



White Cross Offshore Windfarm Environmental Statement

Chapter 11: Marine Mammal and Marine Turtle Ecology



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Glossary of Acronyms

Acronym	Definition
AfL	Agreement for Lease
BAP	Biodiversity Action Plan
BEIS	Department for Business, Energy and Industrial Strategy
BSI	British Standards Institution
CBD	Convention on Biological Diversity
CCW	Countryside Council for Wales
CEA	Cumulative Effect Assessment
Cefas	Centre for the Environment and Fisheries and Aquaculture Science
CIEEM	Chartered Institute of Ecology and Environmental Management
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CRoW	Countryside Rights of Way
DAERA	Department of Agriculture, Environment and Rural Affairs
DECC	Department for Energy and Climate Change
Defra	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
EIA	Environmental Impact Assessment
EMF	Electromagnetic Frequency
EPP	Evidence Plan Process
EPS	European Protected Species
ES	Environmental Statement
ETG	Expert Topic Group
EU	European Union
HM	His Majesty's
IAMMWG	Inter-Agency Marine Mammal Working Group
IEC	International Electrotechnical Commission
IPC	Infrastructure Planning Commission
IUCN Red List	The International Union for Conservation of Nature's Red List of Threatened Species
JCP	Joint Cetacean Protocol
JNCC	Joint Nature Conservancy Council

Acronym	Definition
Km	Kilometre
LPA	Local Planning Authority
m	Metre
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MPS	Marine Policy Statement
MSR	Marine Strategy Regulations
MU	Management Unit
MW	Megawatts
NDC	North Devon Council
NG	National Grid
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NRW	Natural Resource Wales
NSIP	Nationally Significant Infrastructure Project
OESEA	Offshore Energy Strategic Environmental Assessments
WCOWL	White Cross Offshore Windfarm Limited
PDE	Project Design Envelope
PTS	Permanent Threshold Shift
RIAA	Report to Inform an Appropriate Assessment
SAC	Special Area of Conservation
SCANS	Small Cetaceans in the European Atlantic and North Sea
SCOS	Special Committee on Seals
SNCB	Statutory Nature Conservation Body
SoS	Secretary of State
SSSI	Site of Special Scientific Interest
TCPA	Town and Country Planning Act
TTS	Temporary Threshold Shift
UK	United Kingdom

Glossary of Terminology

Defined Term	Description
Agreement for Lease	An Agreement for Lease (AfL) is a non-binding agreement between a landlord and prospective tenant to grant and/or to accept a lease in the future. The AfL only gives the option to investigate a site for potential development. There is no obligation on the developer to execute a lease if they do not wish to.
Applicant	White Cross Offshore Windfarm Limited
Cumulative effects	The effect of the Project taken together with similar effects from a number of different projects, on the same single receptor/resource. Cumulative Effects are those that result from changes caused by other past, present or reasonably foreseeable actions together with the Project.
Engineer, Procure, Construct and Install	A common form of contracting for offshore construction. The contractor takes responsibility for a wide scope and delivers via own and subcontract resources.
Environmental Impact Assessment (EIA)	Assessment of the potential impact of the proposed Project on the physical, biological and human environment during construction, operation and decommissioning.
Export Cable Corridor	The area in which the export cables will be laid, either from the Offshore Substation or the inter-array cable junction box (if no offshore substation), to the NG Onshore Substation comprising both the Offshore Export Cable Corridor and Onshore Export Cable Corridor.
Jointing bay	Underground structures constructed at regular intervals along the Onshore Export Cable Corridor to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall to MLWS	Where the offshore export cables come ashore.
Link boxes	Underground chambers or above ground cabinets next to the cable trench housing electrical earthing links.
Mean high water springs	The average tidal height throughout the year of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean low water springs	The average tidal height throughout a year of two successive low waters during those periods of 24 hours when the range of the tide is at its greatest.
Mitigation	Mitigation measures have been proposed where the assessment identifies that an aspect of the development is likely to give rise to significant environmental effects, and discussed with the relevant authorities and

Defined Term	Description
	<p>stakeholders in order to avoid, prevent or reduce impacts to acceptable levels.</p> <p>For the purposes of the EIA, two types of mitigation are defined:</p> <ul style="list-style-type: none"> • Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the project design, and form part of the project design that is assessed in the EIA • Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant effects. Additional mitigation is therefore subsequently adopted by OWL as the EIA process progresses.
Onshore Development Area	<p>The onshore area above MLWS including the underground onshore export cables connecting to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland. The onshore development area will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990.</p>
Onshore Export Cables	<p>The cables which bring electricity from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.</p>
Onshore Export Cable Corridor	<p>The proposed onshore area in which the export cables will be laid, from MLWS at the Landfall to the White Cross Onshore Substation and onward to the NG grid connection point at East Yelland.</p>
Onshore Infrastructure	<p>The combined name for all infrastructure associated with the Project from MLWS at the Landfall to the NG grid connection point at East Yelland. The onshore infrastructure will form part of a separate Planning application to the Local Planning Authority (LPA) under the Town and Country Planning Act 1990</p>
the Onshore Project	<p>The Onshore Project for the onshore TCPA application includes all components onshore of MLWS. This includes the infrastructure associated with the offshore export cable (from MLWS), landfall, onshore export cable and associated infrastructure and new onshore substation (if required).</p>
White Cross Offshore Windfarm Ltd	<p>White Cross Offshore Windfarm Ltd (WCOWL) is a joint venture between Cobra Instalaciones Servicios, S.A., and Flotation Energy Ltd</p>
Project Design Envelope	<p>A description of the range of possible components that make up the Project design options under consideration. The Project Design Envelope, or 'Rochdale Envelope' is used to define the Project for Environmental Impact Assessment (EIA) purposes when the exact parameters are not yet known but a bounded range of parameters are known for each key project aspect.</p>

Defined Term	Description
White Cross Offshore Windfarm	Up to 100MW capacity offshore windfarm including associated onshore and offshore infrastructure
Windfarm Site	The area within which the wind turbines, Offshore Substation Platform and inter-array cables will be present
Works completion date	Date at which construction works are deemed to be complete and the windfarm is handed to the operations team. In reality, this may take place over a period of time.

