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Making Sense of the Marine Environment ™

Habitats Regulations Assessment Screening Report

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1. Introduction

1.1. Project Background

Blue Gem Wind (BGW) is proposing to develop a 96 MW Floating Offshore Wind (FLOW) Project named Erebus (the Project), in the Celtic Sea, 44 km southwest of the Pembrokeshire coastline in Wales. The Project is expected to be in operation for a maximum of 25 years before being decommissioned.

The key Project components are:

- Between 6 and 10 Wind Turbine Generators (WTGs), of total capacity up to 96 MW, with associated floating platforms and mooring infrastructure;
  - Turbines will be housed on floating (semi-submersible) WindFloat™ platforms secured to the seabed using catenary moorings;
- Inter-array cables and up to two offshore export cable to landfall at West Angle Bay;
- Onshore cabling between landfall and the grid connection point at Pembroke Power Station; and
- Onshore substation nearby the grid connection point.

1.2. Purpose of this Document

This report presents the screening exercise of the Project Habitats Regulations Assessment (HRA), determining the list of European designated sites and Ramsar sites that could be affected by the Project. The document covers both the marine and terrestrial (offshore and onshore) elements of the Project as shown in Figure 1.1 and Figure 1.2.

The structure of this report is as follows:

- Details of the Project (Section 1);
- Approach to HRA screening (Section 2); and
- The screening exercise, including the identification of sites and the assessment of exposure to effect pathways resulting from the Project (Sections 3-6).

Where there is credible evidence that there is no risk that the Project activities are 'likely to have a significant effect' (LSE) on specific features of a European or Ramsar site either alone or in-combination by undermining its conservation objective(s), these features have been screened out and will not require further assessment. Where such determination has been concluded, the justification is noted within the relevant receptor chapters.

If a credible impact pathway is identified, or there is reasonable doubt whether the Project will or will not result in LSE, in view of the conservation objectives, then the respective site and feature has been screened into the HRA, to be taken forward to the next stage, Appropriate Assessment (AA).

Figure 1.1: Map showing the location of the Erebus offshore array area and offshore export cable corridor

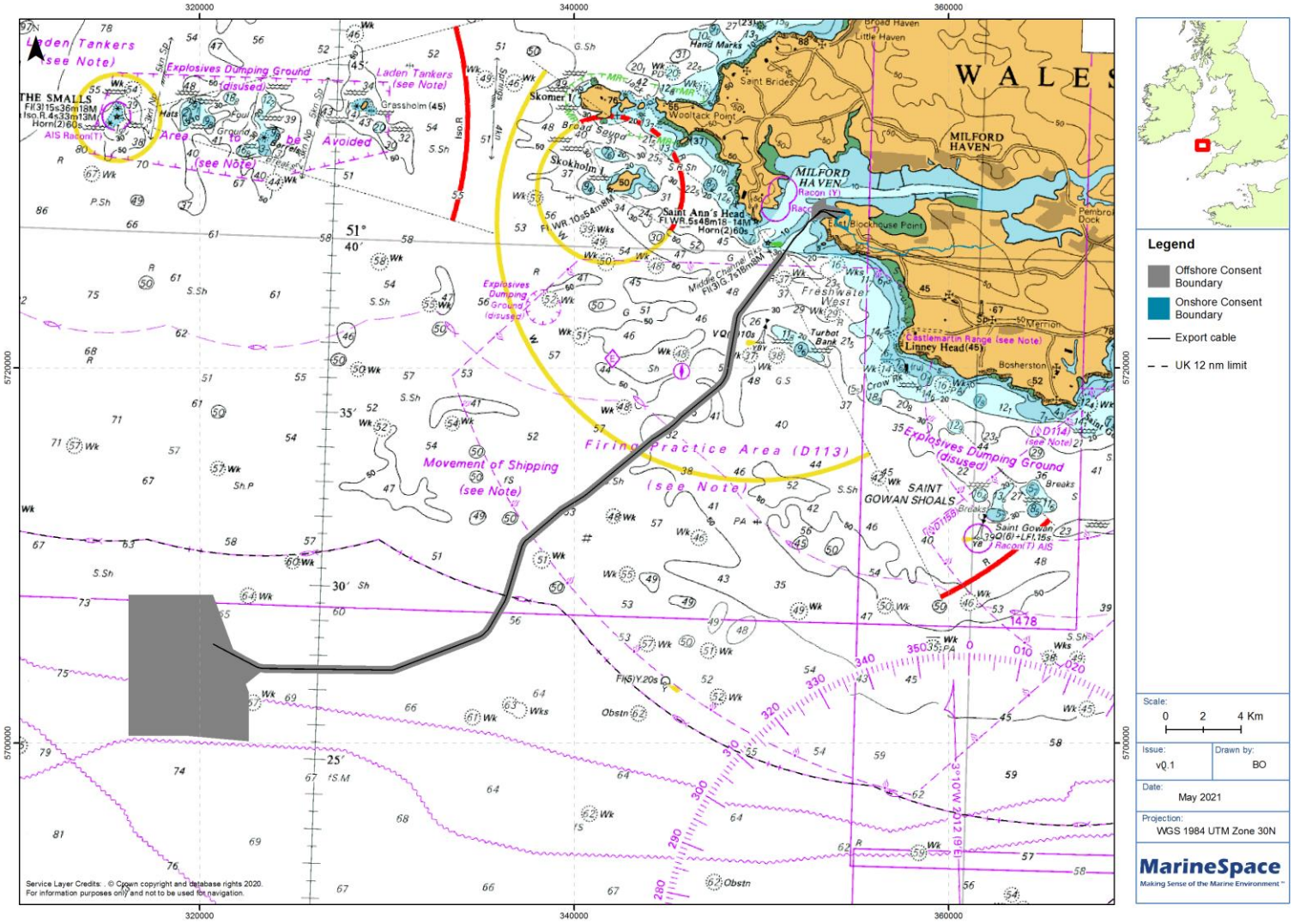
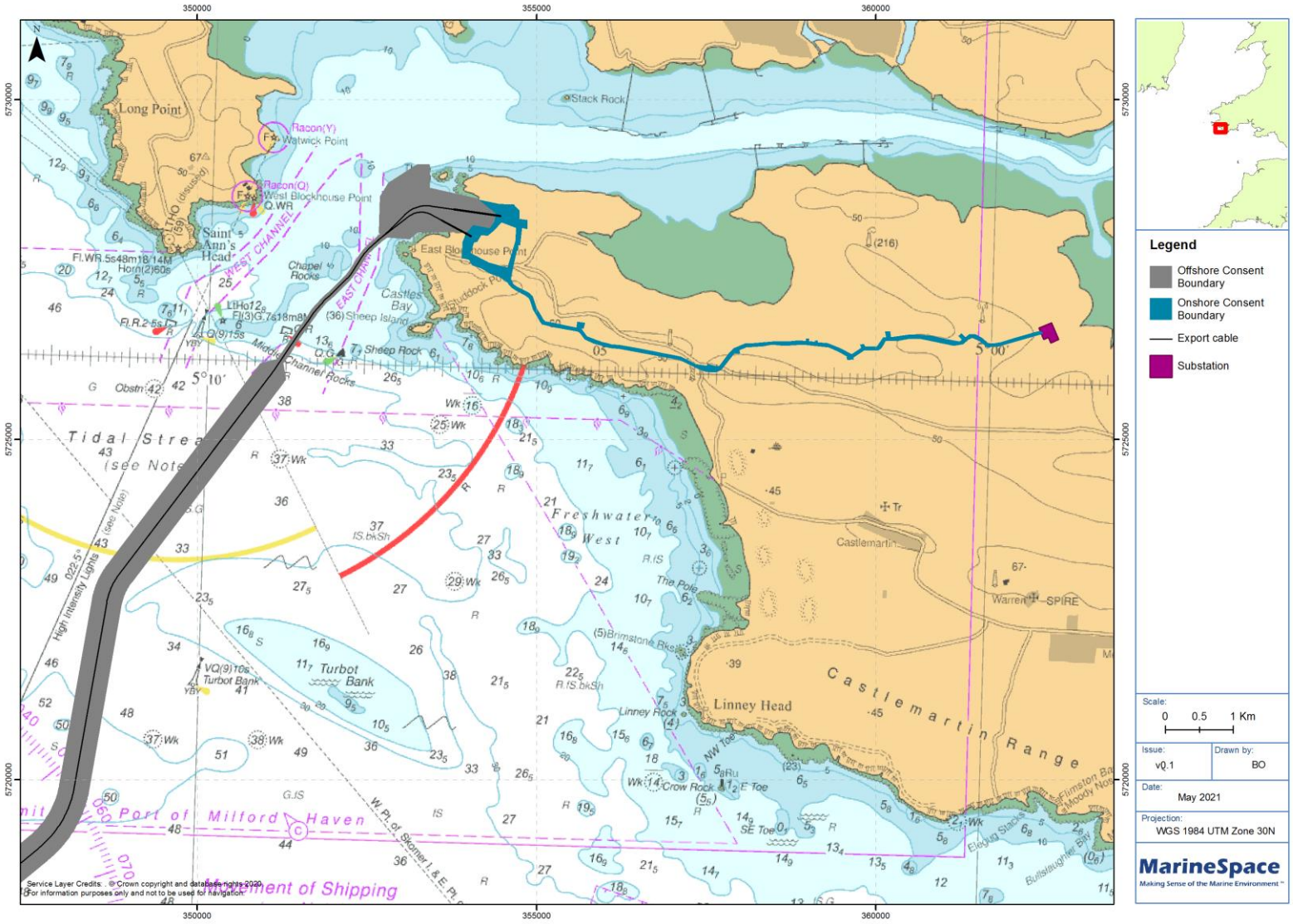


Figure 1.2: Map showing the location of the Erebus onshore works including onshore export cable corridor and substations



1.3. Habitats Regulations and the United Kingdom's Exit from the European Union

Following the United Kingdom's (UK's) exit from the European Union (EU) and the end of the transition period on the 31 December 2020, legislation has been passed to remove the domestic constitutional basis for EU law in the UK. Overall, the legislative changes do not result in material changes in how HRAs are undertaken in the UK.

The Conservation of Habitats and Species Regulations 2017 (as amended) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) transpose the EU Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known together as the Nature Directives) into UK law. Most functions of these Regulations have now been transferred from the European Commission (EC) to the appropriate authorities in England and Wales under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

The 2019 amendments provide legal certainty, and minimise disruption immediately following EU exit, by maintaining, as closely as possible, that which was already in place. For example, references in an EU context throughout the legislation have been re-defined to a UK only context. Habitat and species protection and standards will be implemented in the same or an equivalent way, maintaining existing protections for habitats and species. The environmental assessment regimes that inform planning decisions, including HRA, continue to apply post EU exit.

1.3.1. Habitats Regulations Site Designations

All European protected sites and species retain the same level of protection now that the UK has left the European Union. However, the 2019 Regulations now provide for the creation of a "national site network" within the UK territory. This is comprised of the European protected sites already designated under the Nature Directives (Natura 2000 network) and any further sites designated under these Regulations. Appropriate management objectives will be established for the national site network (the 'network objectives').

References to "European sites" and "Natura 2000 sites" throughout this ES, are to be read as references to either European sites and Natura 2000 sites within the European Union, or "European sites within the UK national site network"[1] designated before the UK left the EU; or designated after the UK left the EU under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

[1] As defined by Regulation 3 of the Conservation of Habitats and Species Regulations 2017.

1.4. HRA Legislation

This document has been produced to inform the HRA screening process for the Project. It provides information to enable the screening of the Project with respect to its potential to have LSE on any designated feature of a Natura 2000 site.

Sites within the Natura 2000 network are defined as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Sites of Community Importance (SCIs). UK Government policy (ODPM Circular 2005) states that internationally important wetlands designated under the Ramsar Convention 1971 (Ramsar sites and potential Ramsar sites) are afforded the same protection as SPAs and SACs, for the purpose of considering development proposals that may affect them. Therefore, Ramsar sites have also been considered within this HRA screening report.

HRA guidance (PINS, 2017; EC, 2018a; UK Gov, 2019) sets out stages for assessment of the effects of projects or plans on designated sites.

The HRA process comprises 4 main stages, which are:

- **Stage 1 Screening** to identify the likely impacts of a project on a European site and consider whether the impacts are likely to be significant;
- **Stage 2 AA** to determine whether the integrity of the European site will be adversely affected by the project;
- **Stage 3 Assessment of Alternative Solutions** to establish if there are any that will result in a lesser effect on the European site; and
- **Stage 4 Imperative Reasons of Overriding Public Interest (IROPI) and Compensatory Measures** to establish whether it is necessary for the project to proceed despite the effects on the European site, and to confirm that necessary compensatory measures are in place to maintain the coherence of the Natura 2000 network.

All 4 stages of the process are referred to collectively as the HRA, to clearly distinguish the whole process from the step within it referred to as the 'Appropriate Assessment' (i.e. Stage 2 AA). The stages are discussed in more detail in **Appendix A**.

This report contains the Screening Stage, where identification of LSE is reported for sites and species. For the purpose of this report, the following definition of LSE is used (from Hoskin and Tyldesley, 2006):

"*any effect that may reasonably be predicted as a consequence of a plan or project that may significantly affect the conservation or management objectives of the features for which the site was designated, but excluding trivial or inconsequential effects [de minimis]*."

It should be noted that the assessment provided within this document is based on the current understanding of the baseline environment and the scope and nature of the proposed Project activities. Further environmental survey and assessment work and refinements to the Project design may change the conclusions of this assessment. These changes will be reflected in the draft iterations of this HRA Screening Report to be consulted on as part of the pre-application consultation activity.

2. Approach to HRA Screening

The HRA screening process has been completed with consideration of relevant guidance issued by various Governmental, statutory and industry bodies including:

- European Commission notice: "Managing Natura 2000 sites The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC" (EC, 2018a);
- The Planning Inspectorate Advice Note Ten: Habitat Regulations Assessment relevant to nationally significant infrastructure projects (PINS, 2017);
- The Habitats Regulations Assessment Handbook (Tyldesley and Chapman, 2013);
- Ministry of Housing, Communities & Local Government, 2019. Appropriate Assessment guidance (UK Gov, 2019);
- Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning (Welsh Gov, 2009); and
- NRW Operational Guidance Note 200. Habitats Regulations Assessment of Projects (NRW, 2019).

BGW set out the proposed approach to the HRA process in the 'Project Erebus Habitat Regulations Assessment Strategy' note. NRW and JNCC were consulted on this note in June 2020 and following comments the note was subsequently updated and a revised version provided in October 2020. This document outlined key principles and methodology for the HRA process and was intended to provide the basis of an accepted approach concerning the HRA for the proposed project. It also outlined that a key initial stage of the proposed HRA process was a 'shadow' HRA screening exercise.

The HRA strategy note detailed specific screening thresholds that would be used to identify Natura 2000, UK national site network, and Ramsar sites which could potentially be affected by construction, operation or decommissioning activities associated with the Erebus Project. These thresholds were updated in accordance with consultation feedback from NRW and JNCC and the screening rationale was taken forward to produce a subsequent HRA Screening Output Note. This output was submitted to NRW and JNCC for consultation in October 2020 with a view to confirming that no sites were missing from the 'long-list' that should be considered within the HRA screening assessment. Following NRW/JNCC consultation feedback the HRA Screening Output Note was updated and re-issued to NRW/JNCC in January 2021 for consultation.

2.1. Identification of Relevant Designated Sites

The criteria described in Table 2.1 have been applied to identify the potential for connectivity between Natura 2000, UK national site network, and Ramsar sites, and Project zones of influence, to identify potential exposure of effects from the Project on designated features for these sites.

To allow a clear and logical presentation of the screening process, potential for interaction between pressure pathways and Natura 2000, UK national site network, and Ramsar sites is herein presented by broad receptor group, i.e. Annex I benthic habitats, Annex II migratory fish populations etc.

Table 2.1: Criteria used for the identification of designated conservation sites

Item	Criteria
1	There is a direct spatial overlap between the Natura 2000/Ramsar site and the Project.
2	There is spatial overlap between the Natura 2000/Ramsar site and the Project or secondary effect footprint†.
3	The habitat site hosts a mobile population of a qualifying interest feature (e.g. Annex I birds, Annex II or IV marine mammals, or Annex II Migratory Fish populations) that may interact directly with the spatial area* of the Project footprint.
4	The habitat or Natura 2000/Ramsar site hosts a mobile population of a qualifying interest feature (e.g. Annex I birds, Annex II or IV marine mammals and migratory fish) that may interact with the secondary effect footprint† associated with the Project.

†This is considered to occur where the envelope of indirect Project effects, e.g. sediment plume, overlaps with a Natura 2000 site or Ramsar site qualifying species, or habitat.

*This is considered to occur where the Project overlaps with the foraging range of any Natura 2000 or Ramsar site qualifying species, or habitat that potentially supports a prey species i.e. all sites have been considered which are within foraging range, regardless of the possibility of prey species potential presence, or not. As such, a coarse filter has been applied at this stage. Where there is an overlap in foraging range, connectivity has been assumed and the Natura 2000 or Ramsar sites have been considered within the screening assessment in order to maintain a precautionary approach.

3. Screening for Annex I Benthic Habitats

Screening has been carried out to identify potential exposure pathways for Annex I Habitats. Details of exposure pathways and the potential effects are detailed in Section 3.1 of this document. It is assumed that for Annex I Habitats, any Natura 2000 site or Ramsar site that overlaps with the direct Project footprint, or secondary plume footprint will be affected. Therefore, any overlapping Natura 2000 site or Ramsar site identified will be screened in for further assessment within Stage 2 AA.

A zone of influence is used to account for indirect effects on Annex I Habitats. This is set to corresponding with one tidal excursion distance the approximate distance over which water (or a section of plume with elevated SSC) is advected during one flood or ebb tide. Under mean spring conditions, this is approximately:

- 10 km around the array area;
- 14-15 km around the middle of the ECC (approximately KP20);
- 18-19 km in the nearshore approaches to Milford Haven (approximately KP10); and
- 4 km within Milford Haven.

3.1. Potential Pressure Pathways

The pressure pathways for Annex I Habitat have been identified as direct and indirect impacts from horizontal directional drilling (HDD), open-cut trenching (at landfall), cable burial, removal of sediment, piling or drilling operations and the placement of anchors and cable protection (rock berms and/or concrete mattresses) and any associated scour effects.

The placement of rock for cable protection may impact Annex I Sandbank habitat and would result in a change from soft sediment to hard substrate. Rock placement may also impact Annex I Reef habitats, including biogenic and geogenic reef. The associated changes are considered long-term as this material is expected to be left in place for the Project lifetime (around 25 years). Temporary sediment disturbance is also expected to result from ploughing/trenching/jetting activities required for cable installation.

There is potential risk from the Project to Annex I Habitats through the following pressures:

- Temporary/permanent habitat loss/disturbance;
- Temporary increases in suspended sediments/smothering;
- Accidental pollution;
- Introduction of INNS via vessel traffic and colonisation of hard structures by invasive non-native species (INNS); and
- Changes to physical processes.

Screening to identify potential exposure pathways for Annex I Habitats has been carried out based on the pressure pathways detailed in Table 3.1 below:

Table 3.1: Potential pressure pathways for Annex I Habitats

Project Phase	Effect	Justification
Construction, operation and maintenance and decommissioning	Temporary/permanent habitat loss/disturbance	There is potential for both temporary and permanent habitat loss and disturbance during the works. Rock protection may be required to provide cable protection in areas where the export cable cannot be buried, or where it crosses external transmission infrastructure. Anchors or piled/drilled attachment points will be employed on the seabed to secure the semisubmersible platforms in place. However, it should be noted that no Annex I Habitat has been identified within the offshore array area footprint. Sandwave levelling is proposed at seven locations along the export cable corridor, where the steep sides of these structures preclude use of standard cable installation methods. Although it is expected that these bedforms will fully recover from levelling works. This activity will be assessed in full within the Stage 2 AA. It should be noted that sandwave levelling is not proposed within the Pembrokeshire Marine SAC or any other designated nature conservation site, only cable installation via conventional plough/trenching tool. Although HDD is proposed as the preferred option for cable installation across the intertidal zone at landfall, the use of open-cut trenching is included as a contingency option, for use if HDD is deemed unfeasible. Open cut trenching introduces potential for permanent loss of a small area of Annex I reef habitat within West Angle Bay where the cable corridor intersects this designated habitat. Any resultant habitat loss is expected to be limited to areas of direct overlap between the Project footprint and Annex I Habitat features. It should be noted that overlap between Project activities and Annex I features within an SAC site will be limited to the cable corridor.
	Temporary increases in suspended sediments/smothering	Sediment disturbance is likely during cable laying and placement of rock protection or anchors on the seabed. These activities may indirectly result in adverse impacts to benthic communities due to an increase in the suspended sediment concentrations and associated sediment deposition. The effect of increased sediment concentrations is expected to be limited to within

Project Phase	Effect	Justification
		one tidal excursion of the works (see introductory text to Section 3).
	Accidental pollution	During all phases of the construction, O&M, and decommissioning there is a risk of accidental pollution from construction, operational and maintenance equipment and activities. If there is a pollution incident, it may impact benthic communities due to the contaminants and cause a reduction in benthic diversity, abundance and/or biomass. Pollution events are likely to be rare and the associated impacts would be highly localised and small scale. Best practice mitigation measures are expected to further reduce potential for adverse effects.
	Introduction of INNS via vessel traffic and colonisation of hard structures by INNS	There is potential for INNS to be introduced via vessel traffic to the site during construction, operation and decommissioning activities. In addition, installation of anchorage points and rock protection may potentially change the localised biodiversity. These structures could provide different environmental conditions suitable for marine organisms not previously present in this area. There is potential for colonisation by INNS. However, any colonisation is likely to be limited to the immediate vicinity of these works. It is considered unlikely that any sites outside a 10 km buffer will be impacted.
	Changes to physical processes	Installation of anchor points and cable protection may cause changes to local hydrodynamics and wave regimes. This may result in changes to sediment transport pathways, thereby affecting benthic ecology. Certain benthic species and communities may be more vulnerable to changes in water flow as this can reduce the availability of food particles, resulting in a reduction in feeding and growth rates. Increases in flow rates and scour may cause changes in sediment characteristics, potentially making these habitats less suitable for certain species. The effects from the proposed works on physical processes are expected to be limited to within one tidal excursion of the works (see introductory text to Section 3).

3.1.1. Summary of Potential Pressure Pathways

The following pressure pathways will be screened in with respect to Annex I benthic habitat and are set out in Table 3.2 for the Natura 2000 sites:

- Temporary/permanent habitat loss/disturbance;
- Temporary increases in suspended sediments/smothering;
- Colonisation of hard structures by INNS and introduction of INNS via vessel traffic to the site during construction, operation and decommissioning activities;
- Accidental pollution; and
- Changes to physical processes.

3.2. Annex I Benthic Habitats Assessed

3.2.1. Benthic Ecology

Figure 3.1 shows Annex I subtidal and intertidal benthic habitats at the proposed landfall location and

Figure 3.2 shows the Annex I Habitats along the offshore export cable route and within the array area. The two main Annex I Habitats present within the Project footprint are Annex I Reef and Annex I Sandbank habitats.

3.2.1.1. Annex I Sandbanks

The offshore export cable corridor overlaps with small areas of Annex I 'sandbanks which are slightly covered by sea water all the time'. These consist of sandy sediments and typically occur at depths of less than 20 m below Chart Datum. The habitat mainly consists of distinct banks, which may arise from horizontal or sloping plains of sandy sediment. Sandbanks can be rounded or elongated . The types of communities associated with this habitat are determined by the sediment type, chemical hydrological and physical factors (JNCC, 2021a).

3.2.1.2. Annex I Reefs

Annex I Reefs can comprise rocky marine habitats or biogenic structures that are found on the seabed. They consist of hard compact substrates which are topographically distinct from the surrounding solid or soft seabed and support highly variable biological communities.

Site-specific habitat surveys, to date, have identified Annex I Reef habitat close to the offshore cable corridor. However, it is expected that there will be no overlap between Annex I Reef and the footprint of cable trenching or placement of rock protection along the main cable route. However, if open-cut trenching is required at landfall, this is expected to result in a permanent loss of Annex I Reef. It should be noted that Annex I Reef habitat identified during surveys has exclusively been geogenic, rocky reef habitat (Figure 3.1; Figure 3.2).

Figure 3.2

3.2.1.3. Mudflats and sandflats not covered by seawater at low tide

Intertidal mudflats and sandflats (H1140) are intertidal habitats, left exposed at low tide before submerged following tidal inundation. They can exist as components of other SAC features such as estuaries, and large shallow inlets and bays, or can occur independently. The physical structure of the intertidal flats ranges from mobile, coarse-sand beaches on wave-exposed coasts to stable, fine-sediment mudflats in estuaries and other marine inlets. Although in reality these habitats are formed of a continuous gradient of sediment types, intertidal mudflats and sandflats are typically divided into clean sands, muddy sands or muds. This variation in sediment type, together with factors such as salinity, are important determinants of plant and animal communities that are found within these habitats (JNCC, 2021b).

3.2.1.4. Large Shallow Inlets and Bays

Commonly referred to as 'inlets and bays', Annex I Large Shallow Inlets and Bays (H1160) constitute coastal indentations where the influence of freshwater is generally limited. They typically comprise various other interdependent subtidal or intertidal habitats which may be Annex I habitats in their own right, e.g. Mudflats and sandflats not covered by sea water at low tide (H1140), Sandbanks which are slightly covered by sea water all the time (H1110) and Reefs (H1170).

Large shallow inlets and bays form large indentations of the coast where water depth is relatively shallow (<30 m). This creates an environment that is generally more sheltered from wave action than open coastal waters. In the UK, these habitats are typically divided into 3 sub-types:

- Embayment. A marine inlet forming a concave embayment in the coastline between rocky headlands, often with only a narrow entrance;
- Fjardic sea loch. A collection of shallow basins often found in low-lying grounds, connected to open waters by shallow sills; and
- Ria. A drowned river valley in an area of high relief; typically resulting from post-glacial sea level rise.

Habitat type and associated species composition can be highly variable between different inlet and bay features, this can be driven by differences in sediment type (hard rocky habitat or soft sediment areas), level of wave exposure, or site size (JNCC, 2021c).

3.3. Screening

It is likely that the Project will result in direct impacts where Annex I Habitats overlap with the offshore export cable corridor and potential indirect impacts to Annex I Habitats within a range of up to 19 km from the Project footprint. Sites are screened based on the expected maximum zone of influence for each pressure pathways identified. Any site screened in will be taken on to Stage 2 AA for further assessment.

