**). These are:

- Inner Hebrides and the Minches SAC (harbour porpoise);
- Skerries and Causeway SAC (harbour porpoise);
- Treshnish Isles SAC (grey seal);
- South-East Islay Skerries SAC (harbour seal);
- Eileanan agus Sgeiran Lios mor SAC (harbour seal);
- Sound of Barra SAC; and
- Ascrib, Isay and Dunvegan SAC.



Table 6.5 Likely significant effect matrix for designated sites where marine mammals are a qualifying feature

Site and Qualifying Feature of the Site	Underwater Noise (All Potential Sources)			Vessel Interaction (Collision Risk)			Disturbance at Seal Haul-Out Sites			Changes in Prey Availability			Changes in Water Quality			In-Combination Effects		
	C*	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Inner Hebrides and the Minches Special Areas of Conservation (SAC) (Screened In)																		
Harbour** porpoise	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A	✓	✓	✓	✗	✗	✗	✓	✓	✓
Skerries and Causeway SAC (Screened In)																		
Harbour porpoise	✓	✓	✓	✓	✓	✓	N/A	N/A	N/A	✓	✓	✓	✗	✗	✗	✓	✓	✓
Treshnish Isles SAC (Screened In)																		
Grey seal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓
South-East Islay Skerries SAC (Screened In)																		
Harbour seal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓
Eileanan agus Sgeiran Lios mor SAC (Screened In)																		
Harbour seal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	✓	✓	✓
Sound of Barra SAC (Screened In)																		
Harbour seal	✗	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗



Site and Qualifying Feature of the Site	Underwater Noise (All Potential Sources)			Vessel Interaction (Collision Risk)			Disturbance at Seal Haul-Out Sites			Changes in Prey Availability			Changes in Water Quality			In-Combination Effects		
	C*	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D	C	O&M	D
Ascrib, Isay and Dunvegan SAC (Screened In)																		
Harbour seal	x	x	x	✓	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	x
<p>* C = Construction, O&M = Operation and Maintenance, D = Decommissioning.</p> <p>** ✓ = Potential for Likely Significant Effect, x = No Potential for Likely Significant Effect.</p>																		



7 SITES DESIGNATED FOR OFFSHORE ORNITHOLOGY FEATURES

7.1 UPDATES SINCE PREVIOUS VERSION

157. This section has been updated from the version submitted alongside the Scoping Report in September 2023. It takes into account the advice received from consultees on the Scoping Report (see **Section 7.5**) as well as advice relevant to the HRA screening process provided by NatureScot before and after the submission of the West of Orkney Offshore Windfarm Additional Information (October 2024). The main changes are as follows:

- Summary of consultation outcomes relevant to the HRA screening process (**Section 7.5**);
- Consideration of Republic of Ireland (ROI) Special Protection Areas (SPAs) and Ramsar sites, and Isle of Man Area of Special Protection (ASP) and Ramsar site;
- Full consideration of UK, ROI and Isle of Man Ramsar sites in their own right throughout the screening process;
- Determination of theoretical connectivity for qualifying features of sites based on advised criteria such as foraging range (Step 1), prior to consideration of baseline survey raw counts and seabird abundance as part of Step 2, to determine LSE;
- Screening for theoretical connectivity with marine SPAs based on the functionally linked breeding seabird colony SPAs and their qualifying features' foraging ranges in relation to the WDA;
- Consideration of the potential for impacts to inshore waterbirds associated with vessel routes to and from the WDA, and European sites with theoretical connectivity to these routes;
- Consideration of artificial lighting impacts during all phases of the Project; and
- Inclusion of screening matrices at the end of the chapter for sites where a 'Likely Significant Effect' (LSE) has been identified, to determine the scope of the RIAA.

7.2 THE SCREENING PROCESS

158. Screening for LSE requires identifying potential connectivity between qualifying features of European sites and the Project, on the basis that qualifying features are protected both within a European site boundary and outside of it. In the case of ornithological qualifying features considered in this chapter, European sites are SPAs (including proposed SPAs (pSPAs)) and Ramsar sites.

159. The HRA screening process undertaken here comprises two steps:

- (i) Determination of 'theoretical connectivity' and provision of an initial list of European sites and their qualifying features; and
- (ii) Refining this list to determine whether a LSE can be concluded for each site, informed by an identification of impact pathways, baseline survey results, site-specific Project information, guidance and consultation.

160. This two-step process follows NatureScot's online *Guidance to support Offshore Wind Applications: Marine Ornithology*¹ series (published 2023, updated 2025), in particular:

- **Guidance Note #3:** *Guidance to support Offshore Wind applications: Marine Birds - Identifying theoretical connectivity with breeding site Special Protection Areas using breeding season foraging ranges*²;

¹ <https://www.nature.scot/doc/guidance-note-1-guidance-support-offshore-wind-applications-marine-ornithology-overview>

² <https://www.nature.scot/doc/guidance-note-3-guidance-support-offshore-wind-applications-marine-birds-identifying-theoretical>



- **Guidance Note #4:** *Guidance to Support Offshore Wind Applications: Ornithology - Determining Connectivity of Marine Birds with Marine Special Protection Areas and Breeding Seabirds from Colony SPAs in the Non-Breeding Season*³; and
- **Guidance Note #6:** *Guidance to support Offshore Wind Applications - Marine Ornithology Impact Pathways for Offshore Wind Developments*⁴.

161. The process by which European sites can be screened in or out for LSEs due to the Project is presented in this section, with justification for all sites screened out. A list of all sites for which LSEs are concluded and have been taken forward to the Appropriate Assessment (AA) stage, with associated impact-feature pathways, is provided at the end.

162. For brevity, reference in the text is sometimes made only to “SPAs”, however, unless stated otherwise, the process is equally applicable to any European sites considered and listed in the relevant tables.

7.3 STRUCTURE

163. This section has the following structure:

- **Sections 7.1 to 7.5** provide an overview of the HRA screening process that is used to identify qualifying features of European sites with potential for LSE to arise, guidance sources, and consultation;
- **Section 7.6** presents Step 1, which establishes the theoretical connectivity between European sites and the Project, based on a range of criteria including seabird foraging ranges and migratory pathways;
- **Section 7.7** presents Step 2, which identifies impact pathways for European sites with theoretical connectivity to determine the sites for which LSE is concluded; and
- **Section 7.8** presents the final list of European sites and associated qualifying features which are to be considered at the AA stage, with migratory qualifying features and their associated European sites listed in **Appendix 1**.

7.4 GUIDANCE AND DATA SOURCES USED

164. As noted above, the main sources of guidance used to inform the method for determining LSE are NatureScot’s Guidance Notes #3, #4 and #6.

165. The decision-making process has also been informed by consultation advice received on the Project’s Screening Report from NatureScot (letter dated 22nd November 2024).

166. The sources of data used to inform the HRA screening process are as follows:

- **UK SPAs:** JNCC UK National Site Network: SPA and SAC site summary details spreadsheet 2025⁵ [Reference date 2025-04-10]. This spreadsheet contains the latest UK-wide data gathered as part of the Standard Data Form information completed for all sites in the UK National Site Network. Information on assemblage species listed under Article 4.2, where an SPA regularly supports an internationally important number of birds, was downloaded from the UK government website⁶. For this screening exercise, all SPA assemblage species are considered as being of the same level of importance as qualifying features, even if they do not meet the criteria for Article 4.1 or Article 4.2 qualification in their own right.

³ <https://www.nature.scot/doc/guidance-note-4-guidance-support-offshore-wind-applications-ornithology-determining-connectivity>

⁴ <https://www.nature.scot/doc/guidance-note-6-guidance-support-offshore-wind-applications-marine-ornithology-impact-pathways>

⁵ <https://hub.jncc.gov.uk/assets/a3d9da1e-dedc-4539-a574-84287636c898>

⁶ <https://www.data.gov.uk/dataset/4e0e54aa-a9ab-4705-84f3-5dae12acf7b2/special-protection-areas-spas-bird-data-assemblages>



- **UK Ramsar sites:** JNCC UK Ramsar Information Sheets: all details in structured spreadsheet format 2015⁷ [Reference date 2015-10-01]. Spreadsheet which contains information from the Ramsar Information Sheets for Ramsar Sites in the UK, the Crown Dependencies and UK Overseas Territories.
- **Republic of Ireland (ROI) SPAs:** National Parks & Wildlife Service SAC and SPA Datasheets Downloads website⁸. Data sheets for SPAs in the ROI [last update 15th May 2024].
- **ROI Ramsar sites:** Ramsar Sites Information Service⁹ for filtered list of Ramsar sites in ROI and associated Ramsar Information Sheets for species lists [accessed October 2025].
- **Isle of Man ASP and Ramsar site:** Isle of Man Government website¹⁰ and Ramsar Sites Information Service. The Isle of Man has one ASP – Ayres Gravel Pits, which is also part of the Manx Birdlife Point of Ayre National Reserve. No citation documents are available for the ASP, and instead, the British Trust for Ornithology’s (BTO) Seabird Monitoring Programme website was referenced, to establish which seabirds breed within the ASP, using the colony counts database¹¹. For the winter period, the BTO’s Wetland Birds Survey data page¹² was referenced to provide a list of seabirds and waterfowl present. All species with five-year mean counts of ten or more individuals were considered as ASP species. Isle of Man’s Ramsar site - Ballaugh Curragh – lists two interest species – breeding corn crake and non-breeding hen harrier, both of which are considered for migratory connectivity only.

167. From the above listed data sources, where available, GIS data were also obtained for use in determining theoretical connectivity with the Project, based on location and distance.

7.5 CONSULTATION

168. This HRA Screening Report has been informed by engagement with stakeholders, including those listed below:

- Argyll & Bute Council;
- Department of Agriculture, Environment and Rural Affairs (DAERA);
- Marine Directorate - Licensing Operations Team (MD-LOT);
- NatureScot; and
- Royal Society for the Protection of Birds (RSPB) Scotland.

169. **Table 7.1**, which summarises stakeholder feedback, outlines how the Applicant has responded to the feedback received, and details how it has been considered within this report.

⁷ <https://hub.jncc.gov.uk/assets/bc9b0905-fb63-4786-8e90-5f7851bb417d>

⁸ <https://www.npws.ie/maps-and-data/designated-site-data/sac-and-spa-datasheets-downloads>

⁹ https://rsis.ramsar.org/?f%5B0%5D=region_en_s%3AEurope&f%5B1%5D=country_en_s%3AIreland#exports

¹⁰ <https://www.gov.im/protectedsites>

¹¹ <https://app.bto.org/seabirds/public/data.jsp>

¹² <https://app.bto.org/webs-reporting/numbers.jsp>



Table 7.1 Consultation relevant to HRA screening for offshore ornithology

Consultee	Key Comment/Discussion Topic	Applicant Response
Scoping Opinion		
<p>NatureScot Scoping Opinion (22 November 2024)</p>	<p>Migratory species: We agree with the scoping out of the migratory species listed in Appendix I [of the Scoping Report] - our understanding is that these are:</p> <p>East Atlantic' light bellied brent goose (North Greenland/Svalbard); Dark bellied brent goose (Western Siberia/Western Europe); 'Svalbard' barnacle goose (Svalbard/South west Scotland); Taiga bean goose 'European' white fronted goose (NW Siberia and NE/NW Europe); Bewick's swan; Nightjar; Stone curlew; Avocet; Black tailed godwit (<i>limosa</i>); Red necked phalarope; Wood sandpiper; Bittern; Honey buzzard; Marsh harrier; Montagu's harrier.</p>	<p>These listed species have been screened out from assessment in the RIAA based on NatureScot's guidance, and the rationale provided in this report, due to a lack of LSE.</p>
	<p>Paragraph 166 [of the Scoping Report] describes the Applicant's approach to determining LSE with respect to qualifying seabird species of an SPA, wherein the approach only considers connectivity to an SPA as the determining factor.</p> <p>This approach does not consider the impact-receptor pathways between the WDA and SPA qualifying species, as would be the expected approach to determining LSE, and as set out in our guidance.</p> <p>The approach undertaken is explained in Section 7.1.2 and states that an LSE screening matrix approach is not required when following our guidance. However, we advise that the LSE screening matrix should be used to determine which SPAs and features have theoretical connectivity and an impact pathway.</p> <p>The lack of an LSE screening matrix means that we are unable to follow the impact-receptor pathways being assessed or identify which potential impacts are being considered for each species at each SPA.</p>	<p>Impact-receptor (in this case, 'impact-feature') pathways have been fully considered in the screening process, and the summary screening matrix, displaying impact-feature pathways for each European site with LSE is presented in Table 7.26 to Table 7.28.</p>
	<p>We welcome the step to calculate the shortest distances by sea when determining connectivity between the WDA and SPAs designated for seabird species...However, there are inconsistencies in the values presented and it is unclear how the distances were determined as there is no explanation of the method used.</p> <p>In light of the above, we request an explanation of how these distances were calculated and the reasoning behind calculating by-sea distances for certain SPAs when there are no land masses between them and the WDA.</p> <p>In screening SPAs to be considered for LSE, the shortest distance between the boundary of the WDA and the boundary of the SPA should be measured. The distance between the geometric centre of the WDA and the geometric centre of the SPA should be used for the purposes of apportioning in the EIA and not used to screen SPAs out of</p>	<p>To determine theoretical connectivity between the WDA and European sites, at-sea distances between the boundary of the WDA and boundary of the European site have been used. These distances have been recalculated since the 2023 HRA Screening Report.</p>



Consultee	Key Comment/Discussion Topic	Applicant Response
	<p>the assessment at any stage. It is unclear from the HRA Screening Report where the distance between the WDA and SPA has been measured.</p>	
	<p>Paragraph 120 of the HRA Screening Report and Paragraph 48 of Appendix I correctly refers to our guidance, stating that guillemot are likely to remain in the vicinity of their breeding colonies throughout the non-breeding season and the non-breeding season population is defined using the breeding season foraging range. This also applies to herring gull, which do not migrate in the UK, as described in Furness (2015).</p>	<p>The recommended approach to determine theoretical connectivity for breeding common guillemot and herring gull in the non-breeding season has been followed in this screening assessment.</p>
	<p>Using the breeding season foraging range to determine connectivity between the WDA and herring gull from SPA colonies in both the breeding and non-breeding seasons results in no SPA colonies being identified as having connectivity in the WDA. As such, herring gull should be assessed through the EIA only, as impacts cannot be attributed to SPA colonies with connectivity to the WDA.</p>	<p>This is the case for SPAs where herring gull is an Article 4.1 qualifying feature; however, the species is within foraging range of Rathlin Island SPA, where it is an Article 4.2 seabird assemblage qualifying feature, and therefore theoretical connectivity has been identified.</p>
	<p>We acknowledge the statement in Paragraph 189 that common [mew] gull are not assessed in Furness (2015), therefore common gull should be assessed through the EIA only as impacts cannot be attributed to SPA colonies with connectivity to the WDA.</p>	<p>Mew gull has been screened in for theoretical connectivity during the non-breeding season, using a precautionary approach by assuming breeding birds from European site colonies within the largest Biologically Defined Minimum Population Scale (BDMPS) area defined by Furness (2015) may be present within the WDA. This approach has also been followed for other screened in seabird species not assessed by Furness (2015).</p>
	<p>...we note the absence of key impacts that have not been identified in Section 7.3 of the HRA Screening Report. Additionally, we have concerns over the presentation of potential pressures on seabird species taken in their entirety from FeAST [Feature Activity Sensitivity Tool published by Marine Scotland] without an assessment of which pressures are relevant to the proposal.</p> <p>We welcome the use of FeAST in Section 7.3.1 to identify potential pressures on seabirds from offshore wind farms and the impact pathways associated with these pressures. However, we are concerned with the approach to include all potential pressures to seabirds without consideration of which pressures would be relevant to offshore wind farm developments. Furthermore, the Applicant does not provide detail of the impact pathways associated with each of the pressures obtained from FeAST. We note that the Applicant has acknowledged that the FeAST tool is not yet fully</p>	<p>NatureScot Guidance Note #6 recommends the use of the FeAST tool to identify relevant literature on impact pathways for each species; however the NatureScot guidance identifies the key impact pathways on marine bird species due to Offshore Windfarms, which has formed the basis of this HRA screening approach. The identification of seven key impacts is intended to incorporate all potential impacts identified by the FeAST tool.</p>



Consultee	Key Comment/Discussion Topic	Applicant Response
	functional and the list of pressures on seabirds will be further refined as some are not relevant.	
	...the potential impacts of lighting attraction and disorientation should be considered during all phases of the proposal, particularly with respect to European storm-petrel and Manx shearwater	Artificial lighting impacts have been identified as key impacts for these two species, with associated European sites where they are qualifying features, screened in accordingly.
	<p>UXO clearance impacts should be scoped in for seabirds, both directly and indirectly, during the preconstruction / construction phases.</p> <p>Temporary disturbance and displacement has not been screened in as an impact within the HRA Screening Report, despite being scoped in as an impact in the EIA Scoping Report. We advise it should be included.</p>	For the HRA screening process, all potential disturbance sources have been included under single disturbance-displacement impacts during construction and O&M phases.
	As highlighted above, Section 7.2.1 incorrectly states that a summary of LSE screening using a matrix approach is not required for the HRA Screening Report. As a matrix has not been provided, there is no LSE conclusion on any qualifying species of any SPAs based on impact pathways. As such, the conclusion that LSE cannot be ruled out has been determined for all qualifying species of SPAs with theoretical connectivity to the WDA. We consider this to be the longlist of SPAs (and 34 qualifying species) with potential for LSE and expect further consideration of the impact pathways present for each species after this longlist has been defined.	Impact-feature pathways are considered at Step 2 of the screening process (see Section 7.7.3), and conclusions of LSE on European sites taken forward from Step 1 have been based on this identification process.
	Section 7.4.2.1 presents the SPAs designated for breeding and wintering seabirds with theoretical connectivity to the WDA. Red-throated diver and great northern diver are included in this section and not in Section 7.4.2.2 - SPAs for terrestrial migratory birds. However, we note that red-throated diver, great northern diver and black-throated diver are included in Appendix I as terrestrial migratory species. Great northern diver is also included in Appendix I as a key seabird species. We also note that black-throated diver was included in Appendix I but is not included in the HRA Screening Report. Clarity on where and how these species are being assessed should be provided to ensure a transparent audit trail.	The HRA screening process here presents a transparent process of determination of theoretical connectivity with European sites, under various scenarios. In the case of diver species, these have been screened in due to theoretical connectivity with the WDA in the non-breeding season, during migration, and with indicative vessel transit corridors outside of the WDA.
	An NCMPA Screening Report (Appendix H) has been provided alongside the Scoping Report. We have reviewed the information provided in Section 3.4 and agree that there is no connectivity to black guillemot of the Clyde Sea Sill nCMPA for the WDA, but this will need to be considered for the Onshore Transmission Development Area (OnTDA) when this is scoped.	NCMPAs are not considered as a European site to be included as part of the HRA process and so have not been assessed.



7.6 STEP 1: ESTABLISHING THEORETICAL CONNECTIVITY

170. The general approach to identifying sites and features for inclusion in the HRA screening process is presented in **Section 2.3.1**, and has been followed here.
171. For a European site to be potentially affected by construction, operation & maintenance (O&M), and/or decommissioning of the Project, there needs to be potential for ‘connectivity’ between the Project and the site. Connectivity is defined by NatureScot as being when there are “*processes or pathways by which the proposal may influence the site’s interests directly or indirectly*”¹³.
172. Birds that are qualifying features of SPAs are protected both within and outside of the SPA boundary. Consequently, theoretical connectivity between SPAs and the Project exists if at least one of the following criteria is met:
- The SPA boundary overlaps with the Windfarm Development Area (WDA);
 - Qualifying features of the SPA use the WDA and/or surrounding Zol, e.g. for foraging, commuting or roosting;
 - Qualifying features of the SPA fly through the WDA on migration; or
 - Marine SPA qualifying features could be impacted by other aspects of the Project outside of the WDA, in particular vessel movements during construction, O&M and/or decommissioning.
173. This first step of the HRA screening process is to identify a long list of European sites with relevant ornithological qualifying features which may have theoretical connectivity to the Project in at least one of the ways outlined above.
174. This long list is first drawn up from the sources listed in **Section 7.4**. This comprises all SPA and Ramsar sites within the UK, ROI and Isle of Man. From these lists, and based on NatureScot’s Guidance Note #3, ornithological qualifying features fall into the following three categories of SPAs and Ramsar sites which may have theoretical connectivity with the Project in some way:
- European sites that have breeding seabird (and red-throated diver) qualifying features, which cover the terrestrial area on which birds nest, and extensions into the marine environment to support maintenance behaviours, such as preening and loafing;
 - Marine SPAs with qualifying features that include wintering waterfowl, divers, seaducks and grebes; foraging areas for breeding terns; foraging areas for breeding red-throated divers; important areas for European shags, foraging aggregations of true seabirds (both breeding and non-breeding) and wintering gulls; and
 - Terrestrial SPAs and Ramsar sites with migratory qualifying features (including non-breeding waterbirds but excluding seabirds).
175. These three categories form the basis of the next sections which determine theoretical connectivity of European sites with the Project.

7.6.1 Establishing theoretical connectivity for breeding seabird qualifying features of SPAs

7.6.1.1 Breeding Season

176. During the breeding season, breeding seabirds will be tied to a nest site and so will undertake centrally placed foraging, i.e. they conduct foraging trips from the seabird colony SPA into the marine environment and will return to their nest in the SPA. NatureScot Guidance Note #3 advises using seabird foraging ranges as part of the screening for LSE, by assuming theoretical connectivity

¹³ <https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra>



between seabird colony SPAs within foraging range of an offshore wind farm during the breeding season.

177. **Table 7.2** provides the foraging ranges for seabird species used to determine theoretical connectivity to SPAs. These values are taken from NatureScot’s recommended foraging ranges for all species listed in Guidance Note #3, based on Woodward et al., (2019).
178. Note, for certain species and SPA combinations, a different foraging range is used, as advised by NatureScot in Guidance Note #3 and as presented in **Table 7.2**. For guillemot and razorbill, a different foraging range is advised for Northern Isles SPAs, which is defined as all SPAs north of the Pentland Firth, including Sule Skerry and Sule Stack SPA but excluding North Rona and Sula Sgeir SPA. Different foraging ranges are also used for Northern gannet from Forth Islands SPA, Grassholm SPA and St Kilda SPA, based on empirical evidence.

Table 7.2 Recommended foraging ranges derived from Woodward et al., (2019) and which metrics are advised for use in determining connectivity (taken from NatureScot Guidance Note #3).

Species	NatureScot recommended Foraging Range (km)	Metric
Common eider	21.5	Mean Maximum
Red-throated diver	9	Max/Mean Maximum
European storm petrel	336	Max/Mean Maximum
Leach's storm petrel	657	Mean
Northern fulmar	1200.2	Mean Maximum + Standard Deviation (SD)
Manx shearwater	2365.5	Mean Maximum + SD
Northern gannet	509.4	Mean Maximum + SD
European shag	23.7	Mean Maximum + SD
Cormorant	33.9	Mean Maximum + SD
Black-legged kittiwake	300.6	Mean Maximum + SD
Black-headed gull	18.5	Max/Mean Maximum
Mediterranean gull	20	Max/Mean Maximum
Mew gull	50	Max/Mean Maximum
Great black-backed gull	73	Max/Mean Maximum
Herring gull	85.6	Mean Maximum + SD
Lesser black-backed gull	236	Mean Maximum + SD
Sandwich tern	57.5	Mean Maximum + SD
Little tern	5	Max/Mean Maximum
Roseate tern	23.2	Mean Maximum + SD
Common tern	26.9	Mean Maximum + SD
Arctic tern	40.5	Mean Maximum + SD
Great skua	931.2	Mean Maximum + SD



Species	NatureScot recommended Foraging Range (km)	Metric
Arctic skua	2.7	Mean + SD
Common guillemot excluding data from Fair Isle	95.2	Mean Maximum + SD
Razorbill	122.2	Mean Maximum + SD
Black guillemot	9.1	Mean Maximum + SD
Atlantic puffin	265.4	Mean Maximum + SD
Exceptions		
Northern gannet: Forth Islands SPA	590	Maximum
Northern gannet: Grassholm SPA	516.7	Maximum
Northern gannet: St Kilda SPA	709	Maximum
Common guillemot: all northern isle SPAs	153.7	Mean Maximum + SD
Razorbill: all northern isle SPAs	164.6	Mean Maximum + SD

179. During Scoping consultation for the Project, NatureScot commented that “We welcome the step to calculate the shortest distances by sea when determining connectivity between the WDA and SPAs designated for seabird species...” and advised that “In screening SPAs to be considered for LSE, the shortest distance between the boundary of the WDA and the boundary of the SPA should be measured.” Following the recommended foraging ranges used for every species, **Table 7.3** determines whether a species can be screened in or out. This has been based on the at-sea distance between the boundary of the closest European site from the boundary of the WDA and whether it is within theoretical foraging range. Note that determination of theoretical connectivity of breeding seabirds with the Offshore ECC will be considered in detail as part of the Offshore ECC consent application following confirmation of the Offshore ECC boundary.



Table 7.3 Seabird breeding qualifying features of UK, ROI or Isle of Man SPAs and Ramsar sites with closest terrestrial site to the WDA.

Species	NatureScot recommended Foraging Range (km)	Closest SPA	At-sea Distance to WDA	Species Screened IN / OUT	Closest Ramsar site	At-sea Distance to WDA	Species Screened IN / OUT
Common eider	21.5	Rathlin Island*	70	OUT	Lough Foyle	86	OUT
Red-throated diver	9	Rum	86	OUT	Caithness & Sutherland Peatlands	331	OUT
European storm-petrel	252	Treshnish Isles & Illanmaster	36	IN	Isles of Scilly	682	OUT
Leach's storm-petrel	256	St Kilda	208	IN	n/a	n/a	OUT
Northern fulmar	1200.2	Rathlin Island*	70	IN	Ronas Hill – North Roe and Tingon	594	IN
Manx shearwater	2365.5	Rum	86	IN	Outer Ards	153	IN
Northern gannet	509.4-790	Ailsa Craig	131	IN	n/a	n/a	OUT
European shag	23.7	Inishtrahull	58	OUT	Isles of Scilly	682	OUT
Great cormorant	33.9	Sheep Island	77	OUT	Strangford Lough	194	OUT
Black-legged kittiwake	300.6	North Colonsay and Western Cliffs	12	IN	Lough Corrib	447	OUT
Black-headed gull	18.5	Solway Firth	223	OUT	Larne Lough	131	OUT
Mediterranean gull	20	Larne Lough	131	OUT	Sandymount Strand/Tolka Estuary	285	OUT
Mew gull	50	Inishtrahull	58	OUT	Strangford Lough	194	OUT
Great black-backed gull	73	Ayres Gravel Pits ASP	225	OUT	East Sanday Coast	461	OUT
		North Rona and Sula Sgeir	332				
Herring gull	85.6	Rathlin Island*	70	IN	Upper Solway Flats and Marshes	262	OUT



Species	NatureScot recommended Foraging Range (km)	Closest SPA	At-sea Distance to WDA	Species Screened IN / OUT	Closest Ramsar site	At-sea Distance to WDA	Species Screened IN / OUT
Lesser black-backed gull	236	Rathlin Island*	70	IN	Lough Neagh and Lough Beg	180	IN
Sandwich tern	57.5	Greers Isle	98	OUT	Larne Lough	131	OUT
Little tern	5	South Uist Machair and Lochs	121	OUT	Sléibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast)	36	OUT
Roseate tern	23.2	Larne Lough	131	OUT	Larne Lough	131	OUT
Common tern	26.9	Glas Eileanan	70	OUT	Lough Neagh and Lough Beg	180	OUT
Arctic tern	40.5	Inishbofin, Inishdooy and Inishbeg	116	OUT	Outer Ards	153	OUT
Great skua	931.2	St Kilda	208	IN	Ronas Hill – North Roe and Tingon	594	IN
Arctic skua	2.7	Hoy	398	OUT	Lewis Peatlands	227	OUT
Common guillemot	95.2 / 153.7	North Colonsay and Western Cliffs	12	IN	n/a	n/a	OUT
Razorbill	122.2 / 164.6	Rathlin Island	70	IN	Rinns of Islay	15	IN
Black guillemot	9.1	n/a	n/a	OUT	Ronas Hill – North Roe and Tingon	594	OUT
Atlantic puffin	265.4	Rathlin Island*	70	IN	n/a	n/a	OUT

* Article 4.2 assemblage qualification species only.

