

Addendum to the
Environmental Impact
Assessment Report

NISA
North Irish Sea Array

Volume 8: Introductory Appendices

Appendix A3.3

Ecosystem Functions and Services Assessment



North Irish Sea Array Windfarm Ltd

Ecosystem Functions and Services Assessment

North Irish Sea Array Offshore Windfarm

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GoBe
APEMGroup

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Acronyms

Term	Definition
ADD	Acoustic Deterrent Devices
AEZ	Archaeological Exclusion Zones
ALARP	As Low As Reasonably Practicable
CBRA	Cable Burial Risk Assessment
CICES	Common International Classification of Ecosystem Services
COLREGs	International Regulations for Preventing Collisions at Sea
DAHG	Department of Arts, Heritage and the Gaeltacht
DCMNR	Department of Communications, Marine and Natural Resources
DoT	Department of Transport
EEZ	Exclusive Economic Zone
EIAR	Environmental Impact Assessment Report
EMF	Electromagnetic Fields
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
ERCoP	Emergency Response Cooperation Plan
EU	European Union
EVMP	Environmental Vessel Management Plan
FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
GES	Good Environmental Status
HAT	Highest Astronomical Tide
HDD	Horizontal Direction Drilling
HWM	High Water Mark
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IRCG	Irish Coast Guard
INNS	Invasive Non-native Species
IWDG	Irish Whale and Dolphin Group
kJ	Kilojoule
km	Kilometre
km ²	Kilometre squared

Term	Definition
LAT	Lowest Astronomical Tide
LMP	Lighting and Marking Plan
LoD	Limit of Deviation
LWM	Low Water Mark
m	Metre
m ²	Metre squared
m ³	Cubic metre
MARPOL	International Convention for the Prevention of Pollution from Ships
MEA	Millennium Ecosystem Assessment
MFE	Mass Flow Excavator
MGN	Marine Guidance Note
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Mammal Observers
MPCP	Marine Pollution Contingency Procedure
MSFD	Marine Strategy Framework Directive
MSO	Marine Safety Office
NAS	Noise Abatement System
NIS	Natura Impact Statement
NMPF	National Marine Planning Framework
NMS	National Monuments Service
ORE	Offshore Renewable Energy
OSP	Offshore Station Platform
OSPAR	Oslo Paris Convention for the Protection of the Marine Environment of the North-East Atlantic
OWF	Offshore Wind Farm
PAD	Protocols for Archaeological Discoveries
PAM	Passive Acoustic Monitoring
PLGR	Pre-Lay Grapnel Run
PTS	Permanent Threshold Shift
RFI	Request for Further Information
SAR	Search and Rescue
SCADA	Supervisory Control and Data Acquisition
SEMURU	Socio-Economic Marine Research Unit

Term	Definition
SFC	Sustainable Fisheries Community
SOLAS	International Convention for the Safety of Life at Sea
SSC	Suspended Sediment Concentration
TSHD	Trailing Suction Hopper Dredger
UKERC	UK Energy Research Centre
UKHO	UK Hydrographic Office
UXO	Unexploded ordinance
VMP	Vessel Management Plan
WTG	Wind Turbine Generator

1 Introduction

North Irish Sea Array Windfarm Ltd (NISA, hereafter referred to as ‘the Developer’) has been considering the Request for Further Information (RFI) issued by An Bord Pleanála (now An Coimisiún Pleanála) as well as the third-party submissions received following public consultation. At An Coimisiún Pleanála’s behest, the Developer has also continued to consult with stakeholders in respect of the 2024 planning application throughout 2024-2026. The Developer has refined elements of the design to respond to the third-party submissions, the continued public and stakeholder consultation and the RFI. Full details of consultation undertaken can be found in Appendix A.1.2 Consultation Report.

Any cross reference to a chapter, section, table, image, figure or appendix within this document is to another location within the Addendum to the EIAR unless explicitly stated otherwise. Any cross reference to anything included in the 2024 EIAR will be clearly labelled as such.

Tables which have been updated from the 2024 EIAR, or entirely new tables, have been included in the Addendum to the EIAR. These tables can be identified by the “A” prefix in the table caption. Any changes within the updated table, in comparison to tables within the 2024 EIAR, are indicated by grey shading in the relevant cell, column or row, as necessary.

The sections relevant to Marine Strategy Framework Directive Assessment in the RFI are included below.

RFI Section	RFI	Relevance to Chapter
1 (b)	The scientific information provided as part of the planning application documentation should be based on up-to-date survey reports and data. Accordingly, the applicant is requested to confirm/provide justification/verification that the information submitted in support of the planning application remains relevant and appropriate at the point of submitting further information or to update same as required.	The timeframes associated with the RFI have necessitated a review of the datasets previously used in the 2024 EIAR to ensure any necessary updates to the baseline environment are captured. Therefore, a review of the baseline ecosystem functions and services has been undertaken to comply with RFI Section 1 (b).
4.	Ecosystem Functions and Services Assessment	
n/a	The documentation submitted does not provide specific detail, assessment, or review of the range of ecosystem functions and services which could be impacted by the proposed development. The National Marine Planning Framework (NMPF) states that proposals to protect, maintain, restore, and enhance coastal habitats for ecosystem functioning and provision of ecosystem services will be supported, subject to the outcome of statutory environmental assessment	A synopsis report of ecosystem functions and services has been provided in this document, which considers the full range of ecosystem services set out in the report ‘Valuing Ireland’s Blue Ecosystem Services’ (SEMURU of NUI Galway, 2018). The outcome of individual receptor assessments concluded no material impact on ecosystem services, and no impediment to the ability of normal ecosystem functions and services to

processes. Seafloor and Water Column Integrity Policy 3 of the NMPF also requires proposals to take account of the space required for coastal habitats, for ecosystem functioning and the provision of ecosystem services and to demonstrate that they will, in order of preference, avoid, minimise or mitigate for net loss of coastal habitats.

The applicant is requested to update the EIAR to include an assessment of impacts (both positive and negative) on relevant ecosystem functions and services and include mitigation measures, as appropriate. The applicant is also requested to submit a synopsis report of the relevant impacts on ecosystem functions and services. In identifying the relevant ecosystem services for assessment, including those services classified as provisioning, regulation and maintenance, and cultural services, the applicant is advised to consider the full range of ecosystem services set out in the report 'Valuing Ireland's Blue Ecosystem Services' (SEMRU of NUI Galway, 2018), as referenced in the NMPF. The report should also consider the need for an adaptive management framework for ongoing assessment and should include provision for appropriate monitoring of any mitigation measures and operational management strategies, as well as provision for decommissioning.

function, resulting from the proposed development.

1.1 Introduction to the Assessment

- 1.1.1 This Ecosystem Functions and Services Assessment has been prepared by GoBe Consultants Limited (GoBe) on behalf of North Irish Sea Array Windfarm Limited (the Developer).
- 1.1.2 The North Irish Sea Array (NISA) Offshore Wind Farm (OWF) (hereafter the proposed development) is an offshore wind energy project being proposed off the coast of counties Dublin, Meath and Louth.

- 1.1.3 This document sets out the Developer’s assessment of the potential impacts of the proposed development on ecosystem function and services, in response to An Bord Pleanála’s Request for Further Information (RFI) regarding the offshore elements of the proposed development. The Developer has undertaken extensive design work to address the issues raised and as a result, design refinements are now proposed, informed by this engagement and design process. These refinements are detailed in Appendix A5.1, Design Refinements, Chapter 6, Description of the Proposed Development, and Chapter 8, Construction Strategy – Offshore.
- 1.1.4 Under RFI Section 4, An Bord Pleanála noted the requirement for the Developer to update the Environmental Impact Assessment Report (EIAR) to include an assessment of impacts (both positive and negative) on ecosystem functions and services and include mitigation measures, as appropriate. An Bord Pleanála advised that this should include those services classified as:
- Provisioning;
 - Regulation and maintenance; and
 - Cultural services.
- 1.1.5 An Bord Pleanála advised the Developer to consider the full range of ecosystem services set out in the report ‘Valuing Ireland’s Blue Ecosystem Services’ (Norton *et al*, 2018), noting “*the National Marine Planning Framework (NMPF) states that proposals to protect, maintain, restore, and enhance coastal habitats for ecosystem functioning and provision of ecosystem services will be supported, subject to the outcome of statutory environmental assessment processes*” This document sets out the Developer’s assessment of the potential impacts of the proposed development on the ecosystem functions and services criteria listed. This report represents the synopsis report, as requested by An Bord Pleanála in RFI Section 4.
- 1.1.6 An Bord Pleanála also advised that “*the report should also consider the need for an adaptive management framework for ongoing assessment and should include provision for appropriate monitoring of any mitigation measures and operational management strategies, as well as provision for decommissioning*”. As the assessment of effect on ecosystem services and functions is drawn from the conclusions of the assessments within the 2024 EIAR and the updated EIAR, which include assessment of decommissioning impacts, the need for adaptive management, ongoing monitoring and/or other mitigations are considered within the respective EIAR chapters and transposed within the assessment tables of this report (Table 5.15.1). In addition, the EIAR has not been “*updated to include to include an assessment of impacts (both positive and negative) on relevant ecosystem functions and services*” as requested in the An Bord Pleanála advice note, as the conclusions of the EIAR are already directly linked to the assessment of ecosystem functions and services. However, any subsequent updated assessments in the EIAR (since the original 2024 EIAR application submission) have also been updated within this synopsis report.
- 1.1.7 Any cross reference to a chapter, section, table, image, figure or appendix within this document is to another location within the updated EIAR unless explicitly stated otherwise. Any cross reference to anything included in the 2024 EIAR will be clearly labelled as such.