Figure 3.1: Map to show the intertidal habitat with Annex I and EUNIS habitats

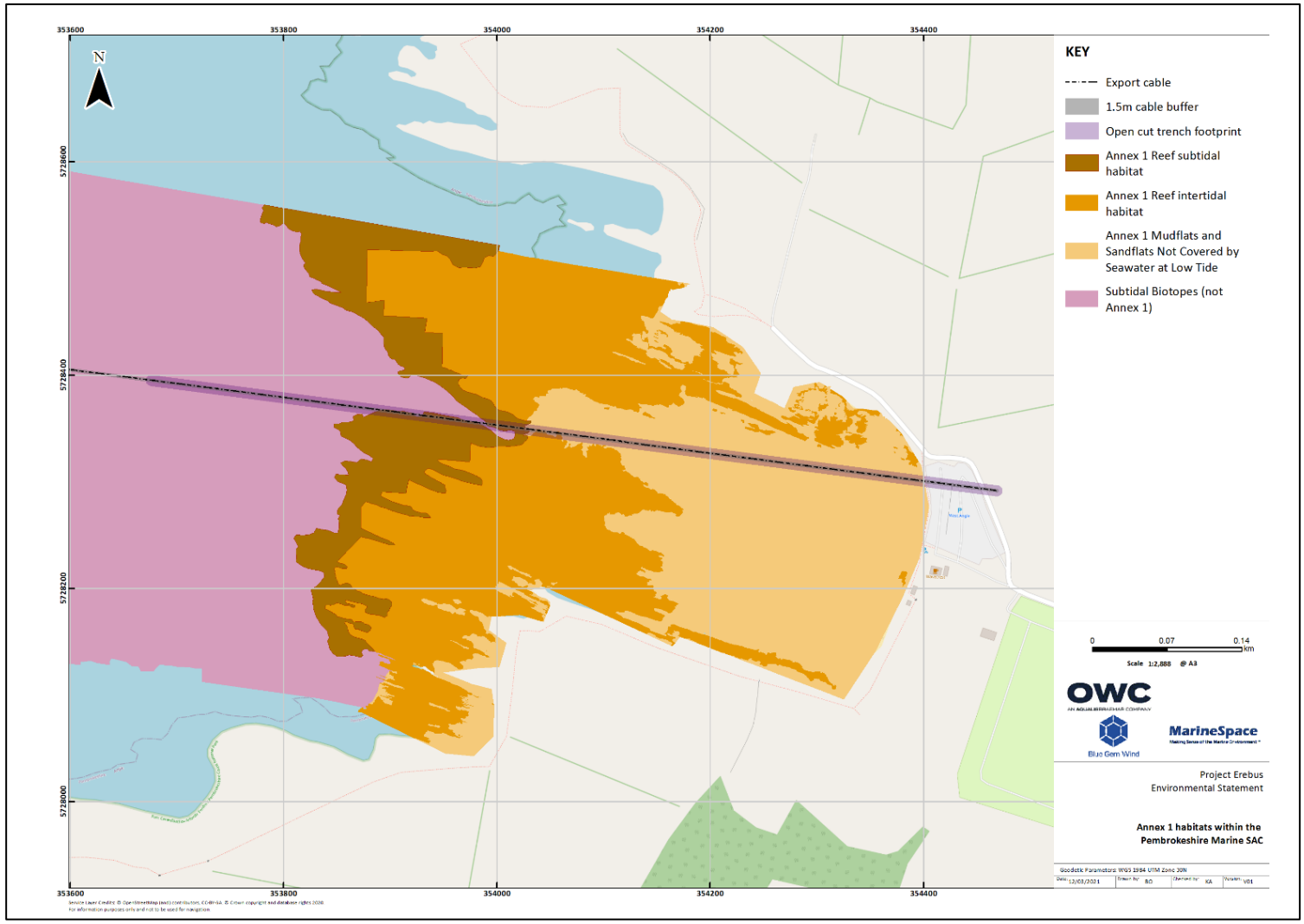


Figure 3.2: Map showing habitat, including Annex I Habitats, within the Project array area and export cable corridor

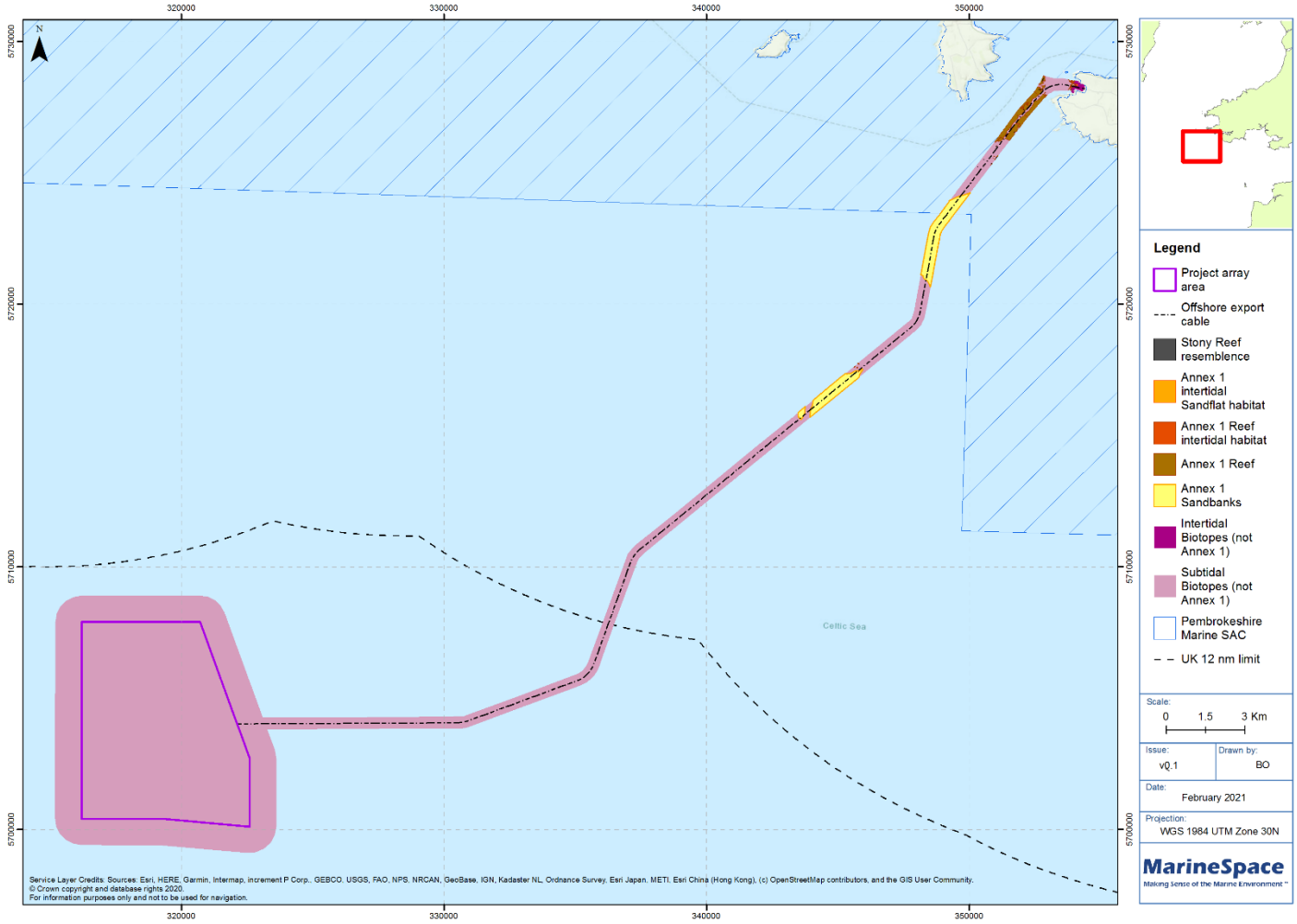


Table 3.2: Sites screened in for the next stage of the assessment for the Erebus Project in relation to Annex I Benthic Habitats

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	Primary reason for site selection: • Estuaries (H1130); • Large shallow inlets and bays (H1160); • Reefs (H1170). Annex I Habitat but not a primary feature for this site: • Sandbanks which are slightly covered by sea water all the time (H1110); • Mudflats and sandflats not covered by seawater at low tide (H1140); • Coastal lagoons (H1150); • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (H1330); • Submerged or partially submerged sea caves (H8330).	0	In	There is direct overlap between the Project footprint and Annex I Habitats.

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0014787	Wales	Limestone Coast of South West Wales/Arfordir Calchfaen de Orllewin Cymru SAC	Primary reason for site selection: • Vegetated sea cliffs of the Atlantic and Baltic Coasts (H1230); • Fixed coastal dunes with herbaceous vegetation 'grey dunes' (H2130). Annex I Habitat but not a primary feature for this site: • European dry heaths (H4030); • Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (important orchid sites) (H6210); • Caves not open to the public (H8310); • Submerged or partially submerged sea caves (H8330).	6	Screened in for Submerged or partially submerged sea caves (H8330)	Terrestrial components of this site are considered within Table 7.2. Adverse effects on Submerged or partially submerged sea caves (H8330) is considered unlikely due to low sensitivity of these habitats to potential Project secondary effects. However, as these are cross-boundary features between the Limestone Coast SAC and the Pembrokeshire Marine SAC (screened in above) it is considered that both features should be considered within Stage 2 AA.

4. Screening for Annex II Migratory Fish Populations

Screening has been carried out to identify potential exposure pathways for Annex II Migratory Fish populations. Details of exposure pathways and the potential effects are detailed in Section 4.2 (Table 4.1). A zone of influence has been used to identify the area within which there is potential for interaction between designated Annex II Migratory Fish populations and Project pressures. The extent of this zone of influence is based on the criteria set out in Table 2.1 and information provided hereafter. Based on this information, it is concluded that there is potential for construction, operation and maintenance, and decommissioning works to impact migratory fish populations within a range of 10 km from the Project, including array area and offshore export cable corridor. Additional sites outside this threshold are also screened into Stage 2 AA where site-specific evidence indicate there is potential for individuals from these sites to pass through/close to the Project footprint during seasonal migration (see Table.4.2).

4.1. Annex II Migratory Fish Populations Assessed

A full list of Annex II Migratory Fish populations considered in this screening is provided below:

- Allis shad *Alosa alosa*;
- Twaite shad *Alosa fallax*;
- Sea lamprey *Petromyzon marinus*;
- River lamprey *Lampetra fluviatilis*; and
- Atlantic Salmon *Salmo salar*.

4.2. Potential Pressure Pathways

There may be inter-species variation in the pressure pathways to which different migratory fish are sensitive and attention must be given to the seasonal nature of the respective populations. Potential risk from Project activities to designated populations of Annex II Migratory Fish species have been identified from the following pressures:

- Temporary habitat disturbance;
- Temporary increases in suspended sediments/deposition;
- Underwater noise from Unexploded Ordnance (UXO) clearance, drilling and/or piling/particle motion disturbance;
- Accidental pollution;
- Electromagnetic fields; and
- Long-term habitat loss/alteration.

Table 4.1: Potential pressure pathways for Annex II fish species

Project Phase	Effect	Justification
Construction, operation and maintenance, and decommissioning	Temporary habitat loss/disturbance/alteration	There is the potential for temporary, direct habitat loss and habitat disturbance during anchor installation (percussive piling or drilling), cable laying operations and other activities during all the phases of the Project. These effects are likely to be localised and only occur close to Project array area and export cable corridor. It is unlikely that effects will occur at a distance greater than 10 km from the site.
	Temporary increases in suspended sediments/deposition	Sediment disturbance is likely during cable laying, placement of rock protection, drilling or piling activities and placement of the anchors on the seabed. Sediment mobilisation may result in indirect adverse effects to fish due to smothering of habitats by sediment plumes. Sediment plume extents are not expected to extend more than one tidal excursion of the works (see introductory text to Section 3).
	Underwater noise/particle motion disturbance	Construction activities may result in underwater noise in excess of background levels. UXO clearance and piling may cause some disturbance, particularly sound pressure changes close to the source. Some species are also known to be sensitive to particle motion disturbance. Although this area is still poorly understood, the radius of effect is expected to be spatially limited to the immediate area around the Project footprint. Acoustic effects on fish are not expected at distances greater than 1 km from the noise source (Popper *et al.*, 2014; Subacoustech, 2018).
	Accidental pollution	During all phases of the construction, O&M, and decommissioning there is a risk of accidental pollution from construction, operational and maintenance equipment and activities. Any pollution incident may impact fish communities through chemical contamination. This may cause a reduction in fish diversity, abundance and biomass. Pollution events are likely to be rare and the associated effects would be highly localised and small scale. Best practice mitigation

Project Phase	Effect	Justification
		measures are expected to further reduce potential for adverse effects.
	Electromagnetic Field (EMF) disturbance	Migratory fish are known to use the earth's magnetic field for orientation during seasonal migration. In view of this, there is potential for effects from electromagnetic fields produced by energy generation transmission infrastructure. However, adverse effects have not been detected at other UK OWFs. Although this potential impact is not currently well understood, it is considered that any effects from EMF would be highly localised around the FLOW infrastructure, specifically cables. Any effects that do occur are unlikely to cause effect beyond 100 m (BOEM, 2020; Normandeau *et. al*, 2011).
	Long-term habitat loss/alteration	Where rock protection is required at anchor points and for cable protection there is potential for long-term habitat loss or alteration. Habitat alteration has potential to impact migratory fish receptors through changes in prey availability. However, effects are likely to be highly localised. Given the highly mobile nature of these fishes, any changes are expected to make a negligible difference to overall prey availability. As such, it is considered there is **no potential LSE** from this pressure.

4.2.1. Summary of Potential Pressure Pathways

No LSE is concluded for the following pressures and these will not be assessed at Stage 2 AA of the HRA in relation to Annex II Migratory Fish :

- Long-term habitat loss/alteration.

The following pressure pathways will be screened within Table 3.2 for the Natura 2000 sites in relation to Annex II Migratory Fish:

- Temporary habitat disturbance;
- Accidental pollution;
- Temporary increases in suspended sediments/deposition;
- Underwater noise from UXO clearance and piling/particle motion disturbance; and
- Electromagnetic fields.

4.3. Annex II Fish Species (Receptors)

4.3.1. Allis Shad

Allis shad is a member of the herring family and it is difficult to distinguish between its close relative the twaite shad. There is little information known about this species during its life. The allis shad grows in coastal waters and estuaries and then migrates up to 800 km upstream into rivers to spawn (JNCC, 2021d). Population declines in Europe are thought to result from pollution, overfishing and river obstructions that prevent migration. Allis shad are rare within the UK but are currently not the primary reason for site selection for any UK SAC. The at-sea migration between sites for this species is not well understood (Maitland and Hatton-Ellis, 2003).

Allis shad are primarily found in pelagic waters during their adult life phases, mainly inshore along the coast. Migration is initiated by males and the females follow one to two weeks later. During migration, these fish stop feeding and gather in the estuaries of suitable rivers in early summer (April-May), moving upstream to spawn from mid-May to mid-July. Allis shad feed almost exclusively on plankton. The distribution of allis shad is poorly understood but they appear to be primarily coastal and pelagic. Occasionally, they have been recorded over 100 km offshore (JNCC, 2007). Allis shad prefer a depth range of 10-20 m, but have been reported at depths up to 150 m (Maitland and Hatton-Ellis, 2003; OSPAR, 2009).

4.3.2. Twaite shad

The twaite shad is a member of the herring family. This species returns to freshwater from marine environments to spawn in spring (April-June). Population declines within Europe are thought to result from pollution, overfishing and migratory route obstructions. Spawning stocks of twaite shad within the UK are known to be present in a limited number of rivers in Wales and England. There are currently 5 SACs with twaite shad is listed as a designated feature. Pembrokeshire Marine SAC has twaite shad listed, but not as a primary reason for site selection, however, the at-sea migration between sites for this species is not well understood.

Like allis shad, twaite shad are primarily found in pelagic waters during their adult life phases, mainly inshore along the coast. Migration is similarly initiated by males and the females follow one to two weeks later. During migration, these fish stop feeding and gather in the estuaries of suitable rivers in early summer (April-May), moving upstream to spawn from mid-May to mid-July. Twaite shad feed on small fish such as sprats as well as plankton and this is likely to be reflected in their habitat selection. Specific localised distribution of twaite shad is poorly understood and but they appear to be primarily coastal and pelagic. Occasionally, they have been recorded over 100 km offshore (JNCC, 2007). Although this species shows a depth preference of 10-20 m, individuals have been reported at depths up to 100 m (Maitland and Hatton-Ellis, 2003; OSPAR, 2009).

4.3.3. Sea Lamprey

Sea lamprey occur in Atlantic coastal areas of Europe and can reach over 50 cm in length. Metamorphosis from juvenile to adult life stage takes a couple of weeks and occurs between July and September. The sea lamprey adult phase is short and lasts around 2 years. In this time, the species is parasitic, feeding on a variety of marine and anadromous fishes. Due to their parasitic

nature, sea lamprey distribution is largely determined by their host (OSPAR, 2008; Gallant *et al*., 2006). They have been found in both shallow coastal areas and deep offshore waters. In Europe, the spawning migration is normally between April and May, when the adults migrate back to rivers. Sea lamprey are rarely caught in coastal and estuarine waters, which suggests they are widely dispersed at sea (Maitland, 2003; Harvey and Cox, 2003). They have been caught at depths of up to 4,099 m suggesting that they can feed in deeper waters (Haedrich, 1977).

4.3.4. River Lamprey

River lamprey is intermediate in size (average 30 cm) compared to the other two UK lamprey species. River lamprey is a migratory species and grows to maturity in estuaries around the UK, before migrating upstream into fresh water to spawn in clean rivers and streams. The growth phase of the river lamprey is restricted to estuaries, where it feeds on a variety of fish. After 1-2 years river lamprey stop feeding during autumn months and move upstream into rivers, usually migrating to fresh water from October to December (Maitland, 2003).

4.3.5. Atlantic Salmon

Atlantic salmon have a complex life cycle, involving both freshwater and marine phases. It is primarily found within marine waters but migrates upstream into freshwater as adults for reproduction and nursery phases. Juveniles spend between 2-4 years in rivers before migrating to the sea, which normally occurs between April-June. The seawater phase is for development and rapid growth and Atlantic salmon can spend between 1-5 winters in marine environments before migrating back to freshwater to reproduce. Atlantic salmon currently only qualifies as an Annex II protected species within freshwater habitats (Birkeland, 2003; Hendry and Cragg-Hine, 2003; Malcolm *et al.*, 2010).

4.4. Screening

Sites that may potentially be affected by the Project have been screened using the criteria in Table 2.1. Following consultation NRW, the threshold for screening SAC sites was amended from 10 km to being in line with the maximum extent of potential impacts as determined by the Project specific noise modelling. Technical Appendix 12.2: Underwater Noise and Vibration specifies that the worst-case impact range for piling effects, based on criteria from Popper *et al.* (2014), was 20 km. As such, the screening threshold is amended to 20 km from turbine structures. The maximum level of disturbance associated with the ECC is likely to result from UXO clearance. Acoustic emissions caused by UXO clearance will be emitted as a single pulse; Popper *et al.* (2014) provide specific criteria for explosions and these are used in the determination of potential impact range. The Project is seeking consent for one Unexploded Ordnance (UXO) detonation via deflagration (low order). Whilst deflagration charges typically have a TNT equivalent charge weight of <250 g, a realistic worst-case scenario is represented within the assessment as having a charge weight of 2 kg. Although high order UXO detonation is not deemed realistic for this Project, it is reported in Technical Appendix 12.2: Underwater Noise and Vibration and is used as a precautionary threshold for HRA screening. The maximum range for mortality and potentially mortal injury, based on criteria provided by Popper *et al.* (2014) was determined to be 930 m.

In accordance with the information provided above, the threshold for screening SAC sites has been set as 20 km from the array area and 930 m from the ECC. However, although the Cleddau Rivers SAC is located 13.6 km from the Project ECC (>65 km from array area) this site has been screened into Stage 2 as the river drains directly into Milford Haven. It is therefore considered that there is a high probability that individuals would pass through/close to the Project footprint during seasonal migration. Any designated site with Annex II Migratory Fish features, located within these ranges have been screened in and will be taken on to Stage 2 AA for further assessment.

In order to provide a further precautionary level to assessment, and in recognition of levels of uncertainty associated with migratory fish behaviour and noise sensitivity of species such as shad, a stepwise approach is also applied. If the outcome of Stage 2 AA for any migratory fish species determines AEOSI, then a further screening exercise to determine potential for LSE for the next closest SAC population to the Project site.

Table.4.2: Sites screened in and screened out of the next stage of assessment for the Erebus Project in relation to Annex II Fish species

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	• Allis shad; • Twaite shad; • Sea lamprey; • River lamprey.	0.0	In	Direct overlap with the Project.
UK0030074	Wales	Afonydd Cleddau/Cleddau Rivers SAC	• Sea lamprey; • River lamprey.	13.6	In	Although this site is outside the 10 km threshold it is screened in. The river Cleddau/Cleddau Ddu drains directly into Milford Haven, therefore, there is a high probability that individuals would pass through/close to the Project footprint during seasonal migration.
UK0020020	Wales	Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd SAC	• Sea lamprey; • River lamprey; • Allis shad; • Twaite shad.	24.4	Out	Distance from the Project exceeds the expected zone of influence for potential adverse effects. **No LSE** is determined.
UK0012712	Wales	Cardigan Bay/Bae Ceredigion SAC	• Sea lamprey; • River lamprey.	47.3	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0012670	Wales	Afon Teifi/River Teifi SAC	• Sea lamprey; • River lamprey; • Atlantic salmon.	48.6	Out	Distance from the Project exceeds the expected zone of influence for potential adverse effects. **No LSE** is determined.
UK0013010	Wales	Afon Tywi/River Tywi SAC	• Allis shad; • Twaite shad; • Sea lamprey; • River lamprey.	53.5	Out	
UK0013007	Wales	River Usk/Afon Wysg SAC	• Allis shad; • Twaite shad; • Sea lamprey; • River lamprey; • Atlantic salmon.	UK0013007	Out	
IE0000781	Ireland	Slaney River Valley SAC	• Twaite shad; • Sea lamprey; • River lamprey; • Atlantic salmon.	109.5	Out	
UK0030056	England	River Camel SAC	• Atlantic salmon	103.5	Out	
IE0002162	Ireland	River Barrow and River Nore SAC	• Twaite shad; • Sea lamprey; • River lamprey; • Atlantic salmon.	123.6	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
IE0002137	Ireland	Lower River Suir SAC	• Twaite shad; • Sea lamprey; • River lamprey; • Atlantic salmon.	133.4	Out	Distance from the Project exceeds the expected zone of influence for potential adverse effects. **No LSE** is determined.
UK0012642	Wales	River Wye/Afon Gwy SAC	• Allis shad; • Twaite shad; • Sea lamprey; • River lamprey; • Atlantic salmon.	105.2	Out	
IE0002170	Ireland	Blackwater River (Cork/Waterford) SAC	• Twaite shad; • Sea lamprey; • River lamprey; • Atlantic salmon.	158.8	Out	
UK0013030	Wales	Severn Estuary/Môr Hafren SAC	• Allis shad; • Twaite shad; • Sea lamprey; • River lamprey.	133.4	Out	
UK0030075	Wales	Afon Eden - Cors Goch Trawsfynydd SAC	• Atlantic salmon.	142.4	Out	
UK0030046	Wales	Afon Gwyrfai a Llyn Cwellyn SAC	• Atlantic salmon.	163.7	Out	
UK0030252	Wales	River Dee and Bala Lake/Afon Dyfrdwy a Llyn Tegid SAC	• Sea lamprey; • River lamprey; • Atlantic salmon.	161.9	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
IE0002299	Ireland	River Boyne and River Blackwater SAC	• River lamprey; • Atlantic salmon.	232.0	Out	Distance from the Project exceeds the expected zone of influence for potential adverse effects. **No LSE** is determined.
UK0030131	Wales	Dee Estuary/Aber Dyfrdwy SAC	• Sea lamprey; • River lamprey.	215.6	Out	
FR5300017	France	Abers - Côte des légendes SAC	• Atlantic salmon	315.4	Out	
FR5300015	France	Baie de Morlaix SAC	• Atlantic salmon	314.9	Out	
FR5300004	France	Rivière le Douron SAC	• Allis shad; • Sea lamprey; • Atlantic salmon.	335.7	Out	
FR5300024	France	Rivière Elorn SAC	• Allis shad; • Twaite shad; • Sea lamprey; • Atlantic salmon.	342.9	Out	
FR5300046	France	Rade de Brest, estuaire de l'Aulne SAC	• Allis shad; • Twaite shad; • Sea lamprey; • Atlantic salmon.	353.8	Out	
FR5300013	France	Monts d'Arrée centre et est SAC	• Atlantic salmon.	353.7	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
FR5300041	France	Vallée de l'Aulne SAC	• Allis shad; • Twaite shad; • Atlantic salmon.	359.2	Out	Distance from the Project exceeds the expected zone of influence for potential adverse effects. **No LSE** is determined.
UK0030057	England	River Ehen SAC	• Atlantic salmon.	329.2	Out	
UK0030032	England	River Derwent and Bassenthwaite Lake SAC	• Sea lamprey; • River lamprey; • Atlantic salmon.	334.1	Out	
UK0030249	Scotland	River Bladnoch SAC	• Atlantic salmon.	350.8	Out	
UK0012643	England	River Eden SAC	• Sea lamprey; • River lamprey; • Atlantic salmon.	344.8	Out	
UK0013025	Scotland and England	Solway Firth SAC	• Sea lamprey; • River lamprey.	360.8	Out	

5. Screening for Annex II Marine Mammal Populations

5.1. Marine Mammal Site Features

Screening has been carried out to identify potential exposure pathways for Annex II Marine Mammal populations. Details of exposure pathways and the potential impacts are provided in Section 5.3 of this document. Evidence to support screening halos, in relation to marine mammal populations, are also defined in Section 5.3.

Digital Aerial Surveys (DAS) for the Project commenced in October 2019, and will continue until September 2021 to provide 24 months of survey data. The numbers of marine mammals observed within the Project array area to date (October 2019-September 2020) are presented in Table 5.1, in order to provide indicative evidence of site usage by different marine mammal species.

5.1.1. Conservation Objectives

The specific conservation objectives available for each of the SACs have been considered in this screening process. However, the following conservation objective provides a broadly typical example, representative of SAC sites designated for harbour seal *Phoca vitulina*, grey seal *Halichoerus grypus*, harbour porpoise *Phocoena phocoena* and/or bottlenose dolphin *Tursiops truncatus*, (from Article 17 Habitat Directive Report, JNCC, 2019):

"*Maintain the current range, population and/or habitat for the species.*"

Ramsar sites are wetlands of international importance and are designated under the Ramsar convention. Eight Ramsar sites are designated for marine mammals within Channel Island territorial waters. These sites occupy the same Marine Mammal Management Unit (MMMU) as the Project footprint for various receptor species. The conservation objectives for Les pierres de lecq (the paternosters), Jersey have been provided as a typical example representative of other Ramsar sites considered within this assessment.

The following four objectives have been set out for this site, in order to achieve the site 'Vision' (Department of the Environment, 2012):

- *"Integrated environmental management of the south east coast with monitoring of biotic indicators to ensure the sustainable, multiple use of the region; and monitoring of management performance against the plan objectives;*
- *Protection of species and habitats and restoration of degraded habitats in the Ramsar area and their conservation for future generations;*
- *Improved awareness among all key stakeholders, including the wider community, of the natural values of the Paternosters and Ramsar principles expressed in the Management Plan; and*
- *Ongoing funds and resources to achieve the objectives of the management plan."*

Table 5.1: Digital aerial survey results from the End of Year 1 and the total number of species observed for the Project Erebus array area. Any marine mammals not listed in this table were not observed in the survey

Species	Total Number over the Survey Period
Grey seal *Halichoerus grypus*	1
Harbour porpoise *Phocoena phocoena*	22
Common dolphin *Delphinus delphis*	1,320
Bottlenose dolphin *Tursiops truncates*	8
Risso's dolphin *Grampus griseus*	1
Minke whale *Balaenoptera acutorostrata.*	3

5.2. Annex II Marine Mammal Populations Assessed

Marine mammals are listed as Annex II, Annex IV and Annex V species under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended). The following marine mammals have been considered within the HRA screening report due to confirmation of their presence through the Project DAS, or historical use of the area (Baines and Evans, 2012):

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

The following Annex IV species will be thoroughly assessed through the Environmental Impact Assessment (EIA) process running alongside the HRA process and, if deemed necessary, appropriate European Protected Species (EPS) licences will be sought for the Project.

- Common dolphin *Delphinus delphis*;
- White-beaked dolphin *Lagenorhynchus albirostris*;
- Atlantic white-sided dolphin *Lagenorhynchus acutus*;
- Striped dolphin *Stenella coeruleoalba;*
- Risso's dolphin *Grampus griseus*;
- Long-finned pilot whale *Globicephala melas*; and
- Minke whale *Balaenoptera acutorostrata.*

5.3. Potential Pressure Pathways

Marine mammals are mobile species and can travel large distances and therefore there are a range of potential pressure pathways:

- Underwater noise (from UXO detonation, percussive piling and/or drilling, construction activities, cable installation or vessel movement);
- Temporary increases in suspended sediments/smothering;
- Accidental pollution;
- Disturbance/displacement;
- Collision risk (with construction, O&M or decommissioning vessels);
- Entanglement with mooring lines or ghost fishing gear;
- Habitat loss; and
- Barrier effects.

Table 5.2 Potential pressure pathways for the phases of the works

Project Phase	Effect	Justification
Construction/operation and maintenance and decommissioning	Underwater noise	There is potential for underwater noise from UXO clearance or piling to impact marine mammal receptors within a range of 26 km from the project (JNCC, 2020; Tougaard *et al.*, 2014). Additional noise sources such as operational noise from project infrastructure and noise sources associated with maintenance activity, including vessels and works are likely to cause effects within a more localised spatial extent. Any sites that are further than 26 km from the Project footprint will be screened out from further assessment for this pressure. An increase in the number of vessels on site, and general construction activity may result in an increase in subsea noise above background levels. However, noise acoustic emissions from vessel activity will be less than that associated with UXO detonation or piling and therefore the extent of any associated impacts will be more localised than the 26 km threshold for UXO detonation or piling. Similarly, assessment of noise produced by 'snapping' of mooring cables will be assessed. However, the spatial extent of any impacts is expected to be smaller than that of piling or UXO clearance and relevant sites will be captured within the 26 km threshold.

	Temporary increases in suspended sediments/smothering	Sediment disturbance is likely during cable laying and placement of rock protection, percussive piling, drilling or installation of anchors on the seabed. Marine mammals occur commonly in turbid environments. Cetaceans forage using echolocation as opposed to visual sensors to detect prey, meaning that a change in the turbidity due to sediment plumes will not affect their foraging success. Pinnipeds also occur in turbid waters. Although these species can use different foraging strategies to hunt in different environments, e.g. use their vibrissae (whiskers) to detect fish generated water movements in turbid waters, they are thought to favour visual hunting in clear waters. Therefore, pinnipeds may be affected by the sediment plume arising from works activities. Any impacts from increased suspended sediment concentrations will be limited to the extent of resultant sediment plume from the Project array area and offshore cable corridor footprint. Sediment plume extent is generally limited to the tidal excursion distance: the approximate distance over which water (or a section of plume with elevated SSC) is advected during one flood or ebb tide. Under mean spring conditions, this is approximately: • 10 km around the array area; • 14-15 km around the middle of the ECC (approximately KP20); • 18-19 km in the nearshore approaches to Milford Haven (approximately KP10); • 4 km within Milford Haven. Effects during the O&M and decommissioning phases will be of an equal of lesser magnitude to those during construction. As such, any effects are not expected to exceed those for construction activities. Marine mammals are highly mobile and forage over large distances. The extent of any temporary plume is expected to correspond with a negligible proportion of overall habitat available to these animals. **No LSE** is expected from this pressure for marine mammal receptors.
	Accidental pollution	During all phases of the construction, O&M, and decommissioning there is a risk of accidental pollution from construction, operational and maintenance equipment and activities. Any pollution incident may impact

		marine mammals through chemical contamination. This may affect their reproduction and, in some cases, can be fatal. Pollution events are likely to be rare and the associated impacts would be highly localised and small scale. Best practice mitigation measures are expected to further reduce potential for adverse effects.
	Disturbance or displacement	Marine mammals may experience disturbance or displacement from Vessel activity associated with construction, operation and maintenance, or decommissioning activities. This may cause fleeing behaviour or avoidance of the area. The exact response of marine mammals to disturbance is still not fully understood. Marine mammals are highly mobile animals that may travel great distances to forage. As a precautionary approach the foraging ranges of pinnipeds have been used (120 km for harbour seals and 130 km for grey seals). For cetaceans a maximum threshold of 26 km will be used to account for the risk of acoustic disturbance from UXO clearance or piling activities (JNCC, 2020; Tougaard *et al.*, 2014).
	Habitat loss	Any habitat loss caused by Project activities may lead to adverse impacts on marine mammal populations that use the area. Habitat loss from the Project works may occur due to placement of anchors, rock protection and cable laying. The direct footprint of these objects/activities will be very small relative to the overall habitat available to these species. Due to the small and localised nature of associated environmental change it is expected that effect from the Project along will be minimal. However, this pressure is screened in for Stage 2 AA due to risk of in-combination effects from the Proposed Development and other projects.
	Collision risk	During the construction, O&M and decommissioning phases there is a risk of collision between marine mammal receptors and works vessels. This risk is expected to be confined to a highly localised area, and therefore a precautionary 10 km threshold has been applied within screening. Although the consequences of vessel collision with marine mammals can, potentially, be severe, the risk of occurrence is considered to be very low.