180. Further to this initial filtering step, **Table 7.4** presents the list of UK SPAs which have at least one seabird breeding qualifying feature within theoretical foraging range (categorised as “Terrestrial” in the “Zone” column and “r = reproducing” in the “Season” column of the JNCC UK SPA spreadsheet). A similar process was also undertaken for UK SPAs with Article 4.2 qualification seabird assemblages (**Table 7.5**), as well as UK Ramsar sites (**Table 7.6**) and SPAs and Ramsar sites in ROI (**Table 7.7** and **Table 7.8**) and ASP on the Isle of Man. To determine theoretical connectivity between the WDA and European sites, at-sea distances between the boundary of the WDA and boundary of the European site have been used. Note that no ROI Ramsar sites had qualifying breeding seabird species within foraging range of the WDA, so all can be screened out under this criterion.



Table 7.4 UK terrestrial SPAs with breeding seabird qualifying features within theoretical foraging range of the WDA.

UK SPA	At-sea Distance to WDA (km)	Qualifying feature within foraging range
Ailsa Craig	131	Black-legged kittiwake
		Lesser black-backed gull
		Northern gannet
Buchan Ness to Collieston Coast	568	Northern fulmar
Calf of Eday	451	Northern fulmar
Canna and Sanday	99	Atlantic puffin
		Black-legged kittiwake
Cape Wrath	299	Black-legged kittiwake
		Northern fulmar
Copeland Islands	154	Manx shearwater
Copinsay	439	Northern fulmar
East Caithness Cliffs	442	Northern fulmar
Fair Isle	519	Great skua
		Northern fulmar
Fetlar	620	Great skua
		Northern fulmar
Flannan Isles	241	Atlantic puffin
		Black-legged kittiwake
		Leach's storm-petrel
		Northern fulmar
Foula	536	Great skua
		Leach's storm-petrel
		Northern fulmar
Fowlsheugh	633	Northern fulmar
Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	364	Manx shearwater
Grassholm	482	Northern gannet
Handa	273	Black-legged kittiwake
		Great skua
		Northern fulmar
Hermaness, Saxa Vord and Valla Field	636	Great skua
		Northern fulmar



UK SPA	At-sea Distance to WDA (km)	Qualifying feature within foraging range
Hoy	398	Great skua
		Northern fulmar
Mingulay and Berneray	86	Atlantic puffin
		Black-legged kittiwake
		Common guillemot
		Northern fulmar
		Razorbill
North Caithness Cliffs	367	Northern fulmar
North Colonsay and Western Cliffs	12	Black-legged kittiwake
		Common guillemot
North Rona and Sula Sgeir	332	European storm-petrel
		Leach's storm-petrel
		Northern fulmar
		Northern gannet
Noss	588	Great skua
		Northern fulmar
Priest Island (Summer Isles)	228	European storm-petrel
Ramna Stacks and Gruney	614	Leach's storm-petrel
Rathlin Island	70	Black-legged kittiwake
		Common guillemot
		Razorbill
Ronas Hill - North Roe and Tingon	594	Great skua
Rousay	428	Northern fulmar
Rum	86	Black-legged kittiwake
		Common guillemot
		Manx shearwater
Shiant Isles	196	Atlantic puffin
		Black-legged kittiwake
		Northern fulmar
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	479	Manx shearwater
St Kilda	208	Atlantic puffin
		Black-legged kittiwake



UK SPA	At-sea Distance to WDA (km)	Qualifying feature within foraging range
		European storm-petrel
		Great skua
		Leach's storm-petrel
		Manx shearwater
		Northern fulmar
		Northern gannet
Sule Skerry and Sule Stack	356	Leach's storm-petrel
		Northern gannet
Sumburgh Head	556	Northern fulmar
Treshnish Isles	36	European storm-petrel
Troup, Pennan and Lion's Heads	530	Northern fulmar
West Westray	439	Northern fulmar

Table 7.5 UK terrestrial SPAs with additional Article 4.2 breeding seabird assemblage species within theoretical foraging range of the WDA.

UK SPA	At-sea Distance to WDA (km)	Article 4.2 assemblage species within foraging range
Flamborough and Filey Coast	940	Northern fulmar
Rathlin Island	70	Atlantic puffin
		Herring gull
		Lesser black-backed gull
		Northern fulmar



Table 7.6 ROI terrestrial SPAs with breeding seabird qualifying features within theoretical foraging range of the WDA.

ROI SPA	At-sea Distance to WDA (km)	Qualifying feature within foraging range (shaded cells indicate foraging range is lower than at-sea distance to WDA)
Aughris Head SPA	232	Black-legged kittiwake
Beara Peninsula SPA	572	Northern fulmar
Bills Rocks SPA	319	European storm-petrel
Basket Islands SPA	512	Manx shearwater
Clare Island SPA	319	Northern fulmar
Cliffs of Moher SPA	432	Northern fulmar
Cruagh Island SPA	356	Manx shearwater
Deenish Island and Scariff Island SPA	559	Manx shearwater
Dingle Peninsula SPA	491	Northern fulmar
Duvillaun Islands SPA	295	European storm-petrel
		Northern fulmar
High Island, Inishshark and Davillaun SPA	344	Northern fulmar
Horn Head to Fanad Head SPA	88	Black-legged kittiwake
		Common guillemot
		Northern fulmar
		Razorbill
Illanmaster SPA	252	European storm-petrel
Inishbofin, Inishdoeey and Inishbeg SPA	116	Lesser black-backed gull
Inishglora and Inishkeeragh SPA	285	European storm-petrel
Iveragh Peninsula SPA	533	Northern fulmar
Kerry Head SPA	477	Northern fulmar
Lambay Island SPA	294	Black-legged kittiwake
		Northern fulmar
Lough Derg (Donegal) SPA	92	Lesser black-backed gull
Puffin Island SPA	544	Manx shearwater
		Northern fulmar
Saltee Islands SPA	457	Northern fulmar
		Northern gannet



ROI SPA	At-sea Distance to WDA (km)	Qualifying feature within foraging range (shaded cells indicate foraging range is lower than at-sea distance to WDA)
Skelligs SPA	550	Manx shearwater
		Northern fulmar
Stags of Broad Haven SPA	256	European storm-petrel
		Leach's storm-petrel
Tory Island SPA	113	Atlantic puffin
		Northern fulmar
		Razorbill
West Donegal Coast SPA	131	Black-legged kittiwake
		Northern fulmar

Table 7.7 UK Ramsar sites with breeding seabird qualifying features within theoretical foraging range of the WDA.

UK Ramsar site	At-sea Distance to WDA (km)	Qualifying feature within foraging range (shaded cells indicate foraging range is lower than at-sea distance to WDA)
Lough Neagh and Lough Beg	180	Lesser black-backed gull
Outer Ards	153	Manx shearwater
Strangford Lough	195	Lesser black-backed gull

Table 7.8 Isle of Man ASP with seabird breeding species within theoretical foraging range of the WDA.

Isle of Man ASP	At-sea Distance to WDA (km)	Qualifying feature within foraging range
Ayres Gravel Pits	225	Lesser black-backed gull

7.6.1.2 Non-breeding Season

181. Breeding seabird qualifying features of SPAs continue to have protection within and outside of an SPA during the non-breeding season. However, they are no longer tied to a nest site, i.e. are no longer a central-placed forager, meaning they may use a much larger marine area than in the breeding season. Indeed, many seabird species are migratory, leaving the vicinity of the breeding site and moving to spend the winter far from the colony.
182. NatureScot Guidance Note #4, on determining connectivity with SPAs during the non-breeding season, recommends using the Biologically Defined Minimum Population Scales (BDMPS) regions in Furness (2015) to identify which SPAs with breeding seabird features may have theoretical connectivity with the WDA during the non-breeding season. The Project sits within waters off the west coast of Scotland, which form part of different western BDMPS region extents for different species, based upon their known ecology and behaviour (**Plate 7.1**). For example, the defined extent



for northern fulmar and black-legged kittiwake in Furness (2015) is the UK Western Waters plus Channel BDMPS region, and consequently, breeding individuals from these species recorded in the WDA during the non-breeding season are assumed to originate from SPAs located within this BDMPS region. There are however some exceptions, as outlined below.

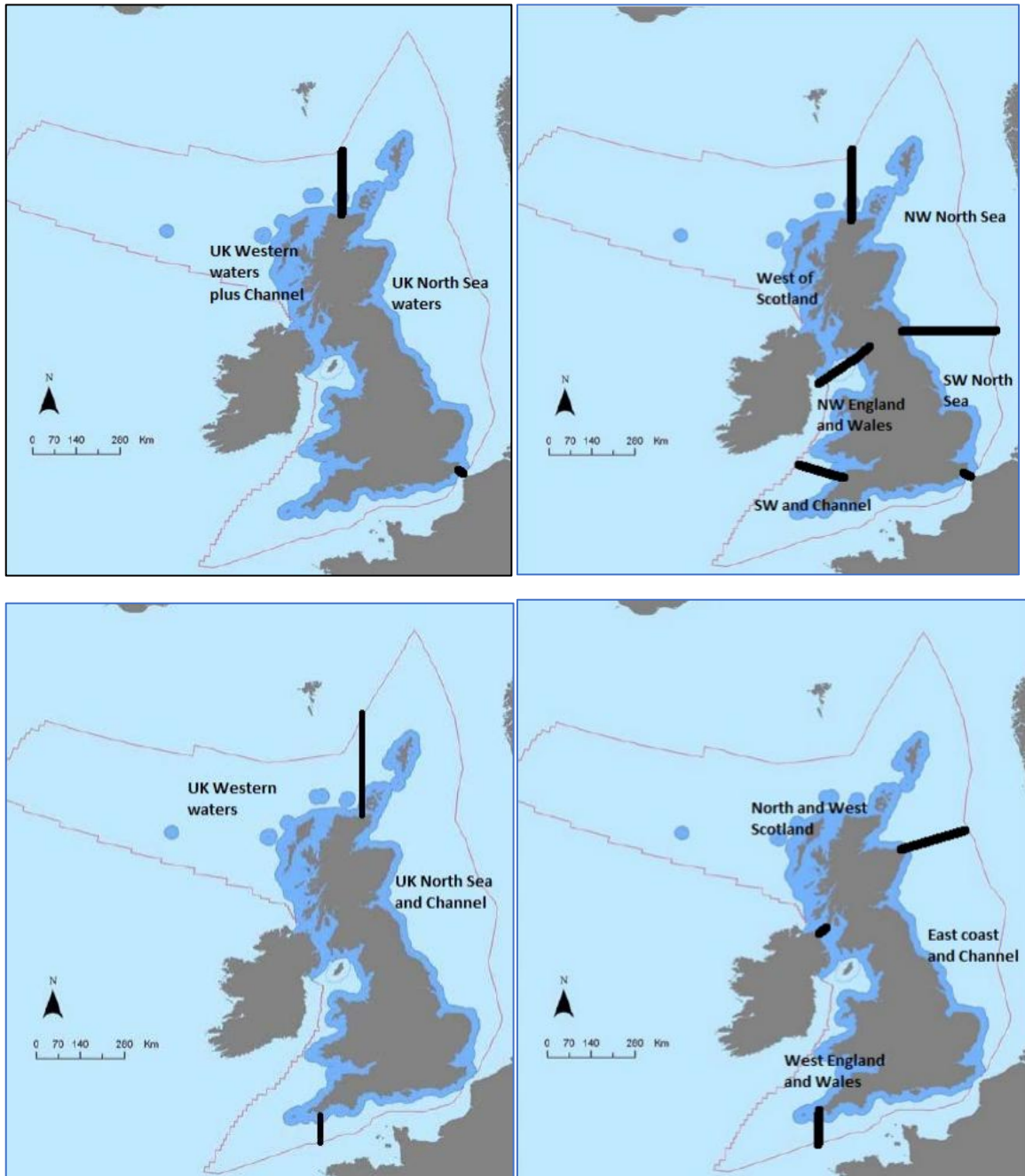


Plate 7.1 UK Defined BDMPS spatial areas. From Furness (2015). The areas are from the UK coast to the edge of UK territorial waters, bounded by defined lines running from selected points on the coast to the UK waters limit. Different BDMPS are required, based on evidence that the overall number of birds or the population origins of a particular species differ between areas.

183. NatureScot Guidance Note #4 advises that breeding adult common guillemots tend to remain close to their breeding colonies in the non-breeding season and so recommends using the same approach as for the breeding season, i.e. to establish theoretical connectivity for all SPAs with breeding common guillemot features (either in their own right or as a named component of a seabird



assemblage) within mean maximum foraging range plus 1 standard deviation of the WDA. This means that no additional SPAs with common guillemot as a breeding season feature were screened in for theoretical connectivity in the non-breeding season.

184. NatureScot, in their Scoping response for the Project stated that the principle for common guillemot also applies to herring gull, which does not migrate in the UK, as described in Furness (2015). However, using the breeding season foraging range to determine connectivity between the WDA and herring gull from SPA colonies in both the breeding and non-breeding seasons results in only one SPA colony being identified as having connectivity with the WDA (Rathlin Island, where herring gull is an assemblage species only).
185. The BDMPS exercise conducted by Furness (2015) relates to UK waters only, and therefore the approach to connectivity in the non-breeding season only applies to UK SPAs. As such, no ROI terrestrial breeding seabird SPAs or Ramsar sites are within any of the BDMPS regions and have therefore been excluded. Although it is possible that some ROI breeding seabirds will be present within BDMPS regions during the non-breeding season, it is considered unlikely that birds would travel northwards from the ROI and be found within the WDA in numbers that would comprise an important part of the assemblage present.
186. Based on the above rationale, UK SPAs and Ramsar sites (and the Isle of Man ASP) with breeding seabird qualifying features found within the appropriate BDMPS were included in the long list of sites with theoretical connectivity with the WDA in the non-breeding season (**Table 7.9 to Table 7.11**). Many of these were the same SPAs as those identified in **Section 7.6.1.1** to have breeding season connectivity, however, others which were outside of foraging range from the WDA during the breeding season have now been included. Furthermore, the following additional seabird species to those screened in under **Section 7.6.1.1** are also screened in for theoretical connectivity during the non-breeding season:
- Arctic tern (UK Western Waters BDMPS);
 - Black-headed gull (not assessed in Furness, 2015);
 - Common tern (UK Western Waters BDMPS);
 - European shag (West of Scotland BDMPS);
 - Great black-backed gull (West of Scotland BDMPS);
 - Great cormorant (West of Scotland BDMPS);
 - Little tern (UK Western Waters BDMPS);
 - Mediterranean gull (not assessed in Furness, 2015);
 - Red-throated diver (West of Scotland BDMPS);
 - Roseate tern (North and West Scotland BDMPS); and
 - Sandwich tern (UK Western Waters BDMPS).
187. Where a species has not been assessed in Furness (2015), it has been assumed that all associated SPAs located within the largest BDMPS (UK Western Waters plus Channel) have theoretical connectivity during the non-breeding season. As well as black-headed gull and Mediterranean gull noted above, this also includes European storm-petrel, Leach's storm-petrel and common eider. This information was obtained through a filtering exercise carried out on the JNCC UK SPA spreadsheet, for all SPAs with breeding seabird species (categorised as "Terrestrial" in the "Zone" column and "r = reproducing" in the "Season" column of the JNCC UK SPA spreadsheet) which are located within the UK Western Waters plus Channel BDMPS region (as determined using SPA GIS shapefile data downloaded from the JNCC website, and digitisation of the UK Western Waters plus Channel BDMPS shown in **Plate 7.1**). For SPA assemblage species, filtering was done by including only "Seabird Assemblage" in the spreadsheet to determine breeding interests (i.e. excluding SPAs with non-breeding seabird assemblage species only).



Table 7.9 UK SPAs and breeding seabird qualifying features with theoretical connectivity to the WDA in the non-breeding season.

UK SPA Contributing to BDMPS Non-breeding Season(s) Population	Species
Ailsa Craig	Black-legged kittiwake
Ailsa Craig	Lesser black-backed gull
Ailsa Craig	Northern gannet
Anglesey Terns / Morwenoliaid Ynys Môn	Arctic tern
Anglesey Terns / Morwenoliaid Ynys Môn	Common tern
Anglesey Terns / Morwenoliaid Ynys Môn	Sandwich tern
Bowland Fells	Lesser black-backed gull
Caithness and Sutherland Peatlands	Red-throated diver
Canna and Sanday	Atlantic puffin
Canna and Sanday	Black-legged kittiwake
Canna and Sanday	European shag
Cape Wrath	Atlantic puffin
Cape Wrath	Black-legged kittiwake
Cape Wrath	Northern fulmar
Cape Wrath	Razorbill
Carlingford Lough	Common tern
Carlingford Lough	Sandwich tern
Dungeness, Romney Marsh and Rye Bay	Mediterranean gull
Flannan Isles	Atlantic puffin
Flannan Isles	Black-legged kittiwake
Flannan Isles	Leach's storm-petrel
Flannan Isles	Northern fulmar
Flannan Isles	Razorbill
Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	Manx shearwater
Glas Eileanan	Common tern
Grassholm	Northern gannet
Handa	Black-legged kittiwake
Handa	Great skua
Handa	Northern fulmar
Handa	Razorbill
Isles of Scilly	European storm-petrel



UK SPA Contributing to BDMPS Non-breeding Season(s) Population	Species
Isles of Scilly	Lesser black-backed gull
Larne Lough	Common tern
Larne Lough	Mediterranean gull
Larne Lough	Sandwich tern
Lewis Peatlands	Red-throated diver
Lough Neagh and Lough Beg	Common tern
Mingulay and Berneray	Atlantic puffin
Mingulay and Berneray	Black-legged kittiwake
Mingulay and Berneray	Common guillemot
Mingulay and Berneray	European shag
Mingulay and Berneray	Northern fulmar
Mingulay and Berneray	Razorbill
Mointeach Scadabhaigh	Red-throated diver
Monach Islands	Little tern
Morecambe Bay and Duddon Estuary	Lesser black-backed gull
Morecambe Bay and Duddon Estuary	Little tern
Morecambe Bay and Duddon Estuary	Sandwich tern
Morecambe Bay and Duddon Estuary	Black-headed gull*
Morecambe Bay and Duddon Estuary	Common eider*
Morecambe Bay and Duddon Estuary	Mew gull*
North Colonsay and Western Cliffs	Black-legged kittiwake
North Colonsay and Western Cliffs	Common guillemot
North Rona and Sula Sgeir	Atlantic puffin
North Rona and Sula Sgeir	Black-legged kittiwake
North Rona and Sula Sgeir	European storm-petrel
North Rona and Sula Sgeir	Great black-backed gull
North Rona and Sula Sgeir	Leach's storm-petrel
North Rona and Sula Sgeir	Northern fulmar
North Rona and Sula Sgeir	Northern gannet
North Rona and Sula Sgeir	Razorbill
Outer Ards	Arctic tern
Poole Harbour	Mediterranean gull
Priest Island (Summer Isles)	European storm-petrel



UK SPA Contributing to BDMPS Non-breeding Season(s) Population	Species
Rathlin Island	Black-legged kittiwake
Rathlin Island	Common guillemot
Rathlin Island	Razorbill
Rathlin Island	Atlantic puffin*
Rathlin Island	Common eider*
Rathlin Island	European shag*
Rathlin Island	Herring gull*
Rathlin Island	Lesser black-backed gull*
Rathlin Island	Mew gull*
Rathlin Island	Northern fulmar*
Ribble and Alt Estuaries	Black-headed gull
Ribble and Alt Estuaries	Common tern
Ribble and Alt Estuaries	Lesser black-backed gull
Rum	Black-legged kittiwake
Rum	Common guillemot
Rum	Manx shearwater
Rum	Red-throated diver
Sheep Island	Great cormorant
Shiant Isles	Atlantic puffin
Shiant Isles	Black-legged kittiwake
Shiant Isles	European shag
Shiant Isles	Northern fulmar
Shiant Isles	Razorbill
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Atlantic puffin
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	European storm-petrel
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Lesser black-backed gull
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Manx shearwater
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Black-legged kittiwake*
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Razorbill*



UK SPA Contributing to BDMPS Non-breeding Season(s) Population	Species
Solent and Southampton Water	Mediterranean gull
South Uist Machair and Lochs	Little tern
St Kilda	Atlantic puffin
St Kilda	Black-legged kittiwake
St Kilda	European storm-petrel
St Kilda	Great skua
St Kilda	Leach's storm-petrel
St Kilda	Manx shearwater
St Kilda	Northern fulmar
St Kilda	Northern gannet
St Kilda	Razorbill
Strangford Lough	Arctic tern
Strangford Lough	Common tern
Strangford Lough	Sandwich tern
Sule Skerry and Sule Stack	Atlantic puffin
Sule Skerry and Sule Stack	European shag
Sule Skerry and Sule Stack	European storm-petrel
Sule Skerry and Sule Stack	Leach's storm-petrel
Sule Skerry and Sule Stack	Northern gannet
The Dee Estuary	Common tern
The Dee Estuary	Little tern
Treshnish Isles	European storm-petrel

* Article 4.2 breeding seabird assemblage species only.

Table 7.10 UK Ramsar sites with breeding seabird qualifying features with theoretical connectivity to the WDA in the non-breeding season.

UK Ramsar site Contributing to BDMPS Non-breeding Season(s) Population	Species
Caithness and Sutherland Peatlands	Arctic skua
Caithness and Sutherland Peatlands	Red-throated diver
Carlingford Lough	Common tern
Carlingford Lough	Sandwich tern
Chichester and Langstone Harbours	Black-headed gull
Chichester and Langstone Harbours	Mediterranean gull



UK Ramsar site Contributing to BDMPs Non-breeding Season(s) Population	Species
Duddon Estuary	Little tern
Duddon Estuary	Sandwich tern
Isles of Scilly	European storm-petrel
Isles of Scilly	Lesser black-backed gull
Larne Lough	Black-headed gull
Lewis Peatlands	Arctic skua
Morecambe Bay	Black-headed gull
Morecambe Bay	Lesser black-backed gull
Morecambe Bay	Sandwich tern
North Uist Machair and Islands	Little tern
Outer Ards	Manx shearwater
Poole Harbour	Black-headed gull
Ribble and Alt Estuaries	Black-headed gull
Ribble and Alt Estuaries	Common tern
Ribble and Alt Estuaries	Lesser black-backed gull
Severn Estuary	Lesser black-backed gull
Sléibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast)	Little tern
Solent and Southampton Water	Black-headed gull
Solent and Southampton Water	Mediterranean gull
South Uist Machair and Lochs	Little tern
Strangford Lough	Arctic tern
Strangford Lough	Black-headed gull
Strangford Lough	Common tern
Strangford Lough	Great cormorant
Strangford Lough	Lesser black-backed gull
Strangford Lough	Mew gull
Strangford Lough	Sandwich tern
The Dee Estuary	Common tern
The Dee Estuary	Little tern
Upper Solway Flats and Marshes	Lesser black-backed gull
Upper Solway Flats and Marshes	Little tern



Table 7.11 Isle of Man ASP with breeding seabirds which have theoretical connectivity to the WDA in the non-breeding season.

Isle of Man ASP Contributing to BDMPs Non-breeding Season(s) Population	Species
Ayres Gravel Pits	Lesser black-backed gull
	Black-headed gull
	Arctic tern

7.6.2 Establishing Theoretical connectivity with marine SPAs

188. Marine SPAs have been classified in UK and Irish waters for inshore wintering waterfowl (divers, seaducks and grebes); foraging areas for breeding terns; foraging areas for breeding red-throated divers; important areas for European shags, foraging aggregations of true seabirds (both breeding and non-breeding) and wintering gulls¹⁴.

189. NatureScot Guidance Note #4 advises that, in contrast with the approach for seabirds in the breeding season, where theoretical connectivity is considered prior to determining LSE, for marine SPAs, the impact pathways underpin potential connectivity and LSE. NatureScot Guidance Note #4 includes guidance on determining connectivity with marine SPAs, relating to the following:

- Inshore wintering waterfowl (including divers, grebes and seaducks) qualifying features of marine SPAs;
- Wintering gull qualifying features of marine SPAs;
- Non-breeders, sabbaticals and juvenile components of breeding seabird qualifying features of marine SPAs; and
- Breeding red-throated diver qualifying features of marine SPAs.

190. In addition, European sites with breeding seabird qualifying features, which have extensions into the marine environment to support maintenance behaviours, such as preening and loafing, have been considered in relation to their proximity to indicative vessel transit routes and potential ports.

191. These relationships are considered in the following sections.

7.6.2.1 Connectivity for inshore qualifying features of marine SPAs

192. This section considers the connectivity between indicative vessel transit corridors and potential ports that the Project could use during construction and/or operation and maintenance, with marine SPAs for inshore wintering waterfowl, or breeding seabird colony SPAs with marine extensions.

193. NatureScot Guidance Note #4 advises the following on determining connectivity for inshore wintering waterfowl:

“For all inshore wintering waterfowl qualifying features of marine SPAs to determine LSE impact pathways need to be considered within 15 km of the marine SPA”.

194. In relation to this 15 km buffer, the guidance also advises the following:

“This should be applied to all elements of proposed developments, including cable routes, wet storage locations, and routes for related vessel traffic (if known) to inform inclusion of marine SPA qualifying features within the long list. This allows for an audit trail for screening LSE, however, it is

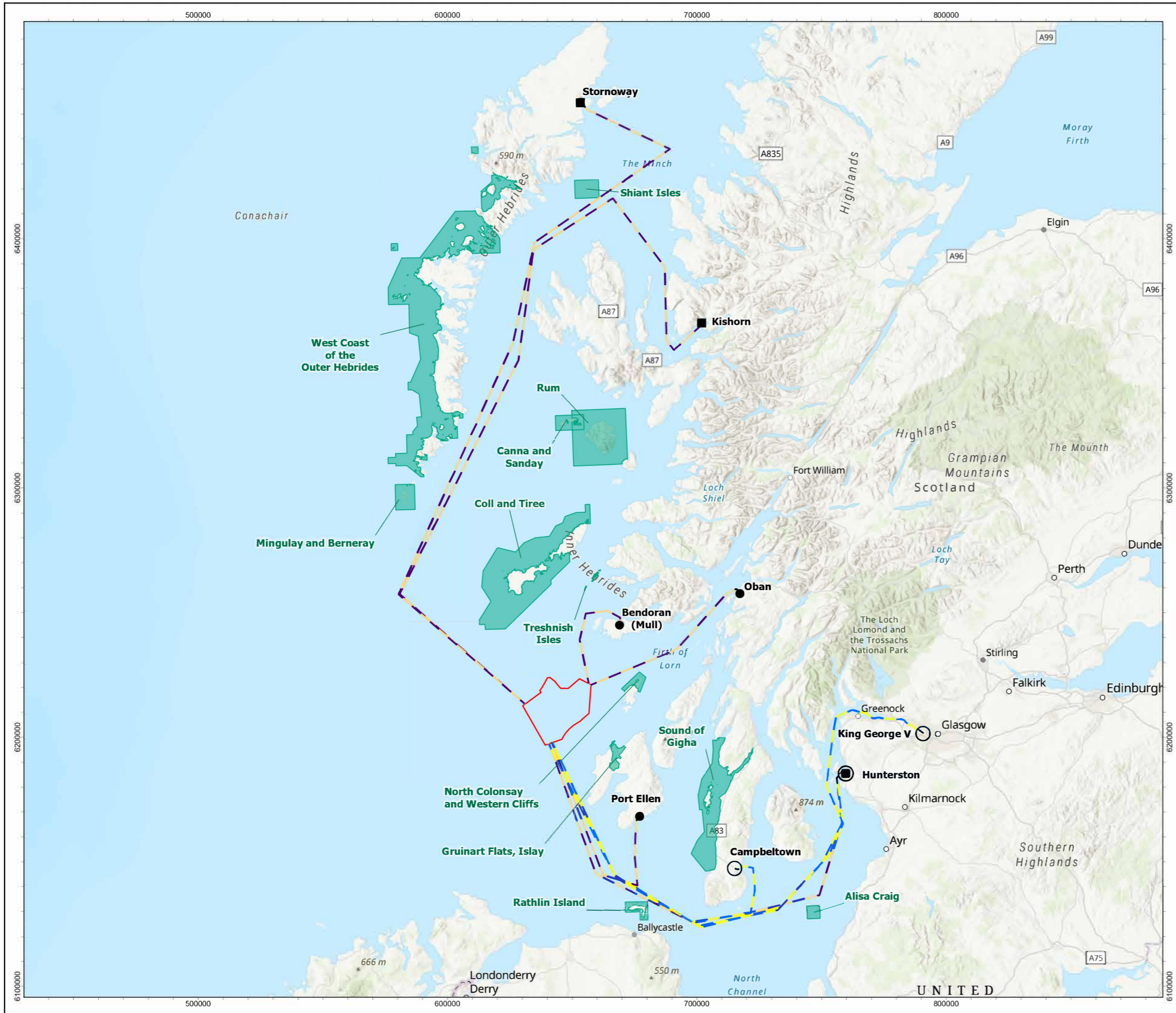
¹⁴ <https://jncc.gov.uk/our-work/spas-with-marine-components/>



important that impact pathways that can affect features or habitat within the marine SPA even though they are more than 15 km from the SPA boundary relevant at project level are considered even where these fall outside of the 15 km buffer.”