1.2 Classification of Ecosystem Services

- 1.2.1 Ecosystems are multilayered communities of living organisms which interact with each other and their environment. An ecosystem can be defined as “a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit” (Convention on Biological Diversity, 1992).
- 1.2.2 Ecosystems provide a series of services for human well-being (ecosystem services) either directly (such as food) or indirectly by providing clean air and water. Whilst there are a variety of definitions for marine ecosystem services, the common link is the emphasis placed upon the beneficial role played by ecosystems in enhancing or maintaining aspects of human well-being and thereby human society (Natural England, 2012).
- 1.2.3 The Millennium Ecosystem Assessment (MEA, 2005) aimed to provide evidence for action needed to protect ecosystems and their ecosystem services. It introduced a classification system that categorised ecosystem services into four groupings. The first three, provisioning services, regulation and maintenance services and cultural services, were all underpinned by the fourth, supporting services.
- 1.2.4 The UN Common International Classification of Ecosystem Services (CICES) has since been developed using MEA as a starting point and then refined to reflect some of the key issues identified in the wider research literature. It has been endorsed as a tool for classification of ecosystem services by the United Nations and the European Commission. The classification system was last updated in 2023 (CICES, 2023).
- 1.2.5 In Ireland the same CICES approach has been used in the classification of Valuing Ireland’s Blue Ecosystem Services (Norton *et al.*, 2018).

1.3 Project Description

- 1.3.1 The proposed development comprises offshore and onshore infrastructure (refer to Chapter 1 Introduction of the EIAR). For clarity, while the NISA Offshore Windfarm (OWF) (the proposed development) is assessed as a whole in the EIAR, the boundary between onshore and offshore infrastructure is the high-water mark (HWM) as defined by Ordnance Survey Ireland mapping. This report considers only impacts, infrastructure and activities associated with those parts of the proposed development to be located below HWM.
- 1.3.2 The offshore infrastructure will be contained within the ‘offshore development area’ and will consist of the following:
- Array area: This is where the offshore wind farm will be located with the nearest point approximately 11.3km offshore (Figure 1.1). This includes the wind turbine generators (WTGs), inter-array cables and the offshore station platform (OSP);
 - Offshore Export Cable Corridor: This is where the offshore electrical infrastructure, consisting of two subsea offshore export cables will be routed from the offshore station platform to landfall (Figure 1.1).
- 1.3.3 These elements are described in further detail in Chapter 6 Description of the Proposed Development – Offshore and Chapter 8 Construction Strategy – Offshore.

1.3.4 The Developer is including two Project Options for consideration within the planning application. At the detailed design stage post-consent, just one option will be chosen as the Preferred Option and subsequently constructed. This assessment will consider Option 1 which is deemed to have the greatest potential for a likely significant marine impact. Option 1 consists of:

- 49 wind turbine generators (WTG) with suction bucket jacket foundations;
- One Offshore Substation Platform (OSP);
- 111 km inter-array cabling; and
- Two 18 km export cables from the array area to landfall.

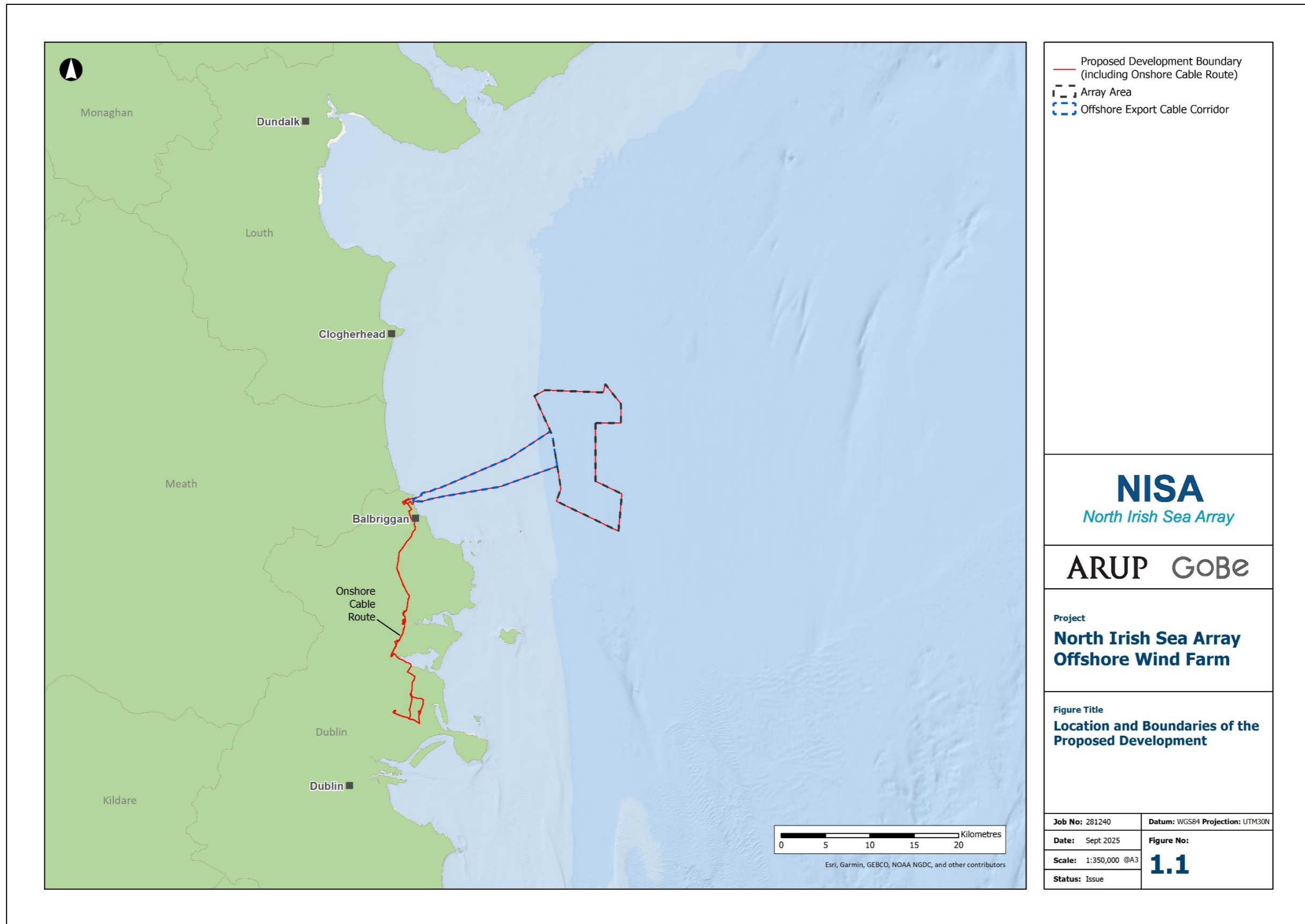


Figure 1.1 Location and boundaries of the proposed development

1.4 Policy and Legislative Context

The National Marine Planning Framework

- 1.4.1 The National Marine Planning Framework (NMPF, 2021) sets out the framework and proposed approach to managing Ireland's maritime activities to ensure the sustainable use of marine resources up to 2040. The plan covers Ireland's maritime area, including internal waters (sea area), territorial seas, exclusive economic zone (EEZ) and continental shelf. Environment policies in the NMPF have been split into nine categories largely aligned to the Marine Strategy Framework Directive (MSFD) Good Environmental Status (GES) descriptors as well as addressing air quality and climate change.
- 1.4.2 In particular, the Seafloor and Water Column Integrity Policy 3 of the NMPF also requires proposals to take account of the space required for coastal habitats, for ecosystem functioning and the provision of ecosystem services and to demonstrate that they will, in order of preference, avoid, minimise or mitigate for net loss of coastal habitats.