	Entanglement	The risk of entanglement arises from the use of mooring lines in FLOW. Marine mammal receptors may become entangled in the mooring lines themselves or in 'ghost' fishing gear that has become attached to mooring lines. Entanglement risk varies considerably dependent on array layout and the type of mooring used. Floating wind turbines are new technology and, as such, there is relatively little data on entanglement risk. However, entanglement incidents have not been reported for the oil and gas industry, where similar moorings are used (Benjamins *et al.,* 2014). By its very nature, entanglement will only occur within the footprint of the array site. However, to ensure a precautionary approach a 500 m buffer around the site has been used for screening.
	Barrier effect	There is the risk that an array of floating wind devices with associated sub-sea mooring structures may potentially act as a barrier to marine mammal movement. In addition, piling or UXO clearance activities during the construction phase will create a more extensive area that may deter marine mammal movements, i.e. the maximum expected range of acoustic disturbance, 26 km from the source. Risk of barrier effect from Project infrastructure would depend on how closely the devices are placed to one another. A barrier effect may cause displacement and interrupt migration patterns. Within the operational phase this would be limited to the direct Project footprint. However, during the construction phase barrier effects are expected to be in line with that of disturbance/displacement, i.e. 26 km. As such, barrier effects may extend to this range from the Project.

5.3.1. Summary of Potential Pressure Pathways

No LSE is concluded for the following pressures to Annex II Marine Mammals and these will not be assessed at Stage 2 AA of the HRA:

- Temporary increases in suspended sediments/smothering; and
- Habitat loss.

The following will be screened within Table 3.2 for the Natura 2000 sites and Ramsar sites:

- Underwater noise (from UXO detonation, piling, drilling, construction activities or vessel movement);
- Accidental pollution;
- Disturbance/displacement;
- Collision risk (with construction, O&M or decommissioning vessels);
- Entanglement with mooring lines or ghost fishing gear; and
- Barrier effects.

5.4. Annex II Marine Mammal Species (Receptors)

5.4.1. Pinnipeds

Seals are listed under Annex II of the Conservation of Habitats and Species Regulations 2017 (as amended) and are features of some SAC sites. UK marine waters are divided into Seal Management Units by the Special Committee on Seals (SCOS), each one comprises of a distinct breeding colony. The Project is within the 'Wales' Management Unit for seal.

5.4.1.1. Harbour Seals

Harbour seals have at least four subspecies and are smaller than grey seals. Harbour seals are characteristic of sandflats and estuaries but are also found on rocky shores in Scotland. Pups can swim immediately after birth, which allows seals to breed within sheltered tidal areas with access to deep water. The breeding season for harbour seal is summer and this species normally feed within 40-50 km of their haul out sites (SCOS, 2020). The UK represents 5% of the world population of harbour seals, which is approximately 50% of the European population. The majority of harbour seals are found in Scotland and the southeast of England. There are, currently, no known haul out or congregation sites for harbour seals within Wales.

5.4.1.2. Grey Seals

Grey seals range widely in search of prey and frequently travel over 100 km between haulout sites. Although tracking of individual seals has shown that most foraging probably occurs within 100 km of a haulout site, they have been found to feed up to several hundred kilometres offshore (SCOS, 2020). Adults spend most of the year at sea and come ashore in autumn to form breeding colonies on rocky shores, beaches, caves, occasionally on sandbanks and small islands during winter (September-January). The UK population represents about 40% of the world population. The grey seals of the Celtic and Irish Seas are believed to be reproductively isolated from the subpopulations in the North Sea and Scotland (SCOS, 2010). Grey seal tracking data presented by Russell *et al.* (2017) show a high degree of connectivity between populations within the Celtic and Irish Seas region (Figure 5.1). This emphasises the highly mobile nature of this species. As such, it is important for assessment to account for distances potentially travelled by individuals from established colonies.

Figure 5.1: Tracks of (a) grey seals from 1991-2016 and (b) 330 harbour seals from 2001-2016 tagged in the UK and used to generate the usage maps (From: Russell *et al.*, 2017)

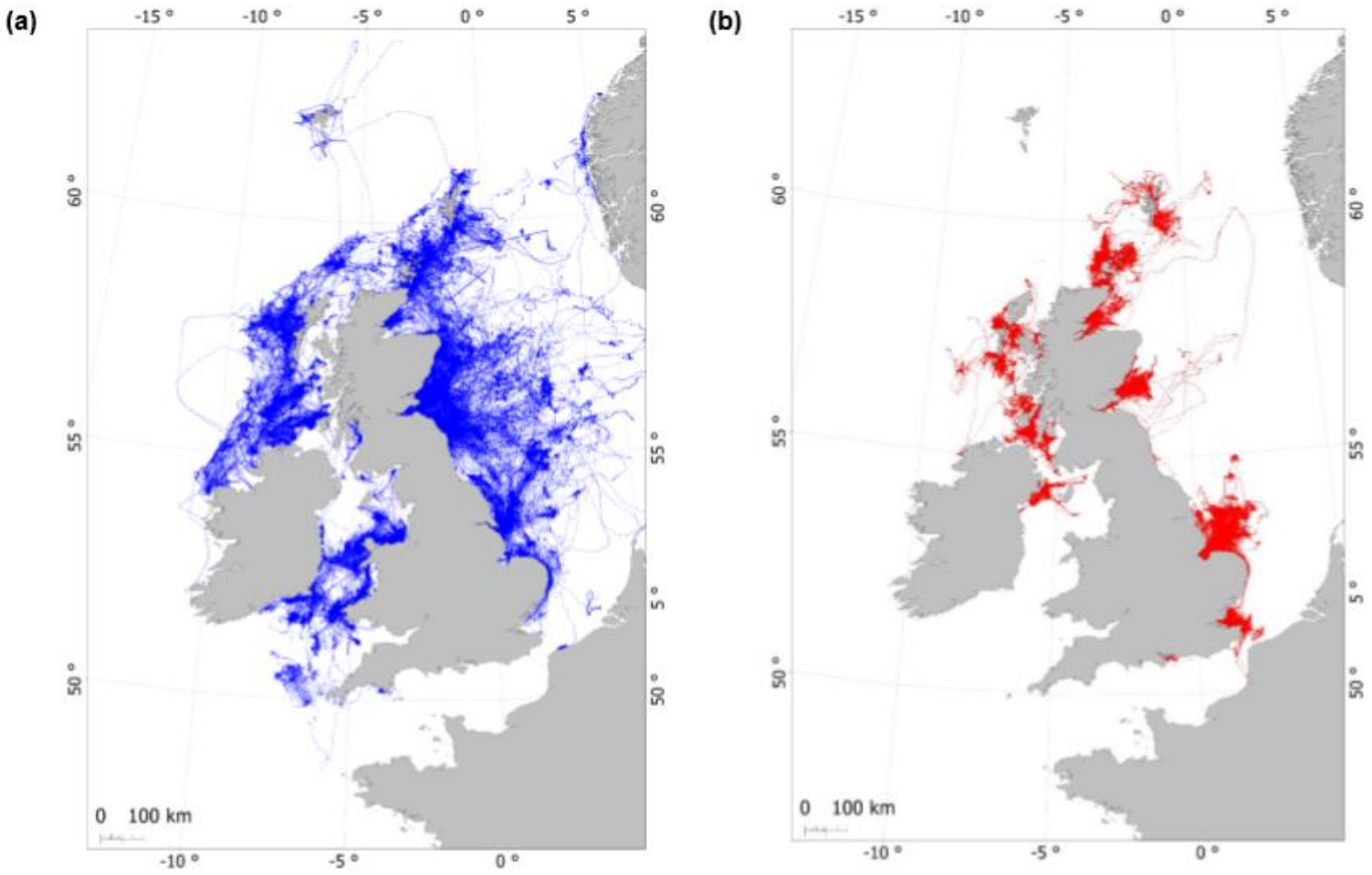
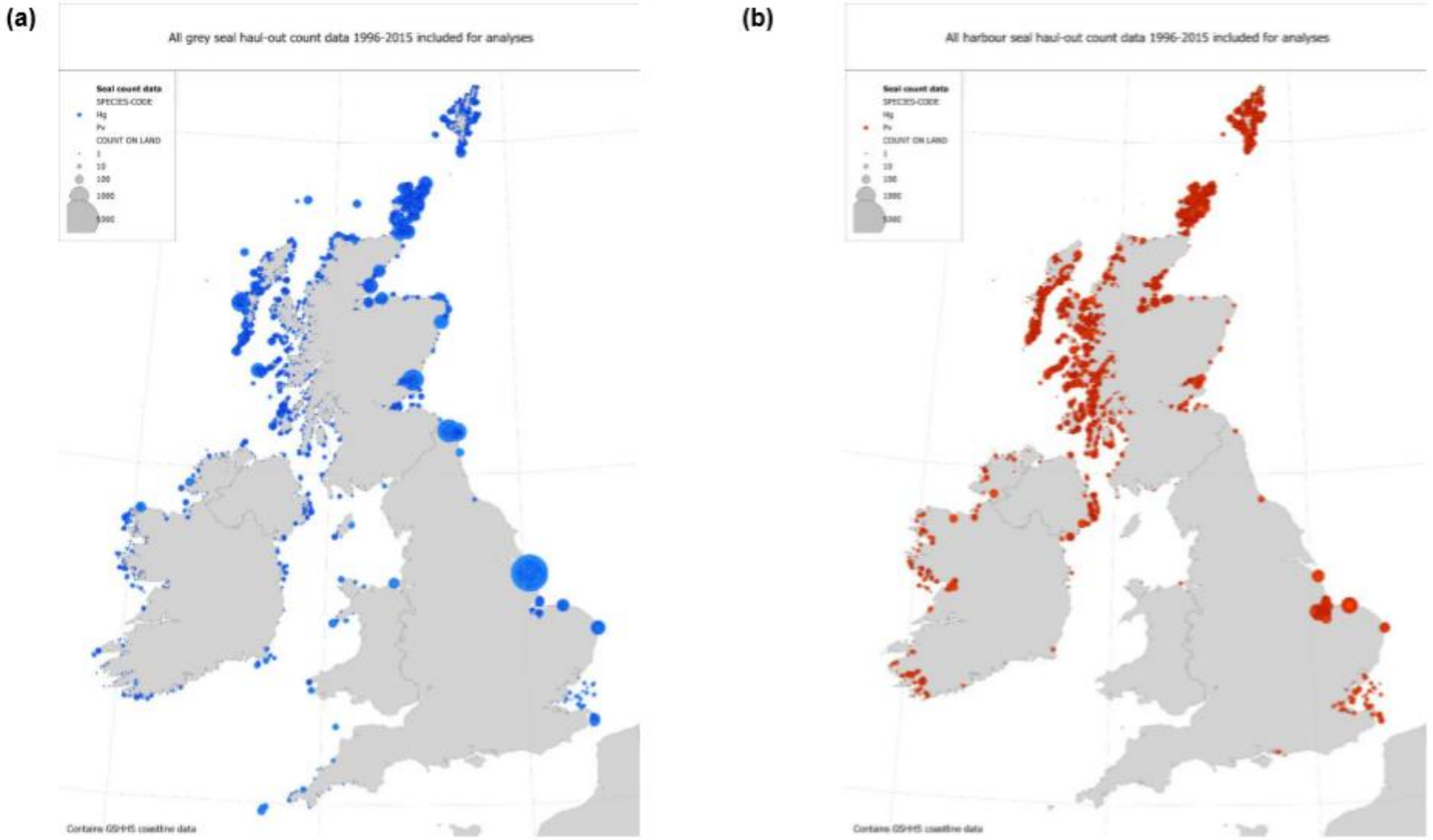


Figure 5.2: Maps showing the count data for (a) grey and (b) harbour seals between 1996 and 2015 (From: Russell *et al.*, 2017)



5.4.2. Cetaceans

All cetaceans are protected under Annex IV of the Conservation of Habitats and Species Regulations 2017 (as amended) because they are vulnerable, rare and endangered. Harbour porpoises and bottlenose dolphins are also Annex II species and therefore protected within designated SAC sites.

5.4.2.1. Harbour Porpoise

Harbour porpoise are common in UK waters (Reid *et al.*, 2003). They feed on a variety of prey items which vary seasonally and regionally. Satellite tracking data have demonstrated that harbour porpoise are wide ranging. Harbour porpoise found off the Welsh coast are included within the Celtic and Irish Seas Management Unit (IAMMWG) as shown in Figure 5.3. The Small Cetaceans in European Atlantic waters and the North Sea (SCANS) III survey reported that abundance for this management unit (MU) was 104,695 individuals, with 47,229 in the UK portion of the MU. The Bristol Channel Approaches SAC currently contains a significant proportion (4.7%) of the UK MU population of harbour porpoise and the West Wales Marine/Gorllewin Cymru Forol SAC contains approximately 5.3% (2,506 individuals). These sites account for important areas where harbour porpoise are present in high numbers throughout the winter season. However, as can be seen from Figure 5.4 and Figure 5.5 the number of estimated harbour porpoise within the Celtic and Irish Sea is variable.

Figure 5.3: Harbour porpoise Management Units (MUs), noting that this species is largely confined to the contiental shelf (water depths < 200m) (From: IAMMWG, 2015)

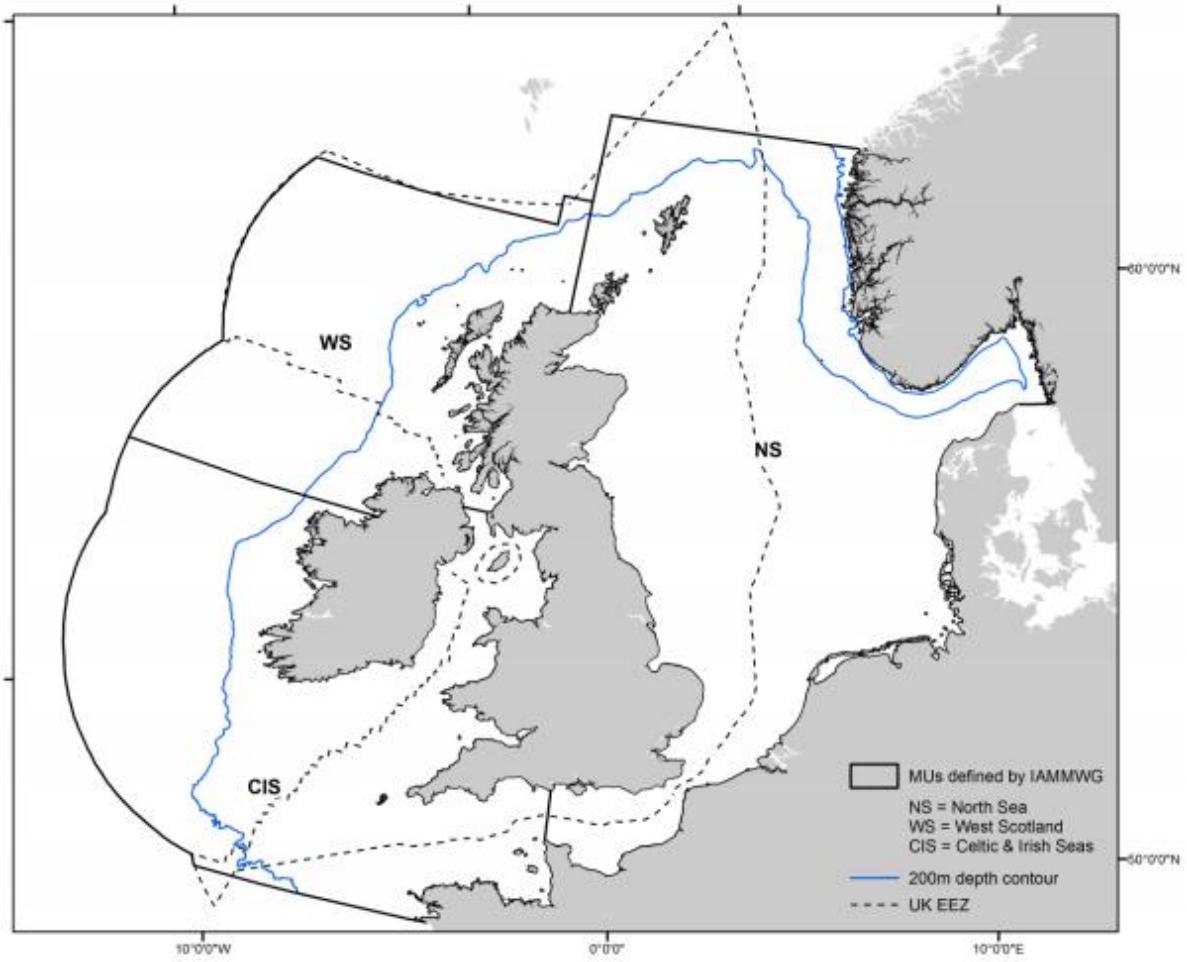


Figure 5.4: Estimated density maps for harbour porpoise in survey blocks (From: Hammond *et al.*, 2017). Map provides contextual information on density within the Project area relative to other regional waters

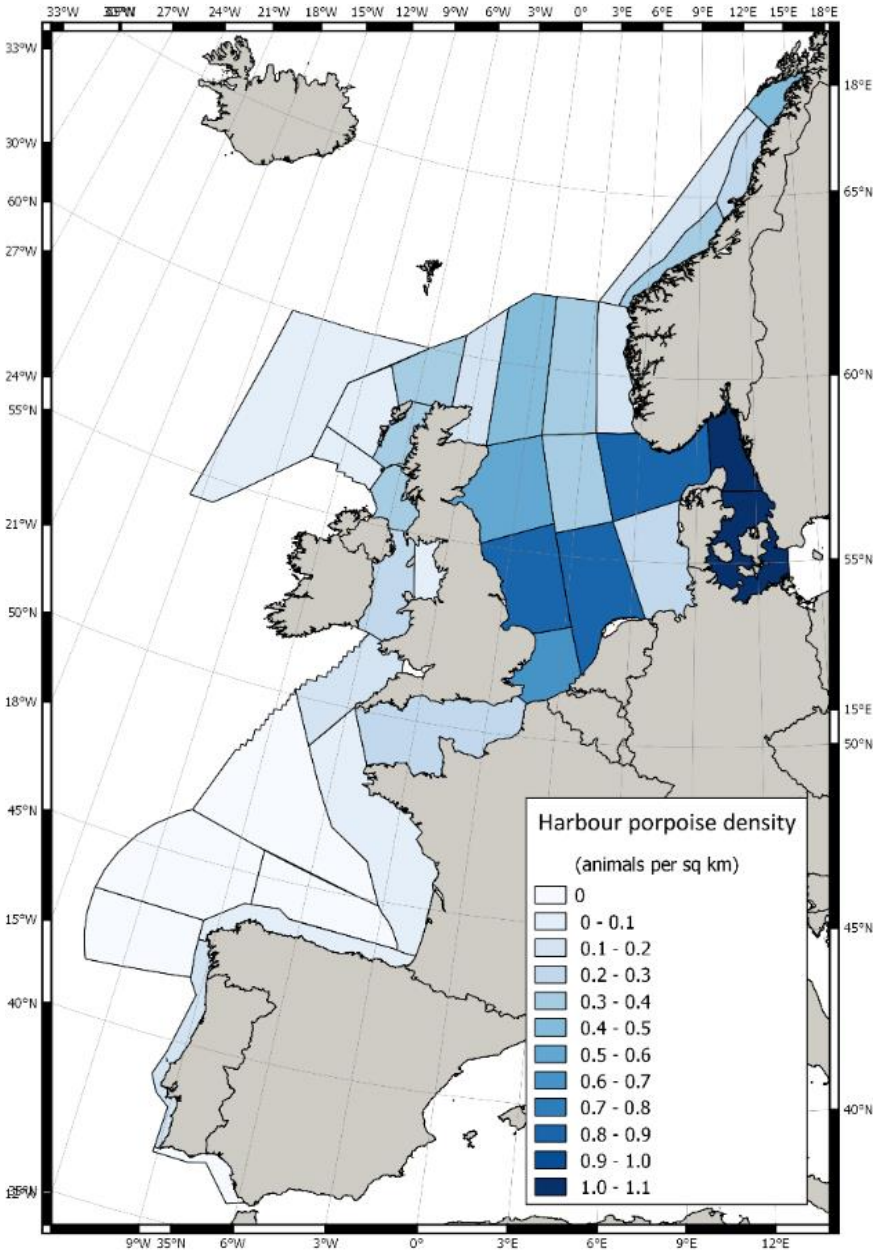
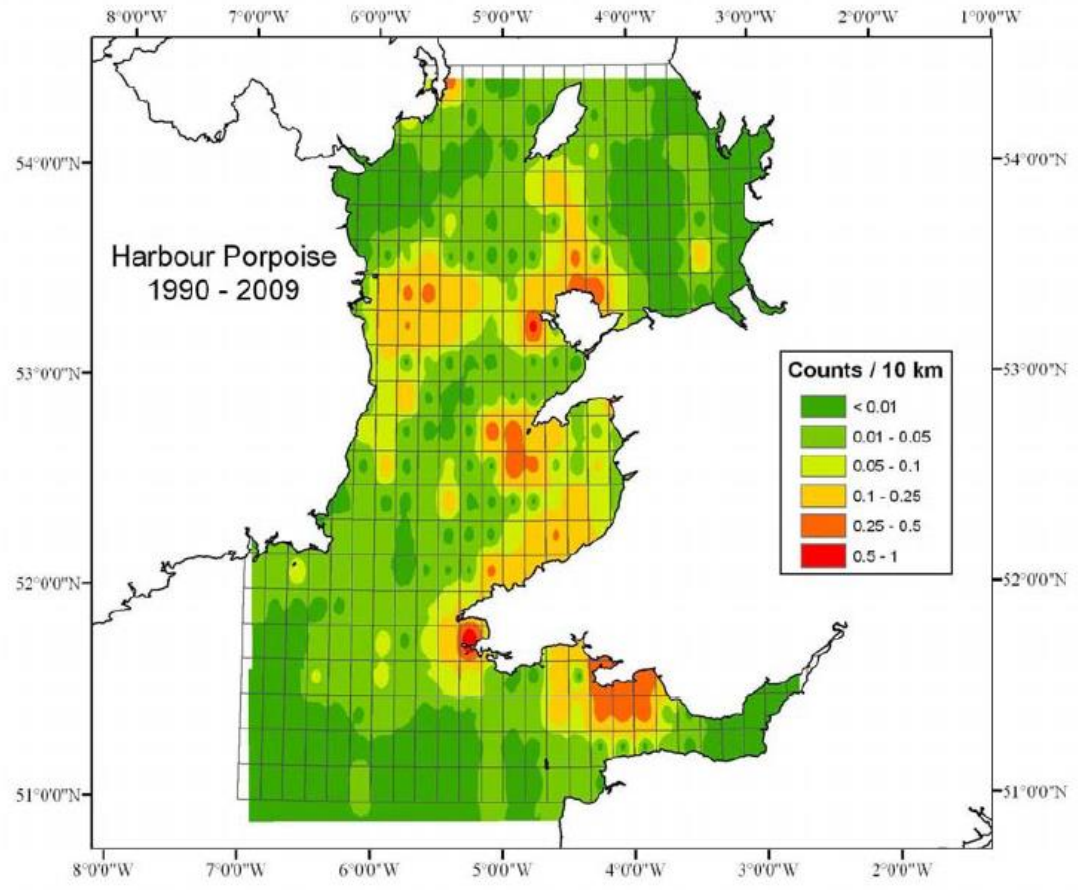


Figure 5.5: Inverse distance weighted (IDW) interpolated map of harbour porpoise distribution off the coast of Wales (From: Baines and Evans, 2012)



5.4.2.2. Bottlenose Dolphins

Bottlenose dolphin are considered to primarily be an inshore species, with most reported sightings within 10 km of land. Some inshore bottlenose dolphins may move offshore during winter months. There are two main areas within the UK which support semi-resident groups of bottlenose dolphins: Cardigan Bay and the Moray Firth. However, smaller groups are also present away from these areas. In addition, certain groups of bottlenose dolphins are transient, ensuring that the species is widespread around the UK.

The Project array area and offshore cable corridor is within the Offshore Channel, Celtic Sea and southwest England MU for bottlenose dolphins, and is adjacent to the Irish Sea MU as shown in Figure 5.6. The Cardigan Bay SAC bottlenose dolphin population has been estimated to consist of around 125 individuals. They appear to use the inshore waters of Cardigan Bay for feeding and reproduction. Figure 5.6 and Figure 5.7 show that the abundance of bottlenose dolphins off the coast of Wales is highly variable. DAS surveys to date have recorded very few bottlenose dolphin sightings (8 individuals, over 12 survey months).

The closest SAC site to the Project designated for bottlenose dolphin is Cardigan Bay/Bae Ceredigion SAC, situated >85 km from the Project. Although in low numbers, this species has been recorded in

DAS data. As such, in order to maintain a precautionary assessment bottlenose dolphin is taken forward for Stage 2.

Figure 5.6: Bottlenose dolphin Management Units (MU) (From: IAMMWG, 2015)

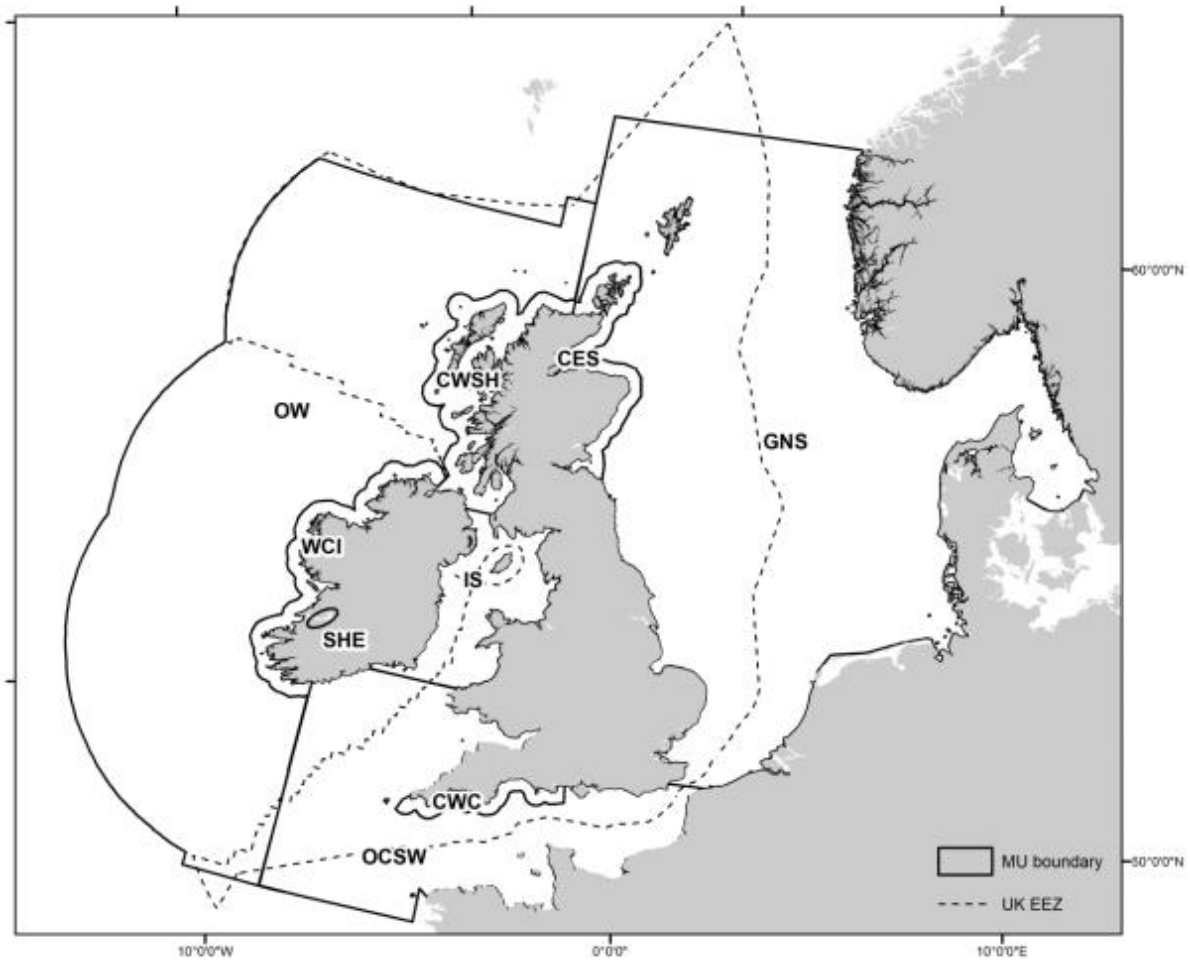


Figure 5.7: Estimated density maps for bottlenose dolphins in survey blocks (From: Hammond *et al.*, 2017). Map provides contextual information on density within the Project area relative to other regional waters