195. For this screening step, all indicative vessel transit corridors between ports and the WDA that could potentially be used by the Project were plotted using GIS. The following potential port locations considered are:
- Marshalling & Assembly (Construction): Kishorn, Stornoway and Hunterston;
 - Marine Operations (Construction): Oban, Port Ellen and Bendoran (Mull); and
 - O&M: Campbeltown, King George V (Glasgow) and Hunterston.
196. Locations of these ports and indicative transit corridors are shown in **Figure 7.1**. See **Appendix 13 Outline Vessel Management Plan and Navigational Safety Plan (VMPNSP)** of the EIAR for more details.





Windfarm Development Area (WDA)

Ports

- Marine Operations
- Marshalling & Assembly
- O&M

Indicative Vessel Transit Corridors

- Construction
- O&M
- Special Protection Areas

1	27/04/2026	MMM	MMM	NG/SO	NG/SO
REV	DATE	CREATOR	REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
DRAWING NUMBER		MCW-DWF-ENV-MAP-RHS-000081			
DATUM		ETRS89	PROJECTION		UTM Zone 29N
SCALE		1:1,450,000	PAGE SIZE		A3
PROJECT TITLE: MachairWind					
<p>Figure 7.1 Potential Ports/Harbours and Indicative Vessel Transit Routes</p>					
<p>© COPYRIGHT NOTES: Sources: Esri, TomTom, Garmin, GEBCO, National Geographic, NOAA, and the GIS User Community, Esri, CGIAR, N Robinson, NCEAS, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Esri, GEBCO, Garmin, NaturalVue</p>					
NOT TO BE USED FOR NAVIGATION					

197. **Table 7.12** presents the UK marine SPAs that are located within 15 km of the WDA, indicative ports or indicative transit corridors. This list was obtained by using GIS to determine all SPAs within 15 km. No ROI SPAs or Ramsar sites are within 15 km. An initial filtering exercise using the JNCC SPA spreadsheet then took place for waterfowl species, with the “Zone” column set to exclude “Terrestrial” only SPAs, and the “Season” to be “w – wintering”.
198. A second filtering exercise then took place to determine whether any terrestrial breeding seabird colony SPAs have a marine extension that overlaps with any indicative transit corridor.
199. Note that determination of theoretical connectivity of breeding seabirds with the Offshore ECC will be considered in detail as part of the Offshore ECC consent application following confirmation of the Offshore ECC boundary.
200. Although three UK Ramsar sites are located within 15 km of ports or transit corridors - Eilean na Muice Duibhe (Duich Moss), Islay Ramsar; Rinns of Islay Ramsar; and Sléibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast) Ramsar – none of these contain inshore wintering waterfowl qualifying features, being limited to geese, swans and/or waders, which are considered as terrestrial/coastal in nature.
201. All other qualifying features of UK Ramsar sites are screened out here, but consideration of the onshore and nearshore impacts from land-based activities (i.e. cable landfall, grid connection) on inshore wintering waterfowl is provided in the combined assessment in **Chapter 11 Offshore Ornithology** of the EIAR (commensurate with the level of detail available at the time of carrying out the assessment). When it is time to proceed with consenting of the Offshore ECC and OnTDA, a detailed assessment of these features will be undertaken as part of the respective consent applications.
202. Two UK marine SPAs have been screened in for wintering waterfowl – Coll and Tiree SPA for great northern diver and common eider, and West Coast of the Outer Hebrides SPA for divers, common eider, long-tailed duck, red-breasted merganser and Slavonian grebe (**Table 7.12**). There were no further UK SPAs with additional assemblage species to add to this list.
203. Four breeding seabird colony SPAs with a marine extension were near an indicative transit corridor – Ailsa Craig SPA, North Colonsay and Western Cliffs SPA, Shiant Isles SPA and Rathlin Island SPA (**Figure 7.1**). However, the transit corridor location means that vessels would not transit through these marine extensions, only near them. As a consequence of this, these four SPAs were screened out for this impact pathway. Note, all of these SPAs with breeding seabird features are screened in for the impact pathway of displacement occurring during Project operation.

Table 7.12 UK marine SPAs with wintering waterfowl, located within 15 km of the WDA, potential ports and/or indicative vessel transit corridors, and qualifying features.

SPA	Wintering Waterfowl Features
Coll and Tiree	Great northern diver
	Common eider
West Coast of the Outer Hebrides	Black-throated diver
	Great northern diver
	Common eider
	Long-tailed duck
	Red-breasted merganser



SPA	Wintering Waterfowl Features
	Slavonian grebe

7.6.2.2 Connectivity for wintering gull qualifying features of marine SPAs and Ramsar sites

204. Marine SPAs have been classified in Scottish waters to help protect wintering gulls. NatureScot Guidance Note #4 provides the following advice:
205. *“Marine SPAs with wintering gulls as qualifying features are designated primarily due to their importance as a roosting site. During the winter months gulls use roosts with a similar centrally-placed foraging behaviour to breeding seabirds. As well as assessments on impact pathways within the marine SPA, connectivity to functionally linked foraging habitats on land (including adjacent shorelines and inland sites) and sea outwith the SPA should also be considered. Wintering gulls will also use the marine SPA itself for foraging.*
206. *In the absence of specific gull wintering foraging ranges, we currently recommend that connectivity for wintering gulls using the marine SPAs is determined using the recommended breeding foraging range distance, as per Woodward et al. 2019 (with the exception of Little Gull¹⁵). We acknowledge more recent tracking studies of gull species during the non-breeding season are currently being undertaken. As and when data is published from these studies, we will review and update this guidance as necessary.”*
207. **Table 7.13** presents the UK marine SPAs where wintering gulls are a qualifying feature. In only one case, for black-legged kittiwake using the Liverpool Bay SPA, is a species within foraging range of the WDA (determination of theoretical connectivity of breeding seabirds with the Offshore ECC will be considered in detail as part of the Offshore ECC consent application following confirmation of the Offshore ECC boundary). There is however considered to be no theoretical connectivity in this instance because based on consultation advice for the West of Orkney Windfarm, NatureScot advised that *“Kittiwake do not need to be considered with respect to wintering gull roosts, and instead connectivity should be considered via the 15 km buffer approach.”* (see *West of Orkney Windfarm Offshore Ornithology Additional Information, Appendix 2: HRA Screening Technical Report*). Consequently, Liverpool Bay SPA can also be screened out for this impact pathway as this SPA is >15 km from the Project.
208. No additional SPAs or Ramsar sites were added to the long list of SPAs for consideration of LSE, due to no connectivity between the WDA and wintering gull roost features of marine SPAs. This was also the case for UK Ramsar sites with marine components and wintering gull qualifying features (**Table 7.14**).

Table 7.13 UK marine SPAs where wintering gulls are qualifying features.

UK Marine SPA with wintering gulls as a qualifying feature	At-Sea Distance to WDA (km)	Qualifying features (shaded grey cells indicate screening out)	Foraging range (km)
Greater Wash	971	Little gull	15
Liverpool Bay / Bae Lerpwl	292	Little gull	15

¹⁵ *“There is currently no foraging range information for little gull. As for inshore wintering waterfowl features, our GIS tool applies a generic 15 km buffer for little gull.”*



UK Marine SPA with wintering gulls as a qualifying feature	At-Sea Distance to WDA (km)	Qualifying features (shaded grey cells indicate screening out)	Foraging range (km)
		Black-legged kittiwake*	300.6
		Black-headed gull*	18.5
		Mew gull*	50
		Great black-backed gull*	73
		Herring gull*	85.6
		Lesser black-backed gull*	236
Outer Firth of Forth and St Andrews Bay Complex	681	Little gull	15
		Black-headed gull	18.5
		Mew gull	50
		Herring gull	85.6
		Black-legged kittiwake	300.6
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	479	Lesser black-backed gull	236

* Article 4.2 assemblage feature qualification only.

Table 7.14 UK marine Ramsar sites where wintering gulls are qualifying features.

UK marine Ramsar site with wintering gulls as a qualifying feature	At-Sea Distance to WDA (km)	Qualifying features (shaded grey cells indicate screening out)	Foraging range (km)
Belfast Lough	149	Mew gull	50
Larne Lough	131	Mew gull	50
Minsmere–Walberswick	1,193	Lesser black-backed gull	236
Ribble and Alt Estuaries	337	Black-headed gull	18.5
The Wash	1,078	Black-headed gull	18.5

209. Within the ROI there are two marine SPAs, North-west Irish Sea SPA and Seas off Wexford SPA (see **Table 7.15**). Within the citation for North-west Irish Sea SPA, it is noted that all gull species listed, except for lesser-black backed gull, are present during the non-breeding season. Of these, only black-legged kittiwake is within theoretical foraging range of the WDA, however, as noted above, because the North-west Irish Sea SPA is over 15 km away, there is no connectivity for this or any other gull qualifying feature.
210. The citation for the Seas off Wexford SPA states that the gull species present are qualifiers for their breeding season presence, with data unavailable for the winter period. Regardless of winter presence however, with the SPA 375 km from the WDA (straight line distance), all gull species are beyond theoretical foraging range, and so this SPA can be screened out.



Table 7.15 ROI marine SPAs where wintering gulls are qualifying features.

ROI Marine SPA with wintering gulls as a qualifying feature	At-Sea Distance to WDA (km)	Qualifying features (shaded grey cells indicate screening out)	Foraging range (km)
North-west Irish Sea SPA	252	Black-headed gull	18.5
		Black-legged kittiwake	300.6
		Great black-backed gull	73
		Herring gull	85.6
		Little gull	N/A
		Mew gull	50
Seas off Wexford SPA	397	Black-legged kittiwake	300.6
		Black-headed gull	18.5
		Herring gull	85.6
		Lesser black-backed gull	236
		Mediterranean gull	20

7.6.2.3 Connectivity for breeding seabird qualifying features of marine SPAs

211. NatureScot Guidance Note #4 recognises that seabird populations using marine SPAs during the breeding season likely include breeders from multiple colonies within foraging range, as well as non-breeders and juveniles. The following advice is provided:

“For breeding seabirds within marine SPAs, the population level consequences will be addressed through consideration of connectivity from functionally linked seabird colony SPAs i.e. using the recommended ‘at sea’ foraging ranges, as defined by Woodward et al. 2019 (see Guidance note 3: Marine Birds - Identifying theoretical connectivity with breeding site Special Protection Areas using breeding season foraging ranges).

Information on extent of potential connectivity for non-breeders, sabbatical and juveniles during the breeding season is currently not available. Non-breeders, sabbaticals and juvenile connectivity should therefore be assessed as for breeding adult seabird qualifying features.

The exception for breeding seabird connectivity is Manx shearwater within the Outer Firth of Forth and St Andrews Bay Complex SPA, which may be a mixture of breeding birds from several colonies, sabbaticals, pre-breeding birds and possibly failed breeders. Further research is required to assess which colonies the Manx shearwaters using the Outer Firth of Forth and St Andrews Bay Complex SPA originate from.” and

“For all non-breeding seabird qualifying features of marine SPAs to determine LSE, impact pathways need to be considered within 15km of the marine SPA.”

212. To determine theoretical connectivity for breeding seabirds, all UK marine SPAs that are designated for protecting important foraging areas for breeding adult seabird qualifying features are listed in **Table 7.16**. The UK list was obtained by firstly filtering the JNCC SPA spreadsheet for seabird species, “Zone” to include “Offshore” SPAs, and the “Season” to be “r – reproducing”. The eight sites



are also those listed as the SPAs with marine components on the JNCC website¹⁶. A further two SPAs with breeding seabirds and marine components were also identified – Moray Firth SPA and Northumberland Marine SPA, albeit they were considered as “inshore” sites in the JNCC SPA spreadsheet.

213. The two ROI marine SPAs are presented in **Table 7.17**. There are no additional true marine UK or ROI Ramsar sites to be considered, over and above those Ramsar sites with marine components already included and screened in/out in **Section 7.6.1.1** (breeding seabirds).
214. No marine SPAs are within 15 km of either the WDA or indicative transit corridors, and as such, none would be directly affected by the Project during the breeding or non-breeding seasons (determination of theoretical connectivity of breeding seabirds with the Offshore ECC will be considered in detail as part of the Offshore ECC consent application following confirmation of the Offshore ECC boundary). Indirect effects are however possible, should a seabird breeding colony SPA that is functionally linked to a marine SPA be affected by the Project. Theoretical connectivity with seabird breeding colony SPAs, including those functionally linked to marine SPAs, has already been determined in **Section 7.6.1.1**, through use of foraging ranges, as defined by Woodward et al., (2019).
215. **Table 7.16** and **Table 7.17** therefore provide summaries of which marine SPAs can be screened in due to theoretical connectivity of functionally linked seabird breeding colony SPAs to the WDA. If the WDA is beyond foraging range of a qualifying feature of the functionally linked seabird breeding colony SPA, then that same qualifying feature of the marine SPA is screened out. If all qualifying features of the functionally linked seabird colony SPA are beyond foraging range of the colony, then the marine SPA can be screened out.
216. Because of the unknown origin of birds present, Manx shearwater associated with the Outer Firth of Forth and St Andrews Bay Complex marine SPA (see above for NatureScot guidance) has been screened in despite the SPA’s east coast location. The Irish Sea Front marine SPA has also been screened in for Manx shearwater.
217. At the RIAA stage, any impacts on the breeding seabird features of these marine SPAs will be assessed through an assessment of impacts on the functionally linked colony SPA.

Table 7.16 UK marine SPAs designated for important seabird foraging areas, with their functionally linked seabird colony SPAs. Shaded grey cells indicate screening out.

UK Marine SPA	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Breeding Seabird Qualifying Feature (*assemblage species. strike-through = not qualifying feature of marine SPA)	Foraging Range (km)	Within Foraging Range of WDA
Greater Wash ¹⁷	North Norfolk Coast	1093	Common tern	26.9	NO
			Little tern	5	NO
			Sandwich tern	57.5	NO
Irish Sea Front ¹⁸	Unknown	-	Manx shearwater	2365.5	YES

¹⁶ <https://jncc.gov.uk/our-work/spas-with-marine-components/>

¹⁷ <https://jncc.gov.uk/our-work/greater-wash-spa/>

¹⁸ Not explicitly functionally linked but JNCC states that ‘Tracking studies indicate that Manx shearwaters from at least six different colonies around the Irish and Celtic Seas (Copeland, Rum, Bardsey, Skomer, Skokholm and Lundy) are likely to use the Irish Sea Front SPA for foraging during the breeding season’. <https://jncc.gov.uk/our-work/irish-sea-front-spa/>



UK Marine SPA	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Breeding Seabird Qualifying Feature (*assemblage species. strike-through = not qualifying feature of marine SPA)	Foraging Range (km)	Within Foraging Range of WDA
Liverpool Bay / Bae Lerpwl ¹⁹	Mersey Narrows and North Wirral Foreshore	361	Common tern	26.9	NO
	The Dee Estuary	360	Common tern	26.9	NO
Little tern			5	NO	
Moray Firth ²⁰	East Caithness Cliffs	442	European shag	23.7	NO
Northumberland Marine ²¹	Coquet Island	808	Arctic tern	40.5	NO
			Common tern	26.9	NO
			Roseate tern	23.2	NO
			Sandwich tern	57.5	NO
			Atlantic puffin*	265.4	NO
			Black-headed gull*	18.5	NO
	Farne Islands	774	Arctic tern	40.5	NO
			Common guillemot	95.2	NO
			Common tern	26.9	NO
			Roseate tern	23.2	NO
			Sandwich tern	57.5	NO
			Common guillemot*	95.2	NO
			Atlantic puffin*	265.4	NO
			Great cormorant*	33.9	NO
			European shag*	23.7	NO
			Black-legged kittiwake*	300.6	NO
	Lindisfarne	764	Little tern	5	NO
			Roseate tern	23.2	NO
	Northumbria Coast	762	Arctic tern	40.5	NO
Little tern			5	NO	

¹⁹ <https://jncc.gov.uk/our-work/liverpool-bay-spa/>
²⁰ <https://www.nature.scot/sites/default/files/special-protection-area/10490/conservation-and-management-advice.pdf>
²¹ <https://designatedsites.naturalengland.org.uk/ConservationAdvice.aspx?SiteCode=UK9020325&SiteName=northumberland%20marine&SiteNameDisplay=Northumberland%20Marine%20SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAArea=&HasCA=1&NumMarineSeasonality=7&SiteNameDisplay=Northumberland%20Marine%20SPA#SiteInfo>


UK Marine SPA	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Breeding Seabird Qualifying Feature (*assemblage species. strike-through = not qualifying feature of marine SPA)	Foraging Range (km)	Within Foraging Range of WDA
Outer Firth of Forth and St Andrews Bay Complex ²²	Buchan Ness to Collieston Coast	568	Black-legged kittiwake	300.6	NO
			Common guillemot	95.2	NO
			European shag	23.7	NO
			Herring gull	85.6	NO
			Northern fulmar	1200.2	YES
	Forth Islands	717	Arctic tern	40.5	NO
			Atlantic puffin	265.4	NO
			Black-legged kittiwake	300.6	NO
			Common guillemot	95.2	NO
			Common tern	26.9	NO
			European shag	23.7	NO
			Great cormorant	33.9	NO
			Herring gull	85.6	NO
			Lesser black backed gull	236	NO
			Northern gannet	590	NO
			Razorbill	122.2	NO
			Roseate tern	23.2	NO
			Sandwich tern	57.5	NO
	Fowlsheugh	633	Black-legged kittiwake	300.6	NO
			Common guillemot	95.2	NO
Herring gull			85.6	NO	
Northern fulmar			1200.2	YES	
Razorbill			122.2	NO	
Imperial Dock Lock, Leith	761	Common tern	26.9	NO	
St Abb's Head to Fast Castle	742	Black-legged kittiwake	300.6	NO	
		Common guillemot	95.2	NO	
		European shag	23.7	NO	

²² <https://www.nature.scot/sites/default/files/special-protection-area/10478/conservation-and-management-advice.pdf>



UK Marine SPA	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Breeding Seabird Qualifying Feature (*assemblage species. strike-through = not qualifying feature of marine SPA)	Foraging Range (km)	Within Foraging Range of WDA
	Troup, Pennan and Lion's Heads	530	Herring gull	85.6	NO
			Razorbill	122.2	NO
			Black-legged kittiwake	300.6	NO
			Common guillemot	95.2	NO
			Herring gull	85.6	NO
			Northern fulmar	1200.2	YES
	Razorbill	122.2	NO		
Unknown	n/a	Manx shearwater	2365.5	YES	
Outer Thames Estuary ²³	Breydon Water	1159	Common tern	26.9	NO
	Foulness (Mid-Essex Coast Phase 5)	1265	Common tern	26.9	NO
			Little tern	5	NO
			Sandwich tern	57.5	NO
Minsmere-Walberswick	1193	Little tern	5	NO	
Seas off Foula ²⁴	Foula	536	Arctic skua	2.7	NO
			Arctic tern	40.5	NO
			Atlantic puffin	265.4	NO
			Black-legged kittiwake	300.6	NO
			Common guillemot	153.7	NO
			European shag	23.7	NO
			Great skua	931.2	YES
			Leach's storm-petrel	657	YES
			Northern fulmar	1200.2	YES
			Razorbill	164.6	NO
			Red-throated diver	9	NO
Seas off St Kilda ²⁵	St Kilda	208	Atlantic puffin	265.4	YES
			Black-legged kittiwake	300.6	YES

²³ <https://jncc.gov.uk/our-work/outer-thames-estuary-spa/>

²⁴ <https://www.nature.scot/sites/default/files/special-protection-area/10489/conservation-and-management-advice.pdf>

²⁵ <https://www.nature.scot/sites/default/files/special-protection-area/10488/conservation-and-management-advice.pdf>



UK Marine SPA	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Breeding Seabird Qualifying Feature (*assemblage species. strike-through = not qualifying feature of marine SPA)	Foraging Range (km)	Within Foraging Range of WDA
			Common guillemot	95.2	NO
			European storm-petrel	336	YES
			Great skua	931.2	YES
			Leach's storm-petrel	657	YES
			Manx shearwater	2365.5	YES
			Northern fulmar	709	YES
			Northern gannet	509.4	YES
			Razorbill	122.2	NO
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro ²⁶	Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	479	Atlantic puffin	265.4	NO
			European storm-petrel	336	NO
			Lesser black-backed gull	236	NO
			Manx shearwater	2365.5	YES
			Razorbill*	122.2	NO
			Common guillemot*	95.2	NO
			Black-legged kittiwake*	300.6	NO

Table 7.17 ROI marine SPAs designated for important seabird foraging areas. Shaded grey cells indicate screening out

ROI Marine SPA	Breeding Seabird Qualifying Feature	Foraging Range (km)	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Within Foraging Range of WDA (* at-sea distance only)
North-west Irish Sea	Arctic tern	40.5	Rockabill	280	NO
	Atlantic puffin	265.4	Lambay Island	294	NO
	Black-legged kittiwake	300.6	Lambay Island	294	YES
	Black-legged kittiwake	300.6	Howth Head	307	NO

²⁶ <https://jncc.gov.uk/our-work/skomer-skokholm-and-the-seas-off-pembrokeshire-mpa/>



ROI Marine SPA	Breeding Seabird Qualifying Feature	Foraging Range (km)	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Within Foraging Range of WDA (* at-sea distance only)
	Black-legged kittiwake	300.6	Ireland's Eye	304	NO
	Common guillemot	95.2	Lambay Island	294	NO
	Common guillemot	95.2	Ireland's Eye	304	NO
	Common tern	26.9	Rockabill	280	NO
	Common tern	26.9	South Dublin Bay and River Tolka Estuary SPA	313	NO
	European shag	23.7	Lambay Island	294	NO
	European shag	23.7	Skerries Islands	287	NO
	Great cormorant	33.9	Lambay Island	294	NO
	Great cormorant	33.9	Ireland's Eye	304	NO
	Great cormorant	33.9	Skerries Islands	287	NO
	Herring gull	85.6	Lambay Island	294	NO
	Herring gull	85.6	Ireland's Eye	304	NO
	Herring gull	85.6	Skerries Islands	287	NO
	Lesser black-backed gull	236	Lambay Island	294	NO
	Little tern	5	Boyne Estuary	277	NO
	Manx shearwater	2365.5	Puffin Island	544	YES
	Manx shearwater	2365.5	Skelligs	550	YES
	Manx shearwater	2365.5	Blasket Islands	512	YES
	Manx shearwater	2365.5	Cruagh Island	356	YES
	Manx shearwater	2365.5	Deenish Island and Scariff Island	559	YES
	Northern fulmar	1200.2	Lambay Island	294	YES
	Razorbill	122.2	Lambay Island	294	NO
Razorbill	122.2	Ireland's Eye	304	NO	
Roseate tern	9	Rockabill	280	NO	
Seas off Wexford	Arctic tern	40.5	Lady's Island Lake	441	NO
	Atlantic puffin	265.4	Saltee Islands	457	NO
	Black-legged kittiwake	300.6	Saltee Islands	457	NO



ROI Marine SPA	Breeding Seabird Qualifying Feature	Foraging Range (km)	Functionally Linked Terrestrial (FLT) SPA	At-Sea Distance from FLT SPA to WDA (km)	Within Foraging Range of WDA (* at-sea distance only)
	Common guillemot	95.2	Saltee Islands	457	NO
	Common tern	26.9	Lady's Island Lake	441	NO
	European shag	23.7	Saltee Islands	457	NO
	Great cormorant	33.9	Saltee Islands	457	NO
	Great cormorant	33.9	Keeragh Islands	467	NO
	Little tern	5	Wexford Harbour and Slobs	422	NO
	Manx shearwater	2365.5	Puffin Island	544	YES
	Manx shearwater	2365.5	Skelligs	550	YES
	Manx shearwater	2365.5	Blasket Islands	512	YES
	Manx shearwater	2365.5	Cruagh Island	356	YES
	Manx shearwater	2365.5	Deenish Island and Scariff Island	559	YES
	Black-headed gull	18.5	Lady's Island Lake	441	NO
	Herring gull	85.6	Saltee Islands	457	NO
	Lesser black-backed gull	236	Saltee Islands	457	NO
	Mediterranean gull	20	Lady's Island Lake	441	NO
	Northern fulmar	1200.2	Saltee Islands	457	YES
	Northern gannet	509.4	Saltee Islands	457	YES
	Razorbill	122.2	Saltee Islands	457	NO
	Roseate tern	23.2	Lady's Island Lake	441	NO
	Sandwich tern	57.5	Lady's Island Lake	441	NO

7.6.2.4 Connectivity for red-throated diver qualifying features of SPAs in the breeding season

7.6.2.4.1 Marine SPAs

218. For red-throated divers, marine SPAs have been designated to protect foraging areas for breeding individuals. NatureScot provides the following guidance on this in their Guidance Note #4:
219. *"For breeding red-throated diver...the marine SPA population is estimated as the numbers of breeding pairs within a 10 km range of the marine SPA and may include red throated divers from breeding SPAs on land, as well as from non-SPA sites.*
220. *For breeding red-throated divers within marine SPAs, population level consequences will be addressed through consideration of connectivity from functionally-linked breeding sites within 10km...*



As with all other marine SPA features, additional consideration may be required for red-throated diver using the marine SPA, where there are impact pathways affecting the ability of the site to maintain the current extent, quality and distribution of supporting habitats within the site as well as ensuring a sufficient food supply within the site.”

- 221. Note, NatureScot advises different distances should be applied when considering whether theoretical connectivity exists for terrestrial and marine SPAs with red-throated diver qualifying features. Any terrestrial SPAs within 9 km of a project have theoretical connectivity, and this distance is based on the maximum foraging range for breeding red-throated divers (NatureScot Guidance Note #3, Table 1). NatureScot Guidance Note #4, Section 4 and Section 7, however advises that any marine SPAs within 15 km of a possible activity that could impact the Conservation Objectives of the site has theoretical connectivity as a consequence of displacement/disturbance. This recommended distance applies to both breeding and non-breeding red-throated diver features of marine SPAs.
- 222. There are six UK marine SPAs with breeding red-throated diver as a qualifying feature, as listed in **Table 7.18** (information confirmed from JNCC’s list of SPAs with marine components spreadsheet²⁷).
- 223. In all cases, the WDA is more than 15 km from the boundary of these UK SPAs. However, construction and operation and maintenance will involve vessel activity beyond the WDA, and indicative transit corridors therefore need to be considered when determining potential connectivity for marine SPAs and terrestrial SPAs with breeding red-throated diver qualifying features. As noted earlier, indicative ports and harbours that could be used by the Project are Kishorn, Stornoway, Hunterston, Oban, Port Ellen, Bendoran (Mull), Campbeltown, and King George V (Glasgow) (see **Figure 7.1**).
- 224. As above for seabirds, any impacts on the breeding red-throated diver features of these marine SPAs will be assessed through an assessment of impacts on the functionally linked terrestrial SPA. No ports are within 15 km of a marine SPA with red-throated diver as a qualifying feature, however, the indicative transit corridors from Kishorn and Stornoway would pass within 15 km of West Coast of the Outer Hebrides SPA (as shown on **Figure 7.1**). The functionally linked terrestrial SPA for breeding red-throated diver is Mointeach Scadabhaigh SPA (Lewis Peatlands SPA is beyond range of the West Coast of the Outer Hebrides SPA).

Table 7.18 UK marine SPAs with red-throated diver as a qualifying feature.

Marine SPA with breeding red-throated diver as a qualifying feature (grey shading indicates screened out)	Distance to WDA (km)	Within 15km of vessel route	Functionally linked terrestrial SPA
Rum	85	No	Rum
Bluemull and Colgrave Sounds	592	No	Otterswick and Graveland
East Mainland Coast, Shetland	548	No	Otterswick and Graveland
North Orkney	380	No	Orkney Mainland Moors
Scapa Flow	355	No	Hoy; Orkney Mainland Moors
West Coast of the Outer Hebrides	95	Yes	Mointeach Scadabhaigh

²⁷ <https://jncc.gov.uk/our-work/spas-with-marine-components/>



7.6.2.4.2 Terrestrial SPAs with breeding red-throated diver SPAs

225. Red-throated divers forage in the marine environment during the breeding season. Consequently, there could be potential for activities associated with construction and operation of the Project in the marine environment (outside of a marine SPA) to impact red-throated diver qualifying features of terrestrial SPAs. **Table 7.19** lists all UK SPAs with breeding red-throated diver qualifying features and distance to the WDA. All ROI breeding red-throated diver SPAs are well beyond theoretical connectivity range, as are both UK Ramsar sites (Caithness & Sutherland Peatlands, and Ronas Hill – North Roe and Tingon).
226. NatureScot advises that a foraging range of 9 km should be used for breeding red-throated divers (NatureScot Guidance Note #3). None of these terrestrial SPAs are however within 9 km of the WDA, port or vessel routes, and so all are screened out under this criterion. Mointeach Scadabhaigh has however been screened in due to its possible connectivity with the West Coast of the Outer Hebrides marine SPA as shown above in **Table 7.18**.