2 Ecosystem Functions and Services Methodology

- 2.1.1 The assessment methodology and approach have been informed by that used by the Codling Wind Park as part of their application submission (Codling Wind Park, 2024) to provide consistency with other Phase I projects.
- 2.1.2 At the time of writing, no specific guidance has been published regarding how projects within Irish waters should assess ecosystem functions and services. However, the assessment has been informed by the assessment provided within ‘Valuing Ireland’s Blue Ecosystem Services’ (Norton *et al.*, 2018) and by a UK Energy Research Centre (UKERC) funded Phase 4 Research Programme developed: ‘Database of Evidence for the impact of Offshore wind farms on Marine Ecosystem Services’ (Szostech *et al.*, 2022).

2.2 Ireland’s Blue Ecosystem Services

- 2.2.1 The Socio-Economic Marine Research Unit (SEMRU) within the Whitaker Institute of NUI Galway, has a main research focus examining the economic utility of the marine environment (e.g. transportation, recreation) and the ecological value (e.g. fisheries, aquaculture) derived from the productivity of associated ecosystems. The SEMRU non-technical report ‘Valuing Ireland’s Blue Ecosystem Services’ (Norton *et al.*, 2018) is focused on the ecosystem service benefits that society receives from Ireland’s marine environment, complementing previous work on the Irish ocean economy.
- 2.2.2 The report itself aims to improve stakeholder and policymaker’s understanding of Ireland’s blue economy and encourage the development of sustainable economic activities that foster “blue growth”. This report has been used to define the marine ecosystem functions and services of relevance to the proposed development.

2.3 UK Energy Research Centre Database of Evidence

- 2.3.1 The evidence database was collated by a review of global primary literature (primary and peer reviewed) and UK grey literature on the potential and experienced impacts of Offshore Wind Farm (OWF) developments (Szostech *et al.*, 2022). Data was extracted from each evidence source, for each marine ecosystem component that was impacted by the OWF development. Information was recorded on the phase of development, the specific pressure and any other relevant information about the OWF or its location. Expert judgement by ecosystem services scientists was used to map each piece of evidence for impacts according to CICES v5.1 or MEA and other published classification systems for ecosystem services.
- 2.3.2 The information provided within the database can be interrogated by applying filters on the headers assigned to each column. This filters the evidence to relevant sources for each EIAR topic. Whilst not drafted specifically for Ireland, the information within the database collates information on potential impacts from a variety of OWFs and has been used to inform this Ecosystem Functions and Services report.

3 Marine Ecosystem Services

3.1.1 As required by An Bord Pleanála, this report considers that marine ecosystem services can be classified as provisioning, regulation and maintenance, cultural or supporting services and so provides an assessment based on these classifications. Definitions of each of these services, as defined by Norton *et al.* (2018) are as follows:

- **Provisioning services** – These ecosystem services are tangible goods and there is often a direct connection between the ecosystem and the provision of these ecosystem services. Examples of the provisioning ecosystem services generated by Irish marine and coastal ecosystems are the fish and seaweed that are harvested and also the aquaculture production around Ireland’s coasts.
- **Regulation and maintenance services** – These ecosystem services regulate the world around us and often are consumed indirectly. Examples of these ecosystem services include carbon sequestration which helps to mitigate climate change, treatment of wastewater and its return to the hydrological cycle and flood and storm protection by sand dunes and saltmarsh which lessens the damage from winter storms.
- **Cultural services** – The cultural ecosystem services refer to the psychical, psychological and spiritual benefits that humans obtain from contact with nature. Examples of the cultural ecosystem services in the Irish marine and coastal zones include recreational activities such as walking along the beach, surfing, etc. and the added value that having a sea view from your house has on your well-being.
- **Supporting ecosystem services** uphold and enable the maintenance and delivery of the other ecosystem service categories. To avoid double counting, supporting services tend not to be included in ecosystem value assessments as only final impacts on well-being are counted as economic benefits. For example, the effects of changes in nutrient cycling in marine systems will be reflected in the final welfare impact on provisioning services such as commercial fish catches or in the cultural service of recreational fishing.

4 Screening of Ecosystem Functions and Services

4.1.1 The first stage of the assessment is to consider if there is a pathway between the activities of the proposed development and a potential interaction with an ecosystem service. In this way, some ecosystem services can be screened out from assessment as there is no link between the proposed development and the ecosystem service. The screening exercise for the proposed development is presented in Table 4.1. The main part of the assessment (if screened in) will refer to the assessment made during the EIAR for the proposed development. As such, the relevant EIAR chapter or associated assessment is referenced in the Table 4.1.

Table 4.1 Screening assessment for the proposed development for ecosystem services as detailed in Norton *et al.*, (2018).

Ecosystem Service	Screening assessment and Associated EIAR Chapters/Assessments
Provisioning ecosystem service	
Offshore capture fisheries	IN: Chapter 16: Commercial Fisheries
Inshore capture fisheries	IN: Chapter 16: Commercial Fisheries
Aquaculture	IN: Chapter 16: Commercial Fisheries
Algae/ Seaweed harvesting	OUT: There are no algae / seaweed harvesting activities taking place in the vicinity of the proposed development.
Genetic materials	OUT: The provision of genetic materials is not impacted by the proposed development.
Water for non-drinking purposes	OUT: Water for non-drinking purposes such as power station cooling and agricultural abstraction is not assessed as although there are a number of abstractions unrelated to the proposed development within the land, soils, geology, and hydrogeology study area, (which extends to a radius of 2km from the onshore development area)for potable water, none are noted from the marine environment for non-drinking purposes. All water abstractions over 25m ³ per day must be registered with the Environmental Protection Agency (EPA). There are no such registered abstractions within the 2km study area (4 Chapter 21 Land and Soils of the EIAR) so this ecosystem service is not considered further.
Regulating and maintenance ecosystem services	
Waste services	OUT: The proposed development does not impact on the ability of the marine environment to mediate waste and is not located on or near any dumping at sea areas, the nearest being off Drogheda 11.5km west of the Array Area, to the north (Chapter 11 Marine Water and Sediment Quality). The Developer confirms that there are no crossings of existing waste water pipelines by proposed infrastructure.

Ecosystem Service Screening assessment and Associated EIAR Chapters/Assessments

Coastal defence	<p>OUT: Any change in the proposed development area relating to coastal defence services is screened out, on the basis that there is no loss of coastal habitat with landfall being achieved by Horizontal Direction Drilling (HDD) with the onshore exit pit being located at least 50m landward of the coastal hills and cliffs and the offshore exit pit being located seaward of the Low Water Mark (LWM) (Chapter 8 Construction Strategy – Offshore). The Developer confirms that there is no temporary cofferdam required and no drainage above Mean High Water (MHW) at the coastline.</p>
Lifecycle and habitat services	<p>IN:</p> <p>10: Marine Geology, Oceanography and Physical Processes</p> <p>Chapter 11: Marine Water and Sediment Quality</p> <p>Chapter 12: Benthic Subtidal and Intertidal Ecology</p> <p>Chapter 13: Fish and Shellfish Ecology</p> <p>Chapter 14: Marine Mammal Ecology</p> <p>Chapter 15: Offshore and Intertidal Ornithology</p> <p>Chapter 35: Offshore Bats</p>
Pest and disease control	<p>IN:</p> <p>Chapter 12: Benthic Subtidal and Intertidal Ecology</p> <p>Chapter 13: Fish and Shellfish Ecology</p>
Climate regulation	<p>OUT: Climate regulation by marine environments was not assessed as part of the 2024 EIAR assessment for the proposed development. However, there are not expected to be any impacts to the intertidal habitats and so no change to their climate regulatory function. Whilst there will be a degree of disturbance to fully subtidal sediments, areas of temporary disturbance are expected to fully recover, which includes their climate regulatory function. There is expected to be a small reduction in some areas of subtidal sediments, due to the placement of infrastructure and, where required scour and cable protection, however this is expected to result in negligible reduction in climate regulatory function, as supported by the conclusions in Chapter 28: Climate.</p>

Cultural services

Recreational services	<p>IN:</p> <p>Chapter 13: Fish and Shellfish Ecology</p> <p>Chapter 14: Marine Mammal Ecology</p> <p>Chapter 15: Offshore and Intertidal Ornithology</p> <p>Chapter 17: Shipping & Navigation</p> <p>Chapter 29: Seascape, Landscape and Visual</p>
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Ecosystem Service		Screening assessment and Associated EIAR Chapters/Assessments
Scientific and educational services	<p>IN:</p> <p>Chapter 10 Marine Geology, Oceanography and Physical Processes</p> <p>Chapter 12: Benthic Subtidal and Intertidal Ecology</p> <p>Chapter 13: Fish and Shellfish Ecology</p> <p>Chapter 14: Marine Mammal Ecology</p> <p>Chapter 15: Offshore and Intertidal Ornithology</p> <p>Chapter 17: Shipping & Navigation</p> <p>Chapter 18: Offshore Archaeology and Cultural Heritage</p> <p>Chapter 35: Offshore Bats</p>	
Marine heritage, culture and entertainment	<p>IN: Chapter 18: Offshore Archaeology and Cultural Heritage</p>	
Aesthetic services	<p>IN Chapter 29: Seascape, Landscape and Visual of the EIAR</p>	
Spiritual and emblematic values	<p>IN:</p> <p>Chapter 18: Offshore Archaeology and Cultural Heritage</p> <p>Chapter 29: Seascape, Landscape and Visual of the EIAR</p>	
Non-use values	<p>OUT: Whilst it is understood that non-use values (existence and bequest values e.g., satisfaction with the knowledge a resource exists by an individual not currently making use of the resource) is one of the ecosystem services which is provided by the marine environment, this aspect has not been directly assessed as part of the proposed development. However, by ensuring the other services and functions are considered (see above rows and the subsequent assessments where required), these non-use values are also assumed to be maintained.</p>	