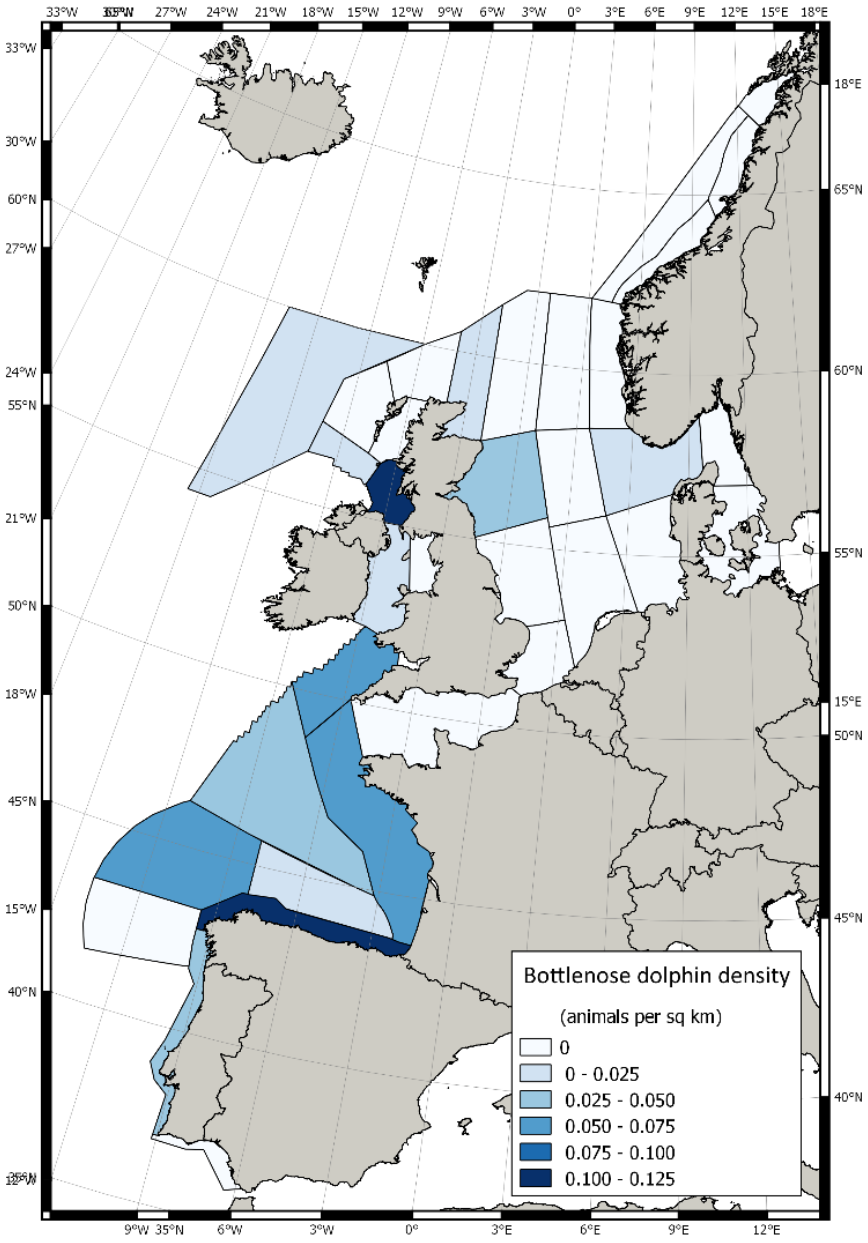
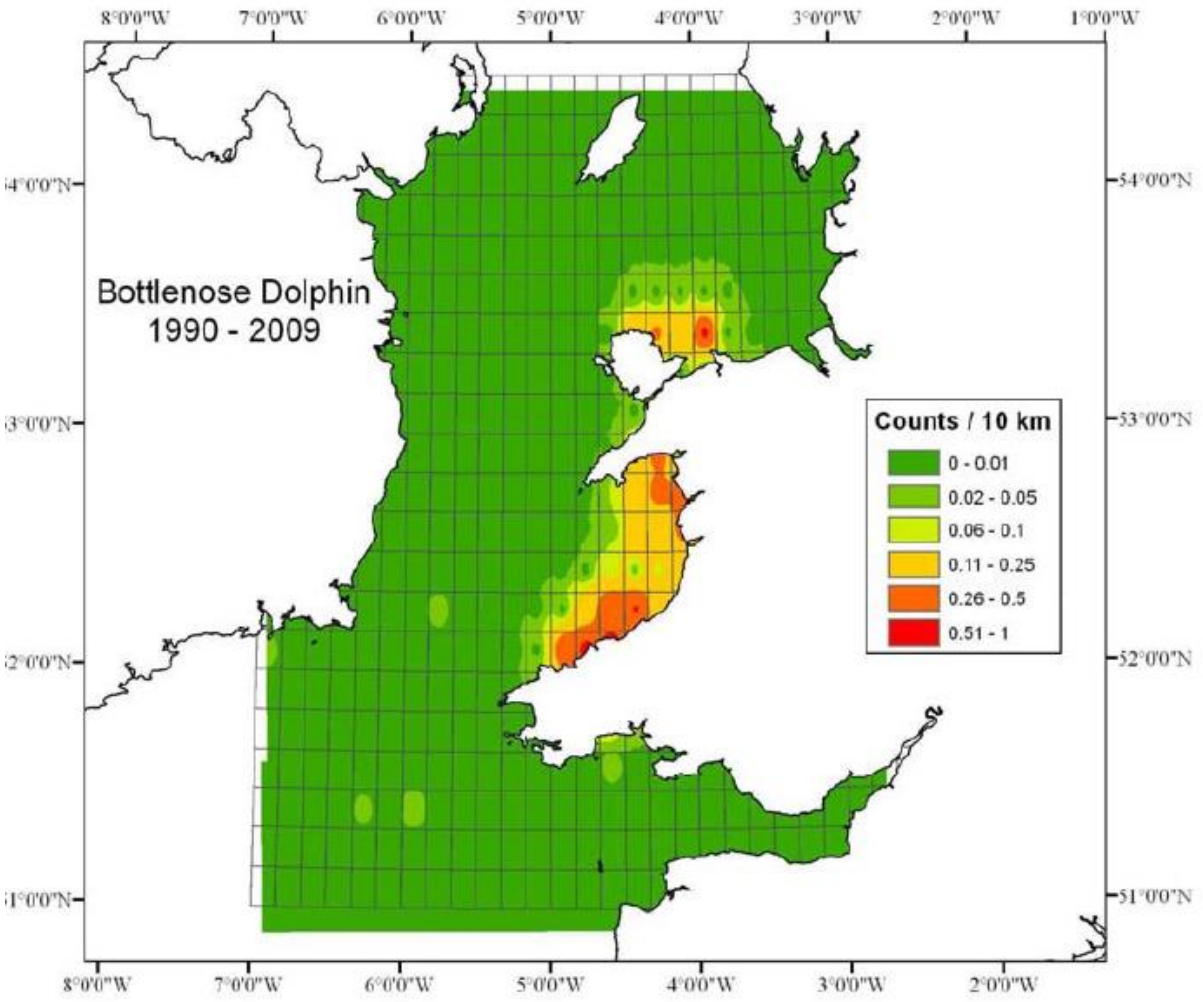


Figure 5.8: Inverse distance weighted (IDW) interpolated map of bottlenose dolphin distribution off the coast of Wales (From: Baines and Evans, 2012)



5.5. Screening

5.5.1. Pinnipeds

Screening for seals has been based on the tagging and count data from Russell *et al.* (2017) and knowledge of the populations within the SMUs, as reported by SCOS (2018).

5.5.1.1. Harbour Seal

Harbour seal have been screened out as tagging data (Figure 5.1) shows that they do not use the waters off the coast of Wales and there are no known haul out/breeding sites along the Welsh coast.

5.5.1.2. Grey Seal

Grey seal are screened in to Stage 2 AA for all designated sites within the relevant Special Committee on Seals (SCOS) recommended seal management unit (SMU): 'Wales'.

Table 5.3: Screening results in relation to Annex II Pinniped species for the Erebus Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	• Grey seal	16.5	0	In	Potential LSE as site directly overlaps with Project area.
UK0013114	England	Lundy SAC	• Grey seal	63.7	54.7	In	Potential LSE as species may forage within the Project area.
UK0012712	Wales	Cardigan Bay/Bae Ceredigion SAC	• Grey seal	85.8	49.1	In	Potential LSE as species may forage within the Project area.
IE0000707	Ireland	Saltee Islands SAC	• Grey seal	87	92.8	In	Potential LSE as species may forage within the Project area.
UK0013117	Wales	Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC	• Grey seal	137.5	99.9	In	Potential LSE as species may forage within the Project area.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
IE0000781	Ireland	Slaney River Valley SAC	• Harbour seal	103.3	108.5	Out	No LSE as this species is not thought to visit the Project area and has not been reported in DAS data.

5.5.2. Cetaceans

Based on species-specific accounts and known distributions presented in Section 5.4.2, no LSE has been concluded for all Annex II marine mammal species other than bottlenose dolphin and harbour porpoise.

Further screening assessment is provided for these two species based on the potential pressure pathways in Table 5.2. The following pressures are thought to have potential to impact cetaceans within a range of 26 km (as described in Table 5.2, and in accordance with JNCC, 2020 and Tougaard *et al.*, 2014):

- Underwater noise;
- Displacement/disturbance;
- Barrier effects; and
- Collision risk.

5.5.2.1. Harbour Porpoise

As detailed above, piling and UXO detonation activities associated with the Project construction-phase works in the array area or offshore cable corridor have potential to impact cetaceans at distances of up to 26 km. As such, no LSE cannot be concluded for any conservation sites designated for harbour porpoise within this range.

The final potential pressure described in Table 5.2, which will be taken forward for further assessment in Stage 2 AA, is risk of 'entanglement with mooring lines or ghost fishing gear'. Impacts associated with this pressure would be limited to the direct Project array area footprint and are therefore not expected to affect receptors at distances >26 km. However, harbour porpoise within the Celtic and Irish Seas MMMU are considered to be functionally linked and therefore this pressure may affect marine mammal features from distant SAC sites (i.e. those outside the relevant zone of influence), when individuals travel outside site boundaries. Consideration of potential risk of adverse effects on marine mammals from distant sites is provided below. The potential for impacts on distant designated sites is considered to be negligible and it is considered that the presence of Project infrastructure, including mooring lines, will not result in adverse effects to these distant sites. DAS survey data reported 83 individual harbour porpoise sightings within the Project array area during the 24 months September 2019 – September 2021. This corresponds with 0.07% of the Celtic and Irish Seas population (IAMMWG, 2015). Given this small proportion of the wider population that has been observed at the Project array area, this area is not considered to be key habitat for this species. The Project array area footprint occupies a very small footprint relative to the total area available to harbour porpoise; as such it is considered likely that the array area can be avoided at minimal cost to the individual and without compromising the conservation objectives of the respective designated site.

However, the applicant also acknowledges NRW's position that when a credible impact pathway is identified, all sites with that feature within the relevant MMMU for that species should be screened in for Stage 2 AA. As such, all sites designated for harbour porpoise within the Celtic and Irish Seas MMMU will be screened into assessment. However, in order to allow assessment to be focussed on sites at greatest risk of adverse effects an iterative approach will be adopted, where assessment is

carried out for the closest site to the Project footprint. If AEOSI is determined then an iterative approach to assessment will be carried out whereby an AA is conducted for the next closest site. If no AEOSI is determined, more distant sites will not be considered further[2].

5.5.2.2. Bottlenose Dolphin

Although bottlenose dolphin have not been observed in high numbers (8 sightings of bottlenose dolphins during the 24 months of site specific DAS (HiDef Aerial Surveying Ltd 2020, 2021)), their presence in DAS data identifies risk that this species may be affected by Project activities. Given this occurrence, no LSE cannot be concluded and the species is taken forward for Stage 2 AA at all sites within the Offshore Channel, Celtic Sea and southwest England MU and Irish Sea MU. However, in order to allow assessment to be focussed on sites at greatest risk of adverse effects an iterative approach will be adopted, where assessment is carried out for the closest site to the Project footprint. If AEOSI is determined then an iterative approach to assessment will be carried out whereby an AA is conducted for the next closest site. If no AEOSI is determined, more distant sites will not be considered further[3].

[2] It is considered that the HRA approach for harbour porpoise is in accordance with the 2020 NRW Position Statement *NRW's position on the use of Marine Mammal Management Units for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features* (NRW, 2020) and provides a precautionary and proportionate approach.

[3] It is considered that the HRA approach for bottlenose dolphin is in accordance with the 2020 NRW Position Statement *NRW's position on the use of Marine Mammal Management Units for screening and assessment in Habitats Regulations Assessments for Special Areas of Conservation with marine mammal features* (NRW, 2020) and provides a precautionary and proportionate approach.

Table 5.4: Sites screened in and screened out of the next stage of assessment for the Erebus Project in relation to Annex II Cetacean species

Site Code	Country	Site Name	Category of Interest Feature	Distance to array (km)	Distance to ECC (km)	Screening Decision	Justification
UK0030397	Wales	West Wales Marine/Gorllewin Cymru Forol SAC	• Harbour porpoise	11.3	0	In	Potential LSE due to overlap between the SAC site and envelope of effect from proposed works activities.
UK0030396	Wales	Bristol Channel Approaches /Dynesfeydd Môr Hafren SAC	• Harbour porpoise	26.6	20.8	In	Potential LSE due to overlap between the Project site and the MMMU for species that have been recorded as present at the site in DAS data.
UK0012712	Wales	Cardigan Bay/Bae Ceredigion SAC	• Bottlenose dolphin	85.8	49.1	In	
IE0000707	Ireland	Saltee Islands SAC	• Bottlenose dolphin	87	92.8	In	
IE0000781	Ireland	Slaney River Valley SAC	• Bottlenose dolphin	103.3	108.5	In	
UK0013117	Wales	Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC	• Bottlenose dolphin	137.5	99.9	In	
IE0003000	Ireland	Rockabill to Dalkey Island SAC	• Bottlenose dolphin; • Harbour porpoise	196.4	182.2	In	

Site Code	Country	Site Name	Category of Interest Feature	Distance to array (km)	Distance to ECC (km)	Screening Decision	Justification
UK0030398	Wales	North Anglesey Marine /Gogledd Môn Forol SAC	• Harbour porpoise	199.7	170.8	In	
IE0000204	Ireland	Lambay Island SAC	• Bottlenose dolphin	222.3	207.4	In	
FR2502022	France	Nord Bretagne DH SCI/SAC	• Bottlenose dolphin; • Harbour porpoise	234.7	235.8	In	
IE0000101	Ireland	Roaringwater Bay and Islands SAC	• Harbour porpoise	257.3	264.4	In	
FR5302015	France	Mers Celtiques - Talus du golfe de Gascogne SCI/SAC	• Bottlenose dolphin; • Harbour porpoise	258.9	263.4	In	
FR5300009	France	Côte de Granit rose-Sept-Iles SCI/SAC	• Bottlenose dolphin; • Harbour porpoise	295.2	295.4	In	
UK0030399	Northern Ireland	North Channel	• Harbour porpoise	297.9	276.1	In	

Site Code	Country	Site Name	Category of Interest Feature	Distance to array (km)	Distance to ECC (km)	Screening Decision	Justification
FR5300010	France	Tregor Goëlo	• Bottlenose dolphin • Harbour porpoise	307.3	306.2	In	
FR2500084	France	Récifs et landes de la Hague	• Bottlenose dolphin	312.8	306.2	In	
FR5300017	France	Abers - Côte des légendes	• Bottlenose dolphin; • Harbour porpoise	313.2	315.4	In	
FR5300015	France	Baie de Morlaix SCI/SAC	• Harbour porpoise	313.6	314.9	In	
FR2502019	France	Anse de Vauville SCI/SAC	• Bottlenose dolphin	318.6	312.3	In	
FR5300018	France	Ouessant-Molène SCI/SAC	• Bottlenose dolphin • Harbour porpoise	324.4	328.1	In	
FR2502018	France	Banc et récifs de Surtainville SCI/SAC	• Bottlenose dolphin	331.9	326.1	In	

Site Code	Country	Site Name	Category of Interest Feature	Distance to array (km)	Distance to ECC (km)	Screening Decision	Justification
UK23004	Jersey, Channel Islands	Les Pierres de Lecq (the Paternosters) Jersey Ramsar Site	• Bottlenose dolphin.	334.5	329.7	In	
IE0002172	Ireland	Blasket Islands SAC	• Harbour porpoise	341.7	348.5	In	
FR2500085	France	Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire SCI/SAC	• Bottlenose dolphin	341.9	334.5	In	
UK23003	Jersey, Channel Islands	Les Écréhous & Les Dirouilles, Jersey Ramsar Site	• Bottlenose dolphin.	348.7	343.5	In	
UK23001	Jersey, Channel Islands	South East Coast of Jersey, Channel Islands Ramsar Site	• Bottlenose dolphin	357.5	352.7	In	
UK23002	Jersey, Channel Islands	Les Minquiers, Jersey Ramsar Site	• Bottlenose dolphin.	363.4	359.4	In	

Site Code	Country	Site Name	Category of Interest Feature	Distance to array (km)	Distance to ECC (km)	Screening Decision	Justification
FR2502020	France	Baie de Seine occidentale SCI/SAC	• Bottlenose dolphin	366.2	353.6	In	
FR5302007	France	Chaussée de Sein SCI/SAC	• Bottlenose dolphin; • Harbour porpoise	374.3	377.4	In	
FR2500079	France	Chausey SCI/SAC	• Bottlenose dolphin	376.5	368.8	In	
FR5300052	France	Côte de Cancale à Paramé SCI/SAC	• Bottlenose dolphin	396.8	394.5	In	
FR2500077	France	Baie du Mont Saint-Michel SCI/SAC	• Bottlenose dolphin	400.4	396.5	In	
709	France	Baie du Mont Saint-Michel Ramsar Site	• Bottlenose dolphin.	403.4	398.8	In	
FR2502021	France	Baie de Seine orientale SCI/SAC	• Bottlenose dolphin	430.6	422.6	In	
925	France	Baie de Somme Ramsar Site	• Bottlenose dolphin	511.5	500.0	In	

6. Screening for SPA Sites with Marine Components

6.1. Ornithological Site Features

Screening has been carried out to identify potential exposure pathways for classified populations of SPAs with marine components and Ramsar sites. Details of exposure pathways and the potential impacts to SPAs with marine components are provided in Section 6.2 of this document. Evidence to support screening decisions, in relation to ornithological populations, is also defined in Section 6.2. Onshore SPAs are considered in Section 10.

6.2. Potential Pressure Pathways

Specific conservation objectives vary by the SPA sites considered in this screening process. However, conservation objectives are provided below for an SPA that can be considered a broadly typical example, representative of many other sites. Conservation objectives at the Skomer, Skokholm and the Seas off Pembrokeshire SPA are (JNCC, 2021e):

- *"To ensure the breeding population of bird features are stable or increasing;*
- *The distribution of the species within the site should not be constrained by anthropogenic factors;*
- *The foraging habitat of the species should be stable or increasing in terms of its area and its quality should remain unaffected by anthropogenic factors. There should be no contraction of nesting factors as a result of anthropogenic activity;*
- *Breeding success of this species should not be affected by negative human influence and factors affecting species at the site should be under control; and*
- *There should be no mammalian land predators present in the SPA and control measures should be in place to ensure accidental introduction does not take place."*

The following pressures have been identified as potential pressures which may lead to adverse impacts on classified populations of SPAs:

- Accidental pollution;
- Disturbance
- Displacement;
- Collision risk;
- Barrier effect; and
- Habitat loss.

Table 6.1: Potential pressure pathways for the phases of the works to Special Protected Areas (SPA) with marine components

Project Phase	Effect	Justification
Construction/maintenance and operation/decommissioning	Accidental pollution	During all phases of the construction, O&M, and decommissioning there is a risk of accidental pollution from construction, operational and maintenance equipment and activities. Pollution incidents may impact birds through chemical contamination. This may adversely affect breeding and, in some cases, can be fatal. Pollution events are likely to be rare and the associated impacts would be highly localised and small scale. Best practice mitigation measures are expected to further reduce potential for adverse effects.
	Disturbance/displacement	Birds may experience disturbance from the construction, O&M and decommissioning. This may cause fleeing behaviour or avoidance of the area. The species concern index from Furness *et al.* (2013) has been used to determine species-specific vulnerability to this pressure. Those which have been assigned a score lower than 8 have been screened out from further assessment for this pressure.
	Collision risk	The presence of wind turbine structures introduces risk of collision. Risk will be greatest for birds that typically fly at a height corresponding with that of the root blade swept area. Potential for interaction between classified populations from SPAs and the Project array area footprint has been calculated using the SOSSMAT tool (BTO, 2012). It is concluded that there is negligible collision risk for classified populations where <1% of the UK population visit the site. This

Project Phase	Effect	Justification
		approach is considered precautionary given that only a fraction of birds that passage through the site are at risk of collision and most bird species have a natural mortality rate of ≈10%. The assessment of risk to breeding populations has taken accounts of the results from the End of Year 1 DAS and the numbers of birds seen at the Project, and how the DAS data relates to national and international populations. It is considered that any classified population where individual birds are recorded in numbers corresponding with <0.01% of UK population is at negligible collision risk, and is screened out from further assessment. This approach is considered highly precautionary, as it is likely that individual birds have been observed multiple times, and population proportion values are therefore overestimates. The collision risk, as determined in Furness *et al.* (2013), has been used to assess species specific vulnerability to this pressure. Species with a risk percentage ≤10% have been screened out from further assessment for this pressure.
	Barrier effect	Where displacement effect envelopes overlap with bird flight paths this can constitute barrier effects for affected species and introduce risk of impact to bird survival. The degree of additional energy expenditure required for flight deviations will relate to the frequency of use for the respective flight path, the size of the development and its proximity to designated sites. Pressures associated with barrier effects are expected to be most pronounced during the breeding season if these interact with foraging areas.

Project Phase	Effect	Justification
	Habitat loss	Any habitat loss caused by Project activities may lead to adverse impacts on ornithological populations that use the area as foraging grounds. Habitat loss may occur due to placement of anchors, rock protection and cable laying. In addition, the presence of turbine structures may constitute loss of surface habitat otherwise available for foraging/loafing. The direct footprint of these objects/activities will be very small relative to the overall habitat available to bird species. Due to the small and localised nature of associated environmental change, **no LSE** to classified bird populations is expected for this pressure.
	Underwater Noise	Little is known regarding the effects of subsea acoustic emissions on diving seabird receptors. As such, this pressure is screened in for assessment as a precautionary measure.

6.2.1. Summary of Potential Pressure Pathways

No LSE is concluded for the following pressures in relation to SPAs with marine components and these will not be assessed at Stage 2 AA of the HRA:

- Habitat loss.

The following will be screened within Table 3.2 for the Natura 2000 sites and Ramsar sites:

- Disturbance/displacement;
- Accidental pollution;
- Collision risk;
- Barrier effect; and
- Underwater noise.

6.3. Classified Bird Populations (Receptors)

All classified bird populations of SPAs or Ramsar site have been screened for exposure pathways. Receptor populations were initially identified using the following criteria:

- Breeding populations where the SPA/Ramsar site is located within the species-specific foraging range of the proposed works (+1 Standard Deviation (SD) where applicable; foraging range as determined by Woodward *et al.* (2019));
- Potential for interaction between migrating individuals from classified populations of SPAs has been determined based on migratory routes as reported in SOSS-05 (Wright *et al.*, 2012);
- SPAs that are situated entirely offshore and SPAs for wintering features if located within 10 km of the Project array area or cable corridor footprint.

These criteria allow identification of breeding birds, passage, migratory and over-wintering populations. It should be noted that all species within seabird assemblages will be included for SPA sites within 10 km of the Project array area or cable corridor footprint.

6.4. Breeding Populations

The 2 years of Project DAS data was collected from October 2019 - September 2021. The abundance of seabirds was recorded within the Project array area, based on data collected from a series of strip transects. The overall survey area included a 4 km buffer around the Project array area and each strip transect was spaced 1 km apart. The total survey area was 200.11 km². Abundance estimates were calculated based on bootstrapped survey data.

The following breeding bird populations are considered within this HRA screening assessment, based on the initial assessment of SPA sites that contained classified bird populations whose species-specific foraging range (as determined by Woodward *et al*., 2019) overlap with the Project array area:

- Atlantic puffin *Fratercula arctica*;
- European storm petrel *Hydrobates pelagicus*;
- Lesser black-backed gull *Larus fuscus*;
- Manx shearwater *Puffinus puffinus*;
- Northern gannet *Morus bassanus*;
- Black-legged kittiwake *Rissa tridactyla*;
- Common guillemot *Uria aalge*;
- Northern fulmar *Fulmarus glacialis*;
- Razorbill *Alca torda*; and
- Great skua *Stercorarius skua.*

6.4.1. Atlantic Puffin

Atlantic puffin typically nests underground and the species is highly colonial. There are 21 SPA sites around the UK where the Atlantic puffin is a classified feature. The UK population has an estimated 579,189 breeding pairs, which is around 8-10% of the global population. The Skomer, Skokholm and

the Seas off Pembrokeshire SPA has 1.1% (JNCC, 2021e) of the global population of Atlantic puffin. Movements away from puffin breeding colonies are poorly understood and are thought to be dispersive rather than following a specific path. From the DAS data between October 2019-September 2020 an estimated population of 0-1,435 puffins was observed in the array area each month, with the highest numbers seen in April 2020.

6.4.2. European Storm Petrel

The European storm petrel is mainly pelagic and only returns to land to breed, selecting remote offshore islands. There are currently 9 SPA sites containing classified populations of European storm petrel around the north and west coasts of Britain. The Skomer, Skokholm and the Seas off Pembrokeshire SPA has 4.1% of the global population of European storm petrel (JNCC, 2021e). There are estimated to be around 20,994-33,434 breeding pairs within the UK, which is around 4-8% of the international population. The Seabird 2000 survey presented data collected between 1962-2002, which suggested that the species was present at 2,805 apparently occupied sites, corresponding to 10% of the UK population (JNCC, 2021f). The range for this species is not well understood, however the birds are thought to migrate from Iceland to the UK. Breeding sites have been identified in Scotland (7), Wales (1) and the southwest coast of England (1).

6.4.3. Lesser Black-backed Gull

The lesser black-backed gull is often found in colonies with other gulls on islands offshore. There are 10 SPA sites containing classified populations of lesser black-backed gull around the UK. The Skomer, Skokholm and the Seas off Pembrokeshire SPA has 16.4% of the global population of lesser black-backed gull (JNCC, 2021e). The UK breeding population has 110,101 breeding pairs and 120,000 non-breeding individuals, which is around 39-42% of the international population. The breeding population in Britain and Ireland contains a large proportion of the *graellsii* race of lesser black-backed gull. The majority of these birds move from the UK to the south or southwest in winter. The birds migrate along the European coast to wintering sites in Iberia and northwest Africa, although some are known to stay in the UK.

The population estimates of lesser black-backed gull from the DAS data of the Project array area ranged from 0-115 individuals per month, with the maximum number seen in July. Site-specific foraging ranges have been calculated for the lesser black-backed gull populations of the Skomer, Skokholm and the seas off Pembrokeshire SPA. The maximum foraging range reported for this site (151 km) is lower than the UK-wide mean maximum + 1SD typically used for this species (236 km) (Woodward *et al.*, 2019).

6.4.4. Manx Shearwater

Manx shearwaters spend most of the time at sea and return to land only to breed. There are 4 SPA sites containing classified populations of Manx shearwater within the UK, these are located within west Wales and Western Isles. There are 281,319,499 breeding pairs within the UK, which is around 72-91% of the international population. The Skomer, Skokholm and the Seas off Pembrokeshire SPA has 56.9% of the global population of Manx shearwater (JNCC, 2021e). The majority of Manx shearwater migration occurs from breeding grounds in the west of Britain with birds heading in a southwesterly direction to wintering grounds on the south coast of America.

Return migration is along a slightly more northerly route and from a more westerly direction (Wright *et al.*, 2012). The population estimate of Manx shearwater from the DAS of the Project array area ranged from 0-2,693 individuals per month, with the maximum number seen in July.

Site-specific foraging ranges have been calculated for Manx shearwater populations of the Skomer, Skokholm and the seas off Pembrokeshire SPA. The maximum foraging range reported for this site (1,250 km) is lower than the UK-wide mean maximum + 1SD typically used for this species (2,365.5 km) (Woodward *et al.*, 2019).

Although the number of Manx shearwater recorded within the End of Year 1 DAS were low, the approach to screening Manx shearwater will proceed on a precautionary basis. This is due to the Project being the first floating offshore wind development in the region and data on interactions with offshore wind (both fixed and floating) and Manx shearwater is limited. Therefore, all sites within the 2,365.5 km mean maximum + 1SD for Manx shearwater are included in Table 6.7 as there may be connectivity between the sites. The closest SPA designated for Manx shearwater, Skomer Skokholm and the Seas off Pembrokeshire, is screened into the next stage of the HRA. However, should the AA for the sites screened in conclude an adverse effect on the integrity, an iterative approach may be applied whereby an AA may be conducted for the next closest classified population of Manx shearwater site within the species-specific foraging range.

6.4.5. Northern Gannet

The northern gannet is the largest seabird in the north Atlantic and is endemic to this area. There are 10 coastal SPA breeding sites for northern gannet around the UK, with 1 on the southwest coast of Wales (Grassholm SPA). The Grasssholm SPA had 36,000 birds from count data collected in 2015 (JNCC, 2021g). The UK population occupies an estimated 218,546 nesting sites and accounts for 70-73% of the international population. At the end of the breeding season gannet primarily migrate south with some birds, particularly juveniles, migrating as far as west Africa. However, some adults may remain at the breeding sites for much of the year (January-November). The population estimate of gannet from the DAS within the Project array area ranged from 4-564 per month, with the maximum number seen in October.

6.4.6. Black-legged Kittiwake

Black-legged kittiwake is the most numerous gull globally and it spends the majority of its time at sea. There are 33 SPA sites with classified populations of kittiwake around the UK, with most sites concentrated in Scotland and 4 sites located in the Irish Sea. There are 379,892 breeding pairs, which is estimated to be 12% of the international population. In 2017 the Skomer, Skokholm and the Seas off Pembrokeshire SPA had 1,336 apparently occupied nests of black-legged kittiwakes . (JNCC, 2021h). Kittiwakes migrate to wintering grounds in northwest and mid-Atlantic ocean or east Atlantic ocean areas of Europe, passing though all UK coastal areas. The population estimate for kittiwake from the DAS within the Project array area ranged from 8-3,933 per month, with the maximum numbers seen in October.