Table 7.19 Terrestrial UK SPAs with breeding red-throated diver as a qualifying feature.

Terrestrial SPA with breeding red-throated diver as a qualifying feature (grey shading indicates screened out)	At-sea Distance to WDA (km)	Within 9km of vessel route
Caithness and Sutherland Peatlands	242	No
Foula	511	No
Hermaness, Saxa Vord and Valla Field	607	No
Hoy	351	No
Lewis Peatlands	209	No
Mointeach Scadabhaigh	161	No (but screened in due to theoretical connectivity under criteria for marine SPA connectivity)
Orkney Mainland Moors	372	No
Otterswick and Graveland	583	No
Ronas Hill - North Roe and Tingon	570	No
Rum	85	No

7.6.3 Long-list of European sites with Theoretical Connectivity with the Project

227. Based on the screening processes outlined in the previous sections, relating to different types of European sites and qualifying features, **Table 7.20** to **Table 7.23** lists all the UK, ROI and Isle of Man SPAs, Ramsar sites and ASP identified as having theoretical connectivity with the WDA and associated ports and vessel routes. All of these sites with theoretical connectivity are taken forward for determination of LSE.
228. This table does not include sites with theoretical connectivity due to migratory birds (excluding seabirds) only. Theoretical connectivity for sites with migratory species (excluding seabirds) is dealt with in **Section 7.6.4**.



Table 7.20 UK SPAs and Isle of Man ASP with theoretical connectivity to the Project, showing associated qualifying features and reason for connectivity.

SPA Name	Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore wintering waterfowl	Functionally linked colonies to marine SPAs with breeding seabird features	Breeding season Red-throated Diver (RTD) features of terrestrial and marine SPAs
Ayres Gravel Pits ASP	Lesser black-backed gull	Yes	Yes	-	-	-
Ayres Gravel Pits ASP	Black-headed gull	-	Yes	-	-	-
Ayres Gravel Pits ASP	Arctic tern	-	Yes	-	-	-
Ailsa Craig	Black-legged kittiwake	Yes	Yes	-	-	-
Ailsa Craig	Lesser black-backed gull	Yes	Yes	-	-	-
Ailsa Craig	Northern gannet	Yes	Yes	-	-	-
Anglesey Terns / Morwenoliaid Ynys Môn	Arctic tern	-	Yes	-	-	-
Anglesey Terns / Morwenoliaid Ynys Môn	Common tern	-	Yes	-	-	-
Anglesey Terns / Morwenoliaid Ynys Môn	Sandwich tern	-	Yes	-	-	-
Bowland Fells	Lesser black-backed gull	-	Yes	-	-	-
Buchan Ness to Collieston Coast	Northern fulmar	Yes	-	-	-	-
Caithness and Sutherland Peatlands	Red-throated diver	-	Yes	-	-	-
Calf of Eday	Northern fulmar	Yes	-	-	-	-
Canna and Sanday	Atlantic puffin	Yes	Yes	-	-	-
Canna and Sanday	Black-legged kittiwake	Yes	Yes	-	-	-
Canna and Sanday	European shag	-	Yes	-	-	-
Cape Wrath	Atlantic puffin	-	Yes	-	-	-
Cape Wrath	Black-legged kittiwake	Yes	Yes	-	-	-
Cape Wrath	Northern fulmar	Yes	Yes	-	-	-
Cape Wrath	Razorbill	-	Yes	-	-	-
Carlingford Lough	Common tern	-	Yes	-	-	-
Carlingford Lough	Sandwich tern	-	Yes	-	-	-
Coll and Tiree	Common eider	-	-	Yes	-	-
Coll and Tiree	Great northern diver	-	-	Yes	-	-
Copeland Islands	Manx shearwater	Yes	-	-	-	-
Copinsay	Northern fulmar	Yes	-	-	-	-
Dungeness, Romney Marsh and Rye Bay	Mediterranean gull	-	Yes	-	-	-
East Caithness Cliffs	Northern fulmar	Yes	-	-	-	-
Fair Isle	Great skua	Yes	-	-	-	-
Fair Isle	Northern fulmar	Yes	-	-	-	-
Fetlar	Great skua	Yes	-	-	-	-
Fetlar	Northern fulmar	Yes	-	-	-	-
Flannan Isles	Atlantic puffin	Yes	Yes	-	-	-
Flannan Isles	Black-legged kittiwake	Yes	Yes	-	-	-
Flannan Isles	Leach's storm-petrel	Yes	Yes	-	-	-
Flannan Isles	Northern fulmar	Yes	Yes	-	-	-
Flannan Isles	Razorbill	-	Yes	-	-	-
Foula	Great skua	Yes	-	-	Yes	-
Foula	Leach's storm-petrel	Yes	-	-	-	-
Foula	Northern fulmar	Yes	-	-	-	-
Fowlsheugh	Northern fulmar	Yes	-	-	-	-
Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	Manx shearwater	Yes	Yes	-	-	-
Glas Eileanan	Common tern	-	Yes	-	-	-
Grassholm	Northern gannet	Yes	Yes	-	-	-
Handa	Black-legged kittiwake	Yes	Yes	-	-	-
Handa	Great skua	Yes	Yes	-	-	-

SPA Name	Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore wintering waterfowl	Functionally linked colonies to marine SPAs with breeding seabird features	Breeding season Red-throated Diver (RTD) features of terrestrial and marine SPAs
Handa	Northern fulmar	Yes	Yes	-	-	-
Handa	Razorbill	-	Yes	-	-	-
Hermaness, Saxa Vord and Valla Field	Great skua	Yes	-	-	-	-
Hermaness, Saxa Vord and Valla Field	Northern fulmar	Yes	-	-	-	-
Hoy	Great skua	Yes	-	-	-	-
Hoy	Northern fulmar	Yes	-	-	-	-
Irish Sea Front	Manx shearwater	Yes	-	-	-	-
Isles of Scilly	European storm-petrel	-	Yes	-	-	-
Isles of Scilly	Lesser black-backed gull	-	Yes	-	-	-
Larne Lough	Common tern	-	Yes	-	-	-
Larne Lough	Mediterranean gull	-	Yes	-	-	-
Larne Lough	Sandwich tern	-	Yes	-	-	-
Lewis Peatlands	Red-throated diver	-	Yes	-	-	-
Lough Neagh and Lough Beg	Common tern	-	Yes	-	-	-
Mingulay and Berneray	Atlantic puffin	Yes	Yes	-	-	-
Mingulay and Berneray	Black-legged kittiwake	Yes	Yes	-	-	-
Mingulay and Berneray	Common guillemot	Yes	Yes	-	-	-
Mingulay and Berneray	European shag	-	Yes	-	-	-
Mingulay and Berneray	Northern fulmar	Yes	Yes	-	-	-
Mingulay and Berneray	Razorbill	Yes	Yes	-	-	-
Mointeach Scadabhaigh	Red-throated diver	-	Yes	-	-	Yes
Monach Islands	Little tern	-	Yes	-	-	-
Morecambe Bay and Duddon Estuary	Lesser black-backed gull	-	Yes	-	-	-
Morecambe Bay and Duddon Estuary	Little tern	-	Yes	-	-	-
Morecambe Bay and Duddon Estuary	Sandwich tern	-	Yes	-	-	-
North Caithness Cliffs	Northern fulmar	Yes	-	-	-	-
North Colonsay and Western Cliffs	Black-legged kittiwake	Yes	Yes	-	-	-
North Colonsay and Western Cliffs	Common guillemot	Yes	Yes	-	-	-
North Rona and Sula Sgeir	Atlantic puffin	-	Yes	-	-	-
North Rona and Sula Sgeir	Black-legged kittiwake	-	Yes	-	-	-
North Rona and Sula Sgeir	European storm-petrel	Yes	Yes	-	-	-
North Rona and Sula Sgeir	Great black-backed gull	-	Yes	-	-	-
North Rona and Sula Sgeir	Leach's storm-petrel	Yes	Yes	-	-	-
North Rona and Sula Sgeir	Northern fulmar	Yes	Yes	-	-	-
North Rona and Sula Sgeir	Northern gannet	Yes	Yes	-	-	-
North Rona and Sula Sgeir	Razorbill	-	Yes	-	-	-
Noss	Great skua	Yes	-	-	-	-
Noss	Northern fulmar	Yes	-	-	-	-
Outer Ards	Arctic tern	-	Yes	-	-	-
Outer Firth of Forth and St Andrews Bay Complex	Manx shearwater	Yes	-	-	Yes (unknown SPAs)	-
Poole Harbour	Mediterranean gull	-	Yes	-	-	-
Priest Island (Summer Isles)	European storm-petrel	Yes	Yes	-	-	-
Ramna Stacks and Gruney	Leach's storm-petrel	Yes	-	-	-	-
Rathlin Island	Black-legged kittiwake	Yes	Yes	-	-	-
Rathlin Island	Common guillemot	Yes	Yes	-	-	-
Rathlin Island	Razorbill	Yes	Yes	-	-	-



SPA Name	Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore wintering waterfowl	Functionally linked colonies to marine SPAs with breeding seabird features	Breeding season Red-throated Diver (RTD) features of terrestrial and marine SPAs
Ribble and Alt Estuaries	Black-headed gull	-	Yes	-	-	-
Ribble and Alt Estuaries	Common tern	-	Yes	-	-	-
Ribble and Alt Estuaries	Lesser black-backed gull	-	Yes	-	-	-
Ronas Hill - North Roe and Tingon	Great skua	Yes	-	-	-	-
Rousay	Northern fulmar	Yes	-	-	-	-
Rum	Black-legged kittiwake	Yes	Yes	-	-	-
Rum	Common guillemot	Yes	Yes	-	-	-
Rum	Manx shearwater	Yes	Yes	-	-	-
Rum	Red-throated diver	-	Yes	-	-	-
Seas off Foula	Great skua	Yes	-	-	-	-
Seas off St Kilda	Atlantic puffin	Yes	-	-	-	-
Seas off St Kilda	European storm-petrel	Yes	Yes	-	-	-
Seas off St Kilda	Northern fulmar	Yes	-	-	-	-
Seas off St Kilda	Northern gannet	Yes	-	-	-	-
Sheep Island	Great cormorant	-	Yes	-	-	-
Shiant Isles	Atlantic puffin	Yes	Yes	-	-	-
Shiant Isles	Black-legged kittiwake	Yes	Yes	-	-	-
Shiant Isles	European shag	-	Yes	-	-	-
Shiant Isles	Northern fulmar	Yes	Yes	-	-	-
Shiant Isles	Razorbill	-	Yes	-	-	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Atlantic puffin	-	Yes	-	-	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	European storm-petrel	-	Yes	-	-	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Lesser black-backed gull	-	Yes	-	-	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Manx shearwater	Yes	Yes	-	Yes	-
Solent and Southampton Water	Mediterranean gull	-	Yes	-	-	-
Sound of Gigha	Common eider	-	-	Yes	-	-
Sound of Gigha	Great northern diver	-	-	Yes	-	-
Sound of Gigha	Red-breasted merganser	-	-	Yes	-	-
Sound of Gigha	Slavonian grebe	-	-	Yes	-	-
South Uist Machair and Lochs	Little tern	-	Yes	-	-	-
St Kilda	Atlantic puffin	Yes	Yes	-	Yes	-
St Kilda	Black-legged kittiwake	Yes	Yes	-	-	-
St Kilda	European storm-petrel	Yes	Yes	-	Yes	-
St Kilda	Great skua	Yes	Yes	-	-	-
St Kilda	Leach's storm-petrel	Yes	Yes	-	-	-
St Kilda	Manx shearwater	Yes	Yes	-	-	-
St Kilda	Northern fulmar	Yes	Yes	-	Yes	-
St Kilda	Northern gannet	Yes	Yes	-	Yes	-
St Kilda	Razorbill	-	Yes	-	-	-
Strangford Lough	Arctic tern	-	Yes	-	-	-
Strangford Lough	Common tern	-	Yes	-	-	-
Strangford Lough	Sandwich tern	-	Yes	-	-	-
Sule Skerry and Sule Stack	Atlantic puffin	-	Yes	-	-	-
Sule Skerry and Sule Stack	European shag	-	Yes	-	-	-
Sule Skerry and Sule Stack	European storm-petrel	-	Yes	-	-	-

SPA Name	Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore wintering waterfowl	Functionally linked colonies to marine SPAs with breeding seabird features	Breeding season Red-throated Diver (RTD) features of terrestrial and marine SPAs
Sule Skerry and Sule Stack	Leach's storm-petrel	Yes	Yes	-	-	-
Sule Skerry and Sule Stack	Northern gannet	Yes	Yes	-	-	-
Sumburgh Head	Northern fulmar	Yes	-	-	-	-
The Dee Estuary	Common tern	-	Yes	-	-	-
The Dee Estuary	Little tern	-	Yes	-	-	-
Treshnish Isles	European storm-petrel	Yes	Yes	-	-	-
Troup, Pennan and Lion's Heads	Northern fulmar	Yes	-	-	-	-
West Coast of the Outer Hebrides	Black-throated diver	-	-	Yes	-	-
West Coast of the Outer Hebrides	Common eider	-	-	Yes	-	-
West Coast of the Outer Hebrides	Great northern diver	-	-	Yes	-	-
West Coast of the Outer Hebrides	Long-tailed duck	-	-	Yes	-	-
West Coast of the Outer Hebrides	Red-breasted merganser	-	-	Yes	-	-
West Coast of the Outer Hebrides	Red-throated diver	-	-	-	-	Yes
West Coast of the Outer Hebrides	Slavonian grebe	-	-	Yes	-	-
West Westray	Northern fulmar	Yes	-	-	-	-

Table 7.21 Article 4.2 assemblage species of UK SPAs with theoretical connectivity to the Project, showing associated qualifying features and reason for connectivity.

SPA Name	Assemblage Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore wintering waterfowl	Functionally linked colonies to marine SPAs with breeding seabird features	Breeding season RTD features of terrestrial and marine SPAs
Flamborough and Filey Coast	Northern fulmar	Yes	-	-	-	-
Morecambe Bay and Duddon Estuary	Black-headed gull	-	Yes	-	-	-
Morecambe Bay and Duddon Estuary	Common eider	-	Yes	-	-	-
Morecambe Bay and Duddon Estuary	Great cormorant	-	Yes	-	-	-
Morecambe Bay and Duddon Estuary	Mew gull	-	Yes	-	-	-
Rathlin Island	Atlantic puffin	Yes	Yes	-	-	-
Rathlin Island	Common eider	-	Yes	-	-	-
Rathlin Island	European shag	-	Yes	-	-	-
Rathlin Island	Herring gull	Yes	Yes	-	-	-
Rathlin Island	Lesser black-backed gull	Yes	Yes	-	-	-
Rathlin Island	Mew gull	-	Yes	-	-	-
Rathlin Island	Northern fulmar	Yes	Yes	-	-	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Black-legged kittiwake	-	Yes	-	-	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Razorbill	-	Yes	-	-	-

Table 7.22 Qualifying features of ROI SPAs with theoretical connectivity to the Project, showing associated qualifying features and reason for connectivity.

SPA Name	Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore wintering waterfowl	Functionally linked colonies to marine SPAs with breeding seabird features
Aughris Head SPA	Black-legged kittiwake	Yes	-	-	-
Beara Peninsula SPA	Northern fulmar	Yes	-	-	-
Bills Rocks SPA	European storm-petrel	Yes	-	-	-



SPA Name	Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore wintering waterfowl	Functionally linked colonies to marine SPAs with breeding seabird features
Basket Islands SPA	Manx shearwater	Yes	-	-	Yes
	Northern fulmar	Yes	-	-	-
Clare Island SPA	Northern fulmar	Yes	-	-	-
Cliffs of Moher SPA	Northern fulmar	Yes	-	-	-
Cruagh Island SPA	Manx shearwater	Yes	-	-	Yes
Deenish Island and Scariff Island SPA	Manx shearwater	Yes	-	-	Yes
Deenish Island and Scariff Island SPA	Northern fulmar	Yes	-	-	-
Dingle Peninsula SPA	Northern fulmar	Yes	-	-	-
Duvillaun Islands SPA	European storm-petrel	Yes	-	-	-
	Northern fulmar	Yes	-	-	-
High Island, Inishshark and Davillaun SPA	Northern fulmar	Yes	-	-	-
Horn Head to Fanad Head SPA	Black-legged kittiwake	Yes	-	-	-
	Common guillemot	Yes	-	-	-
	Northern fulmar	Yes	-	-	-
Illanmaster SPA	Razorbill	Yes	-	-	-
	European storm-petrel	Yes	-	-	-
	Lesser black-backed gull	Yes	-	-	-
Inishbofin, Inishdooney and Inishbeg SPA	Lesser black-backed gull	Yes	-	-	-
Inishglora and Inishkeeragh SPA	European storm-petrel	Yes	-	-	-
Iveragh Peninsula SPA	Northern fulmar	Yes	-	-	-
Kerry Head SPA	Northern fulmar	Yes	-	-	-
Lambay Island SPA	Black-legged kittiwake	Yes	-	-	Yes
	Northern fulmar	Yes	-	-	Yes
Lough Derg (Donegal) SPA	Lesser black-backed gull	Yes	-	-	-
North-west Irish Sea SPA	Atlantic puffin	Yes	-	-	-
	Black-legged kittiwake	Yes	-	-	-
	Manx shearwater	Yes	-	-	-
	Northern fulmar	Yes	-	-	-
Puffin Island SPA	Manx shearwater	Yes	-	-	Yes
	Northern fulmar	Yes	-	-	-
Saltee Islands SPA	Northern fulmar	Yes	-	-	Yes
	Northern gannet	Yes	-	-	Yes
Seas off Wexford SPA	Manx shearwater	Yes	-	-	-
	Northern fulmar	Yes	-	-	-
	Northern gannet	Yes	-	-	-
Skelligs SPA	Manx shearwater	Yes	-	-	-
	Northern fulmar	Yes	-	-	-
Stags of Broad Haven SPA	European storm-petrel	Yes	-	-	-
	Leach's storm-petrel	Yes	-	-	-
Tory Island SPA	Atlantic puffin	Yes	-	-	-
	Northern fulmar	Yes	-	-	-
	Razorbill	Yes	-	-	-
West Donegal Coast SPA	Black-legged kittiwake	Yes	-	-	-
	Northern fulmar	Yes	-	-	-



Table 7.23 Qualifying features of UK Ramsar sites with theoretical connectivity to the Project, showing associated qualifying features and reason for connectivity.

Ramsar Site Name	Qualifying Feature	Breeding seabird feature in breeding season	Breeding seabird feature in non-breeding season	Inshore Vessel Routes
Caithness and Sutherland Peatlands	Arctic skua	-	Yes	-
Caithness and Sutherland Peatlands	Red-throated diver	-	Yes	-
Carlingford Lough	Common tern	-	Yes	-
Carlingford Lough	Sandwich tern	-	Yes	-
Chichester and Langstone Harbours	Black-headed gull	-	Yes	-
Chichester and Langstone Harbours	Mediterranean gull	-	Yes	-
Duddon Estuary	Little tern	-	Yes	-
Duddon Estuary	Sandwich tern	-	Yes	-
Exe Estuary	Little tern	-	Yes	-
Isles of Scilly	European storm-petrel	-	Yes	-
Isles of Scilly	Lesser black-backed gull	-	Yes	-
Larne Lough	Black-headed gull	-	Yes	-
Lewis Peatlands	Arctic skua	-	Yes	-
Loch an Duin	Common tern	-	Yes	-
Lough Neagh and Lough Beg	Lesser black-backed gull	Yes	-	-
Morecambe Bay	Black-headed gull	-	Yes	-
Morecambe Bay	Lesser black-backed gull	-	Yes	-
Morecambe Bay	Sandwich tern	-	Yes	-
North Uist Machair and Islands	Little tern	-	Yes	-
Outer Ards	Manx shearwater	Yes	Yes	-
Ribble and Alt Estuaries	Black-headed gull	-	Yes	-
Ribble and Alt Estuaries	Common tern	-	Yes	-
Ribble and Alt Estuaries	Lesser black-backed gull	-	Yes	-
Severn Estuary	Lesser black-backed gull	-	Yes	-
Sléibhteán agus Cladach Thiriodh (Tiree Wetlands and Coast)	Little tern	-	Yes	-
Solent and Southampton Water	Black-headed gull	-	Yes	-
Solent and Southampton Water	Mediterranean gull	-	Yes	-
South Uist Machair and Lochs	Little tern	-	Yes	-
Strangford Lough	Arctic tern	-	Yes	-
Strangford Lough	Black-headed gull	-	Yes	-
Strangford Lough	Common tern	-	Yes	-
Strangford Lough	Great cormorant	-	Yes	-
Strangford Lough	Lesser black-backed gull	Yes	Yes	-
Strangford Lough	Mew gull	-	Yes	-
Strangford Lough	Sandwich tern	-	Yes	-
The Dee Estuary	Common tern	-	Yes	-
The Dee Estuary	Little tern	-	Yes	-
Upper Solway Flats and Marshes	Lesser black-backed gull	-	Yes	-
Upper Solway Flats and Marshes	Little tern	-	Yes	-



7.6.4 Establishing Theoretical Connectivity for SPAs with migratory bird features, excluding seabirds

229. NatureScot's Guidance Note #4 advises that the proximity of a project to migratory flyways should be considered, and provided the following advice in relation to this:

"...the proximity to migratory flyways should be considered qualitatively in relation to the offshore wind development. There is an ongoing Marine Scotland project to include an updated review of flyways and provision of a migratory collision risk modelling tool."

230. NatureScot advice (27 March 2024) on the West of Orkney Windfarm application stated that for migratory species:

"...an updated review of migratory routes and vulnerabilities across the UK has been published by Marine Directorate and The Crown Estate. This updated review should be used."

231. This updated review (Woodward et al., 2023) has been used here to determine which migratory species could pass through or close to the WDA, using the review's indicative flyways and migratory routes.

232. Theoretical connectivity was therefore considered for SPAs with migratory bird qualifying features, including non-breeding waterbirds but excluding seabirds which are considered elsewhere. Using the maps of indicative migratory routes in Woodward et al. (2023), any species (excluding seabirds) with a route corridor that included the WDA were assumed to potentially pass through the WDA during migration.

233. Based on this filtering process, the migratory species which were identified as having theoretical connectivity are shown in Tables in **Appendix 1**, alongside the SPAs or Ramsar sites where that migratory species is a qualifying feature. During Scoping consultation, NatureScot agreed on a list of some migratory species that could be screened out for theoretical connectivity. The majority of these have been screened out already due to the process described above, however, two further species, marsh harrier and great bittern, were also listed by NatureScot, and have therefore been screened out (from UK SPAs where they are qualifying features).

7.7 STEP 2: DETERMINING LIKELY SIGNIFICANT EFFECT

7.7.1 Likely Significant Effect

234. For all sites identified as having theoretical connectivity with the Project in Step 1, the second step of the screening exercise is to determine whether there may be a potential pathway for LSE, and hence a requirement for AA.

235. NatureScot guidance on the HRA process²⁸ states that, at the screening stage, *"If there is no connection, or it is obvious that the proposal will not undermine the conservation objectives despite a connection, conclude no likely significant effect."* If detailed information is required to assess whether there is an LSE, it is assumed that it is not 'obvious' that there is no LSE. This is consistent with Tyldesley and Associates (2015) HRA guidance which states that, *"The test of significance is where a plan or project could undermine the site's conservation objectives"*.

²⁸ [https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra#Introduction+to+Habitats+Regulations+Appraisal+\(HRA\)](https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra#Introduction+to+Habitats+Regulations+Appraisal+(HRA)).



236. Tyldesley and Associates (2015) also states that the term 'likely', in this context, "*should not simply be interpreted as 'probable' or 'more likely than not', but rather whether a significant effect can objectively be ruled out.*"
237. The determination of LSE for each SPA is therefore based on the above principles, by identifying whether there is an impact pathway for any associated qualifying features, based on guidance and other evidence on sensitivities of particular species to identified impacts. For breeding seabirds and red-throated diver, an additional check of baseline survey data is carried out in **Section 7.7.2**, to determine whether species are present within the WDA in more than 'trivial' numbers; any species that had fewer than a total of 10 records (sitting and flying) within the WDA plus 4 km buffer, across all 30 surveys, was considered to have a 'trivial' abundance.

7.7.2 Establishing non-trivial abundance for seabird qualifying features

238. The first step to establishing LSE for seabirds is to identify which species were present in the WDA plus 4 km buffer in 'non-trivial' numbers. This area was used to characterise baseline seabird distribution and abundance for the Project (see **Appendix 11.2: Baseline Site Characterisation** of the EIA). Monthly digital aerial surveys of the WDA plus 4 km buffer, over a 30-month period recorded the numbers of individuals of different species present in surveyed areas. The total raw counts are presented in **Table 7.24. Appendix 11.2: Baseline Site Characterisation** of the EIA gives more information on the raw numbers of birds recorded and extrapolated abundance and density estimates by individual survey, calendar month, season and year.
239. Some species were recorded rarely within the WDA plus 4 km buffer. For this screening process, any species that had a 'trivial' abundance (taken as any species that had fewer than a total of 10 records (sitting and flying) within the WDA plus 4km buffer, across all 30 surveys, see **Table 7.24**) were screened out as it can be reasonably concluded that the Project will not result in an LSE on any SPA because of impacts upon these species. Note, species recorded in trivial numbers, or absent, could still be subject to impacts under a different pathway, for example, due to vessel movements outside of the WDA, or on migration, as considered below.
240. Fifteen species were recorded within the WDA plus 4 km buffer in non-trivial numbers (**Table 7.24**). Raw counts from a survey were categorised as being from the breeding season or non-breeding season according to the breeding season definitions provided in NatureScot Guidance Note #9²⁹. Most species were present in both the breeding and non-breeding season. Of the 15 species present in non-trivial numbers, three species were not observed in the WDA plus 4 km buffer in the non-breeding season: European storm-petrel, Arctic tern and common tern, with Manx shearwater being near-absent during its non-breeding season (recorded in non-trivial numbers in late March each year, with breeding season defined as being from April to mid-October).
241. Methods for establishing LSE for European sites which have as qualifying features, any of the 15 species present in non-trivial numbers, differ for the breeding and non-breeding seasons. Each is considered in turn in the following section.

Table 7.24 Total raw counts of species recorded within the WDA plus 4 km buffer during the Project's baseline survey programme.

Species	Total Raw Count (grey shading indicates 'trivial' abundance)
Common guillemot	76,809

²⁹ [Guidance Note 9 - Guidance to support Offshore Wind Applications: Seasonal periods for Birds in the Scottish Marine Environment | NatureScot.](#)



Species	Total Raw Count (grey shading indicates 'trivial' abundance)
Razorbill	13,393
Manx shearwater	11,605
Black-legged kittiwake	9,899
Atlantic puffin	3,228
Northern gannet	989
Northern fulmar	303
Herring gull	232
Great black-backed gull	225
Arctic tern	156
European storm-petrel	85
Common tern	31
Great skua	27
Mew gull	23
Great northern diver	17
European shag	7
Great cormorant	7
Arctic skua	5
Sooty shearwater*	5
Lesser black-backed gull	2
Red-throated diver	2
European golden plover	1
Great shearwater*	1
Grey phalarope*	1

* not a qualifying feature of any SPA.

7.7.3 Impact Pathways

242. The assessment for LSE combines information on impact pathways and characteristics of qualifying interests as part of a high-level appraisal to determine whether there is potential for any of the conservation objectives relating to the qualifying interests of an SPA to be undermined on the basis of the potential impacts. Where there is no potential for the conservation objective to be undermined, it is concluded that there is no LSE, i.e. LSE was ruled out, and that site is screened out from AA.

243. NatureScot Guidance Note #3 advises that:

“Once the initial list of SPA qualifying features with theoretical connectivity is produced, it can be refined further... Species impact pathways, and sensitivity to an impact will also inform decisions on LSE.”



244. Determining LSE is therefore informed by species' impact pathways, results of site characterisation surveys and species sensitivity to impacts. These pathways may occur during the construction, O&M, and/or decommissioning stages of the Project.