11. Marine Mammal and Marine Turtle Ecology

11.1 Introduction

1. This chapter of the Environmental Statement (ES) presents the potential impacts on marine mammals and marine turtles of the White Cross Offshore Windfarm Project (the Onshore Project). Specifically, it considers impacts landward of Mean Low Water Springs (MLWS) during its construction, operation and maintenance, and decommissioning phases.
2. As the work assessed in this ES during each phase would be landward of MLWS, any effect would have limited exposure to marine mammal and marine turtle receptors. **Section 11.4** determines the potential for impacts with a summary and justification provided in **Table 11.12**. The impacts seaward of Mean High Water Springs (MHWS) are assessed in a separate ES for the Offshore Project.
3. The ES has been finalised with due consideration of pre-application consultation to date (see **Chapter 7: Consultation**) and the ES will accompany the application to North Devon Council (NDC) for planning permission under the Town and Country Planning Act 1990.
4. The components of the White Cross Offshore Windfarm Project seaward of MHWS ('the Offshore Project') are subject to a separate application for consent under Section 36 of the Electricity Act 1989, and for Marine Licences under the Marine and Coastal Access Act 2009. These applications are supported by a separate ES covering all potential impacts seaward of MHWS.
5. This assessment has been undertaken with specific reference to the relevant policy, legislation and guidance, which are summarised in **Section 11.2** of this chapter. Further information on the international, national and local planning policy and legislation relevant to the Project is provided in **Chapter 3: Policy and Legislative Context**.
6. Details of the methodology used for the Environmental Impact Assessment (EIA) and Cumulative Effect Assessment (CEA), are presented **Chapter 6: EIA Methodology** and summarised for marine mammals and marine turtles in **Section 11.3** of this chapter.
7. The assessment should be read in conjunction with the following linked chapters:
 - **Chapter 3: Policy and Legislative Context**
 - **Chapter 5: Project Description**
 - **Chapter 6: EIA Methodology.**

8. This ES chapter:

- Determines and assesses, if relevant, the potential for any impacts on marine mammals and marine turtles as a result of any activities landward of MLWS during construction, operation and maintenance, and decommissioning phases.

11.2 Policy, Legislation and Guidance

9. **Chapter 3: Policy and Legislative Context** describes the wider policy and legislative context for the Project. The principal policy and legislation used to inform the assessment of potential effects on marine mammals and marine turtles for the Project are outlined in this section.

11.2.1 National Planning Policy Framework

10. The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, updated July 2021) is the primary source of national planning guidance in England. Sections relevant to this aspect of the ES are summarised below in **Table 11.1**.

Table 11.1 Summary of NPPF Policy relevant to marine mammals and marine turtles

Summary	How and where this is Considered in the ES
Noise resulting from a proposed activity or development in the marine area or in coastal and estuarine waters can have adverse effects on biodiversity. Anthropogenic sound has the potential to mask biologically relevant signals; it can lead to a variety of behavioural reactions, affect hearing organs and injure or even kill marine life.	Underwater noise impacts resulting from the Project have been considered within Section 11.4 .
To protect and enhance biodiversity and geodiversity, plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity ¹ ; wildlife corridors and stepping-stones that connect them; and	The existing environment of the Project has been considered within Section 11.4 An assessment for designated sites (e.g. Sites of Specific Scientific Interest (SSSIs) have been included in a separate Offshore ES application.

¹ Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

Summary	How and where this is Considered in the ES
areas identified by national and local partnerships for habitat management, enhancement, restoration or creation ² .	
To protect and enhance biodiversity and geodiversity, plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.	The existing environment of the Project has been considered within Section 11.4 .

11.2.2 National Policy Statement

11. National Policy Statements (NPS) are statutory documents which set out the government’s policy on specific types of Nationally Significant Infrastructure Projects (NSIP) and are published in accordance with the Planning Act 2008.
12. The assessment requirements for Marine Mammals and Marine Turtle Ecology are set out within the NPS for Renewable Energy Infrastructure (EN-3) (Department for Energy Security and Net Zero (DESNZ), 2023) and summarised in **Table 11.2**.
13. Although the Offshore Project is not an NSIP, it is recognised that due to its size of up to 100MW and its location in English waters, certain NPS are considered relevant to the Offshore Project and decision-making and are referred to in this ES.

Table 11.2 Summary of NPS assessment requirement provisions relevant to marine mammals and marine turtles for any impacts associated with activities landward of the MLWS

NPS Requirement	Section Reference
NPS for Renewable Energy Infrastructure (EN-3)	
“Where necessary, assessment of the effects on marine mammals should include details of: <ul style="list-style-type: none"> • Likely feeding areas and impacts on prey species and prey habitat 	Section 11.6 provides a summary of the existing environment, including seal haul out sites. Section 11.4 determines the potential for any effects on marine mammals and marine turtles for

² Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

NPS Requirement	Section Reference
<ul style="list-style-type: none"> • Known birthing areas / haul out sites for breeding and pupping • Migration routes • Protected sites • Baseline noise levels • Predicted construction and soft start noise levels in relation to mortality, permanent threshold shift (PTS), temporary threshold shift (TTS) and disturbance • Operational noise • Duration and spatial extent of the impacting activities including cumulative/in-combination effects with other plans or projects • Collision risk • Entanglement risk • Barrier risk.” - NPS EN-3, paragraph 3.8.144. 	<p>activities landward of the MLWS during construction, operation, and decommissioning.</p> <p>Section 11.7, if required, provides the assessment for the construction, operational, and decommissioning phase of the Project.</p> <p>Section 11.8 identifies any cumulative effects.</p>
<p>“The scope, effort and methods required for marine mammal surveys should be discussed with the relevant SNCB [statutory nature conservation body]”. - NPS EN-3, paragraph 3.8.145.</p>	<p>The requirements of the marine mammal surveys were discussed with the relevant SNCBs as part of the Evidence Plan Process (EPP), as outlined in Section 11.3.9.</p>
<p>“The Secretary of State should be satisfied that the preferred methods of construction, in particular the construction method needed for the proposed foundations and the preferred foundation type, where known at the time of application, are designed to reasonably minimise significant impacts on marine mammals.” – NPS EN-3, paragraph 3.8.330</p>	<p>Section 11.4.1 describes the worst-case scenario for marine mammals and marine turtles landward of the MLWS.</p> <p>The conservation status of relevant marine mammal species is summarised in Section 11.6.</p>
<p>“Unless suitable noise mitigation measures can be imposed by requirements to any development consent the Secretary of State may refuse the application.” – NPS EN-3, paragraph 3.8.331</p>	
<p>“The conservation status of cetaceans and seals are of relevance and the Secretary of State should be satisfied that cumulative and in combination impacts on marine mammals have been considered.” - NPS EN-3, paragraph 3.8.332.</p>	<p>Any potential cumulative effects are identified in Section 11.8.</p> <p>The in-combination effects on marine mammals have been assessed in the Report to Inform an Appropriate Assessment (RIAA see Appendix 6.A).</p>

11.2.3 National and Regional Marine Policies

14. In addition to the NPS and NPPF, there are several pieces of legislation, policy and guidance applicable to the assessment of marine mammals and marine turtles. These include:

- The Marine Policy Statement (MPS) (HM Government, 2011)
- The Marine Strategy Regulations (MSR) SI 2010/1627 (Defra, 2010)
- The South West Inshore and South West Offshore Marine Plans (HM Government, 2021).