6.4.7. Common Guillemot

The common guillemot is one of the most abundant seabirds in the northern hemisphere. There are 34 SPA sites within the UK with classified populations of common guillemot, which are all coastal.

There are 1,420,900 breeding individuals and this is around 26-36% of the international population. Guillemots are dispersive rather than migratory and during the non-breeding season they will disperse to the surrounding UK seas. The bird's distribution is concentrated around continental shelf areas and common guillemot are known to avoid deep oceanic areas. The population estimate of common guillemot from the DAS within the Project array area ranged from 99-24,490 per month, with the maximum number seen in August.

6.4.8. Northern Fulmar

The northern fulmar is common in northern Britain and is present all year round. There are 24 SPA sites containing classified populations of northern fulmar in Scotland and 1 in Northern Ireland. There are 504,756 breeding pairs within the UK, which is estimated to be 11-18% of the international population. Fulmar disperse in all directions from UK breeding sites during the non-breeding season. Fulmar were sighted occasionally at the Project array area during DAS monitoring - 12 individuals in total, with the maximum number seen in November.

6.4.9. Razorbill

Razorbill breed on both sides of the Atlantic and colonies have been found up to 300 m inland. There are 19 SPA sites within the UK containing classified populations of razorbill, the majority of these sites are in Scotland. There are 188,576 breeding individuals within the UK, which is 12-22% of the international population. The Skomer, Skokholm and the Seas off Pembrokeshire SPA had 10,120 razorbill individuals from 2018 data (JNCC, 2021i). Razorbill that breed in the UK follow a southerly migration path after the breeding season to wintering sites in France, Iberia, Morocco or in the Mediterranean. The migration begins around October and continues through the winter. They return between March-June and there are thought to be regional differences in migration patterns. Numbers of razorbill recorded during the DAS ranged from 0-2,570 per month, with the maximum number seen in October. A site-specific foraging range of 62 km is reported for a razorbill from the Skomer, Skokholm and the seas off Pembrokeshire SPA (Woodward *et al.*, 2019). This distance is considered more appropriate when considering birds present at the Project array area than the more general mean maximum foraging range reported for the species as a whole.

6.4.10. Great Skua

The great skua is known for its defensive behaviour towards humans. The majority of the apparently occupied territories have been found in Scotland (60% of the world's population). There are 9 SPAs in the UK containing classified populations of great skua; these are located on northern and northwest Scottish islands. There are 9,634 breeding pairs in the UK, which is 60% of the international population. Great skuas migrate from breeding sites on these Scottish islands and travel to wintering sites on the coasts of southern Europe. The number of great skua reported within DAS data to date is 1 individual.

6.4.11. Receptor-specific Screening Outcomes

Sensitivity to the pressures screened into assessment within Section 6.2.1 differs on a species-specific basis. As such, although some of these pressures are applicable to all receptors, others are not due to differing sensitivities. Table 6.2 provides an assessment of which pressures are taken forward for Stage 2 AA for each of the classified breeding populations screened into assessment.

Table 6.2: Screening outcome for classified SPA breeding populations with foraging ranges that overlap with the Project array area or export cable corridor

Receptor	Phase	Pressure	Screening Outcome
Atlantic puffin	Construction	Disturbance	LSE
	Construction	Underwater Noise	LSE
	O&M	Displacement	LSE
	O&M	Collision risk	No LSE; low risk of collision due to high probability of displacement and low flight height.
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat available to bird species.
	All phases	Accidental pollution	LSE
European storm petrel	Construction	Disturbance	No LSE due to low risk of disturbance
	Construction	Underwater Noise	LSE
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat

Receptor	Phase	Pressure	Screening Outcome
			available to bird species.
	O&M	Displacement	LSE
	O&M	Collision risk	No LSE due to very low flight height
	All phases	Accidental pollution	LSE
Lesser Black-backed gull	Construction	Disturbance	No LSE due to low risk of disturbance
	Construction	Underwater Noise	LSE
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat available to bird species.
	O&M	Displacement	No LSE due to low risk of displacement
	O&M	Collision risk	LSE
	All phases	Accidental pollution	LSE
Manx shearwater	Construction	Disturbance	No LSE due to low risk of disturbance
	Construction	Underwater Noise	LSE
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat available to bird species.
	O&M	Displacement	LSE
	O&M	Collision risk	No LSE due to low flight height
	All phases	Accidental pollution	LSE
Black-legged kittiwake	Construction	Disturbance	No LSE due to low risk of disturbance
	Construction	Underwater Noise	LSE
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat available to bird species.

Receptor	Phase	Pressure	Screening Outcome
	O&M	Displacement	LSE
	O&M	Collision risk	LSE
	All phases	Accidental pollution	LSE
Common guillemot	Construction	Disturbance	LSE
	Construction	Underwater Noise	LSE
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat available to bird species.
	O&M	Displacement	LSE
	O&M	Collision risk	No LSE due to low risk of collision
	All phases	Accidental pollution	LSE
Razorbill	Construction	Disturbance	LSE
	Construction	Underwater Noise	LSE
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat available to bird species.
	O&M	Displacement	LSE
	O&M	Collision risk	No LSE; low risk of collision due to high probability of displacement and low flight height
	All phases	Accidental pollution	LSE
Great skua	Construction	Disturbance	No LSE determined due to low numbers recorded in DAS data and low risk of collision and/or disturbance/displacement.
	Construction	Underwater Noise	
	O&M	Barrier Effects	
	O&M	Habitat loss	
	O&M	Displacement	
	O&M	Collision risk	

Receptor	Phase	Pressure	Screening Outcome
	All phases	Accidental pollution	
Northern gannet	Construction	Disturbance	No LSE due to low risk of disturbance
	Construction	Underwater Noise	LSE
	O&M	Barrier Effects	LSE
	O&M	Habitat loss	No LSE; the direct footprint of Project infrastructure/activities will be very small relative to the overall habitat available to bird species.
	O&M	Displacement	LSE
	O&M	Collision risk	LSE
	All phases	Accidental pollution	LSE
Northern fulmar	Construction	Disturbance	No LSE determined due to low numbers recorded in DAS data and low risk of collision and/or disturbance/displacement.
	Construction	Underwater Noise	
	O&M	Barrier Effects	
	O&M	Habitat loss	
	O&M	Displacement	
	O&M	Collision risk	
	All phases	Accidental pollution	

6.5. Migratory Populations

Migratory birds are those species that move between geographic areas at different times of the year. They use the environment and resources cyclically, in places that may be unfavourable for continuous use. To be able to migrate, species need their migration routes to remain available. Some migratory species are likely to pass through the footprint of the array area. Classified bird populations, where there may be potential for impacts from the presence and operation of turbine structures, were initially identified using the migratory routes reported in Wright *et al.* (2012). These data were assessed using the SOSSMAT tool, refining the overall 108 different bird species to the following species, which have potential to pass through the Project array area during seasonal migration:

- Atlantic puffin;
- European storm petrel;

- Lesser black-backed gull;
- Manx shearwater;
- Northern gannet;
- Common guillemot;
- Northern fulmar;
- Razorbill;
- Great skua;
- Black-headed gull *Chroicocephalus ridibundus*;
- Roseate tern *Sterna dougallii*;
- Common tern *Sterna hirundo*;
- Arctic tern *Sterna paradisaea*;
- Sandwich tern *Sterna sandvicensis*;
- Great cormorant *Phalacrocorax carbo*;
- Herring gull *Larus argentatus*;
- Great black-backed gull *Larus marinus*;
- Common gull *Larus canus*;
- European shag *Phalacrocorax aristotelis*;
- Red-throated diver *Gavia stellata;* and
- Common scoter *Melanitta nigra*.

6.5.1. Screening Strategic Ornithological Support Services Migration Assessment Tool (SOSSMAT)

The SOSSMAT approach has been used to calculate the proportion of international and national bird populations that are expected to interact with the Project array area. This tool relates the footprint of the Project array area to known migration routes, to calculate the proportion of migrating populations that may encounter the WTG, in accordance with data and methodology provided by Wright *et al.* (2012). This is then related to population sizes to produce corresponding numbers of individuals. All outputs are doubled to account for an assumed migration twice a year. The results presented in Table 6.3 illustrate the proportions of UK and international populations that may interact with the Project array area or export cable footprint. A threshold of 1% of the UK population is used to screen out populations where it is expected that there will be negligible interaction between individual animals and Project construction, operation and maintenance, and decommissioning activities. Relatively low numbers of migratory bird populations are predicted to interact with the Project array area and export cable corridor (Table 6.3). All results are below the 1% threshold for UK population and therefore **no LSE** is concluded for the proposed Project alone on all migratory bird species considered.

It is recognised that some of the values in Table 6.3 are close to the 1% threshold and consideration of combined effects from this and other projects may produce values in excess of this value. However, it should be noted that these values only provide an estimated number of birds that may pass the site. They do not take into account any avoidance behaviour that would influence risk of adverse effect.

The SOSSMAT approach calculates the proportion of bird populations that may interact with the Project site. The Statutory Nature Conservation Body (SNCB) review of how avoidance rates should

be applied in determination of collision risk from offshore wind developments (SNCB, 2014) recommends a minimum 98% avoidance rate to be applied. Similarly, displacement and disturbance rates are variable between species. However, mortality rates within displaced birds are not expected to exceed 1% (value informed by the rates used for Hornsea Project Three offshore wind farm, for Moray West offshore wind farm in Scotland and from the modelling work undertaken by the Centre for Hydrology and Ecology (CEH) for the Forth and Tay offshore wind farms in Scotland). As such, taking account of likely avoidance and mortality rates, the number of individual birds affected by the Project and other developments in-combination is also likely to be considerably below the 1% threshold and therefore **no LSE** was concluded for the proposed Project in-combination on all migratory bird species considered.

Table 6.3: Proportion of national and international bird populations whose migratory routes are expected to interact with the Project array area as determined by the using the Strategic Ornithological Support Services Migration Assessment Tool (SOSSMAT) (Wright *et al.*, 2012)

Species	National (%)	International (%)
Atlantic puffin	0.81	0.101
European storm petrel	0.81	0.719
Lesser black-backed gull	0.32	0.036
Manx shearwater	0.81	0.387
Northern gannet	0.81	0.661
Black-legged kittiwake	0.81	0.063
Common guillemot	0.81	0.101
Northern fulmar	0.81	0.578
Razorbill	0.81	0.269
Great skua	0.81	0.087
Black-headed gull	0.32	0.014
Roseate tern	0.37	0.005
Common tern	0.32	0.029
Arctic tern	0.32	0.0257
Sandwich tern	0.37	0.036
Great cormorant	0.81	0.320
Herring gull	0.32	0.0319

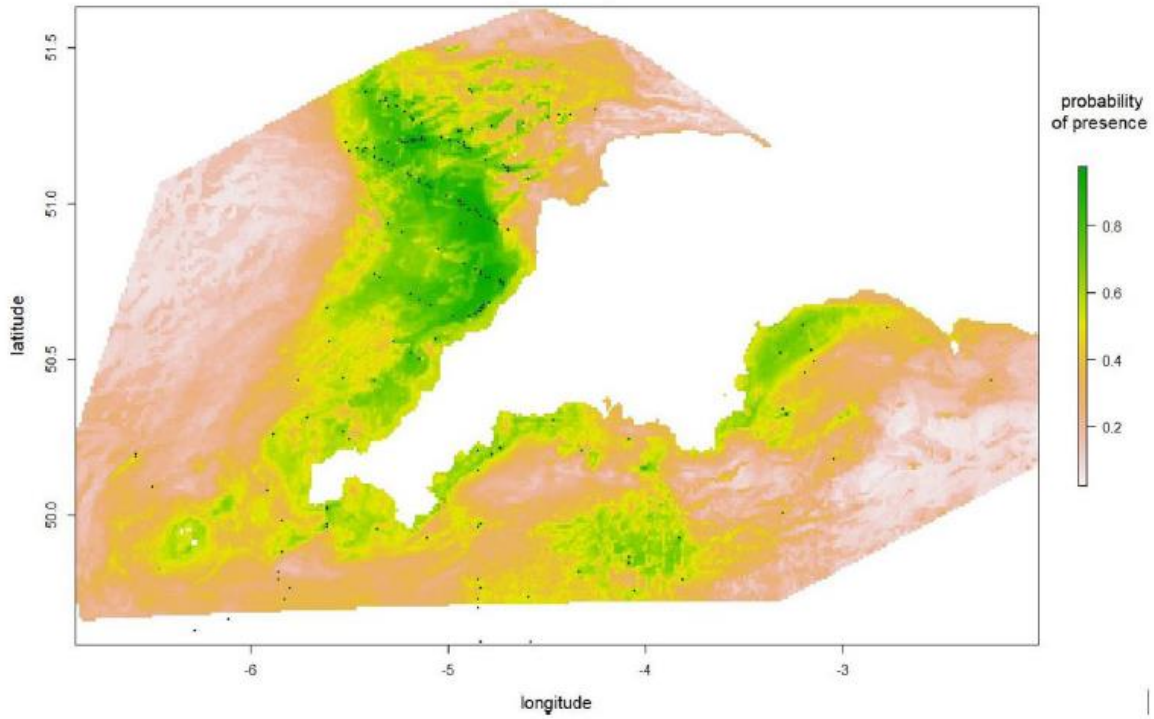
Species	National (%)	International (%)
Great black-backed gull	0.32	0.034
Common gull	0.33	0.158
European shag	0.32	0.496
Red-throated diver	0.32	0.001

6.5.2. Balearic Shearwater

Although not identified as a migratory bird population at risk of interacting with the Project array area by the SOSSMAT approach, recent research indicates that the post-breeding range of the Balearic shearwater now consistently includes the Celtic Sea front area. As such, it is considered appropriate that this receptor is included in the Stage 1 screening assessment. The Balearic shearwater has a global estimated population of 10,000-30,600 individuals and there are concerns that the species could be facing extinction within the next few decades. The species faces various threats including decreasing prey populations, insufficient breeding habitat, and predation by introduced species.

During the breeding season Balearic shearwaters favour shallow shelf and near-shore areas but little is known about their preferred habitat in non-breeding seasons. Movement of this species at sea is driven by prey but a wide number of factors are thought to predict their distributions. Figure 6.1 shows the predicted distribution of Balearic shearwaters based on recent survey data (Phillips *et al.*, 2021). The foraging range and migration patterns of this species is still unknown, however based on the concentrated populations around the southwest English coast, the coastal nature of these birds, and their absence from DAS records to date, it is considered unlikely that the species visits the Project array area. However, given that the data presented by Philips *et al.* (2021) shows that this species has been recorded in waters approximately 25 km south of the Project, it is possible that its range may extend further northwards and overlap with the site of the Proposed Development. Given its status as Europe's only globally critically endangered seabird this species will be included in Stage 2 AA and will be addressed qualitatively.

Figure 6.1: Predicted distribution of Balearic shearwater based on survey data (From: Phillips *et al.*, 2021). Note: the Project array area is situated outside the extent of this map, in a northwesterly direction



6.6. Evidence for Species Presence from Survey Data

Digital video aerial survey data have been collected and analysed as part of the EIA characterisation studies for the Project. A summary of records for different species, based on survey results reported for October 2019 to September 2020, is provided in Table 6.4. The DAS was used to calculate the percentage of the birds present that were observed using the Project array area. These values were expressed as a percentage of the UK population and international populations based on population estimates reported by Wright *et al.* (2012). Where the population was expressed as a range the lowest population was used to account for a worst-case scenario. Although it is acknowledged that these data provide numbers as detected in survey transects, as opposed to absolute densities, this does provide an indication of which species are most abundant. However, assessment within the Report to Inform Appropriate Assessment will be based on worked up absolute values for the full array area (plus buffer).

Table 6.4: Digital aerial survey results describing the number of individuals recorded for each bird species observed within the Project array area. Numbers are additionally expressed as proportions of UK and international populations (as defined by Wright *et al.* (2012)). Any bird species not listed in this table was not observed during surveys to date

Species	Total	Percentage of UK Population (%)	Percentage of International Population (%)
Black-legged kittiwake	2,773	0.73	0.04
Black-headed gull	2	0.00	0.00
Common gull	16	0.00	0.00
Great black-backed gull	104	0.14	0.03
Herring gull	87	0.01	0.01
Lesser black-backed gull	93	0.08	0.02
Sandwich tern	1	0.01	0.00
Common tern	2	0.02	0.00
Arctic tern	7	0.01	0.00
Great skua	2	0.01	0.01
Common guillemot	23,613	1.66	1.18
Razorbill	2,244	1.19	0.52
Atlantic puffin	927	0.16	0.02
Northern fulmar	221	0.04	0.01
Manx shearwater	3,068	0.55	0.44
Northern gannet	1,296	0.30	0.22

6.7. Species-specific Risk Assessment

6.7.1. Disturbance or Displacement

Risk calculations from Furness *et al.* (2013) have been used to assess the sensitivity of different species to displacement and disturbance by offshore wind developments. The paper states any species with a Species Concern Index value above 15 should be considered as a focal point for concern with regards to potential disturbance and disturbance. Table 6.5 shows that the Species Concern Index value for all species assessed is below 15. Furness *et al.* (2013) also state that species with a score below 8 are unlikely to be affected by displacement.

6.7.2. Collision risk

Collision risk for specific species has been assessed using the total species-specific risk score as reported in Furness *et al.* (2013). The collision risk percentage has been calculated by dividing the respective result for each species by that of the highest scoring species (herring gull) and multiplying the output by 100.

Table 6.5: Total risk score from collision and the species concern index value for disturbance/displacement (From: Furness *et al.* (2013)). The risk percentage of each species compared to the highest scoring species is also presented below

Species	Total Risk Score	Percentage compared to the highest scored bird	Species Concern Index Value
Atlantic puffin	27	2.06	10
European storm petrel	91	6.97	2
Lesser black-backed gull	960	73.51	3
Manx shearwater	0	0	2
Northern gannet	725	55.51	3
Black-legged kittiwake	523	40.05	6
Common guillemot	37	2.83	14
Northern fulmar	48	3.68	2
Razorbill	32	2.45	14
Great skua	320	24.50	3

6.7.3. Apportioning Outputs

Potential for connectivity between the Project and classified seabird populations during the breeding season is determined based on the species-specific foraging ranges as reported by Woodward *et al.* (2019) to establish whether there is likely to be connectivity (and hence risk of an impact) between the Project and an SPA breeding colony. For those receptor species where connectivity was identified, apportioning was carried out following the guidance provided by NatureScot (2018). This process allows prediction of the proportion of individuals for each receptor species present at the Project site that originate from specific key SPA breeding populations.

The apportioning calculation is a weighting based on population size, distance between the Project and the breeding colonies within foraging range, and area of sea included in the foraging range (as per methodology provided by NatureScot, 2018). See Volume 3, Technical Appendix 11.2: Apportioning for full details of the methodology applied and input data used in apportioning. Apportioning outcomes for SPA breeding populations are provided in Table 6.6.

Table 6.6: Apportionment of adult seabirds to SPA and non-SPA breeding colonies within foraging range which include this species as a feature

SPA Site (and Component SSSI Sites)	Count of Adults	Distance to Erebus (km)	I/proportion foraging range as sea	Resulting Weight	Proportional Weight
Northern Gannet					
Grassholm	61,376	20	1.607	64.045	0.995
Saltee Islands	3,790	92	1.507	0.175	0.003
Skelligs	57,598	357	1.161	0.136	0.002
Manx shearwater					
Skomer, Skokholm and the Seas off Pembrokeshire	302,000	24	1.073	108.812	0.995
Aberdaron Coast and Bardsey Island	32,366	148	1.072	0.306	0.003
Rum	240,000	602	1.072	0.137	0.001
Blasket Islands	39,068	362	1.068	0.062	0.001
Black-legged kittiwake					
Skomer, Skokholm and the Seas off Pembrokeshire	2,472	24	1.774	4.275	0.817
Saltee Islands	2,076	92	1.733	0.239	0.046
Howth Head Coast	6,162	209	2.172	0.172	0.033
Lambay Island	6,640	226	2.206	0.161	0.031
Ireland's Eye	3,220	218	2.165	0.082	0.016
Wicklow Head	1,546	167	2.172	0.068	0.013
Old Head of Kinsale	1,422	206	1.325	0.025	0.005
Rockabill	532	231	2.207	0.012	0.002
Helvick Head to Ballyquin	130	152	1.520	0.005	0.001
Isles of Scilly	150	170	1.193	0.003	0.001

SPA Site (and Component SSSI Sites)	Count of Adults	Distance to Erebus (km)	I/proportion foraging range as sea	Resulting Weight	Proportional Weight
Common Guillemot					
Skomer, Skokholm and the Seas off Pembrokeshire	29,744	24	1.452	5.537	0.754
Saltee Islands	25,851	92	1.600	0.361	0.049
Wicklow Head	955	167	1.904	0.005	0.001
Helvick Head to Ballyquin	1,170	152	1.899	0.007	0.001
Razorbill					
Skomer, Skokholm and the Seas off Pembrokeshire	10,694	24	1.519	6.085	0.892
Saltee Islands	6,519	92	1.612	0.268	0.039
Atlantic Puffin					
Skomer, Skokholm and the Seas off Pembrokeshire	38,342	24	1.744	32.404	0.997
Saltee Islands	390	92	1.784	0.023	0.001
Ynysoedd Y Gwylanod, Gwylan Islands	1238	160	2.520	0.034	0.001
Lesser black-backed gull					
Skomer, Skokholm and the Seas off Pembrokeshire	12,836	24	1.728	17.891	0.978
Isles of Scilly	4,944	170	1.084	0.086	0.005
Saltee Islands	502	92	1.773	0.049	0.003
Lambay Island	690	226	2.359	0.015	0.001

6.8. Summary

All classified bird populations, including assemblage species have been screened in for Stage 2 AA for sites within 10 km of the proposed works.

More distant sites are assessed based on the expected interaction with the Project construction and decommissioning works and turbine presence during operation, and any resultant risk to the conservation objectives of the respective conservation site.

Foraging ranges for breeding populations, based on the species-specific mean maximum foraging ranges (+1SD where applicable) as determined by Woodward *et al.* (2019), have been used to determine connectivity between classified SPA breeding colonies and the Project array area or ECC. Where connectivity was identified, apportioning was carried out to determine the proportion of individuals for each receptor species present at the Project site that originate from specific key SPA breeding populations. For all species considered within assessment, the proportional weight for the closest SPA site is >0.8 and the proportional weight for the second closest SPA site is <0.04. As such, it is considered that the risk of adverse effects from Project activities on classified bird populations other than the closest SPA will be negligible. **No LSE** is concluded for SPAs or Ramsar site other than the closest site to Project activities. However, an iterative approach will also be adopted, where assessment is carried out for the closest site to the Project footprint (i.e. the site with the greatest proportional weight as determined in apportioning calculations). If adverse effect on site integrity (AEOSI) is determined, then assessment will be carried out for the site with the next greatest proportional weight. If no AEOSI is determined, additional sites will not be considered further.

The expected low interaction between migratory bird populations and the Project array area footprint indicates that the Project poses very low risk of disturbance, displacement, barrier or collision impacts to classified bird populations during seasonal migration. As such, it is considered that the Project will not impact the conservation objectives of sites identified within assessment of migratory populations. **No LSE** is concluded for these populations and they have not been screened in for assessment within Stage 2 AA.

No LSE is also concluded for species that were observed in the DAS in numbers corresponding with ≤0.01% of the UK population (Table 6.4).

Species-specific risk from pressures associated with offshore wind, as reported by Furness *et al.* (2013) has been considered to inform discussion of species-specific risk. Based on this information and consultation response from the SNCBs, the following species were considered within the HRA apportioning calculations:

- Northern gannet;
- Black-legged kittiwake;
- Common guillemot;
- Razorbill;
- Atlantic puffin;
- European storm petrel;
- Manx shearwater; and
- Lesser black-backed gull.

Apportioning outputs demonstrated that in each case the proportional weight for the nearest classified population to the Project site was >0.8 and the next closest site did not exceed 0.04 for any receptor species. As such it is considered that negligible numbers of individuals from more distant classified breeding populations will interact with Project activities.

No LSE is therefore concluded for classified populations of each of these species for all sites other than the closest SPA to the Proposed Development. However, it should be noted that an iterative approach will be adopted in the case that AEOSI is determined for any of these species. In any case where AEOSI is determined then assessment will be carried out for the next closest site and this process may be continued to the outer extent of the species-specific foraging range. If no AEOSI is determined, more distant sites will not be considered further.

The following breeding populations will be considered in the next stage of the screening process:

- Northern gannet: Grassholm SPA;
- Black-legged kittiwake: Skomer, Skokholm and the Seas off Pembrokehsire/Sgomer, Sgogwm a Moroedd Penfro SPA;
- Common guillemot: Skomer, Skokholm and the Seas off Pembrokehsire/Sgomer, Sgogwm a Moroedd Penfro SPA;
- Razorbill: Skomer, Skokholm and the Seas off Pembrokehsire/Sgomer, Sgogwm a Moroedd Penfro SPA;
- Atlantic puffin: Skomer, Skokholm and the Seas off Pembrokehsire/Sgomer, Sgogwm a Moroedd Penfro SPA;
- European storm petrel: Skomer, Skokholm and the Seas off Pembrokehsire/Sgomer, Sgogwm a Moroedd Penfro SPA;
- Manx shearwater: Skomer, Skokholm and the Seas off Pembrokehsire/Sgomer, Sgogwm a Moroedd Penfro SPA; and
- Lesser black-backed gull: Skomer, Skokholm and the Seas off Pembrokehsire/Sgomer, Sgogwm a Moroedd Penfro SPA.