245. NatureScot Guidance Note #6 provides advice on the impact pathways by which marine bird species can be impacted by offshore wind developments, to be considered as part of an HRA:

“The two key impact pathways identified for offshore wind energy are collision risk, when marine birds fly and collide with the rotating turbine blades, leading to direct mortality; and distributional responses such as displacement and barrier effects, which is the effective loss of habitat/barriers to movement resulting in energetic stress to marine birds - which can have consequences on fitness including survival rates and productivity. These impacts can occur at any time of the year. There are a number of other impacts that may also arise from an offshore wind farm development and associated works, including changes to prey distribution, pollution and disturbance due to installation of export cables.”

246. Additionally, NatureScot Guidance Note #4 advises on impact pathways to consider for marine SPAs:

“For all marine SPA qualifying features, we advise that the following points are considered with regard to impact pathways and determining LSE:

- *Will the development cause any injury or mortality to the qualifying features either within or outwith the marine SPA?*
- *Will disturbance/displacement result in a redistribution of birds within the marine SPA? It is important to consider all aspects of the development including associated works and activities, e.g. wet storage locations, cable routes or vessel movements associated with construction, operation including maintenance and repair or decommissioning works.*
- *Will the development provide a barrier in terms of access to birds flying to or from the marine SPA (e.g. commuting to roosts off-site, breeding locations)? Flight direction data or tracking studies may be helpful in determining if there are any important commuting routes.*
- *Are there any direct impacts on prey or supporting habitat within the marine SPA? For example, a cabling route within or directly adjacent to a marine SPA or barriers to fish movement that may impact on prey populations and habitats within the SPA.*
- *Are there any indirect impacts on supporting habitats and supporting processes e.g. water flow or quality that may alter the foraging resource? Consideration is required for when there is an impact pathway which affects the ability of the marine SPA to maintain the current extent, quality and distribution of supporting habitats, as well as ensuring a sufficient food supply within the site.”*

247. As determined in Step 1, **Section 7.6.2.3**, there would be no direct effects on marine SPAs due to the Project, either via the WDA or vessel routes. Possible indirect effects were however identified due to impacts on qualifying features of marine SPAs which are also qualifying features of functionally linked breeding seabird colony SPAs, i.e., where a breeding colony is within foraging range of the SPA. For the purposes of this screening process, and the associated RIAA, it has been assumed that should there be an LSE identified for a functionally linked SPA, then it follows that an LSE can also be concluded for the associated marine SPA.

7.7.4 Impact Pathways Considered for LSE

248. Based on the above guidance, impact pathways that are screened in are presented in **Table 7.25**. This includes attraction to lighting impacts and construction vessel activity, as discussed below.



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249. These pathways may occur during the pre-construction, construction, O&M, and decommissioning stages of the Project. An explanation for why each impact pathway was screened in or out for each type of SPA is provided.
250. The potential impact pathways for two other identified possible impacts, accidental pollution and ghost fishing, have been screened out of further assessment. Accidental pollution, e.g. oil spills, is screened out as an impact pathway due to being controlled through other legislation. Ghost fishing, which may pose an entanglement risk to diving birds, has been screened out because the assessment is for fixed WTG foundations only (i.e., no floating WTGs) and therefore there will be no cables/moorings in the water column within the WDA.



Table 7.25 Impact pathways screened into the AA for the Project. Where an impact pathway has been identified for a particular SPA qualifying feature type, this is given as a 'Y'. Where no impact pathway is identified, this is a 'N'.

Impact pathway	Potential pathways due to Project	Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Breeding red-throated divers (terrestrial and marine SPAs)	Migratory species (excluding seabirds)
Construction (including pre-construction) and decommissioning							
1. Disturbance and/or displacement	Visual, noise or vibration disturbance due to construction within the WDA, including vessel movements to and from port.	Y	Y	Y	Y	Y	N
2. Direct and indirect impacts on prey or supporting habitat	Disturbance and/or displacement of prey due to visual, noise or vibration disturbance. Loss of habitat for prey due to temporary or permanent infrastructure. Sedimentation impacts on ability of birds to forage, or on prey species.	Y	Y	N	Y	N	N
3. Lighting impacts from construction vessels and project infrastructure	Displacement, attraction or disorientation.	Y (shearwaters, storm-petrels and Atlantic puffin)	N	N	Y (shearwaters & storm-petrels)	N	N
Operation & Maintenance							
4. Collision risk	Injury and mortality	Y	Y	N	Y	N	Y
5. Disturbance and/or displacement (including barrier effects)	Visual or noise disturbance around WTGs, other infrastructure or vessels resulting in direct habitat loss. Prevention or re-routing of foraging or commuting movements due to presence of turbines.	Y	Y	Y	Y	Y	N
6. Direct and indirect impacts on prey or supporting habitat	Noise or electro-magnetic field impacts on prey species. Creation of hard substrates for prey species. Changes in	Y	Y	N	Y	N	N



Impact pathway	Potential pathways due to Project	Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Breeding red-throated divers (terrestrial and marine SPAs)	Migratory species (excluding seabirds)
	water flow or suspended sediment levels due to permanent infrastructure						
7. Lighting impacts from Project infrastructure and vessels	Displacement, attraction or disorientation.	Y (shearwaters , storm-petrels and Atlantic puffin)	N	N	Y (shearwaters & storm-petrels)	N	N



7.7.5 Construction Impact Pathways

251. Construction impact pathways will be temporary in nature, with a maximum duration of the construction period.

7.7.5.1 Disturbance and/or Displacement

252. Disturbance and/or displacement of seabirds and wintering waterfowl could occur during construction and may be caused by construction vessels and installation of Project infrastructure. This would be temporary and localised to the area of construction activity within the WDA or along Indicative vessel transit corridors. As construction proceeds and more of the Project is built, the potential for displacement could increase, particularly as WTGs become operational. As advised by NatureScot in their Scoping Response, impacts due to UXO clearance activity within the WDA during the preconstruction / construction phase should also be considered for seabirds.

253. Some species of seaduck and divers are particularly sensitive to the presence of shipping and offshore wind farm infrastructure. Auks and gannets are also known to be susceptible to displacement (Furness et al., 2013; Bradbury et al., 2014; Joint Interim Displacement Advice Note, 2022³⁰; NatureScot Guidance Note #8³¹) and temporary displacement could occur during construction, both within the WDA as well as along construction vessel transit corridors and lie up/sheltering areas. Gulls are generally not displaced (Furness et al., 2013; Bradbury et al., 2014; NatureScot Guidance Note #7³²), with the possible exception of black-legged kittiwake. Terns are considered sensitive to displacement, and additionally, northern fulmar has also been determined to be potentially subject to displacement impacts and has been screened in based on advice received from consultees during the consultation programme for the Project.

254. Migratory species (excluding seabirds) are assumed to not be affected by disturbance or displacement as they are briefly passing through the area and are not stopping to use the site. Most of the migratory species are unable to land on the sea, e.g. waders, raptors or even if they can land, they cannot forage far offshore, e.g. geese, ducks (excluding seaducks).

255. This impact pathway is therefore screened in for all auk, diver and seaduck species which are qualifying features of SPAs where there is theoretical connectivity, and which were recorded in non-trivial numbers within the WDA and 4 km buffer, and/or are an inshore wintering waterbird qualifying feature of an SPA which has theoretical connectivity, by being located within 15 km of a vessel route (as per **Table 7.25**). Black-legged kittiwake, northern gannet and northern fulmar are also included.

7.7.5.2 Direct and Indirect Impacts on Prey and Supporting Habitats

256. Construction activity could have temporary effects on prey and supporting habitats, e.g. through underwater noise from piling and suspended sediments in the water column directly impacting prey abundance or availability or water turbidity and noise reducing bird foraging opportunities. This has the potential to affect any species foraging in the WDA. Migratory species (excluding seabirds, divers and seaduck) are not capable of foraging in the offshore marine environment and therefore would not be affected by any changes to prey abundance or availability. Similarly, there are considered to be no impacts on prey and supporting habitats due to vessel movements outside of the WDA.

257. This impact pathway is therefore screened in for all seabird qualifying features of SPAs where there is theoretical connectivity, and which were recorded in non-trivial numbers within the WDA and 4 km buffer (as per **Table 7.25**).

³⁰ <https://jncc.gov.uk/resources/9aecb87c-80c5-4cfb-9102-39f0228dcc9a>

³¹ <https://www.nature.scot/doc/guidance-note-8-guidance-support-offshore-wind-applications-marine-ornithology-advice-assessing>

³² <https://www.nature.scot/doc/guidance-note-7-guidance-support-offshore-wind-applications-marine-ornithology-advice-assessing>



7.7.5.3 Negative impacts from lighting on vessels and Project infrastructure

258. NatureScot advised in their Scoping Response that the potential impacts of lighting attraction and disorientation should be considered during all phases of the proposal, particularly with respect to European storm-petrel, Leach's storm-petrel and Manx shearwater. In response to this advice, the Applicant collaborated with other offshore windfarm projects to commission a review of recent evidence on shearwater and petrel attraction to lighting (Furness et al., 2026).
259. NatureScot advice on the West of Orkney Windfarm HRA suggested that reference should be made to the following sources:
- Offshore wind developments – collision and displacement in petrels and shearwaters: literature review³³;
 - Baker et al. (2022). Towards better estimates of Manx shearwater and European storm-petrel population abundance and trends, demographic rates and at-sea distribution and behaviour; and
 - The ProcBe (Procellariiform Behaviour and Demographics) project³⁴.
260. In addition, information collated by that review (Furness et al., 2026) was also used.
261. Lighting of construction sites, vessels and Project infrastructure at night may potentially be a source of attraction (phototaxis), disorientation or displacement for some species of seabird (Deakin et al., 2022; Furness et al., 2026). Species at risk of negative impacts of lighting are European storm-petrel, Leach's storm-petrel, Manx shearwater, as well as puffin fledglings (Furness, 2018; Furness, et al., 2026; Deakin et al., 2022). Furness et al. (2026) noted that there is evidence from Canada of attraction to offshore infrastructure (drilling platforms), though there is limited evidence from similar structures in the UK. They confirmed the finding of Deakin et al. (2022) that there is no published empirical information on attraction to the lighting of offshore infrastructure at offshore wind farms. Deakin et al. (2022) surmise that the main impact on shearwaters and petrels attracted to offshore wind farms is birds circling turbines and therefore greatly increasing their collision risk. This assumes that these species will be attracted to the lighting at offshore windfarms and that when attracted at night birds will fly at collision risk height. However, Furness et al. (2026) considered the type and intensity of lighting installed at offshore wind farms, compared with the evidence of attraction to other coastal and offshore lit structures where limited attraction has been found at much brighter lighting and concluded that, "*Lower intensity lights are less likely to affect birds. Red lights are less likely to affect birds. Flashing lights are less likely to affect birds. Lights at the top of towers that are shielded so that they do not light below horizontal will not be visible to shearwaters and storm-petrels flying close to sea level. Therefore, it is highly likely that lights on OWF turbines will have no impact on shearwaters or storm-petrels at UK OWFs.*".
262. At Bardsey Island, part of Aberdaron Coast and Bardsey Island SPA, there is a lighthouse 50 to 700 m from the shearwater and storm-petrel colonies (Archer et al., 2015, Trinity House, 2025). Manx shearwaters and European storm-petrels nest on Bardsey Island (Burnell et al., 2023) and breeding Manx shearwaters are a feature of the SPA (Hatton-Ellis et al., 2025).
263. The lighthouse is now equipped with a 52,277-candela red LED light visible from 18 nautical miles away (Trinity House, 2025), which replaced a white light of higher power. There have been no reported groundings since this switch, however, even when the white light was present, during the fledging period there were very few mortalities of Manx shearwater or European storm-petrel fledglings; Stansfield (2010) and Archer et al. (2015) reported up to tens of shearwater fledglings (but no adults) grounded per night during the most misty of nights without moonlight (but almost all

³³ <https://www.gov.scot/publications/review-inform-assessment-risk-collision-displacement-petrels-shearwaters-offshore-wind-developments-scotland/documents/>

³⁴ <https://jncc.gov.uk/our-work/procbe/>



subsequently fledging successfully) and one instance of a European storm-petrel killed by collision. A condition assessment of Manx shearwater in this SPA concluded with high confidence that the condition was favourable, with no threat from artificial lighting at this colony (Hatton-Ellis et al., 2025). Census data indicate population increases of both Manx shearwater and European storm-petrel at Bardsey Island despite the previous high illumination of the lighthouse close to the colonies (Burnell et al., 2023).

264. Puffin fledglings are known to be attracted to light when they first leave the burrow and take their first flight to the sea. However, once fledged, puffins do not show any attraction to or avoidance of artificial lighting. Therefore, there is an impact pathway for Atlantic puffin fledglings to be negatively impacted by artificial lighting for SPAs very close to the WDA and limited to the period of chick fledging. The closest SPA where Atlantic puffin is a breeding qualifying feature is Mingulay and Berneray SPA, which is approximately 85 km from the WDA (straight line distance) so is considered to be too distant for attraction of Atlantic puffin fledglings to artificial light at night within the WDA. Therefore, all SPAs with Atlantic puffin qualifying features were screened out for this impact pathway.
265. Wintering waterfowl and red-throated divers, other seabirds and migratory birds are assumed to not be attracted to lighting due to them not being nocturnally active or burrow nesters and so this impact pathway is screened out for SPAs with these qualifying features.
266. This impact pathway is therefore screened in for breeding Manx shearwater and European storm-petrel as qualifying features of SPAs where there is theoretical connectivity (**Table 7.25**).

7.7.6 Operation & Maintenance Impact Pathways

7.7.6.1 Collision Risk

267. Some species are at higher risk of collision than other species, due to their flight behaviour, whereas others regularly fly low over the sea and are assumed to not be at risk of collision. Those considered to be at low risk of collision include auks, divers and wintering waterfowl. Gulls, terns, gannets, skuas and migratory species, however, are assumed to be at risk of collision due to their wider range of flight heights and flight behaviour (JNCC, Natural England, Natural Resources Wales & NatureScot, 2024³⁵, NatureScot Guidance Note #7³⁶).
268. This impact pathway is therefore screened in for (i) northern gannet, gulls, and/or tern qualifying features of SPAs where there is theoretical connectivity, and which were recorded in non-trivial numbers within the WDA and 4 km buffer; and (ii) other migratory bird species screened in for theoretical connectivity (as per **Table 7.25**). Note that although great skua and mew gull total raw counts were greater than 10 birds (**Table 7.24**), total numbers recorded in flight were below 10 and so these two species were screened out for this, and all other impact pathways due to effective trivial abundance.
269. Wintering waterfowl and breeding red-throated divers are assumed to not be at risk of collision along vessel routes and so this impact pathway is screened out for these qualifying features (as per **Table 7.25**).

7.7.6.2 Disturbance/ Displacement (including barrier effects)

270. The presence of WTGs and other offshore infrastructure has the potential to cause a redistribution of birds including displacement and barrier effects, if birds change their behaviour to actively avoid

³⁵ [Joint advice note from the Statutory Nature Conservation Bodies \(SNCBs\) regarding bird collision risk modelling for offshore wind developments \(jncc.gov.uk\)](https://www.jncc.gov.uk/information-and-services/consultations-and-licensing/consultations/2024/joint-advice-note-from-the-statutory-nature-conservation-bodies-sncbs-regarding-bird-collision-risk-modelling-for-offshore-wind-developments)

³⁶ [Guidance Note #7: Guidance to support Offshore Wind Applications: Marine Ornithology - Advice for assessing collision risk of marine birds | NatureScot](https://www.naturescot.gov.uk/guidance/guidance-note-7-guidance-to-support-offshore-wind-applications-marine-ornithology-advice-for-assessing-collision-risk-of-marine-birds)



infrastructure. This effect could be temporary (if habituation occurs) or permanent. Birds could also be disturbed/displaced by O&M vessels transiting between the WDA and the operation and maintenance base.

271. Red-throated divers and gannets are known to show a strong avoidance/displacement from operational offshore wind farms. Black-throated and great northern divers may also show such avoidance although there is little empirical evidence and some of that suggests that great northern divers may show much less avoidance behaviour than the smaller diver species. Seaducks and auks also show a variable response displacement, with some studies indicating a displacement impact while others show no displacement. (NatureScot Guidance Note #8³⁷, Joint Statutory Nature Conservation Bodies (SNCB) Interim Displacement Advice Note³⁸). Although most studies find no evidence of displacement of black-legged kittiwakes, it is possible that this species might show some displacement. Northern fulmar has also been identified by consultees as having potential displacement impacts.
272. This impact pathway is therefore screened in for SPAs with diver, seaduck, auk, black-legged kittiwake, terns, northern gannet and northern fulmar qualifying features where there is theoretical connectivity, and which were recorded in non-trivial numbers within the WDA and 4 km buffer (as per **Table 7.25**).
273. Migratory birds (excluding seabirds) are assumed to not be displaced as these birds are briefly passing near or through the offshore Project area and are not stopping to use the area for foraging or other behaviours. Theoretically, there is potential for the presence of the Project, once operational, to cause migrating birds to deviate from their intended migration pathway to avoid flying through the wind farm, i.e. barrier effects. At its widest point, the Project is approximately 30 km wide, and any deviation would need to be taken at most twice a year, once on autumn migration and once on spring migration. Given the long distances migratory species are travelling during migration (see e.g., Wernham et al., 2002), this deviation represents a very small change to their migration pathway. It is therefore very unlikely that barrier effects would introduce any material increase in energetic demands, e.g. through longer migration routes. Therefore, this impact pathway is screened out for these qualifying features (as per **Table 7.25**).

7.7.6.3 Direct and Indirect Impacts on Prey and Supporting Processes

274. Presence of the WDA infrastructure, particularly subsea infrastructure, has the potential to alter prey communities and availability, e.g. changes to fish communities following introduction of hard structures. This has the potential to affect all species that are potentially foraging in the WDA.
275. This impact pathway is therefore screened in for all seabird qualifying features of SPAs where there is theoretical connectivity, and which were recorded in non-trivial numbers within the WDA and 4 km buffer. Migratory birds (excluding seabirds) are assumed to not be foraging as they migrate past the WDA and so this impact pathway is screened out for these qualifying features (as per **Table 7.25**). Similarly, there is considered to be no potential for impacts on prey and supporting processes along any vessel route outside of the WDA, and so inshore waterfowl and breeding red-throated divers have been screened out.

7.7.6.4 Negative impacts from lighting on vessels and Project infrastructure

276. During Project O&M, navigational lighting on WTGs and other Project infrastructure as well as lighting on any vessels remaining in the WDA overnight, has the potential to negatively impact petrels,

³⁷ [Guidance Note #8: Guidance to support Offshore Wind Applications: Marine Ornithology Advice for assessing the distributional responses, displacement and barrier effects of Marine birds | NatureScot](#)

³⁸ [Joint SNCB Interim Displacement Advice Note \(jncc.gov.uk\)](#)



shearwaters and puffin fledglings (Deakin et al., 2022; Furness, 2018; Furness et al., 2026). Lighting could potentially be a source of attraction (phototaxis), disorientation or displacement for birds.

277. As described above, no theoretical connectivity exists for SPAs with breeding Atlantic puffin (and therefore puffin fledglings) because of the relatively large distances to the WDA. However, SPAs with European storm-petrel and Manx shearwater breeding qualifying features were screened in for this impact pathway, where there is theoretical connectivity.

278. Wintering waterfowl and red-throated divers, other seabirds and migratory birds are assumed to not be attracted to lighting due to them not being nocturnally active or burrow nesters and so this impact pathway is screened out for SPAs with these qualifying features (**Table 7.25**).

7.7.7 Decommissioning Impact Pathways

279. Decommissioning impacts are difficult to predict with confidence due to the length of time until occurrence, and the likelihood of changing baseline conditions and technological advancements between now and then. Construction impacts are however considered to be similar to those experienced during decommissioning, and so the same impact pathways described for the construction phase are screened in for the decommissioning phase of the Project.

7.8 EUROPEAN SITES CONSIDERED FOR APPROPRIATE ASSESSMENT

280. **Table 7.26** to **Table 7.28** list all the European sites that have been taken forward for AA. A site was screened into AA stage if at least one qualifying feature / interest species for which there was theoretical connectivity also had a potential impact pathway, i.e. LSE could not be ruled out, during any one of the construction, O&M and/or decommissioning stages.

281. For migratory species (excluding seabirds), the list of UK SPAs taken forward to AA remains the same as that determined in **Section 7.6.4** and presented in **Appendix 1**, but the scope of assessment is limited to collision risk during the O&M phase only.



Table 7.26 UK SPAs and qualifying features taken forward for Appropriate Assessment, showing impact pathways.

UK SPA	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine SPAs)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
Ailsa Craig	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Ailsa Craig	Northern gannet	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Anglesey Terns / Morwenoliaid Ynys Môn	Arctic tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Anglesey Terns / Morwenoliaid Ynys Môn	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Buchan Ness to Collieston Coast	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Calf of Eday	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Canna and Sanday	Atlantic puffin	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Canna and Sanday	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Cape Wrath	Atlantic puffin	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Cape Wrath	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Cape Wrath	Northern fulmar	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Cape Wrath	Razorbill	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Carlingford Lough	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Coll and Tiree	Common eider	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
Coll and Tiree	Great northern diver	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
Copeland Islands	Manx shearwater	Yes	-	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Copinsay	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
East Caithness Cliffs	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Fair Isle	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Fetlar	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Flamborough and Filey Coast	Northern fulmar*	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Flannan Isles	Atlantic puffin	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Flannan Isles	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Flannan Isles	Northern fulmar	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Flannan Isles	Razorbill	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-



UK SPA	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine SPAs)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
Foula	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Fowlsheugh	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	Manx shearwater	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Glas Eileanan	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Grassholm	Northern gannet	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Handa	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Handa	Northern fulmar	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Handa	Razorbill	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Hermaness, Saxa Vord and Valla Field	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Hoy	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Irish Sea Front	Manx shearwater	Yes	-	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Isles of Scilly	European storm-petrel	-	Yes	-	-	-	-	Yes	-	-	-	Yes	-
Larne Lough	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Lough Neagh and Lough Beg	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Mingulay and Berneray	Atlantic puffin	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Mingulay and Berneray	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Mingulay and Berneray	Common guillemot	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Mingulay and Berneray	Northern fulmar	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Mingulay and Berneray	Razorbill	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
North Caithness Cliffs	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
North Colonsay and Western Cliffs	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
North Colonsay and Western Cliffs	Common guillemot	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
North Rona and Sula Sgeir	Atlantic puffin	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
North Rona and Sula Sgeir	Black-legged kittiwake	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
North Rona and Sula Sgeir	European storm-petrel	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes



UK SPA	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine SPAs)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
North Rona and Sula Sgeir	Great black-backed gull	-	Yes	-	-	-	-	Yes	-	Yes	-	Yes	-
North Rona and Sula Sgeir	Northern fulmar	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
North Rona and Sula Sgeir	Northern gannet	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
North Rona and Sula Sgeir	Razorbill	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Noss	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Outer Ards	Arctic tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Outer Firth of Forth and St Andrews Bay Complex	Manx shearwater	Yes	-	-	Yes (SPAs unknown)	-	-	Yes	Yes	-	-	Yes	Yes
Priest Island (Summer Isles)	European storm-petrel	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Rathlin Island	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Rathlin Island	Common guillemot	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Rathlin Island	Razorbill	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Rathlin Island	Atlantic puffin*	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Rathlin Island	Herring gull*	Yes	Yes	-	-	-	-	Yes	-	Yes	-	Yes	-
Rathlin Island	Northern fulmar*	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Ribble and Alt Estuaries	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Rousay	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Rum	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Rum	Common guillemot	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Rum	Manx shearwater	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Seas off St Kilda	Atlantic puffin	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Seas off St Kilda	European storm-petrel	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Seas off St Kilda	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Seas off St Kilda	Northern gannet	Yes	-	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Shiant Isles	Atlantic puffin	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Shiant Isles	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-

UK SPA	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine SPAs)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
Shiant Isles	Northern fulmar	Yes	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Shiant Isles	Razorbill	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Atlantic puffin	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	European storm-petrel	-	Yes	-	-	-	-	Yes	-	-	-	Yes	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Manx shearwater	Yes	Yes	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Black-legged kittiwake*	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	Razorbill*	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Sound of Gigha	Common eider	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
Sound of Gigha	Great northern diver	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
Sound of Gigha	Red-breasted merganser	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
Sound of Gigha	Slavonian grebe	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
St Kilda	Atlantic puffin	Yes	Yes	-	Yes	-	Yes	Yes	-	-	Yes	Yes	-
St Kilda	Black-legged kittiwake	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
St Kilda	European storm-petrel	Yes	Yes	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
St Kilda	Manx shearwater	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
St Kilda	Northern fulmar	Yes	Yes	-	Yes	-	Yes	Yes	-	-	Yes	Yes	-
St Kilda	Northern gannet	Yes	Yes	-	Yes	-	Yes	Yes	-	Yes	Yes	Yes	-
St Kilda	Razorbill	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Strangford Lough	Arctic tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Strangford Lough	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-



UK SPA	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine SPAs)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
Sule Skerry and Sule Stack	Atlantic puffin	-	Yes	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Sule Skerry and Sule Stack	European storm-petrel	-	Yes	-	-	-	-	Yes	-	-	-	Yes	-
Sule Skerry and Sule Stack	Northern gannet	Yes	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Sumburgh Head	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
The Dee Estuary	Common tern	-	Yes	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Treshnish Isles	European storm-petrel	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Troup, Pennan and Lion's Heads	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
West Coast of the Outer Hebrides	Black-throated diver	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
West Coast of the Outer Hebrides	Common eider	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
West Coast of the Outer Hebrides	Great northern diver	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
West Coast of the Outer Hebrides	Long-tailed duck	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
West Coast of the Outer Hebrides	Red-breasted merganser	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
West Coast of the Outer Hebrides	Red-throated diver	-	-	-	-	Yes	Yes	-	-	-	Yes	-	-
West Coast of the Outer Hebrides	Slavonian grebe	-	-	Yes	-	-	Yes	-	-	-	Yes	-	-
West Westray	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-

* = Article 4.2 assemblage species only



Table 7.27 ROI SPAs and qualifying features taken forward for Appropriate Assessment

ROI SPA	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine SPAs)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
Aughris Head SPA	Black-legged kittiwake	Yes	-	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Beara Peninsula SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Bills Rocks SPA	European storm-petrel	Yes	-	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Blasket Islands SPA	Manx shearwater	Yes	-	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
Blasket Islands SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Clare Island SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Cliffs of Moher SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Cruagh Island SPA	Manx shearwater	Yes	-	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
Deenish Island and Scariff Island SPA	Manx shearwater	Yes	-	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
Deenish Island and Scariff Island SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Dingle Peninsula SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Duvillaun Islands SPA	European storm-petrel	Yes	-	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Duvillaun Islands SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
High Island, Inishshark and Davillaun SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Horn Head to Fanad Head SPA	Black-legged kittiwake	Yes	-	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
Horn Head to Fanad Head SPA	Common guillemot	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Horn Head to Fanad Head SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Horn Head to Fanad Head SPA	Razorbill	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Illanmaster SPA	European storm-petrel	Yes	-	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Inishglora and Inishkeeragh SPA	European storm-petrel	Yes	-	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Iveragh Peninsula SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Kerry Head SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Lambay Island SPA	Black-legged kittiwake	Yes	-	-	Yes	-	Yes	Yes	-	Yes	Yes	Yes	-
Lambay Island SPA	Northern fulmar	Yes	-	-	Yes	-	Yes	Yes	-	-	Yes	Yes	-
North-west Irish Sea SPA	Atlantic puffin	-	-	-	Yes	-	Yes	Yes	-	-	Yes	Yes	-
North-west Irish Sea SPA	Black-legged kittiwake	-	-	-	Yes	-	Yes	Yes	-	Yes	Yes	Yes	-
North-west Irish Sea SPA	Manx shearwater	-	-	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
North-west Irish Sea SPA	Northern fulmar	-	-	-	Yes	-	Yes	Yes	-	-	Yes	Yes	-

ROI SPA	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine SPAs)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
Puffin Island SPA	Manx shearwater	Yes	-	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
Puffin Island SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Saltee Islands SPA	Northern fulmar	Yes	-	-	Yes	-	Yes	Yes	-	-	Yes	Yes	-
Saltee Islands SPA	Northern gannet	Yes	-	-	Yes	-	Yes	Yes	-	Yes	Yes	Yes	-
Seas off Wexford SPA	Manx shearwater	-	-	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
Seas off Wexford SPA	Northern fulmar	-	-	-	Yes	-	Yes	Yes	-	-	Yes	Yes	-
Seas off Wexford SPA	Northern gannet	-	-	-	Yes	-	Yes	Yes	-	Yes	Yes	Yes	-
Skelligs SPA	Manx shearwater	Yes	-	-	Yes	-	-	Yes	Yes	-	-	Yes	Yes
Skelligs SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Stags of Broad Haven SPA	European storm-petrel	Yes	-	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Tory Island SPA	Atlantic puffin	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Tory Island SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
Tory Island SPA	Razorbill	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-
West Donegal Coast SPA	Black-legged kittiwake	Yes	-	-	-	-	Yes	Yes	-	Yes	Yes	Yes	-
West Donegal Coast SPA	Northern fulmar	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes	-



Table 7.28 UK Ramsar sites and qualifying features taken forward for Appropriate Assessment

UK Ramsar site	Qualifying Feature	Reason for Theoretical Connectivity					Construction Impacts			O&M Impacts			
		Breeding seabirds in the breeding season	Breeding seabirds in the non-breeding season	Inshore wintering waterfowl	Breeding seabirds using marine SPAs	Red-throated divers (terrestrial and/or marine Ramsar sites)	1. Disturbance and/ or displacement	2. Direct and indirect impacts on prey or supporting habitat	3. Lighting impacts from construction vessels and project infrastructure	4. Collision risk	5. Disturbance and/or displacement (including barrier effects)	6. Direct and indirect impacts on prey or supporting habitat	7. Lighting impacts from Project infrastructure and vessels
Carlingford Lough	Common tern	-	Yes	-	-	-	-	Yes	-	Yes	-	Yes	-
Isles of Scilly	European storm-petrel	-	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Outer Ards	Manx shearwater	Yes	Yes	-	-	-	-	Yes	Yes	-	-	Yes	Yes
Ribble and Alt Estuaries	Common tern	-	Yes	-	-	-	-	Yes	-	Yes	-	Yes	-
Strangford Lough	Arctic tern	-	Yes	-	-	-	-	Yes	-	Yes	-	Yes	-
Strangford Lough	Common tern	-	Yes	-	-	-	-	Yes	-	Yes	-	Yes	-
The Dee Estuary	Common tern	-	Yes	-	-	-	-	Yes	-	Yes	-	Yes	-



8 SUMMARY OF STAGE 1: LIKELY SIGNIFICANT EFFECT SCREENING

282. A summary of the European/Ramsar sites and relevant qualifying features for which potential Likely Significant Effects (LSEs) have been identified and screened in for further assessment in the RIAA is provided for marine mammals in **Table 6.5** and for offshore ornithology in **Table 7.27** to **Table 7.28** and **Appendix 1**. European sites designated for Annex I habitats and fish and shellfish species have been screened out of further assessment as described in **Sections 4** and **5** respectively.