11.2.4 National and International Legislation for Marine Mammals and Marine Turtles

15. **Table 11.3** provides an overview of national and international legislation in relation to marine mammals and marine turtles. The relevant legislation for landward area of MLWS includes:

- The Conservation of Seals Act 1970 (HM Government, 1970)
- The Conservation of Seals Order 1999 (HM Government, 1999)
- Wildlife and Countryside Act 1981 (HM Government, 1981)
- Conservation of Habitats and Species Regulations 2017 (HM Government, 2017).

Table 11.3 Summary table for national and international legislation relevant for marine mammals and marine turtles for activities landward of MLWS

Legislation	Level of Protection	Species Included	Details
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1975	International	All cetacean species All marine turtle species	Prohibits the international trade in species listed in Annex 1 (including sperm whales, northern right whales, and baleen whales) and allows for the controlled trade of all other cetacean species.
Convention on Biological Diversity (CBD) 1993	International	All marine mammal species	Requires signatories to identify processes and activities that are likely to have impacts on the conservation of and sustainable use of biological diversity, inducing the introduction of appropriate procedures requiring an EIA and mitigation procedures.
The Conservation of Habitats and Species Regulations 2017	National	All cetaceans, grey and harbour seal All marine turtle species	'The Habitats Regulations 2017'. Provisions of The Habitats Regulations are described further in Chapter 6: EIA Methodology .
The Wildlife and Countryside Act 1981 (as amended)	National	All cetaceans All marine turtle species	Schedule five: all cetaceans are fully protected within UK territorial waters. This protects them from killing or injury, sale, destruction of a particular habitat (which they use for protection or shelter) and disturbance. Schedule six: Common dolphin, bottlenose dolphin and harbour porpoise; prevents these species being used as a decoy to attract other animals. This schedule also prohibits the use of vehicles to take or drive them, prevents nets, traps or electrical devices from being set in such a way that would injure them and prevents the use of nets or sounds to trap or snare them.

Legislation	Level of Protection	Species Included	Details
The Countryside and Rights of Way Act (CRoW) 2000	National	All cetaceans	Under the CRoW Act 2000, it is an offence to intentionally or recklessly disturb any wild animal included under Schedule 5 of the Wildlife and Countryside Act.
Conservation of Seals Act 1970 (as amended)	National	Grey and harbour seal	<p>As of 1st March 2021, a person commits an offence if they intentionally or recklessly kill, injure or take a seal.</p> <p>The legislative changes in England and Wales, amends the Conservation of Seals Act 1970, prohibiting the intentional or reckless killing, injuring or taking of seals and removing the provision to grant licences for the purposes of protection, promotion or development of commercial fisheries or aquaculture activities. These changes were enacted to ensure compliance with the US Marine Mammal Protection Act Import Provision Rule.</p>

11.2.5 Guidance Documents for Marine Mammals and Marine Turtles

16. The principal guidance documents used to inform the assessment of potential effects on marine mammals and marine turtles include, but are not limited to:
- The Protection of Marine European Protected Species (EPS) from Injury and Disturbance: Draft Guidance for the Marine Area in England and Wales and the UK Offshore Marine Area (JNCC *et al.*, 2010)
 - Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM), 2019)
 - Environmental Impact Assessment for offshore renewable energy projects – guide (British Standards Institution (BSI), 2015)
 - Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (Centre for the Environment and Fisheries and Aquaculture Science (Cefas), 2011)
 - Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs (JNCC, Department of Agriculture, Environment and Rural Affairs (DAERA) and Natural England, 2020)
 - Reducing Underwater Noise (NIRAS, SMRU Consulting, and The Crown Estate, 2019).

11.2.6 Protected Species and Marine Wildlife Licence Guidance

17. All cetacean species are listed as EPS under The Conservation of Habitats and Species Regulations 2017, and the Conservation of Offshore Marine Habitats and Species Regulations 2017 ('the Regulations') and are therefore protected from the deliberate killing (or injury), capture and disturbance throughout their range. Under these Regulations, it is an offence to:
- Deliberately capture, injure or kill any cetacean species
 - To deliberately disturb them
 - To damage or destroy a breeding site or resting place.
18. The JNCC, Natural England and the Countryside Council for Wales (CCW) (JNCC *et al.*, 2010) have produced draft guidance concerning the Regulations on the deliberate disturbance of marine EPS, which provides an interpretation of the regulations in greater detail.

19. Grey seals are protected in the UK under the Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017, as well as Conservation of Seals Act 1970.
20. All marine turtles recorded in the UK and Ireland are entitled to a range of legal protection. They are listed on Appendix I of CITES, Appendix I and II of the Bonn Convention and Appendix II of the Bern Convention. All species are protected by the Wildlife and Countryside Act 1981 (as amended), Conservation of Habitats and Species Regulations 2010 in England and Wales, and are an EPS.
21. The United Kingdom Turtle Code (Marine Conservation Society, 2011) has been developed to provide advice for all sea users on how to deal with marine turtle encounters and all sea users are strongly encouraged to report sightings.

11.2.7 Marine Wildlife Licence Requirements

22. If required, a Marine Wildlife Licence application will be submitted post-consent. At that point in time, the Project design envelope (PDE) will have been further refined through detailed design and procurement activities and further detail will be available on the techniques selected for construction, as well as the mitigation measures that will be in place.

11.2.8 Conservation Status of Marine Mammals and Marine Turtles

23. **Table 11.4** provides the current conservation status of marine mammal and marine turtle species occurring in UK and adjacent waters, based on the most recent 2013-2018 reporting by JNCC in 2019.

Table 11.4 Conservation status assessment of marine mammals and marine turtle species in Annex IV of the Habitats Directive occurring in UK and adjacent waters (JNCC, 2019)

Species	Favourable Conservation Status Assessment
Cetaceans	
Harbour porpoise, <i>Phocoena phocoena</i>	Unknown
Bottlenose dolphin, <i>Tursiops truncatus</i>	Unknown
Common dolphin, <i>Delphinus delphis</i>	Unknown
Striped dolphin, <i>Stenella coeruleoalba</i>	Unknown
Minke whale, <i>Balaenoptera acutorostrata</i>	Unknown
Pinnipeds	

Species	Favourable Conservation Status Assessment
Grey seal, <i>Halichoerus grypus</i>	Favourable
Marine turtles	
Leatherback turtle, <i>Dermochelys coriacea</i>	Unknown

24. The International Union for Conservation of Nature (IUCN)'s Red List of Threatened Species³ provides assessments of the conservation status of animals evaluated at a global scale using the IUCN Red List Categories and Criteria, with the aim of determining their relative risk of extinction. Assessments are updated periodically to reflect new information. Where sufficient information exists, the majority of marine mammal species occurring in UK waters fall into the lowest category of 'least concern' (**Table 11.5**).