5 Ecosystem Functions and Services Assessment

- 5.1.1 The second stage is the ecosystem function and service assessment for all ecosystem services that have been screened in. The first stage of the assessment is to consider if there is a pathway between the activities of the proposed development and a potential interaction with an ecosystem service. In this way, some ecosystem services can be screened out from assessment as there is no link between the proposed development and the ecosystem service. The screening exercise for the proposed development is presented in Table 4.1. The main part of the assessment (if screened in) will refer to the assessment made during the EIAR for the proposed development. As such, the relevant EIAR chapter or associated assessment is referenced in the Table 4.1.
- 5.1.2 Table 4.1 Table 5.15.1 provides the assessment of the potential impact of the proposed development on the screened in ecosystem services. The table includes:
- Relevance to the proposed development:
 - Baseline information on the ecosystem service presented from the national assessment (Norton *et al.*, 2018);
 - Information on the potential for impacts to ecosystem services by offshore windfarms, summarised from the UKERC database;
 - Mitigation measures and Impact Assessment summary:
 - Mitigation that is relevant to the Chapter of the EIAR that is used as the basis for the assessment. This can be in the form of embedded mitigation and best practice, and where it was identified as a requirement within the EIAR further mitigation;
 - The significance of effect predicted within the Chapter of the EIAR;
 - Conclusion regarding the potential for impacts to ecosystem services as a result of the proposed development.

Table 5.1 Marine ecosystem services Assessment for the proposed development.

EIAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
<p>Chapter 16: Commercial Fisheries</p>	<p>The proposed development must maintain the population abundance, distribution, habitat and diversity of species caught by offshore and inshore fisheries and aquaculture.</p> <p>The estimated value for landings made by capture fisheries within the Irish EEZ (vessels >15 m) was over EU 470 million in 2015 (Norton <i>et al.</i>, 2018).</p> <p>Mussel seed dredge fishery: The mussel fishery targets seed, which are re-laid for on-growing of bottom cultured mussel in aquaculture licence areas, although the aquaculture areas are not with the vicinity of the proposed development. VMS data for mussel seed dredge activity shows no activity across the offshore development area from 2015 to 2017 (Marine Institute, 2018), however seed dredging is included in the commercial fisheries assessment. As such, aquaculture is also considered alongside both inshore and offshore fisheries within this assessment.</p> <p>UKERC database information regarding Commercial Fish indicates an overall general decrease in catch per unit effort and negative effect on abundance in relation to wind farm operation. There is also indication of a negative impact on static and towed gears of commercial fisheries along with a generally negative economic impact on commercial fisheries. In some areas of Europe and the USA,</p>	<p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Fisheries Liaison - the Developer is committed to ongoing liaison with fishers throughout all stages of the proposed development facilitated by the appointment of a company Fisheries Liaison Officer (FLO). ▪ Agreement of lighting and marking with Commissioners of Irish Lights for the proposed development. ▪ Dropped Objects - The approach for dealing with dropped objects, including reporting and recovery of dropped objects where they pose a potential hazard to other marine users, is included in the Offshore Environmental Management Plan (EMP) (Appendix A6.1). ▪ Cable Burial Risk Assessment (CBRA) - CBRA undertaken pre-construction following detailed site investigation surveys including consideration of under keel clearance and appropriate cable protection applied based upon the outcomes. To include consideration of requirements for monitoring of the protection. ▪ Guard Vessels - Use of a temporary guard vessel during construction phase will be employed if deemed necessary during detailed design stage and following consultation with the relevant statutory authorities e.g. to protect unlit structures and/or unprotected cable prior to burial. ▪ Advisory Safety Zones and Safe Passing Distances - During all stages of the proposed development advisory safety zones will be deployed around individual structures and advisory safe passing distances will be used. This includes surrounding

EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
	<p>an increase in catch per unit effort was recorded for cod, pouting, sole and brown crab during wind farm operation.</p>	<p>vessels that are undertaking sensitive construction, installation, maintenance or decommissioning works.</p> <ul style="list-style-type: none"> ▪ Snagging - In the instance that snagging does occur, the Developer will work to the protocols laid out within the guidance produced by the UK FLOWW group and 'Recommendations for Fisheries Liaison: Best Practice (2015)' guidance for offshore renewable developers, in particular Section 11: Dealing with claims for loss or damage of gear as confirmed in the FMMS (Appendix A16.2). ▪ Decommissioning Strategy - A decommissioning strategy will be developed to cover the decommissioning phase and included as part of the Offshore EMP (Appendix A6.1) and Rehabilitation Schedule (Appendix A6.2). <p>Additional mitigation measures include:</p> <ul style="list-style-type: none"> ▪ The proposed development will provide a Fisheries Liaison Strategy. ▪ The proposed development will follow the Seafood / Offshore Renewable Energy (ORE) Working Group Summary guidance (Seafood/ORE Working Group, 2023). ▪ The proposed development has established and is delivering a Sustainable Fisheries Community (SFC) as a mechanism for long-term, collaborative fisheries impact mitigation. ▪ The Developer will minimise the size and duration of advisory safety zones during surveys and other works where safe and practicable to do so. ▪ The Developer will provide local fisheries stakeholders with procedures for registering disruption payment claims for loss of/damage to fishing gear in association with surveys and construction activities of the proposed development.



EIA/Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<ul style="list-style-type: none"> ▪ Vessels undertaking operations in relation to the proposed development will be working to appropriate safety management systems to ensure safe work practices. ▪ Vessels undertaking operations in relation to the proposed development will only undertake activities prescribed in their line of work. ▪ Vessels involved in the construction, operation and maintenance and decommissioning of the proposed development, including guard vessels and survey vessels, will be provided with the relevant lines of communication (as outlined within the FMMS) to minimise interaction with fishing vessels undertaking their normal activities. ▪ The proposed development will provide a Co-existence Strategy with an update provided in Appendix D of Appendix A16.2, which sets out the approach to maintaining and facilitating fishing activity within and around the array area. This includes the provision of designated trawling corridors aligned with the conventional trawling direction, consideration of over-trawlability and cable burial/protection standards to reduce snagging risk, and the development of operational protocols that recognise local tidal constraints and fishing practices. The strategy also includes a commitment to the monitoring of fishing access and catch rates, including through the proposed Digital Effort Traceability Project. ▪ In addition to the commitments above, vessels undertaking operations in relation to the proposed development will be required to follow the mitigation and management measures provided in other documents and management plans committed to by the proposed development. These are referenced within the FMMS (Appendix A16.2).

EIA Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<p>Following the implementation of the above mitigation measures, moderate to slight/slight adverse effects are predicted for commercial fisheries receptors, and commercially targeted fish species as a result of the proposed development, which is not significant in EIA terms.</p> <p>As there are no significant effects anticipated on the specific commercial fisheries receptors (following the implementation of the additional mitigation measures), including those that may occur through inter-related factors, it can be concluded that there will be no reduction in the ability of normal ecosystem functions and services to function with regards to commercial inshore and offshore capture fisheries or to aquaculture services.</p>
<p><i>Lifecycle and habitat services</i></p>		
<p>Chapter 10: Marine Geology, Oceanography and Physical Processes</p>	<p>Marine geology, oceanography and physical processes must be maintained to ensure the seabed is habitable for marine organisms. The spatial extent and distribution of permanent alteration of hydrographical conditions to the seabed and water column, is at a level that ensures that the structure and functions of the ecosystems are safeguarded and that benthic ecosystems, in particular, are not adversely affected.</p> <p>UKERC database information regarding regulating and maintenance ecosystem services, indicates an overall general increase in sediment loss via plumes and scour and accretion effects on the seabed as a result of the construction and presence of OWFs. There is generally no impact on sedimentation and geology and seabed features.</p>	<p>Throughout the development stage, the design of the proposed development has evolved such that no primary or additional mitigation or monitoring measures are considered necessary during the construction, operation and decommissioning phases as a result of potential changes to marine geology, oceanography and physical processes.</p> <p>Imperceptible/slight adverse effects are predicted for marine geology, oceanography and physical processes receptors, as a result of the proposed development, which is not significant in EIA terms.</p> <p>As there are no significant effects anticipated on the specific marine geology, sediments and coastal processes receptors, including those that may occur through inter-related factors, it can be concluded that there will be no reduction in the ability of normal ecosystem</p>

EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
<p>Chapter 11: Marine Water and Sediment Quality</p>	<p>Marine water quality must be maintained to ensure the water column is habitable for marine organisms. The Developer must ensure that the offshore area impacted by the proposed development does not impact water and sediment quality, such that it significantly impacts the form and function of water environment, through the introduction or spread of contaminants and toxins.</p> <p>UKERC database information regarding water quality, indicates predominantly no overall impact on marine water quality during all stages of an offshore wind farm. This implies no overall impact to regulating and maintaining ecosystem services.</p>	<p>functions and services to function with regards to lifecycle and habitat services.</p> <p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> Marine Pollution Contingency Procedure (MPCP) - Marine pollution contingency measures will be implemented as part of the Offshore EMP (Appendix A6.1) to manage the risk of accidental spillages from construction equipment or collision incidents. This will include a chemical risk review with information regarding how and when chemicals are to be used, stored and transported in accordance with recognised best practice guidance. Disposal of waste management - The Developer commits to the disposal of sewage and other waste in a manner which complies with all regulatory requirements. <p>No additional mitigation or monitoring measures are considered necessary for the construction, operation and decommissioning phases specific to the potential impacts on marine water and sediment quality.</p> <p>Following the implementation of the above mitigation measures, imperceptible to moderate adverse effects are predicted for water and sediment quality receptors, as a result of the proposed development which is not significant in EIA terms.</p> <p>As there are no significant effects anticipated on the specific marine water and sediment quality receptors, including those that may occur through inter-related factors, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to lifecycle and habitat services.</p>

EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
<p>Chapter 12: Benthic Subtidal and Intertidal Ecology</p>	<p>Benthic subtidal and intertidal ecology including the habitats associated within this topic, are maintained to ensure the subtidal and intertidal areas within the vicinity of the proposed development are habitable for marine organisms. The proposed development must ensure that the works do not impact predator and prey relationships, and trophic guilds inhabiting subtidal and intertidal areas through anthropogenic pressures.</p> <p>UKERC database information regarding habitat, non-native species and Electromagnetic Field (EMF), shows increases in non-native species abundance and habitat loss due to smothering. There were some differences in impacts between wind farms. There was no impact on particle size or condition, health, injury, or community behaviour as a result of EMF emissions. There is an overall negative to no impact to regulating and maintenance ecosystem services.</p>	<p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Cable installation measures/CBRA- Cable installation measures will minimise adverse impacts to potentially sensitive receptors. ▪ Cable burial - Cable installation will follow the burial hierarchy, where practicable two attempts will be made to bury cables before cable protection is used. ▪ Landfall - The installation of the offshore export cables at landfall will be undertaken by HDD beneath the intertidal zone which will prevent any direct disturbance to intertidal receptors. The HDD exit pits will be located within the Export Cable Corridor seaward of the Low Water Mark (LWM) at a point where cable installation vessels can operate. ▪ Project design - Presence of sensitive habitats will be identified through a review of the latest available benthic datasets and pre-construction surveys. Proposed development infrastructure will avoid protected habitats wherever reasonably practicable to an extent not resulting in a hazard for marine traffic and Search & Rescue capability. ▪ Offshore EMP - An Offshore EMP (Appendix A6.1) will be developed and will include details of marine pollution contingency measures, a chemical risk review, marine biosecurity measures, waste management and disposal arrangements, a VMP and the appointment of a company FLO. ▪ Assessment of impacts and best practice environmental management - Prior to decommissioning a study of the potential environmental impacts to benthic ecology receptors from the proposed decommissioning activities will be undertaken, considering the baseline environment at the pre-decommissioning stage.

EIA Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<p>No additional mitigation or monitoring measures are considered necessary for the construction, operation and decommissioning phases specific to the potential impacts on benthic subtidal and intertidal benthic ecology.</p> <p>Following the implementation of the above mitigation measures, not significant to slight adverse effects are predicted for subtidal and intertidal ecology receptors as a result of the proposed development which is not significant in EIA terms.</p> <p>As there are no significant effects anticipated on the specific benthic subtidal and intertidal ecology receptors, including those that may occur through inter-related factors, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to lifecycle and habitat services.</p>
Chapter 13: Fish and Shellfish Ecology	<p>Fish and shellfish must be maintained to ensure the offshore areas within the scope of the proposed development support indigenous fish and shellfish populations. The proposed development must ensure that the works do not impact predator and prey relationships, and trophic guilds of fish populations within the vicinity through anthropogenic pressures.</p> <p>UKERC database information regarding habitat, benthic, EMF and sediment - indicates an overall negative (but not significant with regards EIA) impact on fish and shellfish habitat due to smothering from increased Suspended Sediment Concentration (SSC) causing damage to fish and eggs; an increased risk of non-auditory injury and increase in non-native species abundance. When filtering for the</p>	<p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> ▪ MPCP - Marine pollution contingency measures will be implemented as part of the Offshore EMP (Appendix A6.1) to manage the risk of accidental pollution from offshore operations relating to the proposed development. This will include a chemical risk review with information regarding how and when chemicals (including vessel fuels) are to be used, stored and transported in accordance with recognised best practice guidance and national and international regulations and commitments. ▪ Navigational safety measures and (e.g., guard vessels, safety buoys, lighting of active working zones) to reduce the likelihood of collision events. ▪ Offshore Waste Management Procedure - An Offshore Waste Management will be implemented as part of the as



EIAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
	<p>same themes, there was overall no impact on condition, health, injury or community behaviour of fish and shellfish due to the presence of EMF. This suggests negative to no impact on associated provisioning and cultural ecosystem services.</p>	<p>part of the Offshore EMP (Appendix A6.1). The Waste Management Procedure will include application of the waste hierarchy (prevention, re-use, recycle, recovery, and disposal) to minimise the amount of waste produced, and reduce, as far as possible, the amount of waste that is disposed of in landfill, waste disposal procedures, and a code of conduct for vessel operators with respect to the discharge of wastewater and handling and storing of hazardous materials.</p> <ul style="list-style-type: none"> ▪ Environmental Vessel Management Plan (EVMP) - An EVMP will be implemented to minimise the risk of collision, injury and disturbance to marine wildlife during construction activities, which will include a code of conduct for vessel operators when encountering marine species (Appendix 14.5 of the 2024 EIAR). In addition, vessel movements to and from construction sites and ports will, where feasible, follow existing routes. While the measures are targeted towards marine mammals and birds at sea, they would equally reduce the risk of injury and disturbance to marine turtles and larger mobile receptors, such as basking sharks. ▪ Unexploded ordinance (UXO) Management Measures - The clearance of UXO will follow a mitigation hierarchy, with micro-siting of subsea infrastructure around UXO where practicable. Where avoidance is not possible, relocating the UXO to a safe place and leaving in situ will be considered. Where clearance of UXO is required (i.e. avoidance or relocation is not practicable), removal of the UXO from the site or low order clearance at the UXO location will be adopted where feasible. However, removal of the UXO or low order deflagration of the UXO are not always possible and are dependent upon the individual situations

EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<p>surrounding each UXO. Therefore, a high order detonation of the UXO may be required.</p> <ul style="list-style-type: none"> ▪ Noise Abatement System (NAS) during high order UXO clearance - The Developer has committed to the use of NAS e.g. bubble curtain or similar if high order UXO clearance is required Mitigation Protocol - MMMP (Appendix A14.5). This would reduce the impact of UXO clearance noise on sensitive fish and shellfish species. ▪ Pre-construction profile survey - Where necessary, before works commence and following reinstatement, a topographical survey of the nearshore subtidal area will be carried out to identify and map the contours of the subtidal HDD exit pit to ensure a profile similar in nature to the profile recorded during the pre-construction survey is reinstated, as far as practicable. ▪ Cable burial and cable protection measures - Export and inter-array cables will be buried where practicable to ensure they are not exposed by sediment movements. Where cables cannot be buried, additional cable protection measures such as rock placement or mattressing will be applied to achieve adequate cable protection. Cable burial or cable protection increases the distance between the cables and electro- and magneto-sensitive receptors, thereby reducing the received EMF (from attenuation of the EMF). ▪ MPCP, Offshore Waste Management Procedure, EVMP - Marine pollution and waste management control measures and vessel operating procedures will be implemented throughout the operational phase of the proposed development, following the same measures and procedures that were implemented during the construction phase.