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APPENDIX 1: LIST OF EUROPEAN SITES WITH MIGRATORY QUALIFYING FEATURES WITH THEORETICAL CONNECTIVITY TO THE PROJECT

Table A1.1 List of migratory terrestrial and waterbird species with migratory routes that have theoretical connectivity with the WDA, and associated UK SPAs. Shaded grey cells indicate where consultation has confirmed that species/ SPA can be screened out.

Migratory Species	SPAs where a Qualifying Feature
Barnacle goose	Bridgend Flats, Islay
	Coll
	Gruinart Flats, Islay
	Laggan, Islay
	Monach Islands
	North Sutherland Coastal Islands
	North Uist Machair and Islands
	Shiant Isles
	Sléibhteagan agus Cladach Thiriodh (Tiree Wetlands and Coast)
	Solway Firth
	Switha
Treshnish Isles	
Bar-tailed godwit	Belfast Lough
	Chichester and Langstone Harbours
	Cromarty Firth
	Dornoch Firth and Loch Fleet
	East Sanday Coast
	Firth of Forth
	Firth of Tay and Eden Estuary
	Foulness (Mid-Essex Coast Phase 5)
	Gibraltar Point
	Humber Estuary
	Lindisfarne
	Lough Foyle
	Mersey Narrows and North Wirral Foreshore
	Moray and Nairn Coast
	Morecambe Bay and Duddon Estuary
	Ribble and Alt Estuaries
Solway Firth	



Migratory Species	SPAs where a Qualifying Feature
	The Dee Estuary
	The Wash
Black (common) scoter	Bae Caerfyrddin/ Carmarthen Bay
	Caithness and Sutherland Peatlands
	Firth of Forth
	Firth of Tay and Eden Estuary
	Greater Wash
	Lindisfarne
	Liverpool Bay / Bae Lerpwl
	Moray Firth
	Outer Firth of Forth and St Andrews Bay Complex
	Ribble and Alt Estuaries
	Rinns of Islay
	Solway Firth
	The Wash
	West Inverness-shire Lochs
Black-tailed godwit	Belfast Lough
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Exe Estuary
	Firth of Tay and Eden Estuary
	Hamford Water
	Humber Estuary
	Inner Moray Firth
	Medway Estuary and Marshes
	Mersey Estuary
	Morecambe Bay and Duddon Estuary
	Nene Washes
	Ouse Washes
	Poole Harbour
	Portsmouth Harbour
	Ribble and Alt Estuaries
	Solent and Southampton Water
	Stour and Orwell Estuaries
	Thames Estuary and Marshes



Migratory Species	SPAs where a Qualifying Feature
	The Dee Estuary
	The Wash
Black-throated diver	Assynt Lochs
	Caithness and Sutherland Peatlands
	Falmouth Bay to St Austell Bay
	Inverpolly, Loch Urigill and nearby Lochs
	Knapdale Lochs
	Lairg and Strath Brora Lochs
	Lewis Peatlands
	Loch Maree
	Loch Shiel
	Mointeach Scadabhaigh
	Rannoch Lochs
	Scapa Flow
	West Coast of the Outer Hebrides
	West Inverness-shire Lochs
	Wester Ross Lochs
Common eider	Coll and Tiree
	Firth of Forth
	Firth of Tay and Eden Estuary
	Lindisfarne
	Montrose Basin
	Moray Firth
	Outer Firth of Forth and St Andrews Bay Complex
	Scapa Flow
	Sound of Gigha
	West Coast of the Outer Hebrides
	Ythan Estuary, Sands of Forvie and Meikle Loch
Common goldeneye	Abberton Reservoir
	Firth of Forth
	Firth of Tay and Eden Estuary
	Humber Estuary
	Inner Moray Firth
	Loch Leven



Migratory Species	SPAs where a Qualifying Feature
	Loch of Skene Loch of Strathbeg Lough Neagh and Lough Beg Moray Firth Outer Firth of Forth and St Andrews Bay Complex Rutland Water Solway Firth Stour and Orwell Estuaries The Wash
Common greenshank	Caithness and Sutherland Peatlands Humber Estuary Lewis Peatlands Medway Estuary and Marshes
Common pochard	Abberton Reservoir Blackwater Estuary (Mid-Essex Coast Phase 4) Colne Estuary (Mid-Essex Coast Phase 2) Humber Estuary Loch Leven Lough Neagh and Lough Beg Medway Estuary and Marshes Ouse Washes Stodmarsh Upper Nene Valley Gravel Pits
Common redshank	Alde-Ore Estuary Belfast Lough Burry Inlet Chichester and Langstone Harbours Colne Estuary (Mid-Essex Coast Phase 2) Cromarty Firth Dornoch Firth and Loch Fleet Firth of Forth Firth of Tay and Eden Estuary Foulness (Mid-Essex Coast Phase 5) Hamford Water



Migratory Species	SPAs where a Qualifying Feature
	Humber Estuary
	Inner Clyde Estuary
	Inner Moray Firth
	Lindisfarne
	Medway Estuary and Marshes
	Mersey Estuary
	Mersey Narrows and North Wirral Foreshore
	Montrose Basin
	Moray and Nairn Coast
	Morecambe Bay and Duddon Estuary
	North Uist Machair and Islands
	Ribble and Alt Estuaries
	Severn Estuary
	Sléibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast)
	Solway Firth
	South Uist Machair and Lochs
	Stour and Orwell Estuaries
	Strangford Lough
	Teesmouth and Cleveland Coast
	Thames Estuary and Marshes
	The Dee Estuary
The Swale	
The Wash	
Traeth Lafan/ Lavan Sands, Conway Bay	
Ythan Estuary, Sands of Forvie and Meikle Loch	
Common shelduck	Burry Inlet
	Chichester and Langstone Harbours
	Firth of Forth
	Firth of Tay and Eden Estuary
	Hamford Water
	Humber Estuary
	Lindisfarne
	Medway Estuary and Marshes
	Mersey Estuary



Migratory Species	SPAs where a Qualifying Feature
	<p>Montrose Basin</p> <p>Morecambe Bay and Duddon Estuary</p> <p>Poole Harbour</p> <p>Ribble and Alt Estuaries</p> <p>Severn Estuary</p> <p>Solway Firth</p> <p>Stour and Orwell Estuaries</p> <p>The Dee Estuary</p> <p>The Wash</p>
Common snipe	Stodmarsh
Corn crake	<p>Aird and Borve, Benbecula</p> <p>Coll (corncrake)</p> <p>Eoligarry, Barra</p> <p>Kilpheder and Smerclate, South Uist</p> <p>Ness and Barvas, Lewis</p> <p>North Uist Machair and Islands</p> <p>Oronsay and South Colonsay</p> <p>Rinns of Islay</p> <p>South Uist Machair and Lochs</p> <p>Tiree (corncrake)</p>
Dunlin	<p>Benfleet and Southend Marshes</p> <p>Blackwater Estuary (Mid-Essex Coast Phase 4)</p> <p>Burry Inlet</p> <p>Caithness and Sutherland Peatlands</p> <p>Chichester and Langstone Harbours</p> <p>Cromarty Firth</p> <p>Dornoch Firth and Loch Fleet</p> <p>Exe Estuary</p> <p>Fetlar</p> <p>Firth of Forth</p> <p>Firth of Tay and Eden Estuary</p> <p>Humber Estuary</p> <p>Lewis Peatlands</p> <p>Lindisfarne</p>



Migratory Species	SPAs where a Qualifying Feature
	<p>Medway Estuary and Marshes</p> <p>Mersey Estuary</p> <p>Mersey Narrows and North Wirral Foreshore</p> <p>Montrose Basin</p> <p>Moray and Nairn Coast</p> <p>Morecambe Bay and Duddon Estuary</p> <p>North Uist Machair and Islands</p> <p>Portsmouth Harbour</p> <p>Ribble and Alt Estuaries</p> <p>Severn Estuary</p> <p>Sléibhteán agus Cladach Thiriodh (Tiree Wetlands and Coast)</p> <p>Solway Firth</p> <p>South Uist Machair and Lochs</p> <p>Stour and Orwell Estuaries</p> <p>Thames Estuary and Marshes</p> <p>The Dee Estuary</p> <p>The Swale</p> <p>The Wash</p>
Eurasian curlew	<p>Burry Inlet</p> <p>Chichester and Langstone Harbours</p> <p>Cromarty Firth</p> <p>Dornoch Firth and Loch Fleet</p> <p>Firth of Forth</p> <p>Humber Estuary</p> <p>Inner Moray Firth</p> <p>Medway Estuary and Marshes</p> <p>Mersey Estuary</p> <p>Morecambe Bay and Duddon Estuary</p> <p>Ribble and Alt Estuaries</p> <p>Solway Firth</p> <p>Stour and Orwell Estuaries</p> <p>The Dee Estuary</p> <p>The Swale</p> <p>The Wash</p>



Migratory Species	SPAs where a Qualifying Feature
	Traeth Lafan/ Lavan Sands, Conway Bay
Eurasian dotterel	Beinn Dearg
	Ben Alder
	Ben Wyvis
	Caenlochan
	Cairngorms
	Creag Meagaidh
	Drumochter Hills
	Lochnagar
Eurasian marsh harrier	Alde-Ore Estuary
	Benacre to Easton Bavents
	Broadland
	Dungeness, Romney Marsh and Rye Bay
	Firth of Tay and Eden Estuary
	Humber Estuary
	Leighton Moss
	Minsmere-Walberswick
	North Norfolk Coast
Eurasian oystercatcher	Burry Inlet
	Cromarty Firth
	Dornoch Firth and Loch Fleet
	Exe Estuary
	Firth of Forth
	Firth of Tay and Eden Estuary
	Foulness (Mid-Essex Coast Phase 5)
	Humber Estuary
	Inner Moray Firth
	Medway Estuary and Marshes
	Mersey Narrows and North Wirral Foreshore
	Montrose Basin
	Moray and Nairn Coast
	Morecambe Bay and Duddon Estuary
	North Uist Machair and Islands
Ribble and Alt Estuaries	



Migratory Species	SPAs where a Qualifying Feature
	Sléibhteagan agus Cladach Thiriodh (Tiree Wetlands and Coast) Solway Firth South Uist Machair and Lochs The Dee Estuary The Swale The Wash Traeth Lafan/ Lavan Sands, Conway Bay
Eurasian teal	Abberton Reservoir Burry Inlet Chichester and Langstone Harbours Dornoch Firth and Loch Fleet Hamford Water Humber Estuary Inner Moray Firth Loch Leven Loch of Strathbeg Lower Derwent Valley Medway Estuary and Marshes Mersey Estuary Minsmere-Walberswick Nene Washes Ouse Washes Ribble and Alt Estuaries Rutland Water Solent and Southampton Water Solway Firth Somerset Levels and Moors The Dee Estuary The Swale
Eurasian wigeon	Abberton Reservoir Broadland Burry Inlet Caithness and Sutherland Peatlands Chesil Beach and The Fleet



Migratory Species	SPAs where a Qualifying Feature
	Chichester and Langstone Harbours
	Cromarty Firth
	Dornoch Firth and Loch Fleet
	Firth of Forth
	Humber Estuary
	Inner Moray Firth
	Lindisfarne
	Lower Derwent Valley
	Martin Mere
	Medway Estuary and Marshes
	Mersey Estuary
	Montrose Basin
	Moray and Nairn Coast
	Nene Washes
	North Norfolk Coast
	Ouse Washes
	Ribble and Alt Estuaries
	River Spey - Insh Marshes
	Rutland Water
	South Tayside Goose Roosts
Stodmarsh	
Stour and Orwell Estuaries	
The Wash	
Upper Nene Valley Gravel Pits	
European golden plover	Breydon Water
	Caithness and Sutherland Peatlands
	Dungeness, Romney Marsh and Rye Bay
	Firth of Forth
	Humber Estuary
	Lewis Peatlands
	Lindisfarne
	Lower Derwent Valley
	Mersey Estuary
	Morecambe Bay and Duddon Estuary



Migratory Species	SPAs where a Qualifying Feature
	Muirkirk and North Lowther Uplands North Pennine Moors North York Moors Outer Ards Peak District Moors (South Pennine Moors Phase 1) Pettigoe Plateau Ribble and Alt Estuaries Solway Firth Somerset Levels and Moors South Pennine Moors Phase 2 Stour and Orwell Estuaries Thanet Coast and Sandwich Bay Upper Nene Valley Gravel Pits
Gadwall	Abberton Reservoir Avon Valley Broadland Hornsea Mere Lee Valley Loch Leven Minsmere-Walberswick Nene Washes Ouse Washes Rutland Water Severn Estuary South West London Waterbodies Stodmarsh Stour and Orwell Estuaries The Swale The Wash Upper Nene Valley Gravel Pits
Goosander	Firth of Tay and Eden Estuary Inner Moray Firth Loch of Skene Rutland Water



Migratory Species	SPAs where a Qualifying Feature
	Solway Firth
Great bittern	Benacre to Easton Bavents
	Broadland
	Dungeness, Romney Marsh and Rye Bay
	Humber Estuary
	Lee Valley
	Leighton Moss
	Marazion Marsh
	Minsmere-Walberswick
	North Norfolk Coast
	Stodmarsh
	Upper Nene Valley Gravel Pits
Great crested grebe	Abberton Reservoir
	Belfast Lough Open Water
	Firth of Forth
	Medway Estuary and Marshes
	Mersey Estuary
	Rutland Water
	Stour and Orwell Estuaries
	Traeth Lafan/ Lavan Sands, Conway Bay
	Upper Nene Valley Gravel Pits
Great northern diver	Coll and Tiree
	East Mainland Coast, Shetland
	Falmouth Bay to St Austell Bay
	Moray Firth
	North Orkney
	Scapa Flow
	Sound of Gigha
	West Coast of the Outer Hebrides
Greater scaup	Cromarty Firth
	Dornoch Firth and Loch Fleet
	Firth of Forth
	Humber Estuary
	Inner Moray Firth



Migratory Species	SPAs where a Qualifying Feature
	Moray Firth
	Ribble and Alt Estuaries
	Solway Firth
	Stour and Orwell Estuaries
Greenland white-fronted goose	Caithness Lochs
	Coll
	Dyfi Estuary / Aber Dyfi
	Eilean na Muice Duibhe (Duich Moss)
	Gruinart Flats, Islay
	Kintyre Goose Roosts
	Laggan, Islay
	Loch Ken and River Dee Marshes
	Loch Lomond
	Loch of Inch and Torrs Warren
	Rinns of Islay
Sléibhteann agus Cladach Thiriodh (Tiree Wetlands and Coast)	
Grey plover	Benfleet and Southend Marshes
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Burry Inlet
	Chichester and Langstone Harbours
	Dengie (Mid-Essex Coast Phase 1)
	Exe Estuary
	Firth of Forth
	Firth of Tay and Eden Estuary
	Foulness (Mid-Essex Coast Phase 5)
	Gibraltar Point
	Hamford Water
	Humber Estuary
	Lindisfarne
	Medway Estuary and Marshes
	Mersey Estuary
	Mersey Narrows and North Wirral Foreshore
	Morecambe Bay and Duddon Estuary
Ribble and Alt Estuaries	



Migratory Species	SPAs where a Qualifying Feature
	Solway Firth Stour and Orwell Estuaries Thames Estuary and Marshes The Dee Estuary The Swale The Wash
Greylag goose	Caithness Lochs Cromarty Firth Din Moss - Hoselaw Loch Dornoch Firth and Loch Fleet Firth of Tay and Eden Estuary Holburn Lake and Moss Inner Moray Firth Lindisfarne Loch Eye Loch Ken and River Dee Marshes Loch of Kinnordy Loch of Lintrathen Loch of Skene Loch of Strathbeg Loch Spynie Montrose Basin Moray and Nairn Coast Muir of Dinnet South Tayside Goose Roosts
Hen harrier	Antrim Hills Arran Moors Ballaugh Curragh (Isle of Man ASP) Berwyn Blackwater Estuary (Mid-Essex Coast Phase 4) Bowland Fells Broadland Caithness and Sutherland Peatlands Colne Estuary (Mid-Essex Coast Phase 2)



Migratory Species	SPAs where a Qualifying Feature
	Dengie (Mid-Essex Coast Phase 1)
	Dorset Heathlands
	Dungeness, Romney Marsh and Rye Bay
	Forest of Clunie
	Foulness (Mid-Essex Coast Phase 5)
	Glen App and Galloway Moors
	Glen Tanar
	Humber Estuary
	Langholm - Newcastleton Hills
	Loch of Inch and Torrs Warren
	Medway Estuary and Marshes
	Migneint-Arenig-Dduallt
	Minsmere-Walberswick
	Muirkirk and North Lowther Uplands
	New Forest
	North Pennine Moors
	Orkney Mainland Moors
	Ouse Washes
	Renfrewshire Heights
	Rinns of Islay
	River Spey - Insh Marshes
Salisbury Plain	
Slieve Beagh - Mullaghfad - Lisnaskea	
Stodmarsh	
Strath Carnaig and Strath Fleet Moors	
Thames Estuary and Marshes	
Light-bellied brent goose	Carlingford Lough
	Gruinart Flats, Islay
	Killough Bay
	Larne Lough
	Lough Foyle
	Outer Ards
	Strangford Lough
Long-tailed duck	Firth of Forth



Migratory Species	SPAs where a Qualifying Feature
	Firth of Tay and Eden Estuary Lindisfarne Moray Firth Outer Firth of Forth and St Andrews Bay Complex Scapa Flow West Coast of the Outer Hebrides
Mallard	Firth of Forth Humber Estuary Medway Estuary and Marshes Ouse Washes Stodmarsh Upper Nene Valley Gravel Pits
Merlin	Antrim Hills Berwyn Bowland Fells Cairngorms Caithness and Sutherland Peatlands Dorset Heathlands Drumochter Hills Elenydd - Mallaen Forest of Clunie Lewis Peatlands Medway Estuary and Marshes Migneint-Arenig-Dduallt Muirkirk and North Lowther Uplands North Pennine Moors North York Moors Peak District Moors (South Pennine Moors Phase 1) South Pennine Moors Phase 2
Northern lapwing	Breydon Water Firth of Forth Humber Estuary Mersey Estuary Ribble and Alt Estuaries



Migratory Species	SPAs where a Qualifying Feature
	Solway Firth Somerset Levels and Moors Stodmarsh Stour and Orwell Estuaries Upper Nene Valley Gravel Pits Ythan Estuary, Sands of Forvie and Meikle Loch
Northern pintail	Burry Inlet Chichester and Langstone Harbours Cromarty Firth Martin Mere Medway Estuary and Marshes Mersey Estuary Morecambe Bay and Duddon Estuary Nene Washes Ouse Washes Ribble and Alt Estuaries Solway Firth Stour and Orwell Estuaries The Dee Estuary The Wash
Northern shoveler	Abberton Reservoir Broadland Burry Inlet Chew Valley Lake Chichester and Langstone Harbours Dungeness, Romney Marsh and Rye Bay Lee Valley Loch Leven Lower Derwent Valley Medway Estuary and Marshes Minsmere-Walberswick Nene Washes Ouse Washes Rutland Water



Migratory Species	SPAs where a Qualifying Feature
	Solway Firth South West London Waterbodies Stodmarsh Upper Nene Valley Gravel Pits
Osprey	Abernethy Forest Cairngorms Cromarty Firth Dornoch Firth and Loch Fleet Forest of Clunie Glen Tanar Inner Moray Firth Moray and Nairn Coast River Spey - Insh Marshes
Pink-footed goose	Cameron Reservoir Castle Loch, Lochmaben Din Moss - Hoselaw Loch Fala Flow Firth of Forth Firth of Tay and Eden Estuary Gladhouse Reservoir Greenlaw Moor Loch Leven Loch of Kinnordy Loch of Strathbeg Martin Mere Montrose Basin Moray and Nairn Coast Morecambe Bay and Duddon Estuary North Norfolk Coast Ribble and Alt Estuaries Solway Firth South Tayside Goose Roosts The Wash Westwater



Migratory Species	SPAs where a Qualifying Feature
	Ythan Estuary, Sands of Forvie and Meikle Loch
Purple sandpiper	East Sanday Coast
	North Uist Machair and Islands
	Northumbria Coast
Red knot	Benfleet and Southend Marshes
	Burry Inlet
	Cromarty Firth
	Dengie (Mid-Essex Coast Phase 1)
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)
	Humber Estuary
	Medway Estuary and Marshes
	Mersey Narrows and North Wirral Foreshore
	Montrose Basin
	Morecambe Bay and Duddon Estuary
	North Norfolk Coast
	Ribble and Alt Estuaries
	Solway Firth
	Stour and Orwell Estuaries
	Strangford Lough
	Teemouth and Cleveland Coast
	Thames Estuary and Marshes
The Dee Estuary	
The Wash	
Red-breasted merganser	Chichester and Langstone Harbours
	Cromarty Firth
	Firth of Forth
	Firth of Tay and Eden Estuary
	Inner Moray Firth
	Lindisfarne
	Moray and Nairn Coast
	Moray Firth
	Outer Firth of Forth and St Andrews Bay Complex
	Portsmouth Harbour



Migratory Species	SPAs where a Qualifying Feature
	Scapa Flow
	Sound of Gigha
	Traeth Lafan/ Lavan Sands, Conway Bay
	West Coast of the Outer Hebrides
Red-throated diver	Bluemull and Colgrave Sounds
	Caithness and Sutherland Peatlands
	East Mainland Coast, Shetland
	Firth of Forth
	Foula
	Greater Wash
	Hermaness, Saxa Vord and Valla Field
	Hoy
	Lewis Peatlands
	Liverpool Bay / Bae Lerpwl
	Medway Estuary and Marshes
	Mointeach Scadabhaigh
	Moray Firth
	North Orkney
	Northern Cardigan Bay / Gogledd Bae Ceredigion
	Orkney Mainland Moors
	Otterswick and Graveland
	Outer Firth of Forth and St Andrews Bay Complex
	Outer Thames Estuary
	Ronas Hill - North Roe and Tingon
Rum	
Scapa Flow	
Solway Firth	
West Coast of the Outer Hebrides	
Ringed plover	Benfleet and Southend Marshes
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Chichester and Langstone Harbours
	Colne Estuary (Mid-Essex Coast Phase 2)
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)



Migratory Species	SPAs where a Qualifying Feature
	<p>Hamford Water</p> <p>Humber Estuary</p> <p>Lindisfarne</p> <p>Medway Estuary and Marshes</p> <p>Mersey Estuary</p> <p>Morecambe Bay and Duddon Estuary</p> <p>North Uist Machair and Islands</p> <p>Outer Ards</p> <p>Papa Stour</p> <p>Ribble and Alt Estuaries</p> <p>Sléibhteán agus Cladach Thiriodh (Tiree Wetlands and Coast)</p> <p>Solent and Southampton Water</p> <p>Solway Firth</p> <p>South Uist Machair and Lochs</p> <p>Stour and Orwell Estuaries</p> <p>Thames Estuary and Marshes</p> <p>The Swale</p>
Ruddy turnstone	<p>Burry Inlet</p> <p>Chichester and Langstone Harbours</p> <p>East Sanday Coast</p> <p>Firth of Forth</p> <p>Humber Estuary</p> <p>Medway Estuary and Marshes</p> <p>Morecambe Bay and Duddon Estuary</p> <p>North Uist Machair and Islands</p> <p>Northumbria Coast</p> <p>Outer Ards</p> <p>Sléibhteán agus Cladach Thiriodh (Tiree Wetlands and Coast)</p> <p>Solway Firth</p> <p>Stour and Orwell Estuaries</p> <p>Thanet Coast and Sandwich Bay</p> <p>The Wash</p>
Ruff	<p>Alde-Ore Estuary</p> <p>Breydon Water</p>



Migratory Species	SPAs where a Qualifying Feature
	Broadland Dungeness, Romney Marsh and Rye Bay Humber Estuary Lower Derwent Valley Morecambe Bay and Duddon Estuary Ouse Washes Pagham Harbour Ribble and Alt Estuaries Teesmouth and Cleveland Coast
Sanderling	Chichester and Langstone Harbours Firth of Tay and Eden Estuary Gibraltar Point Humber Estuary Lindisfarne Mersey Narrows and North Wirral Foreshore Morecambe Bay and Duddon Estuary Ribble and Alt Estuaries Solway Firth South Uist Machair and Lochs The Wash
Short-eared owl	Caithness and Sutherland Peatlands Forest of Clunie Muirkirk and North Lowther Uplands Orkney Mainland Moors Peak District Moors (South Pennine Moors Phase 1) Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro South Pennine Moors Phase 2
Slavonian grebe	East Mainland Coast, Shetland Exe Estuary Falmouth Bay to St Austell Bay Firth of Forth Loch Ashie Loch Flemington



Migratory Species	SPAs where a Qualifying Feature
	Loch Knockie and Nearby Lochs Loch Ruthven Loch Vaa Moray Firth North Inverness Lochs North Orkney Outer Firth of Forth and St Andrews Bay Complex Scapa Flow Sound of Gigha West Coast of the Outer Hebrides
Spotted crane	River Spey - Insh Marshes
Tufted duck	Abberton Reservoir Loch Leven Lough Neagh and Lough Beg Ouse Washes Rutland Water Stodmarsh Upper Nene Valley Gravel Pits
Velvet scoter	Firth of Forth Firth of Tay and Eden Estuary Moray Firth North Orkney Outer Firth of Forth and St Andrews Bay Complex
Whimbrel	Fetlar Humber Estuary Ribble and Alt Estuaries
Whooper swan	Black Cart Broadland Caithness Lochs Cromarty Firth Lindisfarne Loch Eye Loch Leven Loch of Strathbeg



Migratory Species	SPAs where a Qualifying Feature
	Lochs of Spiggie and Brow
	Lough Foyle
	Lough Neagh and Lough Beg
	Martin Mere
	Morecambe Bay and Duddon Estuary
	Ouse Washes
	Ribble and Alt Estuaries
	Rinns of Islay
	River Spey - Insh Marshes
	Solway Firth
	Upper Lough Erne

Table A1.2 List of Article 4.2 assemblage migratory terrestrial and waterbird species with migratory routes that have theoretical connectivity with the WDA, and associated UK SPAs.