Table 11.5 Global IUCN Red List of threatened species assessments for marine mammal species relevant to the Onshore Project

Species	IUCN Red List Status	Year Assessed
Harbour porpoise	Least Concern	2020
Bottlenose dolphin	Least Concern	2018
Common dolphin	Least Concern	2020
Striped dolphin	Least Concern	2018
Minke whale	Least Concern	2018
Grey seal	Least Concern	2016
Leatherback turtle	Vulnerable	2013

11.3 Assessment Methodology

25. **Chapter 6: EIA Methodology** provides a summary of the general impact assessment methodology applied to the Onshore Project. The following sections confirm the methodology used to assess the potential effects on marine mammals and marine turtles.
26. The approach to determining the significance of an impact follows a systematic process for all impacts. This involves identifying, qualifying and, where possible,

³ <https://www.iucnredlist.org/>

quantifying the sensitivity, value and magnitude of all ecological receptors which have been screened into this assessment. Using this information, a significance of each potential impact has been determined using a matrix approach.

27. A matrix approach is used to guide the assessment of effects following best practice, EIA guidance, JNCC *et al.* (2010) guidance and the approach previously agreed with stakeholders for other recent offshore windfarms (including Sheringham and Dudgeon extension projects, Norfolk Vanguard, Norfolk Boreas and East Anglia ONE North, TWO and THREE).
28. In order to enable and facilitate a consistency of approach with other chapters, a matrix of definitions will be employed to structure the expertise and evidence led assessment of effects. Receptor sensitivity for an individual from each marine mammal and marine turtle species have been defined within the ES, following the definitions set out in **Sections 11.3.2** and **11.3.3**.

11.3.1 Study Area

29. The study areas for each marine mammal and marine turtle species to determine if they could be in the area and impacted as a result of activities landward of the MLWS were initially defined on the basis that marine mammals and marine turtles are highly mobile and transitory in nature. Therefore, it is necessary to examine species occurrence not only within the Onshore Project area, but also over the wider area. Details of the location of the Onshore Project and its components are set out within **Chapter 5: Project Description**.
30. The wider study area for each marine mammal species is based on their relevant Management Units (MU), current knowledge and understanding of the biology of each species.
31. The wider study area was then refined to determine the relevant marine mammal and marine turtle species to assess based on the potential for impacts from activities landward of the MLWS (see **Section 11.4**).
32. Where relevant, the status and activity of marine mammal and marine turtle species known to occur within or adjacent to the Onshore Project are considered in the context of regional population dynamics at the scale of the relevant MUs associated with each assessed species depending on the data available and the extent of the agreed reference population.
33. There is the potential for seals from haul out sites to move along the coast and offshore to forage in and around the proposed Onshore Project sites. Key haul out sites for both seal species within the vicinity of the Onshore Project includes:

- Lundy Island (at closest point is located 30km from the Landfall to MLWS area)
- Near Boscastle, along the north Cornwall coastline (approximately 58km from the Landfall to MLWS area).

34. Given the distances between the Onshore Project and the nearest known seal haul out sites, there is very little potential for any connectivity as a result of activities at all stages of the Onshore Project.

11.3.2 Definition

11.3.2.1 Sensitivity of Receptor

35. For each effect, the assessment identifies receptors sensitive to that effect and implements a systematic approach to understanding the impact pathways and the level of effect on the receptors. The definitions of sensitivity and magnitude for the marine mammal and marine turtle assessments are provided in **Table 11.6** and **Table 11.8** respectively.

36. The sensitivity of a receptor is determined through its ability to accommodate change and on its ability to recover if it is negatively affected (**Table 11.6**). The sensitivity level of marine mammals and marine turtles to each type of impact is justified within the impact assessment and is dependent on the following factors:

- Adaptability – The degree to which a receptor can avoid or adapt to an effect
- Tolerance – The ability of a receptor to accommodate temporary or permanent change without a significant adverse effect
- Recoverability – The temporal scale over and extent to which a receptor will recover following an effect
- Value – A measure of the receptor importance and rarity (as reflected in the species conservation status (**Section 11.2.8**) and legislative importance (**Section 11.2**).

37. The sensitivity to potential impacts of lethality, physical injury, auditory injury or hearing impairment, as well as behavioural disturbance or auditory masking are considered for each species, using available evidence, including published data sources. **Table 11.6** defines the levels of sensitivity used in the assessments.

Table 11.6 Definition of sensitivity for marine mammal and marine turtle receptor

Sensitivity	Definition
High	Individual receptor has very limited capacity to avoid, adapt to, accommodate, or recover from the anticipated effect.

Sensitivity	Definition
Medium	Individual receptor has limited capacity to avoid, adapt to, accommodate, or recover from the anticipated effect.
Low	Individual receptor has some tolerance to adapt, accommodate, or recover from the anticipated effect.
Negligible	Individual receptor is generally tolerant to and can accommodate or recover from the anticipated effect.

38. The 'value' of the receptor forms an important component within the assessment, for instance, if the receptor is a protected species. It is important to understand that high value and high sensitivity are not necessarily linked within a particular impact. A receptor could be of high value (e.g. an Annex II species) but have a low or negligible physical/ecological sensitivity to an effect. Similarly, low value does not equate to low sensitivity and is judged on a receptor by receptor basis.
39. All marine mammal species are protected by a number of national and international legislation. All cetaceans in UK waters are EPS and, therefore, are internationally important. Harbour porpoise, bottlenose dolphin, and grey seal are also afforded protection through the designation of Protected Sites. As such, all species of marine mammal can be considered to be of high value. Marine turtles are also protected under international and national policy, and are listed as an EPS, and therefore are internationally important, and are considered to be of high value.
40. **Table 11.7** provides definitions for the value afforded to a receptor based on its legislative importance. The value is considered, where relevant, in the assessments.

Table 11.7 Definitions of the different value levels for marine mammals and marine turtles

Value	Definition
High	Internationally or nationally important: Internationally protected species that are listed as a qualifying interest feature of an internationally protected site (i.e. Annex II protected species designated feature of a designated site) and protected species (including EPS) that are not qualifying features of a designated site.
Medium	Regionally important or internationally rare: Protected species that are not qualifying features of a designated site but are recognised as a Biodiversity Action Plan (BAP) priority species either alone or under a grouped action plan, and are listed on the local action plan relating to the marine mammal Study Area.

Value	Definition
Low	Locally important or nationally rare: Protected species that are not qualifying features of a designated site and are occasionally recorded within the Study Area in low numbers compared to other regions.
Negligible	Not considered to be particularly important or rare: Species that are not qualifying features of a designated site and are never or infrequently recorded within the Study Area in very low numbers compared to other regions.

11.3.2.2 Magnitude of Effect

41. The magnitude of the potential impacts is based on the intensity or degree of impact to the baseline conditions and is categorised into four levels of magnitude: high, medium, low or negligible, as defined in **Table 11.8**.
42. Determining the magnitude of an impact considers several factors, including:
 - Type of activity: will the effects be permanent or temporary
 - Duration and frequency of the activity
 - Extent of the activity
 - Timing and location of the activity.
43. The thresholds for defining the magnitude of effect (**Table 11.8**) that could occur from a particular impact has been determined based on current scientific understanding of marine mammal and marine turtle population biology, and JNCC *et al.* (2010) draft guidance on disturbance to EPS species.