EIA Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<ul style="list-style-type: none"> Assessment of impacts and best practice environmental management - Prior to decommissioning a study of the potential environmental impacts to fish and shellfish receptors from the proposed decommissioning activities will be undertaken, considering the baseline environment at the pre-decommissioning stage. <p>No additional mitigation or monitoring measures are considered necessary for the construction, operation and decommissioning phases specific to the potential impacts on fish and shellfish ecology. Following the implementation of the above mitigation measures, not significant to slight adverse effects are predicted for fish and shellfish ecology receptors as a result of the proposed development, which is not significant in EIA terms.</p> <p>As there are no significant effects anticipated on the specific fish and shellfish ecology receptors, including those that may occur through inter-related factors, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to lifecycle and habitat services.</p>
Chapter 14: Marine Mammal Ecology	Marine mammal receptors must be maintained to ensure the offshore areas within the scope of the proposed development support marine mammal populations. The Developer must ensure that the offshore area impacted by the proposed development does not impact areas inhabited by marine mammals through anthropogenic pressures which impact the population abundance, distributional range, diversity or habitat; or through the introduction of energy that may be harmful to marine animals.	<p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> MPCP – An Offshore EMP is provided in Appendix A6.1 and will be implemented to cover the construction, operational and decommissioning phase of the proposed development. The Offshore EMP includes a MPCP to cover accidental spills, potential contaminant release and include key emergency contact details. Key measures in the MPCP include compliance with MARPOL, spill kits onboard all vessels, fuel and chemical storage according to relevant storage regulations, handling of waste in accordance with relevant waste regulations, and vessel refuelling to take place in port .



EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
	<p>UKERC database information regarding marine mammals shows an overall negative impact on behaviour due to underwater noise and impacts of suspended sediments on marine mammals and megafauna. Harbour Porpoise (<i>Phocoena Phocoena</i>), Grey Seal (<i>Halichoerus grypus</i>) and Harbour seal (<i>Phoca vitulina</i>) are generally at a higher risk of collision during operation of OWFs. There is overall no impact on the foraging ability of marine mammals during periods of increased SSC. There is generally a negative impact to cultural ecosystem services relating to marine mammals.</p>	<ul style="list-style-type: none"> ▪ Collision avoidance – As detailed in the EVMP (Appendix 14.5 of the 2024 EiAR) the Department of Communications, Marine and Natural Resources (DCMNR) procedures when encountering whales and dolphins in Irish coastal waters (DCMNR, 2005) and the Irish Whale and Dolphin Group (IWDG) Code of Conduct for all watercraft encountering whales and dolphins (IWDG, 2005) will be followed by all proposed development vessels where practicable to minimise the risk of vessel collisions with marine mammals and disturbance to marine mammals from vessels. ▪ Auditory injury and disturbance from high order UXO clearance - The Developer has committed to the use of a Noise Abatement System such as bubble curtain or similar if high order UXO clearance is required. ▪ Assessment of impacts and best practice environmental management - Prior to decommissioning a study of the potential environmental impacts to marine mammal receptors from the proposed decommissioning activities will be undertaken, considering the baseline environment at the pre-decommissioning stage. All mitigation measures to be delivered will be captured within the Rehabilitation Schedule and Offshore EMP. Any licences or authorisations that might be required will be identified and obtained prior to decommissioning, including any validation, updating or new submission of an EiAR, as required. <p>Proposed additional mitigation includes:</p> <ul style="list-style-type: none"> ▪ Geophysical survey monitoring - Geophysical survey equipment sources with a greater than negligible magnitude of impact will be covered by 'Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish

EIAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<p>Waters’ (Department of Arts, Heritage and the Gaeltacht (DAHG), 2014), which outlines measures to reduce the potential impacts (Permanent Threshold Shift (PTS) and disturbance) to negligible levels.</p> <ul style="list-style-type: none"> ▪ UXO clearance mitigation measures - The implementation of a MMMP (Appendix A14.5) with specific measures should UXO clearance be required, to ensure the risk of PTS to marine mammals is imperceptible (not significant levels). The list of measures and procedures can be modified in accordance with advice received from the regulator and their specialist UXO advisors as appropriate prior to UXO clearance activities commencing. The MMMP should include the following: <ul style="list-style-type: none"> ○ MMO ○ Acoustic Deterrent Device (ADD) (if required) ○ At-source noise reduction (if required) <p>Imperceptible to slight adverse effects are predicted for marine mammal receptors, as a result of the proposed development, which is not significant in EIA terms.</p> <p>As there are no significant effects anticipated on the specific marine mammals receptors, including those that may occur through inter-related factors, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to lifecycle and habitat services.</p>

EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
<p>Chapter 15: Offshore and Intertidal Ornithology</p>	<p>Ornithological receptors must be maintained to ensure the offshore areas within the scope of the proposed development support bird populations. To ensure that the offshore area impacted by the proposed development does not impact areas inhabited by birds through anthropogenic pressures such as introduction of non-native species; adverse effects of increased nutrient levels on marine water quality.</p> <p>UKERC database information regarding birds, habitat and noise, show an overall negative impact on collision and displacement risk; the barrier effect; habitat quantity, quality or natural extant and a decrease in foraging habitat. There is overall no impact on abundance of species or on noise disturbance.</p>	<p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Refinement and reduction in the offshore development area - Refinements in the offshore development area were undertaken to avoid key areas for birds (e.g., avoidance of density hotspots that may indicate key foraging areas where possible, alongside avoidance of breeding colonies and migration corridors where possible). Reducing the extend of the offshore development area also increases distance from Rockabill Island and Lambay Island which leads to a considerable reduction in interaction with bird species that inhabit these SPA colonies. ▪ Increase in air draft – The design has increased the WTG air draft, which reduces collision risk to key vulnerable ornithological receptors by reducing the rotor swept area that is at collision risk height. All turbines in Project Option 1 will have minimum air draft of 40 m LAT. Turbines in Project Option 2 will have a minimum air draft of 40m LAT except where they are in the aviation restriction zone where the air draft will be 35 m LAT. ▪ Lighting design – Lighting design will avoid lighting levels that exceed those required to comply with navigational safety, aviation, emergency procedures and general activity to reduce the risk of WTG and OSP lighting attracting birds during periods of bad weather or at night. This measure will be provided as part of the Lighting and Marking Plan (LMP) (Appendix A17.3). ▪ Each WTG will be equipped with sensors to enable early detection of fluids and leaks. Spill kits will also be located on each WTG to contain any fluids in the unlikely event of pollutant release. Pollution and waste management is considered within the Offshore EMP (Appendix A6.1).

EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<ul style="list-style-type: none"> ▪ Assessment of impacts and best practice environmental management - Prior to decommissioning a study of the potential environmental impacts to ornithology receptors from the proposed decommissioning activities would be undertaken, considering the baseline environment at the pre-decommissioning stage. All mitigation measures to be captured would be captured within the Rehabilitation Schedule. Any licences or authorisations that might be required would be identified and obtained prior to decommissioning, including any validation, updating or new submission of an EiAR, as required. <p>Proposed additional mitigation includes:</p> <ul style="list-style-type: none"> ▪ Vessels to avoid birds – Where practicable vessels accessing the offshore development area during construction are to seek to avoid ‘rafts’ of birds and feeding aggregates to minimise disturbance and displacement. This measure is provided as part of the EVMP (Appendix 14.5 of the 2024 EiAR). ▪ Vessel movements will follow, where practicable, existing navigation routes enroute to the array area and offshore export cable, where the densities of divers and seaducks are typically relatively low due to regular vessel presence compared to the wider inshore area. This measure is provided as part of the EVMP (Appendix 14.5 of the 2024 EiAR). ▪ Avoidance of rafting birds during vessel transit - Vessels will seek to avoid unnecessary running of engines and idling engines while anchored, in order to minimise noise disturbance. Vessels will shut down engines or maintain low engine power as soon as possible. This measure is provided as part of the EVMP (Appendix 14.5 of the 2024 EiAR).

EIAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<ul style="list-style-type: none"> ▪ Avoidance of over-revving of engines –Vessels will seek to avoid unnecessary running of engines and idling engines while anchored, in order to minimise noise disturbance. Vessels will shut down engines or maintain low engine power as soon as possible (Appendix 14.5 of the 2024 EIAR). ▪ Briefing of vessel crew - Vessel crew will be briefed on the purpose and implications of the vessel management practices outlined in the EVMP (Appendix 14.5 of the 2024 EIAR). ▪ Reduction of vessel activity in sensitive months - During the operational phase the proposed development will reduce vessel activity in the Export Cable Corridor during the most sensitive months for coastal divers (November to March 1st inclusive), where practicable. This measure is provided as part of the EVMP (Appendix 14.5 of the 2024 EIAR). <p>Following the implementation of the above mitigation measures, imperceptible to moderate adverse effects are predicted for Ornithology receptors, as a result of the proposed development, which is not significant in EIA terms.</p> <p>As there are no significant effects anticipated on the specific ornithology receptors, including those that may occur through inter-related factors, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to lifecycle and habitat services.</p>
Pest and Disease Control		
Chapter 13: Fish and Shellfish Ecology	Pests and diseases cause economic loss through damage to organisms, habitat health and biodiversity. Predators and parasitoids can control these invasive organisms as a biological control service. Predatory species of fish and	As per previous fish and shellfish ecology section under ‘Lifecycle and habitat services’, which concludes that with the addition of the primary mitigation measures, such as the implementation of an Offshore EMP (Appendix A6.1), which includes marine biosecurity



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	<p>shellfish can provide this biological control service, however they can also be adversely affected by invasive non-native species (INNS) introduction through competition for prey and proliferation of new diseases.</p>	<p>measures detailing how the risk of introduction and spread of invasive non-native species will be minimised, there will be no adverse significant effects, which is not significant in EIA terms. As such, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to pest and disease control.</p>
<p>Chapter 12: Benthic Subtidal and Intertidal Ecology</p>	<p>Pests and diseases cause economic loss through damage to organisms, habitat health and biodiversity. Predators and parasitoids can control these invasive organisms as a biological control service. Predatory species of fish and shellfish can provide this biological control service, however they can also be adversely affected by non-native species introduction through competition for prey and proliferation of new diseases.</p> <p>The proposed development must try to minimise introduction of non-native organisms that could become pests or introduce diseases to the existing ecosystem wherever possible.</p>	<p>As per benthic subtidal and intertidal ecology section under ‘Lifecycle and habitat services’, which concludes that with the addition of the primary mitigation measures, such as the implementation of an Offshore EMP (Appendix A6.1), which includes marine biosecurity measures detailing how the risk of introduction and spread of invasive non-native species will be minimised, there will be no adverse significant effects which is not significant in EIA terms. As such, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to pest and disease control.</p>
<p>Recreational Services</p>		
<p>Chapter 13: Fish and Shellfish Ecology</p>	<p>Recreational services contribute over EU 1.5 billion to the Irish economy each year (Norton <i>et al.</i>, 2018). The recreational activity of fishing from the sea or shore contributed over EU 600 million to this total in 2014 (Norton <i>et al.</i>,2018).</p> <p>In order to maintain this ecosystem service in the future, the proposed development must ensure the population abundance, distribution, diversity and habitat of fish and shellfish is not adversely affected.</p>	<p>As per previous fish and shellfish ecology section under ‘Lifecycle and habitat services’ This concludes that with the addition of the primary mitigation measures, such as implementation an Offshore EMP (Appendix A6.1) which includes marine biosecurity measures detailing how the risk of introduction and spread of invasive non-native species will be minimised, there will be no adverse significant effects, which is not significant in EIA terms. As such, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with recreational services.</p>

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Chapter 14: Marine Mammal Ecology	<p>Whale and dolphin watching contributed over EU 9 million to the Irish economy in 2014 (Norton <i>et al.</i>, 2018). In order to maintain this ecosystem service in the future, the proposed development must ensure the population abundance, distribution, diversity and habitat of marine mammals is not adversely affected.</p>	<p>As per previous marine mammal section under ‘Lifecycle and habitat services’, which concludes that with the addition of the primary mitigation measures, such as implementation of an MMMP (Appendix A14.5), that there will be no adverse significant effects, which is not significant in EIA terms. As such, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to recreational services.</p>
Chapter 15: Offshore and Intertidal Ornithology	<p>Recreational services contribute over EU1.5 billion to the Irish economy each year (Norton <i>et al.</i>, 2018). Bird watching contributed over EU 27 million to this total in 2014 (Norton <i>et al.</i>, 2018) which is approximately 1.8%. In order to maintain this ecosystem service in the future, the proposed development must ensure the population abundance, distribution, diversity and habitat of birds is not adversely affected.</p>	<p>As per previous ornithology section under ‘Lifecycle and habitat services’, which concludes that with the addition of the primary mitigation measures, such as increase in air draft and development and adherence to an EVMP (Appendix 14.5 of the 2024 EiAR), there will be no adverse significant effects, which is not significant in EIA terms. As such, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to recreational services.</p>
Chapter 17: Shipping & Navigation	<p>Recreational activities involving vessels include fishing, sailing and diving are included in the Recreational services contribution of over EU 1.5 billion to the Irish economy each year (Norton <i>et al.</i>,2018). In order to maintain this provision, the proposed development must avoid, minimise or mitigate significant adverse impacts on recreational vessel activities.</p> <p>UKERC database information regarding human recreational boating and fishing activities showed an overall positive impact on cultural services, including a positive increase in catch per unit effort, and on use of seascape. Negative impacts were also recorded as potential effects on recreational fishing activity.</p>	<p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> ▪ Advisory safe passing distances - Advisory safe passing distances may be deployed around ongoing work being undertaken by a construction or maintenance vessel with notice of these promulgated through Notices to Mariners and Marine Notices (where deemed appropriate). ▪ Buoyed construction area - A buoyed construction area around the array will be implemented during the appropriate phases in agreement with Irish Lights and as outlined in LMP (Appendix A17.3). ▪ Cable protection - Cable protection (burial or external protection) will be implemented and monitored, as determined by a CBRA post consent.

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		<ul style="list-style-type: none"> ▪ Compliance with relevant regulator guidance - The proposed development will be compliant with the relevant regulator guidance noting that the Irish Guidance published by DoT is generally aligned with UK Marine Guidance Note (MGN) 654 (Maritime and Coastguard Agency, 2021). ▪ Guard vessel(s) - Where appropriate, guard vessels will be used to ensure adherence with advisory passing distances. ▪ Liaison with Irish Coast Guard (IRCG) in relation to Search and Rescue (SAR) resources - The Developer will liaise with the IRCG in relation to SAR resources to ensure the Emergency Response Cooperation Plan (ERCoP) is in place post consent. ▪ Lighting and marking - Lighting and marking of the array in agreement with Irish Lights and in line with International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) G1162. A separate LMP is provided in Appendix A17.3. ▪ Marine coordination for proposed development vessels - Marine coordination will be implemented to manage proposed development vessels. A separate Vessel Management Plan (VMP) (Appendix A17.2) is provided. ▪ Marking on nautical charts - There will be appropriate marking of all offshore infrastructure associated with the offshore development area on UK Hydrographic Office (UKHO) Admiralty charts. ▪ Proposed development compliance with international marine regulations - All proposed development vessels will comply with international marine regulations as adopted by the Flag State including International Regulations for Preventing Collisions at Sea (COLREGs) and International

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Convention for the Safety of Life at Sea (SOLAS). A separate VMP (Appendix A17.2) is provided.

- Promulgation of information - Information relating to the proposed development will be circulated via Notices to Mariners and other appropriate media including via the project FLO and Marine Notices (where deemed appropriate).
- Structure Exclusion Zone - An area within the array area within which no surface piercing structure will be located inclusive of blade overfly. This area will ensure that a minimum 3.06nm gap between the Rockabill islands and the array is maintained. In practice, given the fixed nature of the layouts and LoD/ micrositing principles, the gap will be greater..
- Minimum blade clearance - There will be a minimum blade clearance of more than 22m above Highest Astronomical Tide (HAT) in line with industry good practice and MGN 654. The lowest minimum blade clearance associated with the proposed development is 35m above Lowest Astronomical Tide (LAT) associated with selected WTGs for Project Option 2.
- WTG design and layouts - Consideration will be given to navigational safety and SAR with respect to WTG and layout design (with respect to the 500m Limit of Deviation (LoD)), including acceptable levels of Supervisory Control and Data Acquisition (SCADA) systems.

No additional mitigation and monitoring measures specific to shipping and navigation were identified.