6.9. Screening

6.9.1. Screening for Breeding Populations

Table 6.7: Special Protected Areas (SPA) sites screened in and screened out of the next stage of assessment for the Erebus Project in relation to bird breeding populations

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
UK9014051	Wales	Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	• Atlantic puffin; • European storm petrel; • Lesser black-backed gull; • Manx shearwater.	0.0	0.0	In	Potential LSE as direct overlap with the Project area.
UK9014041	Wales	Grassholm	• Northern gannet.	24.9	20.4	In	Potential LSE based on species foraging distance and output from apportioning calculations.
IE0004092	Ireland	Tacumshin Lake SPA	• Lesser black-backed gull.	94.7	101.2	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
IE0004002	Ireland	Saltee Islands SPA	• Atlantic puffin; • Black-legged kittiwake; • Common guillemot; • Lesser black-backed gull; • Manx shearwater; • Northern fulmar; • Razorbill.	95.4	102.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9013121	Wales	Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island	• Manx shearwater.	139.0	108.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004192	Ireland	Helvick Head to Ballyquin SPA	• Black-legged kittiwake; • Common guillemot; • Northern fulmar; • Razorbill.	145.0	152.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004032	Ireland	Dungarvan Harbour SPA	• Lesser black-backed gull.	145.9	152.3	Out	No LSE for lesser black-backed gull as outside its foraging range.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
IE0004028	Ireland	Blackwater Estuary SPA	• Lesser black-backed gull.	158.3	165.3	Out	No LSE for lesser black-backed gull as outside its foraging range.
IE0004023	Ireland	Ballymacoda Bay SPA	• Lesser black-backed gull.	161.4	168.3	Out	No LSE for lesser black-backed gull as outside its foraging range.
IE0004127	Ireland	Wicklow Head SPA	• Black-legged kittiwake; • Common guillemot; • Northern fulmar; • Razorbill.	164.5	152.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9020288	England	Isles of Scilly	• European storm petrel; • Lesser black-backed gull.	167.2	172.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004022	Ireland	Ballycotton Bay SPA	• Lesser black-backed gull.	168.1	174.8	Out	No LSE for lesser black-backed gull as outside its foraging range.
IE0004030	Ireland	Cork Harbour SPA	• Lesser black-backed gull.	179.3	186.1	Out	No LSE for lesser black-backed gull as outside its foraging range.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
IE0004021	Ireland	Old Head of Kinsale SPA	• Black-legged kittiwake; • Northern fulmar.	201.2	207.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004113	Ireland	Howth Head Coast SPA	• Black-legged kittiwake; • Northern fulmar.	209.4	195.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004117	Ireland	Ireland's Eye SPA	• Atlantic puffin; • Black-legged kittiwake; • Northern fulmar.	213.6	199.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004069	Ireland	Lambay Island SPA	• Atlantic puffin; • Black-legged kittiwake; • Lesser black-backed gull; • Manx shearwater;	222.3	207.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
			• Northern fulmar.				array area or ECC.
IE0004190	Ireland	Galley Head to Duneen Point SPA	• Northern fulmar.	223.9	230.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004014	Ireland	Rockabill SPA	• Black-legged kittiwake.	231.5	215.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004122	Ireland	Skerries Islands SPA	• Northern fulmar.	232.8	218.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR2512005	France	Nord Bretagne DO	• Black-legged kittiwake; • European storm petrel; • Lesser black-backed gull;	234.7	235.8	Out.	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
			• Manx shearwater; • Northern fulmar; • Northern gannet.				array area or ECC.
UK9020328	Wales	Irish Sea Front	• Manx shearwater.	237.6	213.1	In	LSE due to the position of the Proposed Development on the route shown (by tracking data) to be used by Manx shearwater travelling from the Lundy SSSI colony to the Irish Sea Front SPA to forage. As such, potential for barrier effects cannot be ruled out.
IE0004156	Ireland	Sheep's Head to Toe Head SPA	• Northern fulmar.	247.5	253.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5212016	France	Mers Celtiques - Talus du golfe de Gascogne	• Black-legged kittiwake; • European storm petrel; • Manx shearwater; • Northern fulmar; • Northern gannet.	258.9	263.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
ES0000143	Spain	Marismas de Santoña, Victoria y Joyel y Ría de Ajo	• Great skua.	260.0	263.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004155	Ireland	Beara Peninsula SPA	• Northern fulmar.	289.9	296.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310011	France	Côte de Granit Rose-Sept Iles	• Black-legged kittiwake; • European storm petrel; • Manx shearwater; • Northern fulmar; • Northern gannet.	295.2	295.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004189	Ireland	Kerry Head SPA	• Northern fulmar.	300.6	307.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
IE0004154	Ireland	Iveragh Peninsula SPA	• Northern fulmar.	305.7	312.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004005	Ireland	Cliffs of Moher SPA	• Northern fulmar.	306.0	313.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004153	Ireland	Dingle Peninsula SPA	• Northern fulmar.	307.5	314.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004125	Ireland	Magharee Islands SPA	• Northern fulmar.	308.0	315.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							array area or ECC.
IE0004114	Ireland	Illaunonearaun SPA	• Northern fulmar.	308.3	315.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310073	France	Baie de Morlaix	• European storm petrel.	313.6	314.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004119	Ireland	Loop Head SPA	• Northern fulmar.	316.0	323.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
IE0004175	Ireland	Deenish Island and Scariff Island SPA	• European storm petrel; • Manx shearwater; • Northern fulmar.	317.2	323.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004066	Ireland	The Bull and The Cow Rocks SPA	• European storm petrel; • Northern fulmar.	320.8	327.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310072	France	Ouessant-Molène	• European storm petrel; • Manx shearwater; • Northern fulmar; • Northern gannet.	324.4	328.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004152	Ireland	Inishmore SPA	• Northern fulmar.	324.9	332.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							array area or ECC.
IE0004003	Ireland	Puffin Island SPA	• European storm petrel; • Manx shearwater; • Northern fulmar.	330.9	337.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004007	Ireland	Skelligs SPA	• Manx shearwater; • Northern fulmar.	337.7	344.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004008	Ireland	Blasket Islands SPA	• Manx shearwater; • Northern fulmar.	341.7	348.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
FR5312004	France	Camaret	• Northern fulmar.	356.0	358.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310095	France	Cap d'Erquy-Cap Fréhel	• Manx shearwater; • Northern fulmar.	364.8	361.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR3110085	France	Cap Gris-Nez	• Northern fulmar.	364.8	361.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
FR2510047	France	Baie de Seine occidentale	• Northern fulmar; • Northern gannet.	366.2	353.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310050	France	Baie de Saint-Brieuc - Est	• Manx shearwater.	372.9	370.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9020291	Northern Ireland	Copeland Islands	• Manx shearwater.	373.3	368.8	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004133	Ireland	Aughris Head SPA	• Northern fulmar.	374.5	377.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
FR2510037	France	Chausey	• Manx shearwater; • Northern gannet.	376.5	368.8	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004170	Ireland	Cruagh Island SPA	• Manx shearwater.	383.2	390.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004068	Ireland	Inishmurray SPA	• Northern fulmar.	384.2	385.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004144	Ireland	High Island, Inishshark and Davillaun SPA	• Manx shearwater; • Northern fulmar.	384.3	391.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							array area or ECC.
FR2510099	France	Falaise du Bessin Occidental	• Northern fulmar.	392.8	380.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC..
IE0004150	Ireland	West Donegal Coast SPA	• Northern fulmar.	398.8	398.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR2510048	France	Baie du Mont Saint Michel	• Manx shearwater.	400.4	396.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004177	Ireland	Bills Rocks SPA	• Northern fulmar.	406.1	413.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

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							array area or ECC.
FR5312009	France	Roches de Penmarc'h	• Manx shearwater; • Northern gannet.	407.1	409.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310057	France	Archipel de Glénan	• Manx shearwater; • Northern gannet.	408.1	409.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9003091	Scotland	Ailsa Craig	• Northern gannet.	416.6	393.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004111	Ireland	Duvillaun Islands SPA	• Northern fulmar.	417.8	424.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							overlap with the Project array area or ECC.
IE0004004	Ireland	Inishkea Islands SPA	• Northern fulmar.	423.1	429.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004072	Ireland	Stags of Broad Haven SPA	• Northern fulmar.	423.5	430.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR2310045	France	Littoral seino-marin	• Manx shearwater; • Northern fulmar; • Northern gannet.	424.6	405.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004194	Ireland	Horn Head to Fanad Head SPA	• Northern fulmar.	429.9	420.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that

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							overlap with the Project array area or ECC.
FR2512001	France	Littoral augeron	• Manx shearwater; • Northern gannet.	442.4	426.8	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004100	Ireland	Inishtrahull SPA	• Northern fulmar.	450.1	438.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IE0004073	Ireland	Tory Island SPA	• Northern fulmar.	451.6	445.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9006101	England	Flamborough and Filey Coast	• Northern gannet.	467.9	424.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							with foraging ranges that overlap with the Project array area or ECC.
FR5312011	France	Iles Houat-Hoëdic	• Manx shearwater.	478.4	479.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310055	France	Cap Sizun	• Northern fulmar.	481.1	450.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5310074	France	Baie de Vilaine	• Manx shearwater; • Northern gannet.	481.7	481.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5212013	France	Mor Braz	• Manx shearwater; • Northern fulmar; • Northern gannet.	487.0	487.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species

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							with foraging ranges that overlap with the Project array area or ECC.
UK9020316	Scotland	Outer Firth of Forth and St Andrews Bay Complex SPA	• Manx Shearwater	504.3	504.1	Out	No LSE concluded because the conservation objectives for this site do not require consideration of the foraging range of Manx shearwater as the site is designated as a foraging area rather than a breeding colony.
FR5212009	France	Marais salants de Guérande, traicts du Croisic, dunes de Pen Bron	• Manx shearwater.	504.3	504.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR3112006	France	Bancs des Flandres	• Northern fulmar; • Northern gannet.	512.6	479.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

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FR5210103	France	Estuaire de la Loire	• Manx shearwater.	518.6	517.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9004171	Scotland	Forth Islands	• Northern gannet.	523.1	493.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5212009	France	Marais Breton, baie de Bourgneuf, île de Noirmoutier et forêt de Monts	• Manx shearwater.	504.3	504.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR5212015	France	Secteur marin de l'île d'Yeu jusqu'au continent	• Manx shearwater; • Northern fulmar.	555.3	556.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
FR5412026	France	Pertuis charentais - Rochebonne	• Manx shearwater.	594.1	595.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001121	Scotland	Mingulay and Berneray	• Northern fulmar.	599.8	586.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001341	Scotland	Rum	• Manx shearwater.	602.9	583.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002271	Scotland	Fowlsheugh	• Northern fulmar.	639.7	607.8	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

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							array area or ECC.
UK9002491	Scotland	Buchan Ness to Collieston Coast	• Northern fulmar.	690.3	658.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR7212016	France	Panache de la Gironde	• Manx shearwater.	701.8	702.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001041	Scotland	Shiant Isles	• Northern fulmar.	710.2	690.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002471	Scotland	Troup, Pennan and Lion's Heads	• Northern fulmar.	718.3	687.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

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							array area or ECC.
UK9001031	Scotland	St Kilda	• Manx shearwater; • Northern fulmar.	720.3	709.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001182	Scotland	East Caithness Cliffs	• Northern fulmar.	747.1	720.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR7212017	France	Au droit de l'étang d'Hourtin-Carcans	• Manx shearwater.	752.7	753.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001021	Scotland	Flannan Isles	• Northern fulmar.	762.4	746.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							overlap with the Project array area or ECC.
UK9001241	Scotland	Handa	• Northern fulmar.	763.9	741.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001231	Scotland	Cape Wrath	• Northern fulmar.	788.1	765.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001181	Scotland	North Caithness Cliffs	• Northern fulmar.	793.6	767.8	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR7212018	France	Bassin d'Arcachon et banc d'Arguin	• Manx shearwater.	807.2	807.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							overlap with the Project array area or ECC.
UK9002141	Scotland	Hoy	• Northern fulmar.	821.2	794.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002151	Scotland	Copinsay	• Northern fulmar.	840.8	812.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9001011	Scotland	North Rona and Sula Sgeir	• Northern fulmar.	844.0	823.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000495	Spain	Espacio marino de Punta de Candelaria-Ría de Ortigueira-Estaca	• Great skua; • Manx shearwater.	846.6	851.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
		de Bares					with foraging ranges that overlap with the Project array area or ECC.
ES0000494	Spain	Espacio marino de Cabo Peñas	• Great skua; • Manx shearwater.	850.4	854.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000318	Spain	Cabo Busto-Luanco	• Great skua; • Manx shearwater.	862.7	866.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002371	Scotland	Rousay	• Northern fulmar.	865.1	837.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
UK9002431	Scotland	Calf of Eday	• Northern fulmar.	877.4	849.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002101	Scotland	West Westray	• Northern fulmar.	879.0	851.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000496	Spain	Espacio marino de la Costa de Ferrolterra-Valdoviño	• Manx shearwater.	890.0	895.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000497	Spain	Espacio marino de la Costa da Morte	• Great skua; • Manx shearwater.	896.0	901.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

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							array area or ECC.
ES0000490	Spain	Espacio marino de la Ría de Mundaka-Cabo de Ogoño	• Manx shearwater.	903.3	905.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000144	Spain	Urdaibaiko itsasadarra /Ría de Urdaibai	• Great skua; • Manx shearwater; • Northern fulmar.	910.1	912.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002091	Scotland	Fair Isle	• Northern fulmar.	922.8	893.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR7212013	France	Estuaire de la Bidassoa et baie de Fontarabie	• Manx shearwater.	928.3	929.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							array area or ECC.
FR7212002	France	Rochers de Biarritz : le Bouccalot et la Roche ronde	• Manx shearwater.	930.3	931.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
DE1011401	Germany	SPA Östliche Deutsche Bucht	• Northern fulmar.	936.3	893.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
DE1813491	Germany	Seevogelschutzgebiet Helgoland	• Northern fulmar.	949.6	907.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
UK9002511	Scotland	Sumburgh Head	• Northern fulmar.	965.9	935.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
DE0916491	Germany	Ramsar-Gebiet S-H Wattenmeer und angrenzende Küstengebiete	• Northern fulmar.	971.4	928.8	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002061	Scotland	Foula	• Northern fulmar.	980.5	952.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002081	Scotland	Noss	• Northern fulmar.	999.7	969.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
ES0000499	Spain	Espacio marino de las Rías Baixas de Galicia	• Manx shearwater.	1008.0	1013.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000254	Spain	Illa de Ons	• Manx shearwater.	1034.3	1039.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002031	Scotland	Fetlar	• Northern fulmar.	1046.8	1017.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
UK9002011	Scotland	Hermaness, Saxa Vord and Valla Field	• Northern fulmar.	1066.1	1036.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							array area or ECC.
FR9112035	France	Côte languedocienne	• Manx shearwater.	1127.4	1124.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR9310019	France	Camargue	• Manx shearwater.	1142.7	1137.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
FR9112034	France	Cap Bear- cap Cerbère	• Manx shearwater.	1187.0	1184.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000514	Spain	Espacio marino de l'Empordà	• Manx shearwater.	1198.7	1196.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							array area or ECC.
PTZPE0060	Portugal	Aveiro/Nazaré	• Manx shearwater.	1220.5	1225.5	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000512	Spain	Espacio marino del Delta de l'Ebre-Illes Columbretes	• Manx shearwater.	1258.7	1258.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000513	Spain	Espacio marino del Baix Llobregat-Garraf	• Manx shearwater.	1267.3	1266.7	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
PTZPE0009	Portugal	Ilhas Berlengas	• Manx shearwater.	1354.3	1359.4	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							overlap with the Project array area or ECC.
PTZPE0061	Portugal	Cabo Raso	• Manx shearwater.	1400.3	1405.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000510	Spain	Plataforma-talud marinos del Cabo de la Nao	• Manx shearwater.	1413.1	1414.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000519	Spain	Espacio marino del poniente de Mallorca	• Manx shearwater.	1435.1	1434.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000521	Spain	Espacio marino del norte y oeste de Menorca	• Manx shearwater.	1435.7	1434.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							overlap with the Project array area or ECC.
ES0000520	Spain	Espacio marino del norte de Mallorca	• Manx shearwater.	1435.9	1434.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000516	Spain	Espacio marino del poniente y norte de Ibiza	• Manx shearwater.	1466.8	1467.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
PTZPE0050	Portugal	Cabo Espichel	• Manx shearwater.	1470.1	1475.1	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000518	Spain	Espacio marino del sur de Mallorca y Cabrera	• Manx shearwater.	1473.5	1472.8	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							with foraging ranges that overlap with the Project array area or ECC.
ES0000517	Spain	Espacio marino del levante de Ibiza	• Manx shearwater.	1480.0	1480.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000522	Spain	Espacio marino del sureste de Menorca	• Manx shearwater.	1488.3	1486.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000515	Spain	Espacio marino de Formentera y del sur de Ibiza	• Manx shearwater.	1495.0	1495.6	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000508	Spain	Espacio marino de Tabarca-Cabo de Palos	• Manx shearwater.	1513.6	1515.3	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							with foraging ranges that overlap with the Project array area or ECC.
ES0000549	Spain	Punta Prima	• Manx shearwater.	1514.7	1515.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
PTZPE0015	Portugal	Costa Sudoeste	• Manx shearwater.	1529.4	1534.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000500	Spain	Golfo de Cádiz	• Manx shearwater.	1593.6	1597.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000504	Spain	Bahía de Málaga-Cerro Gordo	• Manx shearwater.	1634.7	1638.3	Out	No LSE due to the low proportional weight determined in apportioning

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
							calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ES0000506	Spain	Bahía de Almería	• Manx shearwater.	1639.4	1642.2	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
IT9110040	Italy	Isole Tremiti	• Manx shearwater.	1915.7	1896.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ITA010027	Italy	Arcipelago delle Egadi - area marina e terrestre	• Manx shearwater.	2041.6	2032.9	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.
ITA030044	Italy	Arcipelago delle Eolie - area marina	• Manx shearwater.	2125.6	2113.0	Out	No LSE due to the low proportional weight determined in apportioning

Site Code	Country	Site Name	Category of Interest Feature	Distance to Array (km)	Distance to ECC (km)	Screening Decision	Reason for Screening Decision
		e terrestre					calculations for all species with foraging ranges that overlap with the Project array area or ECC.
PTZPE0041	Portugal	Maciço Montanhoso Oriental da Ilha da Madeira	• Manx shearwater.	2283.0	2289.0	Out	No LSE due to the low proportional weight determined in apportioning calculations for all species with foraging ranges that overlap with the Project array area or ECC.

6.9.2. Screening for Migratory Birds

Screening for migratory birds was based on the SOSSMAT approach. The results in Table 6.3 show low percentages of the populations are likely to be affected by the Project array area during construction, operation and maintenance and decommissioning. A buffer of 10 km has been used around the array area to ensure migrating birds that may pass through the areas close to the array area are assessed.

Table 6.8: Special Protected Areas (SPA) sites screened in and screened out of the next stage of assessment for the Erebus Project in relation to migratory species

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK9014051	Wales	Skomer, Skokholm and the	• Atlantic puffin;	0.0	In	Potential LSE as

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
		Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro	• European storm petrel; • Lesser black-backed gull; • Manx shearwater.			direct overlap with the Project area.
UK9014041	Wales	Grassholm	• Northern gannet.	20.4	Out	No LSE concluded due to the negligible proportion of migrating populations expected to interact with the Project array footprint. See Table 6.3 for details of relevant proportions of migratory populations.
IE0000707	Ireland	Saltee Islands SAC	• Atlantic puffin; • Black-legged kittiwake; • Common guillemot; • Lesser black-backed gull; • Manx shearwater; • Northern fulmar; • Razorbill; • Great cormorant.	93.8	Out	
IE0004009	Ireland	Lady's Island Lake SPA	• Mediterranean gull; • Black-headed gull; • Roseate tern; • Common tern; • Arctic tern; • Sandwich tern.	97.5	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
IE0004092	Ireland	Tacumshin Lake SPA	• Lesser black-backed gull; • Black-headed gull.	101.2	Out	
IE0004002	Ireland	Saltee Islands SPA	• Atlantic puffin; • Black-legged kittiwake; • Common guillemot; • Lesser black-backed gull; • Manx shearwater; • Northern fulmar; • Razorbill; • Great cormorant.	102.3	Out	
IE0000764	Ireland	Hook Head SAC	• Guillemot.	107.0	Out	
IE0004076	Ireland	Wexford Harbour and Slobs SPA	• Common gull; • Black-headed gull; • Great cormorant.	107.4	Out	
IE0000781	Ireland	Slaney River Valley SAC	• Lesser black-backed gull; • Common gull; • Black-headed gull;	109.5	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Great cormorant.			
IE0004019	Ireland	The Raven SPA	• Red-throated diver; • Common gull; • Black-headed gull; • Great cormorant.	109.6	Out	
ES1200016	Spain	Ría del Eo	• Lesser black-backed gull; • Common guillemot; • Great cormorant; • Herring gull; • Common gull; • Mediterranean gull; • Black-headed gull; • Common tern; • Sandwich tern; • Great black-backed gull.	884.1	Out	
IE0004033	Ireland	Bannow Bay SPA	• Lesser black-backed gull; • Great cormorant.	119.1	Out	
IE0000697	Ireland	Bannow Bay SAC	• Great cormorant.	119.1	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
IE0004193	Ireland	Mid-Waterford Coast SPA	• Herring gull; • Great cormorant.	134.2	Out	
UK9013121	Wales	Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast and Bardsey Island	• Manx shearwater.	108.5	Out	
IE0000665	Ireland	Helvick Head SAC	• Black-legged kittiwake; • Common guillemot; • Northern fulmar; • Razorbill.	151.0	Out	
IE0004192	Ireland	Helvick Head to Ballyquin SPA	• Kittiwake; • Northern fulmar; • Razorbill; • Great cormorant; • Herring gull; • Great black-backed gull; • European shag.	151.0	Out	
IE0004032	Ireland	Dungarvan Harbour SPA	• Lesser black-backed gull; • Great cormorant.	152.3	Out	
IE0004023	Ireland	Ballymacoda Bay SPA	• Common gull; • Lesser black-backed gull; • Black-headed	167.5	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			gull; • Great cormorant.			
IE0004127	Ireland	Wicklow Head SPA	• Black-legged kittiwake; • Common guillemot; • Northern fulmar; • Razorbill.	152.5	Out	
UK9020288	England	Isles of Scilly	• European storm petrel; • Lesser black-backed gull.	172.5	Out	
IE0004186	Ireland	The Murrough SPA	• Red throated diver; • Herring gull; • Black-headed gull; • Great cormorant; • Sandwich tern.	156.4	Out	
IE0002249	Ireland	The Murrough Wetlands SAC	• Red throated diver; • Black-headed gull; • Great cormorant.	157.4	Out	
IE0000714	Ireland	Bray Head SAC	• Black-legged kittiwake; • Common	175.3	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			guillemot; • Northern fulmar; • Razorbill.			
UK9013061	Wales	Anglesey Terns / Morwenoliaid Ynys Môn	• Roseate tern; • Common tern; • Arctic tern; • Sandwich tern.	161.0	Out	
IE0004124	Ireland	Sovereign Islands SPA	• Great cormorant.	201.6	Out	
IE0004172	Ireland	Dalkey Islands SPA	• Roseate tern; • Common tern; • Arctic tern.	187.0	Out	
IE0004021	Ireland	Old Head of Kinsale SPA	• Black-legged kittiwake; • Common guillemot; • Northern fulmar; • Razorbill; • Herring gull; • European shag.	207.5	Out	
IE0004024	Ireland	Sandymount Strand/Tolka Estuary SPA	• Common gull; • Mediterranean gull; • Black-headed gull; • Great cormorant; • Roseate tern;	191.5	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Common tern; • Arctic tern.			
IE0000210	Ireland	South Dublin Bay SAC	• Roseate tern; • Common tern; • Arctic tern.	191.5	Out	
IE0004006	Ireland	North Bull Island SPA	• Common gull; • Black-headed gull.	196.4	Out	
IE0004113	Ireland	Howth Head Coast SPA	• Black-legged kittiwake; • Common guillemot; • Northern fulmar; • Razorbill.	195.6	Out	
IE0004219	Ireland	Courtmacsherry Bay SPA	• Common gull; • Black-headed gull.	215.9	Out	
IE0000202	Ireland	Howth Head SAC	• Black-legged kittiwake; • Common guillemot; • Northern fulmar; • Razorbill.	195.8	Out	
IE0004191	Ireland	Seven Heads SPA	• Great cormorant; • Herring gull.	217.0	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
IE0004117	Ireland	Ireland's Eye SPA	• Razorbill; • Atlantic puffin; • Northern fulmar; • Great cormorant; • Black-legged kittiwake; • Common guillemot.	199.7	Out	
IE0002193	Ireland	Ireland's Eye SAC	• Razorbill; • Atlantic puffin; • Northern fulmar; • Great cormorant; • Black-legged kittiwake; • Common guillemot.	200.1	Out	
IE0004025	Ireland	Broadmeadow/Swords Estuary SPA	• Common gull; • Black-headed gull; • Great cormorant.	205.9	Out	
IE0004069	Ireland	Lambay Island SPA	• Razorbill; • Atlantic puffin; • Northern fulmar; • Lesser black-backed gull; • Great cormorant; • Manx shearwater;	207.4	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Black-legged kittiwake; • Common guillemot.			
IE0004081	Ireland	Clonakilty Bay SPA	• Great cormorant.	228.7	Out	
IE0000204	Ireland	Lambay Island SAC	• Razorbill; • Atlantic puffin; • Northern fulmar; • Red-throated diver; • Herring gull; • Lesser black-backed gull; • Great black-backed gull; • European shag; • Great cormorant; • Manx shearwater; • Black-legged kittiwake; • Common tern; • Common guillemot.	207.8	Out	
IE0004190	Ireland	Galley Head to Duneen Point SPA	• Northern fulmar; • Herring gull.	230.2	Out	
IE0004015	Ireland	Rogerstown Estuary SPA	• Great cormorant.	210.3	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
IE0004014	Ireland	Rockabill SPA	• Black-legged kittiwake; • Roseate tern; • Common tern; • Arctic tern.	215.5	Out	
UK9020328	Wales	Irish Sea Front	• Manx shearwater.	213.1	Out	
IE0004158	Ireland	River Nanny Estuary and Shore SPA	• Herring gull; • Common gull; • Black-headed gull; • Great cormorant.	230.0	Out	
IE0000365	Ireland	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	• Common tern.	254.3	Out	
IE0004156	Ireland	Sheep's Head to Toe Head SPA	• Northern fulmar; • Herring gull; • European shag.	253.7	Out	
IE0001957	Ireland	Boyne Coast and Estuary SAC	• Great cormorant.t	235.8	Out	
IE0004080	Ireland	Boyne Estuary SPA	• Common gull; • Black-headed gull;	237.7	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Great cormorant.			
IE0000101	Ireland	Roaringwater Bay and Islands SAC	• Razorbill; • Northern fulmar; • Lesser black-backed gull; • Great cormorant; • Common guillemot.	263.7	Out	
FR5212016	France	Mers Celtiques - Talus du golfe de Gascogne	• Razorbill; • Northern fulmar; • European storm petrel; • Herring gull; • Lesser black-backed gull; • Mediterranean gull; • Black-headed gull; • Northern gannet; • Manx shearwater; • Black-legged kittiwake; • Sandwich tern; • Common guillemot.	263.4	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
IE0004026	Ireland	Dundalk Bay SPA	• Red-throated diver; • Common gull; • Black-headed gull; • Great cormorant.	252.6	Out	
IE0000455	Ireland	Dundalk Bay SAC	• Great cormorant.	255.7	Out	
IE0000090	Ireland	Glengarriff Harbour and Woodland SAC	• Arctic tern.	275.8	Out	
IE0000102	Ireland	Sheep's Head SAC	• Northern fulmar; • European shag.	281.3	Out	
IE0002158	Ireland	Kenmare River SAC	• Arctic tern.	282.2	Out	
IE0002306	Ireland	Carlingford Shore SAC	• Great cormorant.	263.2	Out	
IE0001040	Ireland	Barley Cove to Ballyrisode Point SAC	• Northern fulmar; • Lesser black-backed gull; • Black-headed gull.	285.2	Out	
IE0004078	Ireland	Carlingford Lough SPA	• Great cormorant.	264.8	Out	
IE0000109	Ireland	Three Castle Head to Mizen Head SAC	• Razorbill; • Northern fulmar; • Great cormorant; • Black-legged	295.0	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• kittiwake; • Common guillemot.			
IE0004155	Ireland	Beara Peninsula SPA	• Northern fulmar; • Herring gull; • European shag.	296.2	Out	
IE0004154	Ireland	Iveragh Peninsula SPA	• Razorbill; • Northern fulmar; • Herring gull; • European shag; • Great cormorant; • Black-legged kittiwake; • Common guillemot.	312.5	Out	
UK9020111	Northern Ireland	Strangford Lough	• Common tern; • Arctic tern; • Sandwich tern.	291.5	Out	
UK9020271	Northern Ireland	Outer Ards	• Arctic tern.	295.2	Out	
FR5310054	France	Ilôt du Trévors	• Herring gull; • Lesser black-backed gull; • Great black-backed gull; • European shag; • Great cormorant;	323.5	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Roseate tern; • Common tern; • Sandwich tern.			
FR5310072	France	Ouessant-Molène	• Razorbill; • Atlantic puffin; • Northern fulmar; • Red-throated diver; • European storm petrel; • Herring gull; • Lesser black-backed gull; • Great black-backed gull; • Northern gannet; • Leach's petrel; • European shag; • Great cormorant; • Manx shearwater; • Black-legged kittiwake; • Arctic skua; • Common tern; • Common guillemot.	328.1	Out	
UK9020101	Northern Ireland	Belfast Lough	• Common tern; • Arctic tern.	330.2	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
ES1200006	Spain	Ría de Villaviciosa	• Red-throated diver; • Lesser black-backed gull; • Mediterranean gull; • Black-headed gull; • European shag; • Great cormorant; • Common tern; • Sandwich tern; • Common guillemot.	879.1	Out	
UK9020291	Northern Ireland	Copeland Islands	• Manx shearwater; • Arctic tern.	332.1	Out	
FR5312004	France	Camaret	• Northern fulmar; • European storm petrel; • Great black-backed gull; • European shag; • Common guillemot.	358.7	Out	
UK9020042	Northern Ireland	Larne Lough	• Mediterranean gull; • Roseate tern; • Common tern;	344.7	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Sandwich tern.			
FR5310055	France	Cap Sizun	• Razorbill; • Northern fulmar; • European storm petrel; • Herring gull; • Lesser black-backed gull; • Great black-backed gull; • European shag; • Black-legged kittiwake; • Common guillemot.	379.4	Out	
FR5310056	France	Baie d'Audierne	• Mediterranean gull; • Common tern; • Sandwich tern.	402.0	Out	
FR5312009	France	Roches de Penmarc'h	• European storm petrel; • Herring gull; • Great black-backed gull; • Mediterranean gull; • Northern gannet; • Great cormorant;	409.9	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Manx shearwater; • Sandwich tern.			
UK9003091	Scotland	Ailsa Craig	• Herring gull; • Lesser black-backed gull; • Northern gannet; • Black-legged kittiwake; • Common guillemot.	393.4	Out	
ES90ATL01	Spain	El Cachucho	• Razorbill; • Atlantic puffin; • European storm petrel; • Herring gull; • Lesser black-backed gull; • Great black-backed gull; • Mediterranean gull; • Black-headed gull; • Leach's petrel; • Manx shearwater; • Black-legged kittiwake; • Arctic skua;	807.4	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Great skua; • Roseate tern; • Common tern; • Arctic tern; • Sandwich tern; • Common guillemot.			
ES0000495	Spain	Espacio marino de Punta de Candelaria-Ría de Ortigueira-Estaca de Bares	• Lesser black-backed gull; • Mediterranean gull; • Northern gannet; • European shag; • Manx shearwater; • Arctic skua; • Great skua; • Common tern; • Sandwich tern.	851.4	Out	
ES0000494	Spain	Espacio marino de Cabo Peñas	• European storm petrel; • Lesser black-backed gull; • Mediterranean gull; • Northern gannet; • European shag; • Manx shearwater;	854.3	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Arctic skua; • Great skua; • Common tern; • Sandwich tern.			
ES0000318	Spain	Cabo Busto-Luanco	• Razorbill; • European storm petrel; • Herring gull; • Lesser black-backed gull; • Black-headed gull; • Great cormorant; • Manx shearwater; • Black-legged kittiwake; • Arctic skua; • Great skua; • Common tern; • Arctic tern; • Common guillemot.	866.6	Out	
ES1200055	Spain	Cabo Busto-Luanco	• Razorbill; • European storm petrel; • Herring gull; • Lesser black-backed gull; • Black-headed	866.6	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			gull; • Great cormorant; • Manx shearwater; • Black-legged kittiwake; • Arctic skua; • Great skua; • Common tern; • Arctic tern; • Common guillemot.			
ES1110010	Spain	Estaca de Bares	• European shag; • Great cormorant.	867.9	Out	
ES1120017	Spain	Costa da Mariña occidental	• European storm petrel; • European shag; • Great cormorant; • Common tern; • Sandwich tern.	869.8	Out	
ES0000372	Spain	Costa da Mariña occidental	• European storm petrel; • European shag; • Great cormorant; • Common tern; • Sandwich tern.	870.3	Out	
ES1110002	Spain	Costa Ártabra	• Red-throated	872.4	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			diver; • European storm petrel; • European shag; • Great cormorant; • Common tern; • Sandwich tern.			
ES1200047	Spain	Yacimientos de Icnitas	• Razorbill; • Herring gull • Lesser black-backed gull; • Mediterranean gull; • Black-headed gull; • European shag; • Great cormorant; • Common guillemot.	877.9	Out	
IE0000710	Ireland	Raven Point Nature Reserve SAC	• Great cormorant.	111.1	Out	
ES0000317	Spain	Penarronda-Barayo	• Razorbill; • Atlantic puffin; • Red-throated diver; • European storm petrel; • Herring gull; • Common gull;	880.1	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Lesser black-backed gull; • Great black-backed gull; • Mediterranean gull; • Black-headed gull; • Great cormorant; • Common guillemot.			
ES0000319	Spain	Ría de Ribadesella-Ría de Tinamayor	• Razorbill; • Atlantic puffin; • European storm petrel; • Herring gull; • Lesser black-backed gull; • Great black-backed gull; • Mediterranean gull; • Black-headed gull; • Great cormorant; • Common tern; • Sandwich tern; • Common guillemot.	887.5	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
FR5310071	France	Rade de Brest : Baie de Daoulas, Anse de Poulmic	• Red-throated diver.	354.1	Out	
ES0000258	Spain	Costa de Ferrolterra - Valdoviño	• European storm petrel; • European shag; • Great cormorant; • Common tern; • Sandwich tern.	893.2	Out	
ES0000496	Spain	Espacio marino de la Costa de Ferrolterra-Valdoviño	• European storm petrel; • European shag; • Manx shearwater.	895.1	Out	
ES0000492	Spain	Espacio marino de los Islotes de Portios-Isla Conejera-Isla de Mouro	• European storm petrel; • European shag.	893.7	Out	
ES0000143	Spain	Marismas de Santoña, Victoria y Joyel y Ría de Ajo	• Razorbill; • European storm petrel; • Lesser black-backed gull; • Great black-backed gull; • Black-headed gull; • European shag; • Great	895.4	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			cormorant;t • Eider; • Great skua; • Common guillemot.			
ES1300007	Spain	Marismas de Santoña, Victoria y Joyel	• Razorbill; • European storm petrel; • Lesser black-backed gull; • Great black-backed gull; • Black-headed gull; • European shag; • Great cormorant; • Eider; • Great skua; • Common guillemot.	896.8	Out	
ES0000497	Spain	Espacio marino de la Costa da Morte	• European storm petrel; • Lesser black-backed gull; • Mediterranean gull; • Northern gannet; • European shag; • Manx	901.4	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			shearwater; • Black-legged kittiwake; • Arctic skua; • Great skua; • Common tern; • Sandwich tern; • Common guillemot.			
ES0000490	Spain	Espacio marino de la Ría de Mundaka-Cabo de Ogoño	• European storm petrel; • Northern gannet; • European shag; • Manx shearwater.	905.5	Out	
ES1110009	Spain	Costa de Dexo	• European shag; • Great cormorant; • Sandwich tern.	919.6	Out	
ES1110005	Spain	Costa da Morte	• European storm petrel; • Lesser black-backed gull; • European shag; • Great cormorant; • Manx shearwater; • Black-legged kittiwake; • Common tern;	931.0	Out	

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			• Sandwich tern; • Common guillemot.			
ES0000176	Spain	Costa da Morte (Norte)	• European storm petrel; • Lesser black-backed gull; • European shag; • Great cormorant; • Black-legged kittiwake; • Common tern; • Sandwich tern; • Common guillemot.	933.7	Out	

7. Screening for Onshore Annex I Habitats

As per the offshore screening process, screening has been completed with respect to onshore Annex I habitats. Details of exposure pathways and the potential impacts identified are detailed in Section 7.1 of this document. It is assumed that for Annex I Habitats, any Natura 2000 or Ramsar site that overlaps with the direct Project footprint will be affected. For the purposes of this assessment, it is assumed that wetland habitat losses due to indirect drainage effects may extend out to 250 m from infrastructure. Therefore, any Natura 2000 or Ramsar site for which such overlap is identified will be screened in for further assessment within Stage 2 AA.