Table 11.8 Definition of magnitude for a marine mammal and marine turtle receptor

Magnitude	Definition
High	Fundamental, permanent / irreversible changes to exposed receptors or feature(s) of the habitat which are of particular importance to the receptor. Assessment indicates that more than 1% of the reference population are anticipated to be exposed to the effect. OR Long-term effect for 10 years or more, but not permanent (e.g. limited to operational phase of the Onshore Project). Assessment indicates that more than 5% of the reference population are anticipated to be exposed to the effect. OR

Magnitude	Definition
	<p>Temporary effect (e.g. limited to the construction phase of development) to the exposed receptors or feature(s) of the habitat which are of particular importance to the receptor.</p> <p>Assessment indicates that more than 10% of the reference population are anticipated to be exposed to the effect.</p>
Medium	<p>Permanent irreversible change to exposed receptors or feature(s) of the habitat of particular importance to the receptor.</p> <p>Assessment indicates that between 0.01% and 1% of the reference population anticipated to be exposed to effect.</p> <p>OR</p> <p>Long-term effect for 10 years or more, but not permanent (e.g. limited to operational phase of the Onshore Project).</p> <p>Assessment indicates that between 1% and 5% of the reference population are anticipated to be exposed to the effect.</p> <p>OR</p> <p>Temporary effect (e.g. limited to the construction phase of development) to the exposed receptors or feature(s) of the habitat which are of particular importance to the receptor.</p> <p>Assessment indicates that between 5% and 10% of the reference population anticipated to be exposed to effect.</p>
Low	<p>Permanent irreversible change to exposed receptors or feature(s) of the habitat of particular importance to the receptor.</p> <p>Assessment indicates that between 0.001% and 0.01% of the reference population anticipated to be exposed to effect.</p> <p>OR</p> <p>Long-term effect for 10 years or more, but not permanent (e.g. limited to operational phase of the Onshore Project).</p> <p>Assessment indicates that between 0.01% and 1% of the reference population are anticipated to be exposed to the effect.</p> <p>OR</p> <p>Intermittent and temporary effect (e.g. limited to the construction phase of development) to the exposed receptors or feature(s) of the habitat which are of particular importance to the receptor.</p> <p>Assessment indicates that between 1% and 5% of the reference population anticipated to be exposed to effect.</p>
Negligible	<p>Permanent irreversible change to exposed receptors or feature(s) of the habitat of particular importance to the receptor.</p>

Magnitude	Definition
	<p>Assessment indicates that less than 0.001% of the reference population anticipated to be exposed to effect.</p> <p>OR</p> <p>Long-term effect for 10 years or more (but not permanent, e.g. limited to lifetime of the Onshore Project).</p> <p>Assessment indicates that less than 0.01% of the reference population are anticipated to be exposed to the effect.</p> <p>OR</p> <p>Intermittent and temporary effect (limited to the construction phase of development or Onshore Project timeframe) to the exposed receptors or feature(s) of the habitat which are of particular importance to the receptor.</p> <p>Assessment indicates that less than 1% of the reference population anticipated to be exposed to effect.</p>

11.3.3 Effect Significance

44. In basic terms, the potential significance of an effect is a function of the sensitivity of the receptor and the magnitude of the effect (see **Chapter 6: EIA Methodology** for further details). The determination of significance is guided by the use of an effect significance matrix, as shown in **Table 11.9**. Definitions of each level of significance are provided in **Table 11.10**.
45. Potential effects identified within the assessment as major or moderate are regarded as significant in terms of the EIA regulations. Appropriate mitigation has been identified, where possible, in consultation with the regulatory authorities and relevant stakeholders. The aim of mitigation measures is to avoid or reduce the overall effect in order to determine a residual effect upon a given receptor.

Table 11.9 Effect significance matrix

		Negative Magnitude				Beneficial Magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Sensitivity	High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Negligible	Negligible	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

Table 11.10 Definition of effect significance

Significance	Definition
Major	Very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving national, regional or local objectives, or could result in exceedance of statutory objectives and / or breaches of legislation.
Moderate	Intermediate change in receptor condition, which are likely to be important considerations at a local level.
Minor	Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision making process.
Negligible	No discernible change in receptor condition.
No change	No effect, therefore no change in receptor condition.

11.3.4 Cumulative Effect Assessment Methodology

46. The CEA considers other plans, projects and activities that may have an effect cumulatively with the Onshore Project. As part of this process, the assessment considers which of the residual effects assessed for the Onshore Project alone has the potential to contribute to a cumulative effect, the data and information available to inform the cumulative effect assessment and the resulting confidence in any assessment that is undertaken. **Chapter 6: EIA Methodology** provides further details of the general framework and approach to the CEA.

11.3.5 Transboundary Effect Assessment Methodology

47. The transboundary assessment (**Section 11.9**) considers the potential for transboundary effects to occur on marine mammal and marine turtle species. The highly mobile nature of marine mammals and marine turtles included within the assessments means that there is the potential for transboundary effects since species might arise from areas beyond UK waters.

48. **Chapter 6: EIA Methodology** provides further details of the general framework and approach to the assessment of transboundary effects.

49. For marine mammals, the potential for transboundary effects has been addressed by considering the reference populations (MUs) and potential linkages to other countries (for example, as identified through seal telemetry studies) (Inter-Agency Marine Mammal Working Group (IAMMWG), 2022).

50. The assessment of effects on transboundary Designated Sites is presented in the RIAA (see **Appendix 6.A**).

11.3.6 Inter-Relationships Methodology

51. This assessment considers the potential for there to be inter-relationships between effects, whereby effects may act together to affect a single receptor, or where an effect on one receptor, may in turn indirectly affect another receptor (e.g. an effect on prey fish species may in turn affect food availability for marine mammals).

11.3.7 Interactions Methodology

52. The assessment considers if the potential effects for marine mammals have the potential to interact with each other and could give rise to synergistic effects due to that interaction (e.g., effects due to underwater noise from piling and their interaction with barrier effects caused by underwater noise).

11.3.8 Assumptions and Limitations

53. Due to the large amount of available data and information that has been reviewed for marine mammals within the region, including the site-specific surveys, there is a good understanding of the existing environment.
54. There are, however, some limitations to data collected by marine mammal and marine turtle surveys, primarily due to the highly mobile nature of marine mammals and marine turtles and therefore the potential variability in usage of the site. Each survey provides only a 'snapshot'. The majority of the surveys, such as the Small Cetaceans in the European Atlantic and North Sea (SCANS), are typically carried out in summer months which can result in seasonal gaps. However, the site-specific aerial surveys were conducted every month during the two-year survey period (APEM Ltd, 2022). Therefore, taking into account the site-specific survey and given the number surveys and data collected from other surveys, for different months, seasons and years, there is good coverage to provide information on the species likely to present in the area.