Migratory Species	SPAs where a Qualifying Feature
Bar-tailed godwit	Inner Moray Firth
	Strangford Lough
Black-tailed godwit	Strangford Lough
Common goldeneye	Morecambe Bay and Duddon Estuary
	Poole Harbour
	Strangford Lough
Common greenshank	Lough Foyle
	Morecambe Bay and Duddon Estuary
	Poole Harbour
	Strangford Lough
Common pochard	Dungeness, Romney Marsh and Rye Bay
	Poole Harbour
Common redshank	Lough Foyle
	Poole Harbour
Common shelduck	Lough Foyle
	Lough Neagh and Lough Beg
	Strangford Lough
Dunlin	Lough Foyle
	Poole Harbour
	Strangford Lough



Migratory Species	SPAs where a Qualifying Feature
Eurasian curlew	Lough Foyle
	Poole Harbour
	Strangford Lough
Eurasian oystercatcher	Lough Foyle
	Strangford Lough
Eurasian teal	Lough Foyle
	Lough Neagh and Lough Beg
	Morecambe Bay and Duddon Estuary
	Poole Harbour
	Strangford Lough
Eurasian wigeon	Dungeness, Romney Marsh and Rye Bay
	Lough Neagh and Lough Beg
	Morecambe Bay and Duddon Estuary
	Strangford Lough
	Teesmouth and Cleveland Coast
European golden plover	Lough Foyle
	Strangford Lough
Gadwall	Dungeness, Romney Marsh and Rye Bay
	Lough Neagh and Lough Beg
	Strangford Lough
	Teesmouth and Cleveland Coast
Goosander	Stour and Orwell Estuaries
Great crested grebe	Dungeness, Romney Marsh and Rye Bay
	Liverpool Bay / Bae Lerpwl
	Lough Foyle
	Lough Neagh and Lough Beg
	Strangford Lough
Great northern diver	Liverpool Bay / Bae Lerpwl
Greater scaup	Lough Neagh and Lough Beg
Grey plover	Lough Foyle
	Strangford Lough
Greylag goose	Lough Foyle
	Lough Neagh and Lough Beg
	Strangford Lough



Migratory Species	SPAs where a Qualifying Feature
Mallard	Lough Foyle
	Lough Neagh and Lough Beg
	Morecambe Bay and Duddon Estuary
	Strangford Lough
Northern lapwing	Dungeness, Romney Marsh and Rye Bay
	Lough Foyle
	Medway Estuary and Marshes
	Morecambe Bay and Duddon Estuary
	Strangford Lough
	Teesmouth and Cleveland Coast
Northern pintail	Strangford Lough
Northern shoveler	Lough Neagh and Lough Beg
	Strangford Lough
	Teesmouth and Cleveland Coast
Purple sandpiper	Chichester and Langstone Harbours
	Humber Estuary
Red knot	Lough Foyle
Red-breasted merganser	Liverpool Bay / Bae Lerpwl
	Lough Foyle
	Morecambe Bay and Duddon Estuary
	Poole Harbour
	Ribble and Alt Estuaries
	Strangford Lough
Ringed plover	Colne Estuary (Mid-Essex Coast Phase 2)
	Strangford Lough
Ruddy turnstone	Strangford Lough
Ruff	Chichester and Langstone Harbours
Sanderling	Dungeness, Romney Marsh and Rye Bay
	Teesmouth and Cleveland Coast
Slavonian grebe	Lough Foyle
Tufted Duck	Ribble and Alt Estuaries
Velvet scoter	Liverpool Bay / Bae Lerpwl
Whimbrel	Dungeness, Romney Marsh and Rye Bay



Table A1.3 List of migratory terrestrial and waterbird species with migratory routes that have theoretical connectivity with the WDA, and associated UK Ramsar sites.

Migratory Species	UK Ramsar sites where a Qualifying Feature
Barnacle goose	Bridgend Flats, Islay
	Coll
	Gruinart Flats, Islay
	Loch of Strathbeg
	North Uist Machair and Islands
	Rinns of Islay
	Sléibhteagan agus Cladach Thiriodh (Tiree Wetlands and Coast)
	Strangford Lough
	Upper Solway Flats and Marshes
Bar-tailed godwit	Chichester and Langstone Harbours
	Cromarty Firth
	Dengie (Mid-Essex Coast Phase 1)
	Dornoch Firth and Loch Fleet
	East Sanday Coast
	Firth of Forth
	Firth of Tay & Eden Estuary
	Foulness (Mid-Essex Coast Phase 5)
	Gibraltar Point
	Humber Estuary
	Inner Moray Firth
	Lindisfarn
	Lough Foyle
	Morecambe Bay
	North Norfolk Coast
	Ribble and Alt Estuaries
	Strangford Lough
	The Dee Estuary
The Wash	
Upper Solway Flats and Marshes	
Black (common) scoter	Caithness and Sutherland Peatlands
	Firth of Forth
	Firth of Tay & Eden Estuary



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Lindisfarne Moray and Nairn Coast North Norfolk Coast Ribble and Alt Estuaries The Wash
Black-tailed godwit	Abberton Reservoir Alde–Ore Estuary Avon Valley Belfast Lough Blackwater Estuary (Mid-Essex Coast Phase 4) Breydon Water Chichester and Langstone Harbours Colne Estuary (Mid-Essex Coast Phase 2) Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Deben Estuary Dengie (Mid-Essex Coast Phase 1) Exe Estuary Firth of Forth Hamford Water Humber Estuary Medway Estuary and Marshes Mersey Estuary Minsmere–Walberswick Morecambe Bay Nene Washes North Norfolk Coast Ouse Washes Pagham Harbour Poole Harbour Portsmouth Harbour Ribble and Alt Estuaries Solent and Southampton Water Stour and Orwell Estuaries Strangford Lough



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Thames Estuary and Marshes
	The Dee Estuary
	The Swale
	The Wash
Black-throated diver	Caithness and Sutherland Peatlands
	Firth of Forth
	Loch Maree
Common eider	Belfast Lough
	Firth of Forth
	Firth of Tay & Eden Estuary
	Inner Clyde Estuary
	Larne Lough
	Lindisfarne
	Lough Foyle
	Montrose Basin
	Morecambe Bay
	Northumbria Coast
	Outer Ards
	Strangford Lough
	The Wash
	Ythan Estuary and Meikle Loch
Common goldeneye	Abberton Reservoir
	Belfast Lough
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Firth of Forth
	Inner Clyde Estuary
	Inner Moray Firth
	Larne Lough
	Loch Leven
	Lough Neagh and Lough Beg
	Morecambe Bay
	Rutland Water
	Stour and Orwell Estuaries
	Strangford Lough



Migratory Species	UK Ramsar sites where a Qualifying Feature
Common greenshank	Abberton Reservoir
	Alde–Ore Estuary
	Benfleet and Southend Marshes
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Breydon Water
	Burry Inlet
	Caithness and Sutherland Peatlands
	Chesil Beach and The Fleet
	Chichester and Langstone Harbours
	Cors Fochno and Dyfi
	Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)
	Deben Estuary
	Dengie (Mid-Essex Coast Phase 1)
	Exe Estuary
	Firth of Forth
	Firth of Tay & Eden Estuary
	Foulness (Mid-Essex Coast Phase 5)
	Gibraltar Point
	Hamford Water
	Inner Clyde Estuary
	Larne Lough
	Lindisfarn
	Loch of Strathbeg
	Lough Foyle
	Medway Estuary and Marshes
	Mersey Estuary
	Minsmere–Walberswick
	Montrose Basin
	Morecambe Bay
	North Norfolk Coast
Pagham Harbour	
Poole Harbour	
Ribble and Alt Estuaries	
Rutland Water	



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Severn Estuary Solent and Southampton Water Stour and Orwell Estuaries Strangford Lough Teesmouth and Cleveland Coast Thames Estuary and Marshes Thanet Coast and Sandwich Bay The Swale The Wash Upper Solway Flats and Marshes
Common pochard	Abberton Reservoir Broadland Chesil Beach and The Fleet Loch Leven Lough Neagh and Lough Beg Martin Mere Nene Washes Ouse Washes Severn Estuary Upper Lough Erne Upper Nene Valley Gravel Pits
Common redshank	Alde–Ore Estuary Belfast Lough Blackwater Estuary (Mid-Essex Coast Phase 4) Burry Inlet Chichester and Langstone Harbours Colne Estuary (Mid-Essex Coast Phase 2) Cromarty Firth Deben Estuary Dornoch Firth and Loch Fleet Duddon Estuary Firth of Forth Firth of Tay & Eden Estuary Foulness (Mid-Essex Coast Phase 5)



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Hamford Water
	Humber Estuary
	Inner Clyde Estuary
	Inner Moray Firth
	Larne Lough
	Lindisfarn
	Lough Foyle
	Medway Estuary and Marshes
	Mersey Estuary
	Minsmere–Walberswick
	Montrose Basin
	Moray and Nairn Coast
	Morecambe Bay
	North Norfolk Coast
	North Uist Machair and Islands
	Outer Ards
	Ribble and Alt Estuaries
	Severn Estuary
	Stour and Orwell Estuaries
	Strangford Lough
	Teesmouth and Cleveland Coast
	Thames Estuary and Marshes
	The Dee Estuary
	The Swale
The Wash	
Upper Solway Flats and Marshes	
Ythan Estuary and Meikle Loch	
Common shelduck	Alde–Ore Estuary
	Belfast Lough
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Burry Inlet
	Chichester and Langstone Harbours
	Colne Estuary (Mid-Essex Coast Phase 2)
	Deben Estuary



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)
	Hamford Water
	Humber Estuary
	Larne Lough
	Lindisfame
	Lough Foyle
	Lough Neagh and Lough Beg
	Martin Mere
	Medway Estuary and Marshes
	Mersey Estuary
	Montrose Basin
	Morecambe Bay
	North Norfolk Coast
	Poole Harbour
	Ribble and Alt Estuaries
	Severn Estuary
	Solent and Southampton Water
	Stour and Orwell Estuaries
	Strangford Lough
Thames Estuary and Marshes	
The Dee Estuary	
The Swale	
The Wash	
Upper Solway Flats and Marshes	
Common snipe	Somerset Levels and Moors
Corn crake	North Uist Machair and Islands
	South Uist Machair and Lochs
Dunlin	Benfleet and Southend Marshes
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Burry Inlet
	Caithness and Sutherland Peatlands
	Chichester and Langstone Harbours
	Colne Estuary (Mid-Essex Coast Phase 2)



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Dengie (Mid-Essex Coast Phase 1)
	Duddon Estuary
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)
	Gibraltar Point
	Humber Estuary
	Lewis Peatlands
	Lindisfarne
	Lough Foyle
	Medway Estuary and Marshes
	Mersey Estuary
	Morecambe Bay
	North Uist Machair and Islands
	Outer Ards
	Poole Harbour
	Ribble and Alt Estuaries
	Severn Estuary
	Sléibhteán agus Cladach Thiriodh (Tiree Wetlands and Coast)
	Solent and Southampton Water
	South Uist Machair and Lochs
	Stour and Orwell Estuaries
	Strangford Lough
	Thames Estuary and Marshes
	The Dee Estuary
	The Swale
The Wash	
Upper Solway Flats and Marshes	
Eurasian curlew	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Burry Inlet
	Caithness and Sutherland Peatlands
	Chichester and Langstone Harbours
	Duddon Estuary
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Lindisfarne
	Lough Foyle
	Medway Estuary and Marshes
	Mersey Estuary
	Morecambe Bay
	North Norfolk Coast
	Outer Ards
	Poole Harbour
	Ribble and Alt Estuaries
	Severn Estuary
	Solent and Southampton Water
	Stour and Orwell Estuaries
	Strangford Lough
	The Dee Estuary
	The Swale
The Wash	
Upper Solway Flats and Marshes	
Eurasian oystercatcher	Belfast Lough
	Burry Inlet
	Chichester and Langstone Harbours
	Duddon Estuary
	Firth of Forth
	Firth of Tay & Eden Estuary
	Foulness (Mid-Essex Coast Phase 5)
	Gibraltar Point
	Inner Clyde Estuary
	Inner Moray Firth
	Lough Foyle
	Medway Estuary and Marshes
	Morecambe Bay
	North Norfolk Coast
	North Uist Machair and Islands
	Outer Ards
	Ribble and Alt Estuaries



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Strangford Lough The Dee Estuary The Swale The Wash Upper Solway Flats and Marshes
Eurasian teal	Abberton Reservoir Alde–Ore Estuary Arun Valley Blackwater Estuary (Mid-Essex Coast Phase 4) Breydon Water Broadland Caithness and Sutherland Peatlands Chichester and Langstone Harbours Dornoch Firth and Loch Fleet Hamford Water Holburn Lake and Moss Inner Moray Firth Loch Leven Lough Foyle Lough Neagh and Lough Beg Lower Derwent Valley Martin Mere Mersey Estuary Minsmere–Walberswick Morecambe Bay Nene Washes North Norfolk Coast Ouse Washes Ribble and Alt Estuaries Severn Estuary Solent and Southampton Water Somerset Levels and Moors Strangford Lough The Dee Estuary



Migratory Species	UK Ramsar sites where a Qualifying Feature
	The Swale
	Upper Lough Erne
Eurasian wigeon	Abberton Reservoir
	Alde–Ore Estuary
	Arun Valley
	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Breydon Water
	Broadland
	Caithness and Sutherland Peatlands
	Cromarty Firth
	Dornoch Firth and Loch Fleet
	Inner Moray Firth
	Lindisfarne
	Lough Foyle
	Lough Neagh and Lough Beg
	Lower Derwent Valley
	Martin Mere
	Mersey Estuary
	Montrose Basin
	Morecambe Bay
	Nene Washes
	North Norfolk Coast
	Ouse Washes
	Ribble and Alt Estuaries
	Severn Estuary
	Solent and Southampton Water
	Somerset Levels and Moors
	Stour and Orwell Estuaries
	Strangford Lough
	The Dee Estuary
	The Swale
	Upper Nene Valley Gravel Pits
European golden plover	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Breydon Water



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Caithness and Sutherland Peatlands
	Colne Estuary (Mid-Essex Coast Phase 2)
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)
	Garron Plateau
	Hamford Water
	Humber Estuary
	Lindisfarne
	Lough Neagh and Lough Beg
	Lower Derwent Valley
	Medway Estuary and Marshes
	Minsmere–Walberswick
	Morecambe Bay
	Nene Washes
	North Norfolk Coast
	Northumbria Coast
	Outer Ards
	Pettigoe Plateau
	Ribble and Alt Estuaries
	Somerset Levels and Moors
	Strangford Lough
	Thanet Coast and Sandwich Bay
	The Swale
The Wash	
Upper Nene Valley Gravel Pits	
Upper Solway Flats and Marshes	
Gadwall	Abberton Reservoir
	Avon Valley
	Broadland
	Lee Valley
	Loch Leven
	Lough Neagh and Lough Beg
	Lower Derwent Valley
	Minsmere–Walberswick



Migratory Species	UK Ramsar sites where a Qualifying Feature
	North Norfolk Coast Ouse Washes Rutland Water Severn Estuary Somerset Levels and Moors South West London Waterbodies Stodmarsh Strangford Lough Thames Estuary and Marshes Upper Nene Valley Gravel Pits
Goosander	Firth of Forth Firth of Tay & Eden Estuary
Great crested grebe	Belfast Lough Firth of Forth Larne Lough Loch Leven Lough Foyle Lough Neagh and Lough Beg Morecambe Bay Outer Ards Rutland Water South West London Waterbodies Stour and Orwell Estuaries Strangford Lough Thanet Coast and Sandwich Bay The Dee Estuary Upper Lough Erne Upper Nene Valley Gravel Pits Upper Solway Flats and Marshes
Great northern diver	Bridgend Flats, Islay
Greater scaup	Belfast Lough Bridgend Flats, Islay Cromarty Firth Firth of Forth



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Inner Moray Firth Lough Neagh and Lough Beg Moray and Nairn Coast Upper Solway Flats and Marshes
Greenland white-fronted goose	Caithness Lochs Coll Eilean na Muice Duibhe (Duich Moss), Islay Gruinart Flats, Islay Kintyre Goose Roosts Loch Ken and River Dee Marshes Loch Lomond Loch of Inch and Torrs Warren Rinns of Islay Sléibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast)
Grey plover	Benfleet and Southend Marshes Blackwater Estuary (Mid-Essex Coast Phase 4) Burry Inlet Chichester and Langstone Harbours Colne Estuary (Mid-Essex Coast Phase 2) Dengie (Mid-Essex Coast Phase 1) Firth of Forth Firth of Tay & Eden Estuary Foulness (Mid-Essex Coast Phase 5) Gibraltar Point Hamford Water Lindisfarne Medway Estuary and Marshes Morecambe Bay North Norfolk Coast Pagham Harbour Ribble and Alt Estuaries Solent and Southampton Water Stour and Orwell Estuaries Strangford Lough



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Thames Estuary and Marshes The Dee Estuary The Swale The Wash Upper Solway Flats and Marshes
Greylag goose	Broadland Caithness and Sutherland Peatlands Caithness Lochs Cromarty Firth Din Moss – Hoselaw Loch Dornoch Firth and Loch Fleet Firth of Tay & Eden Estuary Holburn Lake and Moss Inner Moray Firth Lindisfarnie Loch an Duin Loch Eye Loch Ken and River Dee Marshes Loch of Kinnordy Loch of Lintrathen Loch of Skene Loch of Strathbeg Loch Spynie Lough Foyle Montrose Basin Moray and Nairn Coast Muir of Dinnet North Uist Machair and Islands South Tayside Goose Roosts South Uist Machair and Lochs Strangford Lough
Hen harrier	Blackwater Estuary (Mid-Essex Coast Phase 4) Broadland Caithness and Sutherland Peatlands



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Colne Estuary (Mid-Essex Coast Phase 2) Crouch and Roach Estuaries (Mid-Essex Coast Phase 3) Dengie (Mid-Essex Coast Phase 1) Dorset Heathlands Foulness (Mid-Essex Coast Phase 5) Loch of Inch and Torrs Warren Minsmere–Walberswick Ouse Washes Rinns of Islay River Spey – Insh Marshes Stodmarsh The New Forest
Light-bellied brent goose	Carlingford Lough Gruinart Flats, Islay Killough Bay Larne Lough Lindsifarne Lough Foyle Outer Ards Strangford Lough
Long-tailed duck	Firth of Forth Inner Moray Firth Moray and Nairn Coast
Mallard	Lough Foyle Lough Neagh and Lough Beg Lower Derwent Valley Strangford Lough Upper Lough Erne
Merlin	Caithness and Sutherland Peatlands Dorset Heathlands
Northern lapwing	Blackwater Estuary (Mid-Essex Coast Phase 4) Breydon Water Lough Foyle Lough Neagh and Lough Beg



Migratory Species	UK Ramsar sites where a Qualifying Feature
	<p>Morecambe Bay</p> <p>Outer Ards</p> <p>Somerset Levels and Moors</p> <p>Strangford Lough</p> <p>The Swale</p> <p>The Wash</p>
Northern pintail	<p>Alde–Ore Estuary</p> <p>Arun Valley</p> <p>Avon Valley</p> <p>Blackwater Estuary (Mid-Essex Coast Phase 4)</p> <p>Breydon Water</p> <p>Burry Inlet</p> <p>Duddon Estuary</p> <p>Lower Derwent Valley</p> <p>Martin Mere</p> <p>Medway Estuary and Marshes</p> <p>Mersey Estuary</p> <p>Morecambe Bay</p> <p>Nene Washes</p> <p>North Norfolk Coast</p> <p>Ouse Washes</p> <p>Pagham Harbour</p> <p>Poole Harbour</p> <p>Ribble and Alt Estuaries</p> <p>Severn Estuary</p> <p>Solent and Southampton Water</p> <p>Somerset Levels and Moors</p> <p>Stour and Orwell Estuaries</p> <p>Strangford Lough</p> <p>The Dee Estuary</p> <p>The Swale</p> <p>The Wash</p> <p>Upper Solway Flats and Marshes</p>
Northern shoveler	Abberton Reservoir



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Alde–Ore Estuary
	Arun Valley
	Avon Valley
	Breydon Water
	Broadland
	Burry Inlet
	Lee Valley
	Leighton Moss
	Loch Leven
	Lower Derwent Valley
	Medway Estuary and Marshes
	Midland Meres and Mosses Phase 2
	Minsmere–Walberswick
	Nene Washes
	North Norfolk Coast
	North Uist Machair and Islands
	Ouse Washes
	Ribble and Alt Estuaries
	Rutland Water
	Severn Estuary
	Solent and Southampton Water
	Somerset Levels and Moors
	South West London Waterbodies
	Stodmarsh
	Strangford Lough
	Teesmouth and Cleveland Coast
Thames Estuary and Marshes	
The Swale	
Upper Nene Valley Gravel Pits	
Osprey	Cromarty Firth
	Dornoch Firth and Loch Fleet
	Moray and Nairn Coast
	River Spey – Insh Marshes
Pink-footed goose	Breydon Water



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Broadland Cameron Reservoir Castle Loch, Lochmaben Din Moss – Hoselaw Loch Fala Flow Firth of Forth Firth of Tay & Eden Estuary Gladhouse Reservoir Greenlaw Moor Lindisfarn Loch Leven Loch of Kinnordy Loch of Skene Loch of Strathbeg Martin Mere Montrose Basin Moray and Nairn Coast Morecambe Bay North Norfolk Coast Ribble and Alt Estuaries South Tayside Goose Roosts The Wash Upper Solway Flats and Marshes Westwater Ythan Estuary and Meikle Loch
Purple sandpiper	East Sanday Coast North Uist Machair and Islands Northumbria Coast Outer Ards
Red knot	Belfast Lough Benfleet and Southend Marshes Blackwater Estuary (Mid-Essex Coast Phase 4) Burry Inlet Cromarty Firth



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Dengie (Mid-Essex Coast Phase 1) Duddon Estuary Firth of Forth Foulness (Mid-Essex Coast Phase 5) Gibraltar Point Hamford Water Humber Estuary Lindisfarne Medway Estuary and Marshes Montrose Basin Morecambe Bay North Norfolk Coast Ribble and Alt Estuaries Stour and Orwell Estuaries Strangford Lough Teesmouth and Cleveland Coast Thames Estuary and Marshes The Dee Estuary The Swale The Wash Upper Solway Flats and Marshes
Red-breasted merganser	Belfast Lough Blackwater Estuary (Mid-Essex Coast Phase 4) Bridgend Flats, Islay Chesil Beach and The Fleet Chichester and Langstone Harbours Duddon Estuary Exe Estuary Firth of Forth Inner Moray Firth Larne Lough Lough Foyle Lough Neagh and Lough Beg Moray and Nairn Coast



Migratory Species	UK Ramsar sites where a Qualifying Feature
	<p>Morecambe Bay</p> <p>North Norfolk Coast</p> <p>Poole Harbour</p> <p>Solent and Southampton Water</p> <p>Strangford Lough</p>
Red-throated diver	<p>Belfast Lough</p> <p>Caithness and Sutherland Peatlands</p> <p>Dengie (Mid-Essex Coast Phase 1)</p> <p>Firth of Forth</p> <p>Gibraltar Point</p> <p>Lough Foyle</p> <p>Ribble and Alt Estuaries</p> <p>Ronas Hill – North Roe and Tingon</p> <p>Thanet Coast and Sandwich Bay</p> <p>The Wash</p>
Ringed plover	<p>Belfast Lough</p> <p>Benfleet and Southend Marshes</p> <p>Blackwater Estuary (Mid-Essex Coast Phase 4)</p> <p>Chichester and Langstone Harbours</p> <p>Colne Estuary (Mid-Essex Coast Phase 2)</p> <p>Dengie (Mid-Essex Coast Phase 1)</p> <p>East Sanday Coast</p> <p>Firth of Forth</p> <p>Firth of Tay & Eden Estuary</p> <p>Foulness (Mid-Essex Coast Phase 5)</p> <p>Hamford Water</p> <p>Lindisfarn</p> <p>Lough Foyle</p> <p>Medway Estuary and Marshes</p> <p>Mersey Estuary</p> <p>Morecambe Bay</p> <p>North Norfolk Coast</p> <p>North Uist Machair and Islands</p> <p>Outer Ards</p>



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Ribble and Alt Estuaries Severn Estuary Sléibhteán agus Cladach Thiriodh (Tiree Wetlands and Coast) Solent and Southampton Water South Uist Machair and Lochs Stour and Orwell Estuaries Strangford Lough Thames Estuary and Marshes Thanet Coast and Sandwich Bay The Dee Estuary The Swale The Wash Upper Solway Flats and Marshes
Ruddy turnstone	Belfast Lough Blackwater Estuary (Mid-Essex Coast Phase 4) Chichester and Langstone Harbours East Sanday Coast Firth of Forth Medway Estuary and Marshes Morecambe Bay North Norfolk Coast North Uist Machair and Islands Northumbria Coast Outer Ards Sléibhteán agus Cladach Thiriodh (Tiree Wetlands and Coast) Stour and Orwell Estuaries Strangford Lough Thanet Coast and Sandwich Bay The Wash
Ruff	Abberton Reservoir Arun Valley Belfast Lough Blackwater Estuary (Mid-Essex Coast Phase 4) Breydon Water



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Broadland
	Caithness Lochs
	Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)
	Gruinart Flats, Islay
	Hamford Water
	Lindisfarne
	Loch Leven
	Loch of Strathbeg
	Lough Foyle
	Lower Derwent Valley
	Martin Mere
	Minsmere–Walberswick
	Montrose Basin
	Morecambe Bay
	Nene Washes
	North Norfolk Coast
	Ouse Washes
	Ribble and Alt Estuaries
	Rutland Water
	Severn Estuary
	Somerset Levels and Moors
	Stodmarsh
	Stour and Orwell Estuaries
	Thames Estuary and Marshes
	The Swale
	The Wash
Upper Solway Flats and Marshes	
Sanderling	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Duddon Estuary
	East Sanday Coast
	Firth of Forth
	Foulness (Mid-Essex Coast Phase 5)



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Gibraltar Point Morecambe Bay North Norfolk Coast North Uist Machair and Islands Northumbria Coast Ribble and Alt Estuaries Thanet Coast and Sandwich Bay The Dee Estuary The Wash Upper Solway Flats and Marshes
Short-eared owl	Caithness and Sutherland Peatlands
Slavonian grebe	Blackwater Estuary (Mid-Essex Coast Phase 4) Bridgend Flats, Islay Cromarty Firth Firth of Forth Inner Clyde Estuary Inner Moray Firth Lindisfarn Loch Ruthven Lough Foyle Pagham Harbour Solent and Southampton Water
Spotted crane	Lower Derwent Valley River Spey – Insh Marshes
Tufted duck	Abberton Reservoir Lee Valley Loch Leven Lough Neagh and Lough Beg Ouse Washes Rutland Water South West London Waterbodies Upper Lough Erne Upper Nene Valley Gravel Pits
Velvet scoter	Firth of Forth



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Firth of Tay & Eden Estuary
	Moray and Nairn Coast
	North Norfolk Coast
Whimbrel	Blackwater Estuary (Mid-Essex Coast Phase 4)
	Breydon Water
	Burry Inlet
	Chichester and Langstone Harbours
	Crouch and Roach Estuaries (Mid-Essex Coast Phase 3)
	Exe Estuary
	Foulness (Mid-Essex Coast Phase 5)
	Lough Foyle
	Medway Estuary and Marshes
	Morecambe Bay
	North Norfolk Coast
	Pagham Harbour
	Ronas Hill – North Roe and Tingon
	Severn Estuary
	The Swale
The Wash	
Upper Solway Flats and Marshes	
Whooper swan	Caithness Lochs
	Cors Caron
	Dornoch Firth and Loch Fleet
	Firth of Forth
	Loch Eye
	Loch Ken and River Dee Marshes
	Loch Leven
	Loch of Kinnordy
	Loch of Lintrathen
	Loch of Strathbeg
	Lough Foyle
	Lough Neagh and Lough Beg
	Lower Derwent Valley
Martin Mere	



Migratory Species	UK Ramsar sites where a Qualifying Feature
	Nene Washes
	Ouse Washes
	Ribble and Alt Estuaries
	Rinns of Islay
	River Spey – Insh Marshes
	Sléibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast)
	Strangford Lough
	Upper Lough Erne
	Upper Solway Flats and Marshes

Table A1.4 List of migratory terrestrial and waterbird species with migratory routes that have theoretical connectivity with the WDA, and associated ROI SPAs.