For the purposes of considering onshore habitats within this HRA screening report, a 5 km search buffer has been applied from the Project cable corridor and has been used to identify Natura 2000 or Ramsar sites needing to be considered. Once Natura sites have been identified, Annex I Habitat qualifying features have been considered in terms of potential pressure pathways, as discussed in Section 7.1.

7.1. Potential Pressure Pathways

Assessment of potential LSE on Annex I Habitats and SACs will be divided into data collection and assessment phases. The first phase involves collection of all appropriate information and this is scheduled to take place in the form of a National Vegetation Classification (NVC) survey to establish presence and proximity to Annex I Habitats from all scheduled works and infrastructure. This survey is scheduled to take place this spring, 2021, at the start of the appropriate botanical survey window.

The pressure pathways for Annex I Habitat have been identified as direct and indirect impacts from HDD, trenching and/or cable burial.

There is potential risk from the Project to Annex I Habitats through the following pressures:

- Physical change of habitat;
- Physical disturbance;
- Physical loss of habitat;
- Pollution/contamination; and
- Introduction or spread of INNS.

Screening to identify potential exposure pathways for Annex I Habitats has been carried out based on the pressure pathways detailed in Table 7.1.

Table 7.1: Potential pressure pathways for onshore Annex I Habitats

Project Phase	Effect	Justification
Construction, operation and maintenance and decommissioning	Physical Change of Habitat	Construction impacts have the potential to result in a change of designated habitats and supporting processes. This can include a changed hydrological regime from drainage which, for wetland habitats, results in a shift to a drier habitat type . There is the potential for both temporary and permanent habitat loss and disturbance during the proposed onshore works, depending on the approach to be taken (i.e. trenching or HDD). Any resultant habitat change is expected to be limited to areas of direct overlap between the onshore Project footprint and any Annex I Habitat features that may be present, although for wetland habitat features this may extend out to 250 m. It should be noted that overlap between Project activities and Annex I features within an SAC site will be limited to the onshore cable corridor and associated infrastructure (the working corridor along the onshore cable corridor is expected to be 30 m). Installation of cable protection may cause changes to local hydrodynamics and wave regimes (in the intertidal zone, if trenching is the adopted method for breaching landfall). This may result in changes to sediment transport pathways thereby affecting intertidal habitats (screened in Section 3 of this document). The effects from the proposed works on physical processes are expected to be limited to the direct footprint of the works and up to a 250 m buffer, depending on hydrological regime and substrate types.
	Physical Disturbance	Potential construction/decommissioning phase effect on habitats relates to physical disturbance of habitats, such as tracking by construction machinery. For the purposes of the assessment, the onshore cable corridor and associated infrastructure is expected to utilise a 30 m wide corridor and an additional 10 m buffer either side of the corridor has been assumed in terms of such disturbance. This can also occur during maintenance operations in the operational phase but is anticipated to be of considerably lower levels of disturbance.
	Physical Loss of Habitat	Areas of designated habitat may be lost owing to land take by the footprint of the works. Given the proposed approach to breaching landfall is still to be confirmed (i.e. trenching or HDD), the areas anticipated to be lost are not clear at the time of writing. Furthermore, as the vegetation survey is still to be completed, the presence or absence of Annex I Habitats cannot be confirmed at the time of writing. As such, following a precautionary approach, consideration of permanent habitat loss of Annex I Habitat will need to be further assessed once the data, specific routes and methods are

Project Phase	Effect	Justification
		confirmed.
	Pollution / contamination	During the works there is a risk of pollution events from construction machinery and vehicles. In the event of a pollution incident, it may impact aquatic communities within watercourses due to contaminants and cause a reduction in diversity, abundance and/or biomass. However, pollution events are likely to be rare and the associated impacts would be highly localised and small scale but may potentially result in **LSE** from this pressure.
	Introduction / spread of INNS	There is potential for the introduction or spread of INNS within the proposed footprint of the works. However, any existing stands of INNS will be identified during the pre-construction surveys and appropriate management/protection measures will be implemented, as per National legislation. In the absence of such mitigation and the data available indicating known stands of INNS, **LSE** from this pressure cannot be categorically ruled out.

7.1.1. Summary of Potential Pressure Pathways

The following pressure pathways will be screened in with respect to Annex I Habitat onshore and are set out in Table 7.2 for the Natura 2000 sites and Ramsar sites:

- Physical change of habitat;
- Physical disturbance;
- Physical loss of habitat;
- Pollution/contamination; and
- Introduction/spread of INNS.

7.2. Onshore Annex I Habitats Assessed

7.2.1. Onshore Ecology

Figure 3.1 presents the Annex I subtidal and intertidal habitats at the proposed landfall area. At the time of writing, the approach to breaching landfall (and precise route) is still to be determined but will be undertaken either by trenching or HDD. There is one Annex I primary qualifying feature habitat within the landfall option area, Annex I Reefs, and two non-primary Annex I Habitat features ("mudflats and sandflats not covered by seawater at low tide" and "submerged or partially submerged sea caves"). Screening of these qualifying features has been considered within Section 3.2 and Table 3.2 of this report.

7.3. Screening

It is likely that the Project will result in direct impacts where Annex I Habitats overlap with the onshore cable corridor and indirect impacts to Annex I Habitats within a range of 250 m from the Project footprint, depending on wetland typology or hydrologically connected habitats. As the NVC survey is still to take place, the habitats and vegetation along the pipeline corridor and wider survey buffers are still to be classified. As such, a precautionary approach is to be taken where, if the footprint and a wider 50 m buffer overlap with a designated Annex I Habitat (associated with an SAC), then LSE will be assumed and the qualifying feature taken to Stage 2 AA.

Table 7.2 presents the Sites screened in and out of the next stage of the assessment for the Project in relation to Annex I Habitats.

Table 7.2: Sites screened in and screened out of the next stage of assessment for the Erebus Project in relation to onshore Annex I Habitats

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	Primary reason for site selection: • Estuaries (H1130); • Large shallow inlets and bays (H1160); • Reefs (H1170). Annex I Habitat but not a primary feature for this site: • Sandbanks which are slightly covered by sea water all the time (H1110); • Mudflats and sandflats not covered by seawater at low tide (H1140); • Coastal lagoons (H1150); • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (H1330); • Submerged or partially submerged sea caves (H8330).	0.00	In	There is direct overlap between the Project footprint and Annex I Habitats, although this may change depending on the final method to breaching landfall. Please note that Annex I Habitats located within the intertidal zone are considered in Section 3 of this screening report.
UK0014787	Wales	Limestone Coast of South West Wales/Arfordir Calchfaen de Orllewin Cymru SAC	Primary reason for site selection: • Vegetated sea cliffs of the Atlantic and Baltic Coasts (H1230); • Fixed coastal dunes with herbaceous vegetation 'grey dunes' (H2130). Annex I Habitat but not a primary	0.06	Out	There is no direct overlap between Project footprint and designated Annex I Habitat features. The eastern reach of the onshore cable route does pass within 60 m of the

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
			feature for this site: • European dry heaths (H4030); • Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (important orchid sites) (H6210); • Caves not open to the public (H8310); • Submerged or partially submerged sea caves (H8330).			SAC boundary; however, the distance from the Project exceeds the zone of influence for potential adverse effects. **No LSE** is determined.

8. Screening for Onshore Annex II Species of Mammal

Details of exposure pathways and the potential impacts identified are detailed in Section 8.1 of this document. It is assumed that for Annex II mammals, any Natura 2000 site that overlaps with the direct Project footprint will be affected. Given the highly mobile nature of mammals, the zone of influence for protected species is considered to extend beyond a designated site boundary. Connective distances vary by species and behaviour as well as by topographical features and habitats. Furthermore, at the time of writing protected species surveys are commencing and so the most recent data are not available for consideration at this HRA screening stage 1. Therefore, any Natura 2000 site for which such overlap is identified will be screened in for further assessment within Stage 2 AA.

For the purposes of considering onshore Annex II species of mammal within this HRA screening report, a 2 km buffer has been applied from the Project onshore cable corridor, and has been used to identify Natura sites needing to be considered. An exception to this criterion is bats, as they have a variable commuting or foraging range depending on the species being assessed. Potential for connectivity with the proposed works will be assessed on each specific species known range from identified roost and/or hibernacula. Once Natura sites have been identified, onshore Annex II species of mammal qualifying features that have not been captured within the above marine Natura sites have been considered in terms of potential pressure pathways, as discussed in Section 8.1.

8.1. Potential Pressure Pathways

Assessment of potential LSE on populations of Annex II mammals and SACs will be divided into data collection and assessment phases. The first step involves collection of all appropriate information and this stage is currently underway in the form of protected species surveys to establish presence and known foraging areas, commuting routes and distances.

There is potential risk from the Project to Annex II mammals through the following pressures:

- Physical change of habitat;
- Physical loss of habitat;
- Physical disturbance;
- Visual and noise disturbance; and
- Pollution/contamination.

Screening to identify potential exposure pathways for Annex II mammals has been carried out based on the pressure pathways detailed in Table 8.1:

Table 8.1: Potential pressure pathways for Annex II Onshore Mammal species

Project Phase	Effect	Justification
Construction, operation and maintenance and decommissioning	Physical Change of Habitat	Construction impacts have the potential to result in a change of habitats and supporting processes. This can include a changed hydrological regime from drainage, which results in a shift to a drier habitat type. There is the potential for both temporary and permanent habitat loss and disturbance during the proposed onshore works, depending on the approach to be taken (i.e. trenching or HDD). Any resultant habitat change is expected to be limited to areas of direct overlap between the onshore Project footprint, although for wetland habitats this may be extended out to 250 m. It should be noted that overlap between Project activities and Annex I features within an SAC site will be limited to the onshore cable corridor. Installation of cable protection may cause changes to local hydrodynamics and wave regimes (in the intertidal zone, if trenching is the adopted method for breaching landfall). This may result in changes to sediment transport pathways thereby affecting intertidal habitats (screened in Section 3 of this document). The effects from the proposed works on physical processes are expected to be limited to the direct footprint of the works and up to a 250 m buffer depending on hydrological regime and substrate types. Furthermore, construction activities may overlay existing protected mammal places of rest and/or nest/dens sites. The protected mammal surveys are currently underway, at the time of writing, and so specific activity from any Annex II species within or adjacent to the construction footprint is not currently known. As such, following the precautionary principle, physical change of habitat in relation to Annex II species of mammal may be required for further assessment.
	Physical Loss of Habitat	Areas of habitat will be lost owing to land take by the footprint of the works. Given the proposed approach to breaching landfall is still to be confirmed (i.e. trenching or HDD), the specific size and nature of the areas anticipated to be lost are not clear at the time of writing. Following a precautionary approach, consideration of habitat loss associated with Annex II mammals will need to be considered more fully once the route is confirmed and the data from the protected species survey are available. Therefore, at this stage of the project, loss of habitat is scoped in as a potential pressure pathway with respect to Annex II species of mammal and will be included for further assessment.

Project Phase	Effect	Justification
	Physical Disturbance	Potential construction/decommission phase effect on Annex II species of mammal relates to physical disturbance of habitats, such as tracking by construction machinery, and vibrational disturbance. This relates particularly to the physical disturbance of resting places, such otter natal holts, which may result in the physical harm to adults and/or cubs. This can also occur during maintenance works taking place during the operational phase but is anticipated to be of considerably lower levels of disturbance. Therefore, further assessment of physical disturbance during the construction and decommissioning phase will need to be considered with respect to Annex II species of mammal once the survey data are available and the landfall route and construction method are confirmed.
	Visual and noise disturbance	There is potential for all phases of the development to incur both visual and noise disturbance; however, levels during the construction and decommissioning phases would be markedly more pronounced than that of the operational phase. Such disturbance is likely to occur from any works taking place at night (i.e. light pollution) and vibrational tremors from groundworks transmitted through the substrate to the wider area. Such disturbance levels are generally considered to be relatively minor; however, proximity of groundworks to any places of rest or natal dens/nests will be critical in terms of LSE. As, at the time of writing, the protected mammal survey is being undertaken and the data are not to hand, as well as the specific method and location of the landfall area not being known, visual and noise disturbance will need to be assessed further.
	Pollution / contamination	During the works there is a risk of pollution events from construction machinery and vehicles. In the event of a pollution incident, it may impact aquatic communities within watercourses due to contaminants and cause a reduction in diversity, abundance and/or biomass. Despite the fact that pollution events are likely to be rare and the associated impacts would be highly localised and small in scale, potential for subsequent LSE on otter cannot be discounted. As such, this pressure will need further consideration against this qualifying feature.

8.1.1. Summary of Potential Pressure Pathways

The following pressure pathways will be screened in with respect to onshore Annex II mammals and are set out in Table 8.2 for the Natura 2000 sites and Ramsar sites:

- Physical change of habitat;
- Physical loss of habitat;
- Physical disturbance;
- Visual and noise disturbance; and
- Pollution/contamination.

8.2. Onshore Annex II Species of Mammal Assessed

For the purposes of clarity, grey seal has been included as an Annex II species of mammal qualifying feature of the Pembrokeshire Marine SAC (Table 8.2). Grey seal is assessed in full in Section 5.4 of this screening report and not considered any further in terms of the onshore ecological pressure pathways.

8.2.1. Otter (S1355)

In Wales, the recovery of otter populations is considered to be as a result of a ban on certain pesticides in the 1960s and early 1970s; the introduction of otter-specific protection through legislation since 1978; and ongoing improvements in water quality of Welsh rivers since the 1970s (Strachan, 2015). Otters now form a primary qualifying feature of 22 SAC sites, and a qualifying feature but not the primary reason for site selection for another 52 sites, across the UK (JNCC, 2021j). Otter are opportunistic by nature and can occupy a mixture of marine and freshwater aquatic conditions. Although they are associated primarily with riparian habitats the additional cover and protection offered by woodland close to aquatic habitats are favoured for natal dens and rearing of cubs (Chanin, 2003). Otter more closely associated with coastal habitats are recognised as utilising inshore marine environs for foraging, but also require freshwater for bathing, and terrestrial habitats for resting and natal den sites (NRW, 2018a).

The most recent population census estimates approximately 300 individuals being supported within Welsh Natura designations (JNCC, 2019). The latest Pembrokeshire Marine SAC condition assessment has noted the overall condition of otter as a feature as being in favourable condition (NRW, 2018b).

The Orielton Stable Block and Cellars Site of Special Scientific Interest (SSSI) constitutes the nearest conglomerate part of the Pembrokeshire Bat Sites and Bosherston Lakes SAC and lies within 2.89 km of the onshore cable corridor (to the southeast at the nearest point). This part of the SAC is considered to only support greater and lesser horseshoe bats within the roof void and a cellar within the old stable blocks; and otter are not a feature of this part of the designation. This is further demonstrated within the SAC Core Management Plan (CCW, 2008a), defined as Management Unit 7, which only has conservation objectives relating to the management of the greater and lesser horseshoe bat features, while otter are associated with the Boshershton Lakes (Management Units 1a, 1b and 1c) which are located approximately 7.5 km from the nearest proposed works. Although otter are highly mobile mammals, given the wealth of foraging resource along the southern

Pembrokeshire coast it is considered unlikely that otter associated with the Pembrokeshire Bat Sites and Bosherston Lakes SAC would commute this distance and come into proximity of the cable works.

8.2.2. Bats

8.2.2.1. Greater Horseshoe Bat (S1304)

The greater horseshoe bat *Rhinolophus ferrumequinum* is one of the largest of the UK bat species. There are 11 SAC sites in the UK associated with greater horseshoe bat, of which three are found in Wales. Summer and winter roosts are usually less than 20-30km apart (JNCC, 2021k). Their preferred foraging habitats include a mosaic of open grazed pasture, woodland edges and tall hedgerows. On average, their foraging range is a c.5 km radius of their roost site (Dietz and Kiefer, 2014). They are particularly dependent on grazed pasture due to the associated prey species population of dung beetles and other Coleoptera which form a high proportion of their diet during the breeding season.

The current population size estimate for this species in the UK is 9,210 – 18,500, with the Welsh population estimated to be between 1,930 and 3,850 (Matthews *et al*., 2018). The Pembrokeshire Bat Sites and Bosherston Lakes SAC, a component of which is the Orielton Stable Block and Cellars SSSI, supports approximately 9.5% of the UK greater horseshoe bat population. It represents the species at the northwestern extremity of its range. The site contains a mixture of maternity, transitory and hibernation sites, and so demonstrates good conservation of features required for survival (JNCC, 2021k). The Limestone Coast of South West Wales SAC contains the main hibernation site for the population associated with Pembrokeshire Bat Sites SAC. It may thus be used by up to 5.5% of the UK population of greater horseshoe bat (JNCC, 2021k).

8.2.2.2. Lesser Horseshoe Bat (S1303)

The lesser horseshoe bat *Rhinolophus hipposideros* is one of the smallest UK bat species. There are 13 SAC sites in the UK associated with lesser horseshoe bat, of which eight are found in Wales. Summer and winter roosts are usually less than 5-10 km apart, with the maximum known distance being 32 km (JNCC, 2021l; Matthews *et al*., 2018). This species generally forages in broadleaved woodland, wooded riparian corridors, along mature treelines and hedgerows and is vulnerable to fragmentation of linear habitat corridors which connect roost sites to foraging habitat (JNCC, 2021l). On average their foraging range is a c.2.5 km radius of their roost site (Dietz and Kiefer, 2014). The current population size estimate for this species in the UK is 36,000 to 72,000, with the Welsh population estimated to be 22,000 to 44,100 (Matthews *et al*., 2018). The Orielton Stable Block and Cellars SSSI, a component of the Pembrokeshire Bat Sites and Bosherston Lakes SAC, contains one of the largest maternity roosts of lesser horseshoe bat in Pembrokeshire and this species is also found to use this site as a hibernacula.

8.3. Screening

As the survey data for the protected mammal survey are not available at the time of writing, and following the precautionary principle, it is assumed that LSE cannot be screened out for otter, and greater horseshoe bat.

Table 8.2 presents the qualifying species screened in and out of the next stage of the assessment for the Project in relation to onshore Annex II species of mammal.

Table 8.2: Sites screened in and screened out of the next stage of assessment for the Erebus Project in relation to Annex II Onshore Mammal species

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	Annex II primary reason for site selection (mammal features only): • Grey seal *Halichoerus grypus.* Annex II species present but not a primary feature for this site (mammal features only): • Otter *Lutra lutra*.	0.00	In	Grey seal is a marine mammal and considered in terms of HRA screening as part of Section 5 of this document and is screened out in terms of onshore LSE. There is direct overlap between the Project footprint and the SAC boundary at the landfall area. Otter may forage or use the rocky shore as a place of rest/for denning. Given the survey data are not currently available and following a precautionary approach this site is taken forward for further assessment in terms of LSE on otter.
UK0014787	Wales	Limestone Coast of South West Wales/Arfordir Calchfaen de Orllewin Cymru SAC	Annex II primary reason for site selection (mammal features only): • Greater horseshoe bat *Rhinolophus ferrumequinum*	0.05	In	There is no direct overlap between the Project footprint and the designated site. The eastern reach of the cable route passes within 60 m of the SAC boundary; however, the proposed construction works may have LSE on the foraging activities of greater horseshoe bat originating from hibernacula within the SAC. Therefore, LSE cannot be screened out at this stage.

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0014793	Wales	Pembrokeshire Bat Sites and Bosherston Lakes/Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston SAC	Annex II primary reason for site selection (mammal features only): • Greater horseshoe bat *Rhinolophus ferrumequinum*. Annex II species present but not a primary feature for this site (mammal features only): • Lesser horseshoe bat *Rhinolophus hipposideros*; • Otter *Lutra lutra*.	2.89	In	There is no direct overlap between the Project footprint and the designated site. The eastern-most reach of the cable route passes within 2.89 km of the SAC boundary (at the Orielton Stable Block and Cellars SSSI conglomerate part of the SAC). However, the proposed construction works may have LSE on the foraging activities of greater horseshoe bat originating from hibernacula within the SAC. Therefore, LSE cannot be screened out for greater horseshoe bats at this stage.
					Out	Lesser horseshoe bats are considered to have an average foraging range of c. 2.5 km and so the cable workings are located beyond what could be considered potentially connected distance for this species. As such, lesser horseshoe bats are screened out of further assessment. Otter are a feature associated specifically with the Bosherston Lakes part of the SAC (i.e. Management Units 1a, 1b and 1c), located c.7.5 km southeast of the proposed cable works, and so are considered not to be within connective distance of the proposed works. As such, otter, for this designation, are screened out of further assessment.

9. Screening for Onshore Annex II Species of Plant

As per the screening of onshore habitats process, screening has been completed with respect to onshore Annex II species of plant. Details of exposure pathways and the potential impacts identified are similar in nature as those considered for habitats detailed in Section 7 of this report. It is assumed that for Annex II species of plant, any Natura 2000 site or Ramsar site that overlaps with the direct Project footprint will be affected. Therefore, any Natura 2000 site or Ramsar site for which such overlap is identified will be screened in for further assessment within Stage 2 AA.

9.1. Potential Pressure Pathways

Assessment of potential LSE on Annex II species of plant and SACs will be divided into data collection and assessment phases. The first phase involves collection of all appropriate information and this is scheduled to take place in the form of an NVC survey to establish proximity and distances to occurrences of any Annex II species of plant. This survey is scheduled to take place spring 2021, at the start of the appropriate botanical survey window.

The pressure pathways for Annex II species of plant have been identified as direct and indirect impacts from HDD, trenching and/or cable burial.

There is potential risk from the Project to Annex II species of plant through the following pressures:

- Physical change of habitat;
- Physical disturbance;
- Physical loss of habitat;
- Pollution/contamination; and
- Introduction or spread of INNS.

Screening to identify potential exposure pathways for Annex II species of plant has been carried out based on the pressure pathways detailed in Table 9.1.

Table 9.1: Potential pressure pathways for onshore Annex II species of plant

Project Phase	Effect	Justification
Construction, operation and maintenance and decommissioning	Physical Change of Habitat	Construction impacts have the potential to result in a change of designated habitats and supporting processes. This can include a changed hydrological regime from drainage, which results in a shift to a drier habitat type and substrate conditions that cannot support specific plant species. There is the potential for both temporary and permanent habitat loss and disturbance during the proposed onshore works, depending on the approach to be taken (i.e. trenching or HDD). Any resultant habitat change is expected to be limited to areas of direct overlap between the onshore Project footprint

Project Phase	Effect	Justification
		and any stands of Annex II Plant species features that may be present. It should be noted that overlap between Project activities and Annex II features within an SAC site will be limited to the onshore cable corridor. Installation of cable protection may cause changes to local hydrodynamics and wave regimes (within the intertidal zone, if trenching is the adopted method for breaching landfall). This may result in changes to sediment transport pathways thereby affecting intertidal habitats (screened in Section 3 of this document). The effects from the proposed works on physical processes are expected to be limited to the direct footprint of the works and up to a 250 m buffer depending on hydrological regime and substrate types.
	Physical Disturbance	Potential construction/decommission phase effect on habitats relates to physical disturbance of habitats, such as tracking by construction machinery. This can also occur during maintenance operations in the operational phase but is anticipated to be of considerably lower levels of disturbance.
	Physical Loss of Habitat	Areas of designated habitat may be lost owing to land take by the footprint of the works at the landfall location. Given the proposed approach to breaching landfall is still to be confirmed (i.e. trenching or HDD), the areas anticipated to be lost and any known stands of Annex II species of plant are not clear at the time of writing. As such, following a precautionary approach, consideration of permanent habitat loss of suitable habitat will need to be considered.
	Pollution / contamination	During the works there is a risk of pollution events from construction machinery and vehicles. In the event of a pollution incident, it may impact aquatic communities within watercourses due to contaminants and cause a reduction in diversity, abundance and/or biomass. However, pollution events are likely to be rare and the associated impacts would be highly localised and small scale but may potentially result in **LSE** from this pressure.
	Introduction / spread of INNS	There is potential for the introduction or spread of INNS within the proposed footprint of the works. However, any existing stands of INNS will be identified during pre-construction surveys and appropriate management/protection measures will be implemented, as per National legislation. In the absence of such mitigation and the data available indicating known stands of INNS, **LSE** from this pressure cannot be categorically ruled out.

9.1.1. Summary of Potential Pressure Pathways

The following pressure pathways will be screened in with respect to onshore Annex II species of plant and are set out in Table 9.2 for the Natura 2000 sites and Ramsar sites:

- Physical change of habitat;
- Physical disturbance;
- Physical loss of habitat;
- Pollution/contamination; and
- Introduction/spread of INNS.

9.2. Annex II Species of Plant Assessed

9.2.1. Shore Dock (S1441)

Shore dock *Rumex rupestris* is associated specifically with coastal rocky and sandy beaches and cliffs, with single stands of plants growing within the strand-line habitats, through to the taller herb communities associated with the lower slopes and ledges of cliffs (JNCC, 2021m). Usually found growing alongside freshwater (an essential requirement of this species ecology) in the form of springs, flushes or watercourses discharging into beaches and/or cliffs, it is now known to grow at about 40 sites in southwestern England and Wales (JNCC, 2021m). In Wales, shore dock is known to have died out at four sites while four sites remain extant, including two new sites discovered during a detailed survey effort of suitable habitats in 2000 (Plantlife International, 2006a).

Shore dock, as an Annex II species of plant, forms one of the primary qualifying features for the selection of the Pembrokeshire Marine SAC designation. However, records of presence are limited to the Marloes Peninsula and as such is not expected to be present within the vicinity of the proposed development (CCW, 2006; NRW, 2018a).

9.2.2. Early Gentian (S1654)

Early gentian *Gentianella anglica* is known to be present as the only known population in Wales within the dunes and coastal grasslands associated with Stackpole, as many hundreds of plants, and also forming hybrids with *G. amarella* (JNCC, 2021n). Early gentian is an endemic species to the UK and is Annex II-listed species that is a primary reason for selection of the Limestone Coast of South Wales SAC. This isolated population is considered to be an outlier population from the southern English populations and questions over taxonomy have been raised over the identity of this species and other *Gentianella* forms recognised within the wider regions (JNCC, 2021n). The known stands of early gentian are located within a specific conglomerate area of the Limestone Coast of South Wales SAC (management unit 3d), just under 7.5km to the southwest of the nearest site infrastructure.

9.2.3. Petalwort (S1395)

Petalwort *Petalophyllum ralfsii* is a small thallose liverwort listed as an Annex II species of plant and present as a qualifying feature, but not a primary reason for site selection, of the Limestone Coast of South Wales SAC. This species is found within two of the defined conglomerate management areas of the SAC; the Broomhill Burrows and Brownslade Burrows, both of which are located directly off

the southwestern coast of Pembrokeshire and consist of sand dune systems; with which this species is almost entirely associated with in the UK (Plantlife International, 2006b). The Brownslade Burrows compartment of the SAC is located approximately 1.7 km south of the nearest infrastructure, while the Broomhill Burrows compartment is located 60 m from the nearest part of the onshore cable corridor (from compartment 1c).