11.3.9 Baseline Data Sources

55. A desk study was undertaken to obtain information on marine mammals and marine turtles. Data was acquired within the Study Area through a detailed desktop review of existing studies and datasets. Agreement was reached with all consultees that the data collected and the sources used to define the baseline characterisation for marine mammals and marine turtles are fit for the purpose of the EIA, this was discussed and confirmed at the following expert topic group (ETG) meetings:

- Marine Ecology ETG 1 – 5th May 2022
- Marine Mammal ETG 2 – 14th November 2022.

11.3.9.1 Site Specific Surveys

56. In order to provide up to date information on which to base the impact assessment, aerial surveys were conducted for marine mammals and seabirds (APEM Ltd, 2022). APEM Ltd collected high resolution aerial digital still imagery for marine megafauna (combined with ornithology surveys) over the Array Area, including a 4km buffer, with a total survey area of 336km². The aerial surveys were conducted over a 24-month period between July 2020 and June 2022. The surveys were conducted monthly, and in total, 24 months of data has been collected.
57. The aerial surveys were conducted with a grid-based design, with 1.4km spaced transects across the Array Area and buffer every month, with a total of nine transects. The surveys are flown along the transect pattern at a height of approximately 395m above sea level.

11.3.9.2 Other Available Sources

58. Other sources that have been used to inform the assessment are listed in **Table 11.11**.

Table 11.11 Other available data and information sources

Data Set	Spatial Coverage	Year	Notes
Small Cetaceans in the European Atlantic and North Sea (SCANS-III) data (Hammond <i>et al.</i>, 2021).	North Sea and European Atlantic waters	Summer 2016	Provides information including abundance and density estimates of cetaceans in European Atlantic waters in summer 2016, including the proposed offshore development area.
MUs for cetaceans in UK waters (Inter-Agency Marine Mammal Working Group (IAMMWG), 2022).	UK waters	2021	Provides information on cetacean MUs for the proposed offshore development area.
Offshore Energy Strategic Environmental Assessments (OESEA) (including relevant appendices and technical reports) (OESEA 3 (Department	UK waters	2016 2022	Provides information marine mammals in UK waters

Data Set	Spatial Coverage	Year	Notes
of Energy and Climate Change (DECC) (now BEIS), 2016; OESEA 4 (BEIS, 2022)).			
The identification of discrete and persistent areas of relatively high harbour porpoise density in the wider UK marine area (Heinänen and Skov, 2015).	UK waters	1994-2011	Data was used to determine UK harbour porpoise SAC sites. Provides information on harbour porpoise in UK waters.
Revised Phase III data analysis of Joint Cetacean Protocol (JCP) data resources (Paxton <i>et al.</i>, 2016).	UK waters	1994-2011	Provides information on cetaceans in UK waters.
Distribution and abundance maps for cetacean species around Europe (Waggitt <i>et al.</i> (2019)).	North-east Atlantic	1980-2018	Provides information on cetacean species in the North-east Atlantic and UK waters
Habitat-based predictions of at-sea distribution for grey seals in the British Isles (Carter <i>et al.</i>, 2022).	British Isles	1991-2019	Provides information on relative density (i.e. percentage of at-sea population) for seal species.
Seal telemetry data (e.g. Russell and McConnell, 2014; Russell, 2016; Carter <i>et al.</i>, 2020; Carter <i>et al.</i>, 2022; Vincent <i>et al.</i>, 2017).	British Isles	1988-2010; 2015	Provides information on movements and distribution of seal species.
Special Committee on Seals (SCOS) annual reporting of scientific advice on matters related to the management of seal populations (SCOS, 2020; SCOS, 2021).	UK and Ireland	2019 & 2020	Provides information on seal species.

Data Set	Spatial Coverage	Year	Notes
British and Irish Marine Turtle Strandings & Sighting Annual Report 2019 (Penrose <i>et al.</i>, 2021)	UK and Ireland	2021	Number of marine turtle sightings around the UK and Ireland in 2021.
Long-term insights into marine turtle sightings, strandings and captures around the UK and Ireland (1910–2018) (Botterell <i>et al.</i>, 2020)	UK and Ireland	1910 – 2018	Review of marine turtle stranding's and sightings around the UK and Ireland from 1910-2018.
Leatherback turtles satellite tagged in European waters (Doyle <i>et al.</i>, 2008)	Celtic and Irish Sea	2003-2005 (June to October)	Aerial surveys of leatherback turtles.

11.4 Scope

59. Upon consideration of the baseline environment, the project description outlined in **Chapter 5: Project Description**, and the Scoping Opinion (Case reference: EIA/2022/00002), all potential impacts upon marine mammals and marine turtles have been assessed out. These impacts are outlined, together with a justification for why they are or are not considered further, in **Table 11.12**.
60. As outlined in **Section 11.1**, the scope of this assessment is to consider effects landward of MLWS on marine mammals and marine turtles during the construction, operation and maintenance, and decommissioning phases of the Onshore Project.
61. With regard to the receptors, with the work during each phase being landward of MLWS, any effect would have limited exposure due to the receptors being highly mobile and only within range of audibility for a short time as they are primarily located within the areas seaward of MLWS. The impacts seaward of MLWS are assessed in a separate ES for the Offshore Project and therefore have been screened out of this assessment (see **Table 11.12** for further information).
62. The only potential impact on marine mammals and marine turtles would come from open cut installation at the landfall to MLWS area. Where an open trench would be dug out before a cable is installed and the trench refilled. The noise from this impact is relatively low and any noise impacts will be screened out of this assessment. The works could cause barrier effects to seal's hauling out, however, the nearest seal haul out is at Lundy Island, approximately 30km from the landfall to MLWS area.

This is within foraging range for grey seals but does not directly effect the haul out location.

63. Therefore, on the bases that all potential marine mammal and marine turtle impacts are assessed out (**Table 11.12**), cumulative effects are also assessed out.

Table 11.12 Summary of impacts from activities landward of the MLWS assessed in or out for marine mammals and marine turtles

Potential Impact	Scoping decision	Justification
Underwater noise during construction, operation and decommissioning phases of the Project	Assessed out	Given the nature of the marine mammal and marine turtle receptors, any potential impacts from underwater noise would be negligible.
Underwater noise and presence of vessels	Assessed out	The presence of any vessels for the landfall operations will be seaward of MLWS and have therefore been assessed in a separate ES for the Offshore Project.
Barrier effects from underwater noise	Assessed out	Given the nature of the marine mammal and marine turtle receptors, any potential barrier effects from underwater noise would be negligible.
Collision risk with vessels	Assessed out	The presence of any vessels for the landfall operations will be seaward of MLWS and have therefore been assessed in a separate ES for the Offshore Project.
Disturbance at seal haul out sites	Assessed out	Given the distance from seal haul out sites (30km at the closest point), any potential impacts from the construction, operation and decommissioning phase of the Onshore Project would be negligible.
Electromagnetic fields (EMF) direct and indirect effects	Assessed out	Due to the cable being buried in the intertidal zone either via a trenchless technique or Open Cut method of installations there would be limited impacts from EMF on marine mammal and marine turtle receptors.
Changes to prey availability (including from habitat loss and Electromagnetic Fields)	Assessed out	Fish and Shellfish Ecology is considered in the separate Offshore Project ES
Changes to water quality	Assessed out	Given the nature of the marine mammal and marine turtle receptors, any potential effects from changes to water quality would be negligible.