Migratory Species	SPAs where a Qualifying Feature
Barnacle goose	Ardboline Island and Horse Island SPA
	Ballintemple and Ballygilgan SPA
	Cruagh Island SPA
	Duvillaun Islands SPA
	High Island, Inishshark and Davillaun SPA
	Horn Head to Fanad Head SPA
	Illancrone and Inishkeeragh SPA
	Illeanonearaun SPA
	Inishbofin, Inishdooley and Inishbeg SPA
	Inishglora and Inishkeeragh SPA
	Inishkea Islands SPA
	Inishkeel SPA
	Inishmurray SPA
	Inishtrahull SPA
	Magharee Islands SPA
	Mid-Clare Coast SPA
	Rathlin O'Birne Island SPA
	Roaninish SPA
	Slyne Head to Ardmore Point Islands SPA
	Termoncarragh Lake and Annagh Machair SPA
Trawbreaga Bay SPA	
West Donegal Islands SPA	



Migratory Species	SPAs where a Qualifying Feature
Bar-tailed godwit	Baldoyle Bay SPA
	Ballycotton Bay SPA
	Ballymacoda Bay SPA
	Ballysadare Bay SPA
	Ballyteige Burrow SPA
	Bannow Bay SPA
	Blacksod Bay/Broad Haven SPA
	Blackwater Estuary SPA
	Castlemaine Harbour SPA
	Cork Harbour SPA
	Courtmacsherry Bay SPA
	Drumcliff Bay SPA
	Dundalk Bay SPA
	Dungarvan Harbour SPA
	Inner Galway Bay SPA
	Killala Bay/Moy Estuary SPA
	Lough Foyle SPA
	Malahide Estuary SPA
	North Bull Island SPA
	River Shannon and River Fergus Estuaries SPA
South Dublin Bay and River Tolka Estuary SPA	
Tralee Bay Complex SPA	
Tramore Back Strand SPA	
Wexford Harbour and Slobbs SPA	
Black-tailed godwit	Ballyallia Lough SPA
	Ballycotton Bay SPA
	Ballymacoda Bay SPA
	Ballyteige Burrow SPA
	Bannow Bay SPA
	Blackwater Callows SPA
	Blackwater Estuary SPA
	Boyne Estuary SPA
	Clonakilty Bay SPA
	Cork Harbour SPA



Migratory Species	SPAs where a Qualifying Feature
	Corofin Wetlands SPA Courtmacsherry Bay SPA Dundalk Bay SPA Dungarvan Harbour SPA Malahide Estuary SPA Middle Shannon Callows SPA North Bull Island SPA Rahasane Turlough SPA River Little Brosna Callows SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA Tacumshin Lake SPA Tralee Bay Complex SPA Tramore Back Strand SPA Wexford Harbour and Slobs SPA
Black-throated diver	Inner Galway Bay SPA
Common eider	Lough Foyle SPA
Common goldeneye	Lough Derg (Shannon) SPA Lough Ree SPA Lough Sheelin SPA Lough Swilly SPA Malahide Estuary SPA Wexford Harbour and Slobs SPA
Common greenshank	Castlemaine Harbour SPA Lough Swilly SPA River Shannon and River Fergus Estuaries SPA
Common redshank	Ballymacoda Bay SPA Ballysadare Bay SPA Bannow Bay SPA Blackwater Estuary SPA Boyne Estuary SPA Castlemaine Harbour SPA Cork Harbour SPA Cummeen Strand SPA



Migratory Species	SPAs where a Qualifying Feature
	Dundalk Bay SPA Dungarvan Harbour SPA Inner Galway Bay SPA Killala Bay/Moy Estuary SPA Lough Foyle SPA Lough Swilly SPA Malahide Estuary SPA North Bull Island SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA South Dublin Bay and River Tolka Estuary SPA Tralee Bay Complex SPA Wexford Harbour and Slobbs SPA
Common ringed plover	Baldoyle Bay SPA Ballycotton Bay SPA Ballymacoda Bay SPA Blacksod Bay/Broad Haven SPA Castlemaine Harbour SPA Dundalk Bay SPA Inishkea Islands SPA Inner Galway Bay SPA Killala Bay/Moy Estuary SPA Mid-Clare Coast SPA River Nanny Estuary and Shore SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA South Dublin Bay and River Tolka Estuary SPA Tralee Bay Complex SPA
Common scoter	Blacksod Bay/Broad Haven SPA Castlemaine Harbour SPA Donegal Bay SPA Dundalk Bay SPA Lough Conn and Lough Cullin SPA Lough Corrib SPA



Migratory Species	SPAs where a Qualifying Feature
	Lough Ree SPA North-west Irish Sea SPA Seas off Wexford SPA The Raven SPA
Common shelduck	Baldoyle Bay SPA Ballyteige Burrow SPA Bannow Bay SPA Boyne Estuary SPA Clonakilty Bay SPA Cork Harbour SPA Courtmacsherry Bay SPA Dundalk Bay SPA Dungarvan Harbour SPA Lough Foyle SPA Lough Swilly SPA Malahide Estuary SPA North Bull Island SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA Tralee Bay Complex SPA Wexford Harbour and Slobbs SPA
Dunlin	Ballymacoda Bay SPA Ballysadare Bay SPA Bannow Bay SPA Blacksod Bay/Broad Haven SPA Blackwater Estuary SPA Clonakilty Bay SPA Cork Harbour SPA Courtmacsherry Bay SPA Derryveagh and Glendowan Mountains SPA Doogort Machair SPA Dundalk Bay SPA Dungarvan Harbour SPA Inishkea Islands SPA



Migratory Species	SPAs where a Qualifying Feature
	Inner Galway Bay SPA Killala Bay/Moy Estuary SPA Lough Foyle SPA Lough Nillan Bog SPA Lough Swilly SPA Malahide Estuary SPA Mid-Clare Coast SPA North Bull Island SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA South Dublin Bay and River Tolka Estuary SPA Termoncarragh Lake and Annagh Machair SPA Tralee Bay Complex SPA Tramore Back Strand SPA Wexford Harbour and Slobs SPA
Eurasian curlew	Ballycotton Bay SPA Ballymacoda Bay SPA Bannow Bay SPA Blacksod Bay/Broad Haven SPA Blackwater Estuary SPA Clonakilty Bay SPA Cork Harbour SPA Courtmacsherry Bay SPA Dundalk Bay SPA Dungarvan Harbour SPA Inner Galway Bay SPA Killala Bay/Moy Estuary SPA Lough Foyle SPA Lough Swilly SPA North Bull Island SPA River Shannon and River Fergus Estuaries SPA Tralee Bay Complex SPA Tramore Back Strand SPA Wexford Harbour and Slobs SPA



Migratory Species	SPAs where a Qualifying Feature
Eurasian oystercatcher	Bannow Bay SPA
	Boyne Estuary SPA
	Castlemaine Harbour SPA
	Cork Harbour SPA
	Cummeen Strand SPA
	Dundalk Bay SPA
	Dungarvan Harbour SPA
	Lough Foyle SPA
	Lough Swilly SPA
	Malahide Estuary SPA
	North Bull Island SPA
	River Nanny Estuary and Shore SPA
	Rogerstown Estuary SPA
	South Dublin Bay and River Tolka Estuary SPA
	Tralee Bay Complex SPA
Wexford Harbour and Slobbs SPA	
Eurasian teal	Ballyallia Lough SPA
	Ballycotton Bay SPA
	Ballymacoda Bay SPA
	Blackwater Callows SPA
	Cork Harbour SPA
	Corofin Wetlands SPA
	Dundalk Bay SPA
	Inner Galway Bay SPA
	Kilcolman Bog SPA
	Lough Foyle SPA
	Lough Iron SPA
	Lough Ree SPA
	Lough Swilly SPA
	North Bull Island SPA
	River Little Brosna Callows SPA
	River Shannon and River Fergus Estuaries SPA
	Tacumshin Lake SPA
The Gearagh SPA	



Migratory Species	SPAs where a Qualifying Feature
	The Murrough SPA Tralee Bay Complex SPA Wexford Harbour and Slobs SPA
Eurasian wigeon	Ballyallia Lough SPA Ballymacoda Bay SPA Blackwater Callows SPA Blackwater Estuary SPA Cahore Marshes SPA Castlemaine Harbour SPA Cork Harbour SPA Corofin Wetlands SPA Courtmacsherry Bay SPA Inner Galway Bay SPA Lough Foyle SPA Lough Iron SPA Lough Oughter Complex SPA Lough Ree SPA Lough Swilly SPA Middle Shannon Callows SPA Rahasane Turlough SPA River Little Brosna Callows SPA River Shannon and River Fergus Estuaries SPA River Suck Callows SPA Tacumshin Lake SPA The Gearagh SPA The Murrough SPA Tralee Bay Complex SPA Wexford Harbour and Slobs SPA
European golden plover	Baldoyle Bay SPA Ballycotton Bay SPA Ballymacoda Bay SPA Ballyteige Burrow SPA Bannow Bay SPA Blackwater Estuary SPA



Migratory Species	SPAs where a Qualifying Feature
	Boyne Estuary SPA
	Cahore Marshes SPA
	Connemara Bog Complex SPA
	Cork Harbour SPA
	Courtmacsherry Bay SPA
	Derryveagh and Glendowan Mountains SPA
	Dundalk Bay SPA
	Dungarvan Harbour SPA
	Four Roads Turlough SPA
	Inner Galway Bay SPA
	Killala Bay/Moy Estuary SPA
	Lough Corrib SPA
	Lough Croan Turlough SPA
	Lough Foyle SPA
	Lough Iron SPA
	Lough Nillan Bog SPA
	Lough Ree SPA
	Malahide Estuary SPA
	Middle Shannon Callows SPA
	North Bull Island SPA
	Owenduff/Nephin Complex SPA
	Rahasane Turlough SPA
	River Little Brosna Callows SPA
	River Nanny Estuary and Shore SPA
	River Shannon and River Fergus Estuaries SPA
	River Suck Callows SPA
	Tacumshin Lake SPA
	Tralee Bay Complex SPA
Tramore Back Strand SPA	
Wexford Harbour and Slobs SPA	
Gadwall	Ballyallia Lough SPA
	Lady's Island Lake SPA
	Lough Corrib SPA
	Tacumshin Lake SPA



Migratory Species	SPAs where a Qualifying Feature
Great crested grebe	Cork Harbour SPA
	Dundalk Bay SPA
	Dungarvan Harbour SPA
	Lough Foyle SPA
	Lough Oughter Complex SPA
	Lough Sheelin SPA
	Lough Swilly SPA
	Malahide Estuary SPA
	Wexford Harbour and Slobs SPA
Great northern diver	Blacksod Bay/Broad Haven SPA
	Courtmacsherry Bay SPA
	Donegal Bay SPA
	Inner Galway Bay SPA
	North-west Irish Sea SPA
Greater scaup	Castlemaine Harbour SPA
	Lough Swilly SPA
	River Shannon and River Fergus Estuaries SPA
	Tralee Bay Complex SPA
	Wexford Harbour and Slobs SPA
Greenland white-fronted goose	All Saints Bog SPA
	Ballykenny-Fisherstown Bog SPA
	Bellanagare Bog SPA
	Cahore Marshes SPA
	Cregganna Marsh SPA
	Dovegrove Callows SPA
	Durnesh Lough SPA
	Eirk Bog SPA
	Four Roads Turlough SPA
	Garriskil Bog SPA
	Horn Head to Fanad Head SPA
	Killarney National Park SPA
	Lough Conn and Lough Cullin SPA
	Lough Corrib SPA
Lough Croan Turlough SPA	



Migratory Species	SPAs where a Qualifying Feature
	Lough Gara SPA Lough Iron SPA Lough Mask SPA Lough Nillan Bog SPA Lough Swilly SPA Mongan Bog SPA Pettigo Plateau Nature Reserve SPA Rahasane Turlough SPA River Little Brosna Callows SPA River Suck Callows SPA Sheskinmore Lough SPA Termoncarragh Lake and Annagh Machair SPA The Raven SPA Wexford Harbour and Slobs SPA
Grey plover	Baldoyle Bay SPA Ballycotton Bay SPA Ballymacoda Bay SPA Ballysadare Bay SPA Ballyteige Burrow SPA Bannow Bay SPA Boyne Estuary SPA Cork Harbour SPA Dundalk Bay SPA Dungarvan Harbour SPA Killala Bay/Moy Estuary SPA Malahide Estuary SPA North Bull Island SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA South Dublin Bay and River Tolka Estuary SPA Tacumshin Lake SPA The Raven SPA Tralee Bay Complex SPA Tramore Back Strand SPA



Migratory Species	SPAs where a Qualifying Feature
	Wexford Harbour and Slobs SPA
Greylag goose	Dundalk Bay SPA
	Lambay Island SPA
	Lough Foyle SPA
	Lough Swilly SPA
	Poulaphouca Reservoir SPA
	Rogerstown Estuary SPA
	Stabannan-Braganstown SPA
	The Murrough SPA
Hen harrier	Lough Corrib SPA
	Mullaghanish to Musheramore Mountains SPA
	Slieve Aughty Mountains SPA
	Slieve Beagh SPA
	Slieve Bloom Mountains SPA
	Slievefelim to Silvermines Mountains SPA
	Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
	Wexford Harbour and Slobs SPA
Mallard	Ballyallia Lough SPA
	Castlemaine Harbour SPA
	Dundalk Bay SPA
	Lough Foyle SPA
	Lough Ree SPA
	Lough Swilly SPA
	The Gearagh SPA
	Tralee Bay Complex SPA
	Wexford Harbour and Slobs SPA
Merlin	Connemara Bog Complex SPA
	Derryveagh and Glendowan Mountains SPA
	Killarney National Park SPA
	Lough Nillan Bog SPA
	Owenduff/Nephin Complex SPA
	Slieve Aughty Mountains SPA
	Wicklow Mountains SPA
Northern lapwing	Ballycotton Bay SPA



Migratory Species	SPAs where a Qualifying Feature
	Ballymacoda Bay SPA Ballyteige Burrow SPA Bannow Bay SPA Blackwater Estuary SPA Boyne Estuary SPA Cahore Marshes SPA Cork Harbour SPA Courtmacsherry Bay SPA Dundalk Bay SPA Dungarvan Harbour SPA Inner Galway Bay SPA Lough Foyle SPA Lough Ree SPA Middle Shannon Callows SPA River Little Brosna Callows SPA River Shannon and River Fergus Estuaries SPA River Suck Callows SPA Tacumshin Lake SPA Termoncarragh Lake and Annagh Machair SPA Tralee Bay Complex SPA Tramore Back Strand SPA Wexford Harbour and Slobs SPA
Northern pintail	Bannow Bay SPA Castlemaine Harbour SPA Cork Harbour SPA Dundalk Bay SPA Malahide Estuary SPA North Bull Island SPA River Little Brosna Callows SPA River Shannon and River Fergus Estuaries SPA Tacumshin Lake SPA Tralee Bay Complex SPA Wexford Harbour and Slobs SPA
Northern shoveler	Ballyallia Lough SPA



Migratory Species	SPAs where a Qualifying Feature
	Cork Harbour SPA Kilcolman Bog SPA Lough Corrib SPA Lough Croan Turlough SPA Lough Iron SPA Lough Owel SPA Lough Rea SPA Lough Ree SPA Lough Swilly SPA North Bull Island SPA River Little Brosna Callows SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA Tacumshin Lake SPA
Purple sandpiper	Inishkea Islands SPA Mid-Clare Coast SPA Rockabill SPA Skerries Islands SPA
Red knot	Bannow Bay SPA Boyne Estuary SPA Dundalk Bay SPA Dungarvan Harbour SPA Lough Foyle SPA Lough Swilly SPA Malahide Estuary SPA North Bull Island SPA River Nanny Estuary and Shore SPA River Shannon and River Fergus Estuaries SPA Rogerstown Estuary SPA South Dublin Bay and River Tolka Estuary SPA Wexford Harbour and Slobs SPA
Red-breasted merganser	Blacksod Bay/Broad Haven SPA Cork Harbour SPA Courtmacsherry Bay SPA



Migratory Species	SPAs where a Qualifying Feature
	Dundalk Bay SPA Dungarvan Harbour SPA Inner Galway Bay SPA Lough Foyle SPA Lough Swilly SPA Malahide Estuary SPA Wexford Harbour and Slobs SPA
Red-throated diver	Blacksod Bay/Broad Haven SPA Castlemaine Harbour SPA Derryveagh and Glendowan Mountains SPA Lough Foyle SPA North-west Irish Sea SPA Seas off Wexford SPA The Murrough SPA The Raven SPA
Ruddy turnstone	Ballycotton Bay SPA Ballymacoda Bay SPA Boyne Estuary SPA Castlemaine Harbour SPA Dungarvan Harbour SPA Inishkea Islands SPA Inner Galway Bay SPA Mid-Clare Coast SPA North Bull Island SPA Skerries Islands SPA Tralee Bay Complex SPA
Sanderling	Ballymacoda Bay SPA Blacksod Bay/Broad Haven SPA Boyne Estuary SPA Castlemaine Harbour SPA Donegal Bay SPA Drumcliff Bay SPA Inishkea Islands SPA Killala Bay/Moy Estuary SPA



Migratory Species	SPAs where a Qualifying Feature
	Mid-Clare Coast SPA North Bull Island SPA River Nanny Estuary and Shore SPA South Dublin Bay and River Tolka Estuary SPA The Raven SPA Tralee Bay Complex SPA Wexford Harbour and Slobbs SPA
Slavonian grebe	Blacksod Bay/Broad Haven SPA
Tufted duck	Lough Arrow SPA Lough Conn and Lough Cullin SPA Lough Corrib SPA Lough Derg (Shannon) SPA Lough Derravarragh SPA Lough Ennell SPA Lough Kinale and Derragh Lough SPA Lough Mask SPA Lough Ree SPA Lough Sheelin SPA Tacumshin Lake SPA
Whooper swan	Blackwater Callows SPA Coole-Garryland SPA Corofin Wetlands SPA Durnesh Lough SPA Glen Lough SPA Kilcolman Bog SPA Lough Derravarragh SPA Lough Foyle SPA Lough Gara SPA Lough Iron SPA Lough Oughter Complex SPA Lough Ree SPA Lough Swilly SPA Middle Shannon Callows SPA Rahasane Turlough SPA



Migratory Species	SPAs where a Qualifying Feature
	River Little Brosna Callows SPA
	River Shannon and River Fergus Estuaries SPA
	River Suck Callows SPA
	Tacumshin Lake SPA
	Termoncarragh Lake and Annagh Machair SPA
	Tralee Bay Complex SPA
	Wexford Harbour and Slobs SPA



Table A1.5 List of migratory terrestrial and waterbird species with migratory routes that have theoretical connectivity with the WDA, and associated ROI Ramsar sites.

Migratory Species	ROI Ramsar site where a Qualifying Feature
Barnacle goose	Blacksod Bay and Broadhaven
	Dungarvan Harbour
	Trawbreaga Bay
Bar-tailed godwit	Baldoyle Bay
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blacksod Bay and Broadhaven
	Blackwater Estuary
	Castlemaine Harbour
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	North Bull Island
	Sandymount Strand/Tolka Estuary
	The Broadmeadow Estuary
Tramore Backstrand	
Wexford Wildfowl Reserve	
Black-tailed godwit	Baldoyle Bay
	Ballyallia Lough
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blackwater Estuary
	Castlemaine Harbour
	Cork Harbour
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	North Bull Island



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Rogerstown Estuary Sandymount Strand/Tolka Estuary The Broadmeadow Estuary Tramore Backstrand Wexford Wildfowl Reserve
Black-throated diver	Dundalk Bay Inner Galway Bay Sandymount Strand/Tolka Estuary
Common goldeneye	Bannow Bay Coole Lough & Garryland Wood Cork Harbour Cummeen Strand Dundalk Bay Dungarvan Harbour Inner Galway Bay Lough Corrib Lough Ennell Lough Gara Lough Oughter North Bull Island The Broadmeadow Estuary Wexford Wildfowl Reserve
Common redshank	Baldoyle Bay Ballyallia Lough Ballycotton Bay Ballymacoda Bannow Bay Blacksod Bay and Broadhaven Blackwater Estuary Castlemaine Harbour Cork Harbour Cummeen Strand Dundalk Bay Dungarvan Harbour



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Inner Galway Bay
	Lough Corrib
	North Bull Island
	Rogerstown Estuary
	Sandymount Strand/Tolka Estuary
	The Broadmeadow Estuary
	Wexford Wildfowl Reserve
Common ringed plover	Blacksod Bay and Broadhaven
	Rogerstown Estuary
	Trawbreaga Bay
Common scoter	Inner Galway Bay
	Lough Corrib
Common shelduck	Baldoyle Bay
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blackwater Estuary
	Castlemaine Harbour
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	North Bull Island
	Rogerstown Estuary
	Sandymount Strand/Tolka Estuary
	The Broadmeadow Estuary
Wexford Wildfowl Reserve	
Dunlin	Baldoyle Bay
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blacksod Bay and Broadhaven
	Blackwater Estuary



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Castlemaine Harbour Cork Harbour Cummeen Strand Dungarvan Harbour Inner Galway Bay Lough Corrib North Bull Island Rogerstown Estuary Sandymount Strand/Tolka Estuary The Broadmeadow Estuary Tramore Backstrand Wexford Wildfowl Reserve
Eurasian wigeon	Baldoyle Bay Ballyallia Lough Ballymacoda Bannow Bay Blackwater Estuary Castlemaine Harbour Coole Lough & Garryland Wood Cork Harbour Cummeen Strand Dundalk Bay Dungarvan Harbour Inner Galway Bay Killala Bay/Moy Estuary Lough Corrib Lough Ennell Lough Gara Lough Glen Lough Oughter North Bull Island Sandymount Strand/Tolka Estuary The Broadmeadow Estuary Tralee Bay



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Wexford Wildfowl Reserve
Eurasian curlew	Baldoyle Bay
	Ballyallia Lough
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blacksod Bay and Broadhaven
	Blackwater Estuary
	Castlemaine Harbour
	Clara Bog
	Coole Lough & Garryland Wood
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	Lough Corrib
	Lough Ennell
	Lough Gara
	Mongan Bog
	North Bull Island
Rogerstown Estuary	
Sandymount Strand/Tolka Estuary	
The Broadmeadow Estuary	
Wexford Wildfowl Reserve	
Eurasian oystercatcher	Baldoyle Bay
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blacksod Bay and Broadhaven
	Blackwater Estuary
	Castlemaine Harbour
	Cork Harbour
	Cummeen Strand



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Dundalk Bay Dungarvan Harbour Inner Galway Bay North Bull Island Rogerstown Estuary Sandymount Strand/Tolka Estuary The Broadmeadow Estuary Wexford Wildfowl Reserve
Eurasian teal	Baldoyle Bay Ballyallia Lough Ballymacoda Bannow Bay Blackwater Estuary Castlemaine Harbour Coole Lough & Garryland Wood Cork Harbour Cummeen Strand Dundalk Bay Dungarvan Harbour Inner Galway Bay Lough Corrib Lough Ennell Lough Gara Lough Glen Lough Oughter North Bull Island Rogerstown Estuary Sandymount Strand/Tolka Estuary Tralee Bay Wexford Wildfowl Reserve
European golden plover	Baldoyle Bay Ballycotton Bay Ballymacoda Bannow Bay



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Blacksod Bay and Broadhaven
	Blackwater Estuary
	Castlemaine Harbour
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Easky Bog
	Inner Galway Bay
	Knockmoyle/Sheskin
	Lough Barra Bog
	Lough Corrib
	Lough Ennell
	Meenachullion Bog
	North Bull Island
	Owenboy
	Owenduff catchment
	Pettigo Plateau
	The Broadmeadow Estuary
	Wexford Wildfowl Reserve
Gadwall	Ballyallia Lough
	Cork Harbour
	Inner Galway Bay
	Lough Corrib
	Wexford Wildfowl Reserve
Great crested grebe	Baldoyle Bay
	Ballyallia Lough
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Coole Lough & Garryland Wood
	Cork Harbour
	Cummeen Strand
	Dundalk Bay



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Dungarvan Harbour Inner Galway Bay Lough Corrib Lough Ennell Lough Gara Lough Oughter North Bull Island Sandymount Strand/Tolka Estuary
Great northern diver	Baldoyle Bay Ballycotton Bay Bannow Bay Blackwater Estuary Castlemaine Harbour Cork Harbour Cummeen Strand Dundalk Bay Dungarvan Harbour Inner Galway Bay Lough Corrib Sandymount Strand/Tolka Estuary The Broadmeadow Estuary
Greater scaup	Blacksod Bay and Broadhaven Castlemaine Harbour Cork Harbour Dundalk Bay Inner Galway Bay Wexford Wildfowl Reserve
Greenland white-fronted goose	Dundalk Bay Easky Bog Lough Barra Bog Lough Corrib Lough Gara Lough Iron Lough Oughter



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Lough Owel
	Owenduff catchment
	Pettigo Plateau
	Raven, The
	Wexford Wildfowl Reserve
Grey plover	Tramore Backstrand
Greylag goose	Dundalk Bay
Hen harrier	Lough Corrib
	Owenboy
	Pettigo Plateau
	Slieve Bloom Mountains
	Wexford Wildfowl Reserve
Light-bellied brent goose	Baldoyle Bay
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blacksod Bay and Broadhaven
	Blackwater Estuary
	Castlemaine Harbour
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	Killala Bay/Moy Estuary
	North Bull Island
	Rogerstown Estuary
	Sandymount Strand/Tolka Estuary
	The Broadmeadow Estuary
	Tralee Bay
	Tramore Backstrand
	Trawbreaga Bay
Wexford Wildfowl Reserve	
Long-tailed duck	Dungarvan Harbour



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Inner Galway Bay
Mallard	Rogerstown Estuary
Merlin	Clara Bog
	Lough Barra Bog
	Meenachullion Bog
	Owenduff catchment
	Pettigo Plateau
	Slieve Bloom Mountains
Northern lapwing	Baldoyle Bay
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blacksod Bay and Broadhaven
	Blackwater Estuary
	Castlemaine Harbour
	Coole Lough & Garryland Wood
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	Lough Corrib
	Lough Ennell
	Lough Gara
	Lough Glen
	Lough Oughter
	North Bull Island
	Rogerstown Estuary
Sandymount Strand/Tolka Estuary	
The Broadmeadow Estuary	
Wexford Wildfowl Reserve	
Northern pintail	Baldoyle Bay
	Ballyallia Lough
	Blackwater Estuary



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Castlemaine Harbour
	Cork Harbour
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	North Bull Island
	The Broadmeadow Estuary
	Tralee Bay
	Wexford Wildfowl Reserve
Northern shoveler	Ballyallia Lough
	Ballymacoda
	Coole Lough & Garryland Wood
	Cork Harbour
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	Lough Corrib
	Lough Ennell
	Lough Gara
	Lough Glen
	North Bull Island
	Rogerstown Estuary
	The Broadmeadow Estuary
	Wexford Wildfowl Reserve
Red knot	Baldoyle Bay
	Ballycotton Bay
	Ballymacoda
	Bannow Bay
	Blackwater Estuary
	Castlemaine Harbour
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Inner Galway Bay
	North Bull Island
	Sandymount Strand/Tolka Estuary
Red-throated diver	Baldoyle Bay
	Ballycotton Bay
	Bannow Bay
	Castlemaine Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
Ruff	Ballymacoda
	Cork Harbour
	Dundalk Bay
	Wexford Wildfowl Reserve
Sanderling	Blacksod Bay and Broadhaven
Slavonian grebe	Cork Harbour
	Dundalk Bay
Snipe	Ballycotton Bay
	Ballymacoda
	Blacksod Bay and Broadhaven
	Blackwater Estuary
	Castlemaine Harbour
	Coole Lough & Garryland Wood
	Cork Harbour
	Cummeen Strand
	Dundalk Bay
	Dungarvan Harbour
	Inner Galway Bay
	Lough Corrib
	Lough Ennell
	Lough Gara
Lough Iron	



Migratory Species	ROI Ramsar site where a Qualifying Feature
	Sandymount Strand/Tolka Estuary
	Wexford Wildfowl Reserve
Tufted duck	Ballyallia Lough
	Blacksod Bay and Broadhaven
	Castlemaine Harbour
	Cork Harbour
	Dundalk Bay
	Inner Galway Bay
	Lough Corrib
	Lough Derravaragh
	Lough Ennell
	Lough Gara
	Lough Oughter
Whooper swan	Ballyallia Lough
	Blacksod Bay and Broadhaven
	Coole Lough & Garryland Wood
	Dundalk Bay
	Inner Galway Bay
	Lough Corrib
	Lough Ennell
	Lough Gara
	Lough Glen
	Lough Iron
	Lough Oughter
	Wexford Wildfowl Reserve