9.3. Screening

It is likely that the Project will result in direct impacts where SAC habitats overlap with the onshore cable corridor and potentially indirect impacts to habitats within a range of 10 m from the Project footprint, depending on wetland typology or hydrologically connected habitats. As the NVC survey is still to take place, the habitats and vegetation along the onshore cable corridor and wider survey buffers is still to be classified. As such, a precautionary approach is to be taken where, if the footprint and a wider 50 m buffer overlap with a designated habitat (or suitable habitat for Annex II Plant species associated with an SAC), then LSE will be assumed and the qualifying feature taken to Stage 2 AA.

Table 9.2 presents the Sites screened in and out of the next stage of the assessment for the Project in relation to Annex II species of plant.

Table 9.2: Sites screened in and screened out of the next stage of assessment for the Erebus Project in relation to Annex II species of plant

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	Annex II species that are a primary reason for selection of this site: • Shore dock *Rumex rupestris*.	0.00	Out	Although there is direct overlap between the Project footprint and the SAC habitats, records of shore dock presence are limited to the Marloes Peninsula, and the export cable route will come make landfall in the Angle Peninsula. Therefore there is no spatial overlap with the Project footprint.
UK0014787	Wales	Limestone Coast of South West Wales/Arfordir Calchfaen de Orllewin Cymru SAC	Annex II species of plant that are a primary reason for selection of this site: • Early gentian *Gentianella anglica*. Annex II species of plant present as a qualifying feature, but not a primary reason for site selection: • Petalwort *Petalophyllum ralfsii*.	0.06	Out	There is no direct overlap between Project footprint and the habitats of the SAC designation. The nearest point of the onshore cable corridor does pass within 60 m of the SAC boundary; however, the habitats featured are not considered at risk from any disturbance and are not going to experience any LSE as a result of the construction works.

10. Screening for Onshore Species of Bird

Screening has been completed with respect to the qualifying features of SPAs within 5 km of the onshore cabling route between the landfall point, substation and the grid connection at Pembroke Power Station. Details of exposure pathways and the potential impacts identified are detailed in Section 10.1 of this document. It is assumed that any Natura 2000 site or Ramsar site that overlaps with the direct Project footprint will be affected and will be screened in for further assessment within Stage 2 AA.

A single SPA falls within the 5 km search criteria for any Natura 2000 and Ramsar sites from the onshore cable works and associated infrastructure: Castlemartin Coast SPA, which is designated for supporting between 12 – 14 breeding pairs of chough *Pyrrhocorax pyrrhocorax* which equates to approximately 4% of the UK population. The SPA overlies much of the Limestone Coast of South West Wales SAC and the chough rely heavily on the associated habitats of the SAC for nesting and foraging. As such, the conservation objectives of the SPA are dependent on the core management of the SAC land parcels and the habitats therein. Given the specific nature of chough ecology, the conservation objectives for the SPA are more targeted (CCW, 2008b):

- *"A breeding chough population will occur along the limestone coast, between Freshwater West and Barafundle Bay;*
- *This population will be maintained at a minimum of 12 breeding pairs (representing 3.5% of the GB population, at the 1993 SPA designation level);*
- *Choughs will continue to, feed, roost and breed successfully, unhindered by human recreational activities (e.g. climbing);*
- *The majority of pairs will rear young each year, with an annual average productivity of at least two young per occupied territory;*
- *Choughs will continue to have access to large amounts of optimal feeding habitat (open areas with very short grassland and heath vegetation <1cm to <3cm in height) within all cliff-top management units and within dune grassland management units at Broomhill Burrows, Brownslade and Linney Burrows and on Stackpole Warren;*
- *Yellow ant-hills, an important summer food resource, will occur in coastal turf, throughout the SPA, at densities up to approximately 550 ant-hills per ha; and*
- *A non-breeding chough population (variable in number between 10 and 50 birds) made up largely of juvenile and sub-adult birds will occur at any season."*

10.1. Potential Pressure Pathways

The following potential pressure pathways have been identified which may lead to adverse impacts on the SPA qualifying feature:

- Accidental pollution/contamination;
- Introduction/spread of INNS;
- Disturbance/displacement; and
- Loss/change of habitat.

Table 10.1 Potential pressure pathways for the phases of the works on the SPA qualifying feature

Project Phase	Effect	Justification
Construction / maintenance and operation / decommissioning	Accidental pollution	During all phases of the construction, O&M, and decommissioning there is a risk of accidental pollution from construction, operational and maintenance equipment and activities. Pollution incidents may impact birds through chemical contamination. This may adversely affect breeding and, in some cases, can be fatal. However, pollution events are likely to be rare and the associated impacts would be highly localised, small scale and located outwith preferential foraging habitats. As such, it is considered there is **no potential LSE** from this pressure.
	Introduction / spread of INNS	There is potential for the introduction or spread of INNS within the proposed footprint of the works. However, any existing stands of INNS will be identified during pre-construction surveys and appropriate management/protection measures will be implemented, as per National legislation. As such, it is considered there is **no potential LSE** from this pressure.
	Disturbance / displacement	Birds may experience disturbance resulting from the construction, O&M, and decommissioning phases. This may cause displacement behaviour or avoidance of the area surrounding the construction works and infrastructure.
	Habitat loss	Any habitat loss caused by Project activities may lead to adverse impacts on ornithological populations that use the area as foraging grounds. Habitat loss may occur due to changing/recovering habitats as a result of ground disturbance following cable laying and associated infrastructure/buildings. The direct footprint of these objects/activities will be very small relative to the overall habitat available to bird species (chough are known to forage primarily within the Pembrokeshire Coast National Park and rarely more than 1-2km inland (Pembrokeshire Biodiversity Partnership, 2014)). Given the highly specialised foraging requirements of chough and the distances from the cable route and the coastal breeding locations, it is though highly unlikely that LSE will result from the onshore construction phase. However, as the breeding bird and NVC surveys are still to be completed, and following the precautionary principle, habitat loss will remain as screened in as an expected pressure.

10.1.1. Summary of Potential Pressure Pathways

No LSE is concluded for the following pressures and these will not be assessed at Stage 2 AA of the HRA:

- Accidental pollution; and
- Introduction/spread of INNS.

The following pressure pathways will be screened in with respect to onshore species of bird and are set out in Table 10.2 for the Natura 2000 sites and Ramsar sites:

- Disturbance/displacement; and
- Habitat loss.

10.2. Annex I Species of Bird

10.2.1. Chough (A346)

Chough *Pyrrhocorax pyrrhocorax* are an Annex I/Schedule 1-listed species of corvid that are found breeding primarily amongst the deep cracks of rocky cliff and coastlines, with some birds having been found breeding within sea caves (Pembrokeshire Biodiversity Partnership, 2014). The chough associated with Pembrokeshire and the Castlemartin Coast SPA are monitored carefully, given that the 12-14 breeding pairs here constitutes approximately 4% of the UK population. The breeding chough of the Castlemartin Coast SPA have been shown to be reasonably stable, although concerns relating to genetic diversity have been made, and the areas used for breeding along the coast are well known (CCW, 2008b). Chough have specific dietary requirements and so the habitats where such prey are found can be derived: unimproved grassland and coastal heath for invertebrates, as well as yellow ants found amongst the dune networks of the southern Pembrokeshire coastline (Pembrokeshire Biodiversity Partnership, 2014).

Surveys for wintering birds have been undertaken in the 2020/2021 winter period in relation to the onshore cable corridor and associated infrastructure and the breeding bird survey is scheduled to commence this spring 2021. The vegetation survey is being completed in spring/early summer 2021 as an NVC survey (as discussed in Section 7 of this report) which will better determine the specific habitats within the cable corridor and associated infrastructure. Once these habitats have been defined areas considered to be of suitable foraging potential can be identified and foraging potential for chough determined. The baseline survey data are being complimented through a desk study and external, historical data search exercise to further inform the assessment.

10.3. Screening

As many species of bird have a tendency to commute and forage across wider areas than those prescribed in protected areas, a 2 km buffer was applied to the onshore cable corridor and associated infrastructure to determine an avian zone of influence. The Castlemartin Coast SPA supports breeding chough, although the distances from suitable breeding habitats for this species are considered to be beyond potential connective distance to result in disturbance issues although, as discussed above, this species does need to range considerably from nest sites in order to find suitable food in the right habitats.

As the breeding bird and NVC surveys are still to be completed, and following the precautionary principle, it is assumed that LSE cannot be screened out at this stage in relation to chough and their conservation objectives. Table 10.2 Table 9.2presents the Sites screened in for the next stage of the assessment for the Erebus Project in relation to Annex I species of bird.

Table 10.2: Sites screened in for the next stage of the assessment for the Erebus Project and relevant onshore avian qualifying features

Site Code	Country	Site Name	Category of Interest Feature	Distance (km)	Screening Decision	Reason for Screening Decision
UK9014061	Wales	Castlemartin Coast SPA	Primary reason for site selection: • Breeding chough *Pyrrhocorax pyrrhocorax*	0.15	In	There is no direct overlap between the Project footprint and part of the coastal and clifftop habitats that may constitute part of the foraging grounds for chough, however the Project is within close proximity. This may change depending on the final method to breaching landfall and the results of the vegetation and breeding bird surveys. However, following the precautionary principle, in the absence of survey data chough are screened in for further assessment.

11. Overall Summary

The following 28 designated sites have been screened in and will require an HRA assessment based the potential LSE from the Project.

The summary list of Natura 2000 sites and Ramsar sites screened into the Project HRA is set out in Table 11.1.

Table 11.1: Summary of Natura 2000 sites and Ramsar sites screened into the Project Erebus Habitats Regulations Assessment (HRA) Screening Report

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol	SAC	0	Inside	Annex I Benthic Habitats Annex II Migratory Fish Annex II Marine Mammals (Grey Seal) Annex I Habitats Onshore Annex II Mammals Onshore Annex II Species of Plant
UK0030074	Wales	Afonydd Cleddau/Cleddau Rivers	SAC	13.6	Inside	Annex II Migratory Fish
UK0030397	Wales	West Wales Marine /Gorllewin Cymru Forol	SAC	11.1	Inside and Outside	Annex II Marine Mammals (Harbour Porpoise)
UK0012712	Wales	Cardigan Bay/Bae Ceredigion SAC	SAC	85.8	Inside	Annex II Marine Mammals (Bottlenose Dolphin) Annex II Marine Mammals (Grey Seal)
UK0013114	England	Lundy SAC	SAC	54.6	Inside	Annex II Marine Mammals (Grey Seal)

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
UK0013117	Wales	Pen Llŷn a`r Sarnau/Lleyn Peninsula and the Sarnau SAC	SAC	97.6	Inside	Annex II Marine Mammals (Grey Seal) Annex II Marine Mammals (Bottlenose Dolphin)
UK0030396	Wales	Bristol Channel Approaches /Dynesfeydd Môr Hafren SAC	SAC	26.6	Inside and Outside	Annex II Marine Mammals (Harbour Porpoise)
IE0000707	Ireland	Saltee Islands SAC	SAC	87	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
IE0000781	Ireland	Slaney River Valley SAC	SAC	103.3	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
IE0003000	Ireland	Rockabill to Dalkey Island SAC	SAC	196.4	Inside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
UK0030398	Wales	North Anglesey Marine /Gogledd Môn Forol SAC	SAC	199.7	Inside and Outside	Annex II Marine Mammals (Harbour Porpoise)

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
IE0000204	Ireland	Lambay Island SAC	SAC	222.3	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
FR2502022	France	Nord Bretagne DH SCI/SAC	SAC/SCI	234.7	Outside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
IE0000101	Ireland	Roaringwater Bay and Islands SAC	SAC	257.3	Inside	Annex II Marine Mammals (Harbour Porpoise)
FR5302015	France	Mers Celtiques - Talus du golfe de Gascogne SCI/SAC	SAC/SCI	258.9	Outside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
FR5300009	France	Côte de Granit rose-Sept-Iles SCI/SAC	SAC/SCI	295.2	Inside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
UK0030399	Northern Ireland	North Channel	SAC	297.9	Inside and Outside	Annex II Marine Mammals (Harbour Porpoise)
FR5300010	France	Tregor Goëlo	SAC/SCI	307.3	Inside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
FR2500084	France	Récifs et landes de la Hague	SAC/SCI	312.8	Inside	Annex II Marine Mammals (Bottlenose Dolphin)

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
FR5300017	France	Abers - Côte des légendes	SAC/SCI	313.2	Inside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
FR5300015	France	Baie de Morlaix SCI/SAC	SAC/SCI	313.6	Inside	Annex II Marine Mammals (Harbour Porpoise)
FR2502019	France	Anse de Vauville SCI/SAC	SAC/SCI	318.6	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
FR5300018	France	Ouessant-Molène SCI/SAC	SAC/SCI	324.4	Inside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
FR2502018	France	Banc et récifs de Surtainville SCI/SAC	SAC/SCI	331.9	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
UK23004	Jersey, Channel Islands	Les Pierres de Lecq (the Paternosters) Jersey Ramsar Site	Ramsar	334.5	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
IE0002172	Ireland	Blasket Islands SAC	SAC	341.7	Inside	Annex II Marine Mammals (Harbour Porpoise)
FR2500085	France	Récifs et marais arrière-littoraux du Cap Lévi à la Pointe de Saire SCI/SAC	SAC/SCI	341.9	Inside	Annex II Marine Mammals (Bottlenose Dolphin)

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
UK23003	Jersey, Channel Islands	Les Écréhous & Les Dirouilles, Jersey Ramsar Site	Ramsar	348.7	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
UK23001	Jersey, Channel Islands	South East Coast of Jersey, Channel Islands Ramsar Site	Ramsar	357.5	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
UK23002	Jersey, Channel Islands	Les Minquiers, Jersey Ramsar Site	Ramsar	363.4	Inside and Outside	Annex II Marine Mammals (Bottlenose Dolphin)
FR2502020	France	Baie de Seine occidentale SCI/SAC	SAC/SCI	366.2	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
FR5302007	France	Chaussée de Sein SCI/SAC	SAC/SCI	374.3	Inside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
FR2500079	France	Chausey SCI/SAC	SAC/SCI	376.5	Inside and Outside	Annex II Marine Mammals (Bottlenose Dolphin)
FR5300052	France	Côte de Cancale à Paramé SCI/SAC	SAC/SCI	396.8	Inside	Annex II Marine Mammals (Bottlenose Dolphin)

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
FR2500077	France	Baie du Mont Saint-Michel SCI/SAC	SAC/SCI	400.4	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
709	France	Baie du Mont Saint-Michel Ramsar Site	SAC/SCI	403.4	Inside	Annex II Marine Mammals (Harbour Porpoise and Bottlenose Dolphin)
FR2502021	France	Baie de Seine orientale SCI/SAC	SAC/SCI	430.6	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
925	France	Baie de Somme Ramsar Site	Ramsar	511.5	Inside	Annex II Marine Mammals (Bottlenose Dolphin)
UK9014051	Wales	Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moroedd Penfro	SPA	0	Inside and Outside	Offshore Ornithology (breeding, migratory and assemblage)
UK9014041	Wales	Grassholm	SPA	20.4	Inside	Offshore Ornithology (breeding)
UK902032	Wales	Irish Sea Front	SPA	213.1	Outside	Offshore Ornithology (designated to protect foraging Manx shearwater during the breeding season).

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
UK0014793	Wales	Pembrokeshire Bat Sites and Bosherston Lakes/Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston SAC	SAC	2.89	Inside	Annex II Mammals Onshore
UK9014061	Wales	Castlemartin Coast	SPA	0.15	Inside	Onshore Ornithology
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	SAC	0	Inside	Annex I Habitats
UK0013116	Wales	Pembrokeshire Marine/Sir Benfro Forol SAC	SAC	0	Inside	Annex II Species (mammals)

Site Code	Country	Site Name	Site Type	Distance (km)	Inside/Outside 12nm Limit	Reason for Screening In
UK0014787	Wales	Limestone Coast of South West Wales/Arfordir Calchfaen de Orllewin Cymru SAC	SAC	0.05		Annex II Species (mammals)
UK0014793	Wales	Pembrokeshire Bat Sites and Bosherston Lakes/Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston SAC	SAC	2.89		Annex II Species (mammals)
UK9014061	Wales	Castlemartin Coast SPA	SPA	0.15		Annex I Species (birds)

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13. Appendices

Appendix A. The HRA Process

BGW set out the proposed approach to the HRA process in the 'Project Erebus Habitat Regulations Assessment Strategy' note. NRW and JNCC were consulted on this note in June 2020 and following comments the note was subsequently updated and a revised version provided in October 2020. This document outlined key principles and methodology for the HRA process and was intended to provide the basis of an accepted approach concerning the HRA for the proposed project.

13.1. Overview

It is proposed that the approach to the HRA for the Project will follow the process set out in '*Planning Circular 06/2005 on Biodiversity and Geological Conservation – Statutory obligations and their Impact within the Planning System*' produced by the Office of the Deputy Prime Minister (ODPM, 2005). It will also take account of a range of other guidance material including that produced by NRW (2020), MarineSpace (2019), PINS (2017), the Infrastructure Planning Commission (2011), the EC (2007; 2002 and 2018) and The Habitats Regulations Assessment Handbook (Tyldesley and Chapman, 2021).

13.1.1. Overview of the HRA Process

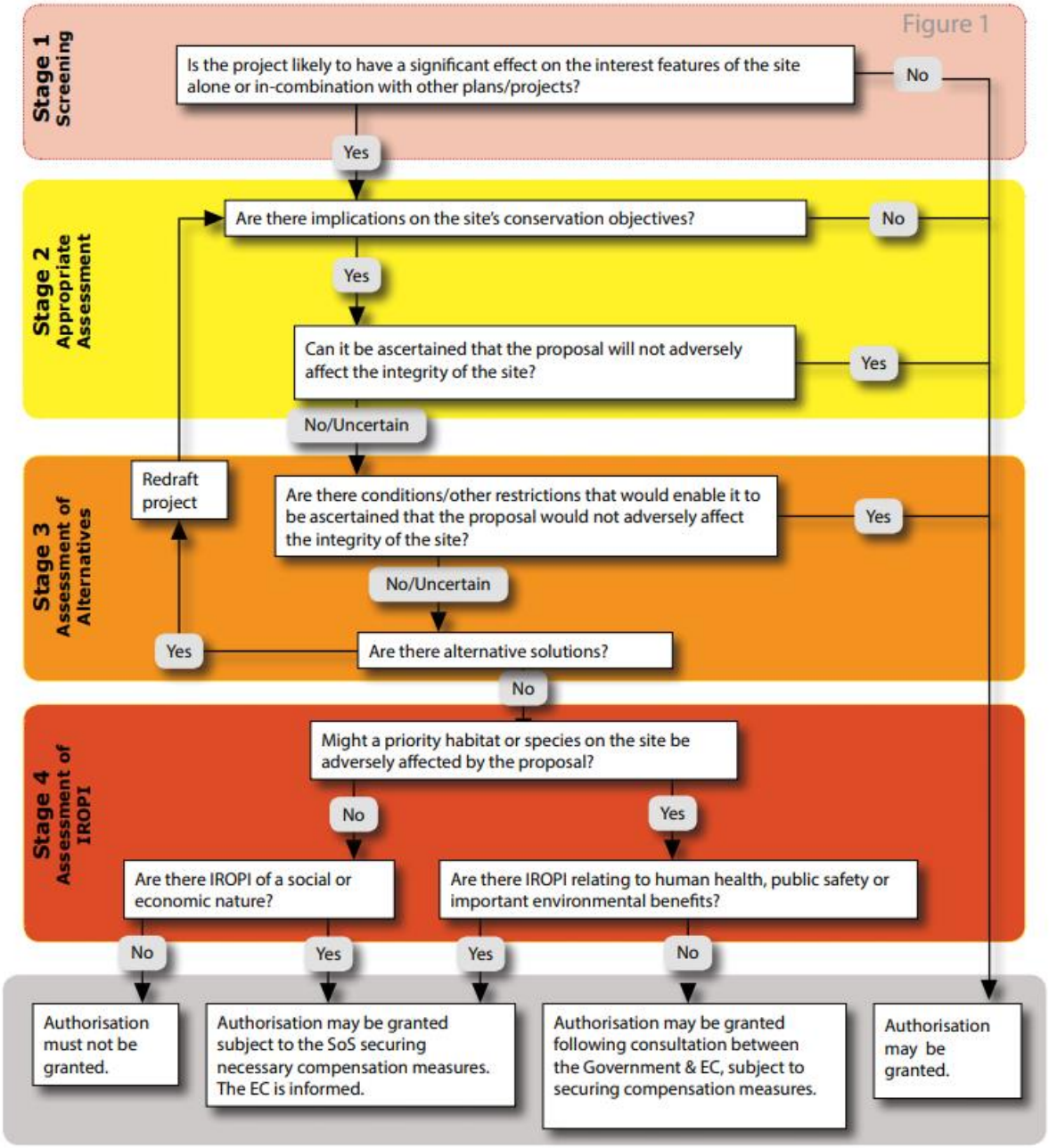
The HRA process comprises 4 main stages as shown in the bullet points below (extracted from Circular 06/2005 produced by the Office of the Deputy Prime Minister (ODPM)). The stages are:

- **Stage 1:** screening to identify the likely impacts of a project on a site and consider whether the impacts are likely to be significant;
- **Stage 2:** Appropriate Assessment (AA) to determine whether the integrity of the site will be adversely affected by the project;
- **Stage 3**: assessment of alternative solutions to establish if there are any that will result in a lesser effect on the site;
- **Stage 4:** Imperative Reasons of Overriding Public Interest (IROPI) and Compensatory Measures to establish whether it is necessary for the project to proceed despite the effects on the Natura 2000 site, and to confirm that necessary compensatory measures are in place to maintain the coherence of the national site network.

All 4 stages of the process are referred to collectively as the HRA, to clearly distinguish the whole process from the step within it referred to as the 'Appropriate Assessment'.

The stages are discussed in more detail in the following sections. Stage 3 and Stage 4 of the process would only be required should the AA conclude that an adverse effect on site integrity cannot be ruled out. Figure 13.1 shows the decision-making flow process within the HRA (PINS, 2017).

Figure 13.1: Decision flow chart for the Habitat Regulations Assessment process (From: PINS, 2017).



13.1.1.1. Stage 1 - Screening

The screening stage examines the likely effects of a project either alone, or in combination with other projects and plans on a Natura 2000 site or Ramsar site, and seeks to answer the question "*can it be concluded that no likely significant effect will occur?*" To determine if the activities in question are likely to have any significant effects on the designated site the following issues will be considered:

- Could the proposals affect the qualifying interest and are they sensitive/vulnerable to the effect;

- The probability of the effect happening;
- The likely consequences for the site's conservation objectives if the effect occurred;
- The magnitude, duration and reversibility of the effect.

Outcomes of the screening stage will allow determination of 1 of the following 3 conclusions:

1. No likely significant effect;
2. A likely significant effect;
3. It cannot be concluded that there will be no likely significant effect.

Where the assessment concludes outcomes 2 or 3, then the need for an AA will be triggered.

'LSE' in this context is any effect that may reasonably be predicted as a consequence of the project, that may significantly affect the conservation or management objectives of the features for which a site was designated, but excluding trivial or inconsequential effects (English Nature, 1999).

Screening for likely significant effect will ensure compliance with the 2018 EC Managing Natura 2000 sites guidance (EC, 2018a). The 2018 EC guidance included how to take account of recent case law such as the Court of Justice of the European Union (CJEU) case law '*People Over Wind & Sweetman* (Case C-323/17)'. The CJEU's ruling in '*People Over Wind*' – that it is not appropriate at the screening stage of HRA to take account of measures to avoid or reduce harmful effects on a Natura 2000 site or Ramsar site– will be fully considered and applied.

Screening Distances

Various guidance is available regarding the assessment thresholds that should be used in HRA screening (e.g. Marine Scotland, 2019). It is proposed that the Project HRA pressure range thresholds for designated features[4] of Natura 2000 site or Ramsar site will be assigned in accordance with a specific range within which it can be affected by anthropogenic activities. If the activity falls within the screening range of a designated feature, then there is a potential pathway for the designated feature of that site to be impacted by the activity and the site will be screened for likely significant effects. Proposed screening distances to be used for a range of features are detailed in Table 13.1.

[4] Designated Annex I habitats and Annex II species populations under the Habitats Directive and classified Annex I species populations and assemblages under the Birds Directive (Ramsar site features will also be included where appropriate for any European Site/European Marine Site screened for likely significant effect).

Table 13.1: Proposed screening distances to be used in the Habitats Regulations Assessment

Designated Feature Group	Screening Distance
Annex I marine habitats	10 km – currently assumed to be the maximum likely tide-parallel sediment plume extent (related to tidal prisms in the region). N.B. The final assessment envelope for the RiAA will be determined by the specific hydrological conditions at the site and maximum extent should be informed by model outputs of the spring tidal excursion ellipse buffers. If the maximum extent as determined by models extends to >10 km, the Annex I screening threshold will be extended accordingly.
Annex II Migratory Fish species	Assessment will be on a regional sea-scale.
Annex II Pinniped species	Assessment will consider all sites within the relevant Special Committee on Seals (SCOS) recommended seal management unit (SMU). Additional consideration will be given to Irish sites that are located within the foraging range as specified by SCOS (presently SCOS, 2018). Screening will also account for population connectivity informed by telemetry data and photo ID studies (e.g. Langley *et al.*, 2018; Langley *et al.*, 2020).
Classified populations of Special Protection Areas	Foraging ranges are determined as mean maximum foraging range +1 standard deviation (where applicable) as reported by Woodward *et al.* (2019) Species-specific colony-specific foraging range data, included in Woodward *et al*. (2019), will also be reviewed where these data are presented. This will allow assessment to account for any colony-specific variations. Additional reference will be made to species recorded as being present in Digital Aerial Survey data (DAS), to ensure no species recorded as being present are omitted from consideration. Migratory species will be assessed using the Strategic Ornithological Support Services (SOSS) Migration Assessment Tool (SOSSMAT). This will use the species population to understand the percentage of the population that may be affected. Where available and relevant, seabird tracking data will also be analysed and used to inform the subsequent AA.
Cetaceans	Assessment will consider all SACs, SCIs and Ramsar

	sites within the respective MMMU, inclusive of transboundary sites and sites within other Member State territorial waters.

13.1.1.2. Stage 2 - Appropriate Assessment

The aim of an AA is to assess whether the proposals will have any adverse effects on the integrity of any Natura 2000 site. There is no legal definition of the term 'integrity' within the UK Habitats Regulations or the EU Directive. However, within the Managing Natura 2000 sites guidance (EC, 2018) site integrity is defined as:

"the coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated".

The AA should answer the question *"can it be demonstrated that the proposals will not adversely affect the integrity of the site?"* focusing on the qualifying features for which the site is designated. In accordance with the Waddenzee judgment (ECJ Case 127/02), the European Court of Justice ruled that a plan or project may be authorised only if a competent authority has made certain that the plan or project will not adversely affect the integrity of the site. *"That is the case where no reasonable scientific doubt remains as to the absence of such effects"*. In terms of what is reasonable, guidance from Scottish Natural Heritage (SNH) states *"to identify the potential risks, so far as they may be reasonably foreseeable in the light of such information as can be reasonably obtained."* (SNH, 2001).

The '*Managing Natura 2000*' guidance document (EC, 2018) emphasises the conservation objectives of a site as the basis for defining adverse effect:

"*The integrity of the site involves its constitutive characteristics and ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site's conservation objectives*".

The decision on whether the integrity of the site could be adversely affected by the proposals should focus on, and be limited to, the site's conservation objectives.

The conservation objectives set out what needs to be achieved for the Natura 2000 site to make the appropriate contribution to the conservation status of the features for which the site is designated, and thus deliver the aims of the Habitats and Birds Directives i.e. favourable conservation status for the designated sites as described under the Conservation of Habitats and Species Regulations 2017 (as amended).

The assessment also accounts for any avoidance or mitigation measures which will be implemented to avoid or reduce the level of impact from the activity. The competent authority may also consider the use of further/additional conditions or restrictions to help avoid adverse effects on site integrity.

If the AA concludes that the proposals will not adversely affect the integrity of the national site network, either alone or in combination with other plans and projects, then permission may be granted. However, if the AA concludes that there will be an adverse effect on the integrity of the Natura 2000 site, or that there is uncertainty and a precautionary approach is taken, then consent can only be granted through a derogation process, if there are no alternative solutions, and there are IROPI and compensatory measures have been secured.

MarineSpace and ITPE will undertake an HRA and provide a Report to inform Appropriate Assessment to allow the competent authority (NRW licensing) to complete their formal assessment.

13.1.1.3. Potential for Derogation

The Project team is aware of current up-to-date requirements with regards to Article 6(4) Derogation procedures. This is based on experience working on extensions of existing OWF developments and from engagement ahead of forthcoming Round 4 OWF developments and keeping abreast of consenting decisions[5]. Best practice and learning from this experience will be drawn upon, as well as relevant guidance and input from the SNCBs, should it be required. The project team is also aware of the fact that Derogation procedures were applied to the St David's RNLI boathouse project (within the Pembrokeshire Marine SAC) in 2014/15, and are currently being developed for the Greenlink Interconnector project.

If the Welsh Ministers conclude that the project may have an adverse effect on the integrity of any Natura 2000 site, the Project team will work together with NRW and JNCC to move through HRA Stage 3 and, if necessary, Stage 4.

[5] For example, the 'minded to approve' letter issued in July 2020 by the Secretary of State for Business, Energy and Industrial Strategy on the Hornsea Project Three OWF Nationally Significant Infrastructure Project and the need to consider Article 6(4) and request for a Compensation Plan in relation to kittiwake which would adversely impact site integrity of the Flamborough and Filey Coast SPA.

13.2. Appendix References

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