Potential Impact	Scoping decision	Justification
Cumulative effects from underwater noise	Assessed out	Due to all impacts being screened out, cumulative effects are also screened out. Cumulative effects due to other projects within the vicinity of the offshore site will be assessed in the Offshore Project ES.
Cumulative effects from collision risk and entanglement	Assessed out	
Cumulative changes to prey availability (including habitat loss)	Assessed out	
Transboundary effects	Assessed out	It is considered unlikely that there would be any significant impacts in European Union (EU) Member States as a result of the Onshore Project due to the localised nature of the impacts.
Inter-relationships	Assessed out	Due to all impacts being screened out, inter-relationships are also screened out.
Interactions	Assessed out	Due to all impacts being screened out, interactions between impacts are also screened out.

11.4.1 Worst-Case Scenario

64. In accordance with the assessment approach to the 'Rochdale Envelope' set out in **Chapter 6: EIA Methodology**, the impact assessment for Marine Mammal and Marine Turtle Ecology has been undertaken based on a realistic worst-case scenario of predicted impacts. The Project Design Envelope for the Onshore Project is detailed in **Chapter 5: Project Description**.
65. Using the project design envelope approach means that receptor-specific potential effects draw on the options from within the wider envelope that represent the most realistic worst-case-scenario. It is also worth noting that under this approach the combination of project options constituting the realistic worst-case scenario may differ from one receptor to another and from one effect to another.
66. The potential effects on marine mammals are summarised in **Table 11.12**, with the realistic worst-case scenarios for the marine mammal and marine turtle species assessment are summarised in **Table 11.13**.

Table 11.13 Definition of realistic worst-case scenario details relevant to the assessment of impacts in relation to marine mammals and marine turtles

Impact	Parameter
Construction	
Offshore Export Cable at Landfall to MLWS – trenching	Landfall to MLWS trenching (temporary works) physical parameters: <ul style="list-style-type: none"> • 2 export cables • Trench width= 0.5m • Trench depth = >1.2m deep • Length of trenching = 700m • Total area of cables = 700m² • Total volume of excavation = 840m³. Duration: <ul style="list-style-type: none"> • Less than 5 days.
Offshore Export Cable at Landfall to MLWS– trenchless technique	Landfall to MLWS trenchless technique (temporary works) physical parameters: <ul style="list-style-type: none"> • Trenchless technique length = 500m -1,500m • Trenchless technique to include 12 hours / 7 days working where required. Duration: <ul style="list-style-type: none"> • Trenchless technique duration approximately 32 days.
Operation and Maintenance	
Export Cable at Landfall to MLWS	Cable operational physical parameters: <ul style="list-style-type: none"> • No above ground structures.
Decommissioning	
<p>No final decision has yet been made regarding the final decommissioning policy for the project infrastructure. It is also recognised that legislation and industry best practice change over time. However, it is likely that the onshore project equipment, including the cable, will be removed, reused, or recycled where possible and the transition bays and cable ducts being left in place.</p> <p>The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and will be agreed with the regulator. It is anticipated that for the purposes of a worst-case scenario, the impacts will be no greater than those identified for the construction phase.</p>	

11.4.2 Summary of Mitigation

11.4.2.1 Mitigation Embedded in the Design

67. This section outlines the embedded mitigation relevant to the marine mammal and marine turtle assessment, which has been incorporated into the design of the

Onshore Project (**Table 11.14**). Where other mitigation measures are proposed, as outlined in **Section 11.4.2.2**.

68. Mitigation measures have been proposed where the assessment identifies that an aspect of the development is likely to give rise to significant environmental impacts and discussed with the relevant authorities and stakeholders in order to avoid, prevent or reduce impacts to acceptable levels.
69. For the purposes of the EIA, two types of mitigation are defined:
- Embedded mitigation: consisting of mitigation measures that are identified and adopted as part of the evolution of the project design, and form part of the project design that is assessed in the EIA
 - Additional mitigation: consisting of mitigation measures that are identified during the EIA process specifically to reduce or eliminate any predicted significant impacts. Additional mitigation is therefore subsequently adopted by the Applicant as the EIA process progresses.

Table 11.14 Embedded mitigation measures

Parameter		Mitigation Measures Embedded into the Design of the Onshore Project
Electromagnetic fields		
Reduce potential effect of EMF	<p>Cables will be buried to a target depth of 0.5-3.0m. This is a similar range to the DECC Guidelines (2011) which advise a 0.6m-1.5m depth to reduce the potential for effects relating to EMF.</p> <p>Cables will be specified to reduce EMF emissions as per industry standards and best practice such as the relevant International Electrotechnical Commission (IEC) specifications.</p>	

11.4.2.2 Additional Mitigation

70. In addition to the embedded mitigation measures as outlined above, the Applicant has also committed to the mitigation measures outlined in **Table 11.15**.

Table 11.15 Additional mitigation measures

Parameter		Additional Mitigation Measures
Water Quality		
Pollution prevention	<p>As outlined in Chapter 9: Marine Sediment and Water Quality, the Applicant is committed to the use of best practice techniques and due diligence regarding the potential for pollution throughout all construction, operation and maintenance, and decommissioning activities.</p>	

11.5 Consultation

71. Consultation has been a key part of the development of the Onshore Project. Consultation regarding marine mammals and marine turtles has been conducted throughout the EIA. An overview of the Onshore Project's consultation process is presented within **Chapter 7: Consultation**.
72. A summary of the key issues raised during consultation specific to marine mammals and marine turtles is outlined below in **Table 11.16**, together with how these issues have been considered in the production of this ES.

Table 11.16 Consultation responses

Consultee	Date, Document, Forum	Comment	Where addressed in the ES
Natural Resource Wales (NRW)	15/03/2022, Scoping Opinion (Case reference EIA/2022/00002)	At this stage, given that the project is wholly within English waters, NRW Advisory are inclined to defer advice to Natural England (and JNCC if and where applicable). NRW Advisory would, however, be grateful where relevant, if we can continue to be consulted with regards the project due to the potential for cross-border issues arising at a later date – for example in respect to mobile species and cumulative / in-combination impacts. This will become increasingly pertinent with the advent of Floating Offshore Wind Projects within Welsh waters of the Celtic Sea. NRW Advisory have already been in contact with Natural England and JNCC to this effect.	Noted
Marine Management Organisation (MMO) formal response	30/05/2022, Scoping Opinion	<u>Baseline Scenario</u> The ES should include a description of the baseline scenario with and without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	Please see Section 11.4 detailing how all impacts are screened out, including a review of the 'do nothing' scenario in Section 11.6.2 .
Devon and Cornwall Wildlife Trusts	14/11/2022, Marine Mammal ETG response	It is recommended to consider the seal linkages between SSSI sites, significant haul out sites in north Cornwall, and juvenile seal movement (Carter <i>et al.</i> , (2017) looks at movement in Celtic seas).	Existing environment for grey seals is discussed in Section 11.6 .

11.6 Existing Environment

73. As outlined in **Section 11.4**, all potential impacts have been assessed out for the landfall to MLWS works. Therefore, further information in regard to the existing environment can be found in the Offshore ES which is part of a separate application.
74. The Offshore Project ES provides detailed information for each of the species, including details from the site-specific surveys, density estimates, abundance estimates, distribution, diet and seal haul out sites, that are relevant for the assessments.

11.6.1 Summary of Designated Sites

75. There are a number of designated sites nearby to the Onshore Project that are designated for marine mammals. However, the designated sites are assessed as part of the Offshore ES which is part of a separate application. Therefore, due to the that assessment and all impacts being screened out for this assessment, designated sites will not be assessed here.

11.6.2 Do Nothing Scenario

76. The Town and Country Planning Act (EIA) Regulations 2017 (as amended) require that “*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*” is included within the ES (EIA Regulations, Schedule 4, Paragraph 3).
77. As no potential impacts have been identified for marine mammals and marine turtles (see **Section 11.4**) this has not been included for the Onshore ES. However, further information is provided as part of the separate Offshore ES.
78. For marine mammals and marine turtles, there are some changes evident as a result of climate change and it is reasonable to expect further such changes in the future and over the lifetime of the Onshore Project. However, the latest changes in population distribution and abundance have been taken into account in the conclusions that have been undertaken.

11.7 Potential Impacts during Construction, Operation and Maintenance, and Decommissioning

79. As outlined in **Section 11.4**, all potential marine mammal and marine turtle ecology impacts, during all phases of the Onshore Project, are assessed out of this assessment.

11.8 Potential Cumulative Effects

80. As outlined in **Section 11.4**, all potential cumulative marine mammal and marine turtle ecology effects, during all phases of the Onshore Project, are assessed out of this assessment.

11.9 Potential Transboundary Impacts

81. As outlined in **Section 11.4**, all potential transboundary marine mammal and marine turtle ecology impacts, during all phases of the Onshore Project, are assessed out of this assessment.

11.10 Inter-relationships

82. Inter-relationship impacts are covered as part of the assessment and consider impacts from the construction, operation or decommissioning of the Onshore Project on the same receptor (or group). A description of the process to identify and assess these effects is presented in **Chapter 6: EIA Methodology**. The potential inter-relationship effects that could arise in relation to marine mammal and marine turtle ecology include both:

- **Project lifetime effects:** Effects arising throughout more than one phase of the Onshore Project (construction, operation, and decommissioning) to interact to potentially create a more significant effect on a receptor than if just one phase were assessed in isolation
- **Receptor led effects:** Assessment of the scope for all relevant effects to interact, spatially and temporally, to create inter-related effects on a receptor (or group). Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

83. As marine mammal and marine turtle ecology impacts are assessed out of this assessment, inter-relationship impacts are not anticipated.

11.11 Interactions

84. Where marine mammal and marine turtle ecology impacts are anticipated, these have the potential to interact with each other, which could give rise to synergistic impacts as a result of that interaction. As no marine mammal and marine turtle ecology impacts are anticipated within the scope of this assessment, synergistic impacts are not anticipated.

11.12 Summary

85. This chapter has investigated the potential effects on marine mammal and marine turtle receptors arising from the Onshore Project. The range of potential impacts and associated effects considered has been informed by the Scoping Opinion, consultation, and agreed through ETG Meetings, as well as reference to existing policy and guidance. The impacts considered include those brought about directly as well as indirectly.

86. **Table 11.17** presents a summary of the impacts assessed within this ES chapter, with any relevant commitments made, and mitigation required and the residual effects.

Table 11.17 Summary of potential impacts for marine mammals and marine turtles during construction, operation, maintenance and decommissioning of the Onshore Project

Potential impact	Receptor	Sensitivity	Magnitude	Significance	Mitigation measure	Residual effect
Construction						
Underwater noise during construction of the Project	All marine mammals and marine turtles	Assessed out for Onshore, but assessed in the separate Offshore ES.			No mitigation required	None
Underwater noise and presence of vessels	All marine mammals and marine turtles					None
Barrier effects from underwater noise	All marine mammals and marine turtles					None
Collision risk with vessels	All marine mammals and marine turtles					None
Disturbance at seal haul out sites	Grey seals					None
Electromagnetic fields (EMF) direct and indirect effects	All marine mammals and marine turtles					None
Changes to prey availability (including from habitat loss and Electromagnetic Fields)	All marine mammals and marine turtles					None
Changes to water quality	All marine mammals and marine turtles					None

Potential impact	Receptor	Sensitivity	Magnitude	Significance	Mitigation measure	Residual effect
Operation and Maintenance						
Underwater noise during the operational phase of the Project	All marine mammals and marine turtles	Assessed out for Onshore, but assessed in the Offshore ES.			No mitigation required	None
Underwater noise and presence of vessels	All marine mammals and marine turtles					None
Barrier effects from underwater noise	All marine mammals and marine turtles					None
Collision risk with vessels	All marine mammals and marine turtles					None
Disturbance at seal haul out sites	Grey seals					None
Electromagnetic fields (EMF) direct and indirect effects	All marine mammals and marine turtles					None
Changes to prey availability (including from habitat loss and Electromagnetic Fields)	All marine mammals and marine turtles					None
Changes to water quality	All marine mammals and marine turtles					None

Potential impact	Receptor	Sensitivity	Magnitude	Significance	Mitigation measure	Residual effect
Decommissioning						
<p>No decision has been made regarding the final decommissioning policy for the onshore infrastructure as it is recognised that industry best practice, rules and legislation change over time. An Onshore Decommissioning Plan will be provided. It is anticipated that the onshore cable would be decommissioned (de-energised) and either the cables and jointing bays left in situ or removed depending on the requirements of the Onshore Decommissioning Plan approved by the Local Planning Authority. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and agreed with the regulator. As such, for the purposes of a worst-case scenario, impacts no greater than those identified for the construction phase are expected for the decommissioning phase.</p>						
Cumulative Effects						
Assessed out.						

11.13 References

APEM (2022). Southwest England Ornithological and Marine Mammal Aerial Survey Results. Offshore Wind Ltd. Annual Report: July 2020 to June 2022. APEM Scientific Report P00005194. Issued July 2022.

BEIS (2022a). UK Offshore Energy Strategic Environmental Assessment 4 (OESEA4): <https://www.gov.uk/government/consultations/uk-offshore-energy-strategic-environmental-assessment-4-oesea4>

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