EIA Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<p>The EIA impact assessment has concluded that the significance of risk for all potential impacts to shipping and navigation is broadly acceptable or tolerable with mitigation and as low as reasonably practicable (ALARP), with no significant adverse effects anticipated, which is not significant in EIA terms. Since the original application, submission layouts have been refined to address submissions from IRCG and the Marine Safety Office (MSO) as described in Chapter 17: Shipping and Navigation.</p> <p>As such it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to recreational services.</p>
<p>Chapter 29: Seascape, Landscape and Visual</p>	<p>Other recreational activities associated with the seascape and marine landscape contributed over EU 970 million to the Irish economy in 2014 (Norton <i>et al.</i>, 2018).</p> <p>In order to maintain this ecosystem service in the future, the proposed development must avoid, minimise and mitigate significant adverse impacts to the seascape and landscape.</p> <p>UKERC database information regarding seascape and categories of humans interacting with the environment showed an acceptance of offshore wind farms by the general public, tourists and some fishermen. There was an overall negative effect on the seascape of areas with offshore wind farms, indicated by a number of different demographics. Therefore, there are some positive and some negative impacts to cultural ecosystem services in relation to seascape, landscape and visual impacts.</p>	<p>There are no specific SLVIA mitigation measures proposed during the construction, operation and decommissioning phases for the offshore infrastructure aspects of the proposed development.</p> <p>As there is no specific mitigation proposed in respect of offshore infrastructure during the construction, operation and decommissioning phases for the offshore infrastructure aspects of the proposed development and thus, the residual effects remain unchanged from the likely significant effects during these phases. None of the assessed impacts were deemed to be significant in EIA terms.</p> <p>As such it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to recreational services.</p>

Scientific and Educational Services

<p>Chapter 10 Marine Geology, Oceanography and Physical Processes</p> <p>Chapter 12: Benthic Subtidal and Intertidal Ecology</p> <p>Chapter 13: Fish and Shellfish Ecology of the EIAR</p> <p>Chapter 11: Marine Mammals</p> <p>Chapter 15: Offshore Ornithology</p> <p>Chapter 17: Shipping & Navigation</p> <p>Chapter 18: Offshore Archaeology and Cultural Heritage</p> <p>Chapter 35: Offshore Bats of the EIAR</p>	<p>Coastal processes, information on ecosystems including benthic, fish marine mammal and ornithology, offshore bats, navigational and shipping and information on the marine archeology underpin entire fields of scientific research and education, particularly relating to life sciences.</p> <p>Across Ireland, there are a number of research institutions and agencies as well as university and government departments dedicated to scientific research and education surrounding ecosystems.</p>	<p>Although not specifically mitigation (either embedded or required) as part of the EIAR process, positive scientific and educational outcomes of the proposed development include:</p> <ul style="list-style-type: none"> • Public access to EIAR data generated in relation to the proposed development. • Educational and outreach activities, including school visits to provide information on the ability of OWF to contribute toward a green energy future. • A Developer led Sustainable Fisheries Community (SFC) in partnership with fisheries to fund, develop and deliver meaningful activities including research, data gathering, and education initiatives. • An Operational Monitoring Plan will be submitted with the planning application (Appendix A6.3) <p>As such, it can be concluded that the proposed development will contribute towards scientific and educational services.</p>
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Marine Heritage, Culture and Entertainment



EiAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
<p>Chapter 18: Offshore Archaeology and Cultural Heritage</p>	<p>Inspiration for culture, art and design and benefits from engaging with marine heritage is difficult to quantify. This ecosystem service remains important to the Irish population.</p> <p>To maintain the provision of marine heritage, culture and entertainment as an ecosystem service, the proposed development must avoid, minimise or mitigate harm to heritage assets.</p> <p>UKERC information regarding archaeology indicates an overall negative impact on archaeological features during all stages of an offshore wind farm development. There is overall negative impact to cultural ecosystem services in relation to marine archaeology and cultural heritage.</p>	<p>Primary mitigation measures include:</p> <ul style="list-style-type: none"> ▪ HDD Installation - Use of HDD to entirely avoid any direct impact from cable corridor preparation and laying within the intertidal zone will decrease the magnitude of impact on these receptors to negligible. <p>Proposed additional mitigation includes:</p> <ul style="list-style-type: none"> ▪ Archaeological review of geophysical and geotechnical datasets – In relation to additional geophysical and geotechnical surveys undertaken prior to construction, in order to identify known and potential / currently unknown archaeological receptors, in line with EPA guidelines (EPA, 2022) to facilitate avoidance of impacts (for example, in areas of currently partial geophysical survey coverage such as the array) the archaeological review of the additional geophysical and geotechnical datasets will be undertaken for the footprint of direct and indirect impacts prior to construction, and supporting operation & maintenance and decommissioning stages of the proposed development. The final locations of infrastructure within the 500m LoD will not be confirmed until detailed site investigation and detailed design have been undertaken, post consent. The archaeological review of these additional survey data will enhance the design of the final positions of seabed infrastructure (e.g. WTGs, OSP, inter-array cabling) to facilitate avoidance of known and potential archaeological receptors. This mitigation applies to direct and indirect physical disturbance of archaeological receptors. ▪ Archaeological Exclusion Zones (AEZs) - The main mitigation for the protection of known archaeological receptors is avoidance, in line with EPA guidelines (EPA, 2022). The

EIAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
		<p>implementation and monitoring of AEZs achieves this for the identified high value offshore archaeology and cultural heritage receptors. This mitigation applies to direct and indirect physical disturbance of archaeological receptors.</p> <ul style="list-style-type: none"> ▪ Protocols for Archaeological Discoveries (PAD) - A PAD is a system for reporting and investigating unexpected archaeological discoveries encountered during the different phases of the proposed development, with a Retained Archaeologist providing guidance and advising industry staff on the implementation of the PAD. A PAD also makes provision for the implementation of temporary exclusion zones around areas of possible archaeological interest, for prompt archaeological advice, and, if necessary, for archaeological inspection and recording of important features prior to further activities in the vicinity. The PAD provides a mechanism to comply with legislation, including notification to the National Monuments Service (NMS). This mitigation applies to direct and indirect physical disturbance of archaeological receptors. The PAD is captured within the Offshore EMP (Appendix A6.1). <p>As a result, of additional secondary mitigation measures the residual effects will be from neutral to slight adverse, concluding there will be no significant effects on marine archaeology and cultural heritage arising from the proposed development, which is not significant in EIA terms.</p> <p>As such, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to marine heritage, culture and entertainment services.</p>

Aesthetic services

<p>Chapter 29: Seascape, Landscape and Visual</p>	<p>The value of this ecosystem service relates to the beauty of the landscape for those viewing it. This is hard to quantify, but estimates have been made based on economic activities capitalising from a “sea view”. In 2014, aesthetic services contributed EU 68 million to the Irish economy. To maintain the provision of aesthetic services, the proposed development must avoid, minimise or mitigate significant adverse impacts on the seascape and landscape.</p>	<p>As per previous Seascape, Landscape and Visual Impacts section under Recreational Services which concludes that that there will be no adverse significant effects, which is not significant in EIA terms.</p> <p>As such, it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to aesthetic services.</p>
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Spiritual and emblematic values

<p>Chapter 18: Offshore Archaeology and Cultural Heritage</p>	<p>It is difficult to quantify the spiritual and emblematic value held by individuals in relation to the marine environment. Marine archaeology and cultural heritage can provide benefits for associated spiritual and emblematic values. This ecosystem service remains important to the Irish population.</p> <p>To maintain the provision of spiritual and emblematic values, the Developer must avoid, minimise or mitigate significant adverse impacts on marine archaeology and cultural heritage within the proposed development area.</p>	<p>As per previous Marine Archaeology and Cultural Heritage section under Marine Heritage, Culture and Entertainment, which concludes that with the addition of the primary and secondary mitigation measures there will be no significant effects on marine archaeology and cultural heritage arising from the proposed development, which is not significant in EIA terms.</p> <p>As such it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to spiritual and emblematic values.</p>
<p>Chapter 29: Seascape, Landscape and Visual</p>	<p>It is difficult to quantify the spiritual and emblematic value held by individuals in relation to the marine environment. Marine archaeology and cultural heritage can provide benefits for associated spiritual and emblematic values. This ecosystem service remains important to the Irish population.</p> <p>To maintain the provision of spiritual and emblematic values the Developer must avoid, minimise or mitigate</p>	<p>As per previous Seascape, Landscape and Visual Impacts section under Recreational Services which concludes that that there will be no adverse significant effects, which is not significant in EIA terms.</p> <p>As such it can be concluded that there will be no impediment to the ability of normal ecosystem functions and services to function with regards to aesthetic services.</p>

EIAR Chapter	Relevance to the proposed development	Mitigation measures and Impact Assessment summary
	significant adverse impacts on marine archaeology and cultural heritage within the proposed development area.	



6 Summary

- 6.1.1 Marine ecosystem services have been screened for possible interaction with the proposed offshore development. With those screened in as relevant being assessed against the outcomes of the assessments undertaken in the EIAR topic chapters, with primary and additional mitigation measures included. The UKERC database was also considered with a brief summary included of the findings of OWF studies undertaken within each relevant ecosystem service, including specific studies related to various UK OWFs.
- 6.1.2 The outcome of individual receptor assessments, concluded no material impact on ecosystem services, and no impediment to the ability of normal ecosystem functions and services to function, resulting from the proposed development.

7 References

Codling Wind Park (2024). Annex 1: Ecosystem Services. Planning Report Appendices. Available online at: <https://www.pleanala.ie/publicaccess/EIAR-NIS/320768/Planning%20Documents/Planning%20Report%20Appendices.pdf> [Accessed October 2025].

Common International Classification of Ecosystem Services (2023). Integrated Environmental and Economic Accounting. Available online at: <https://cices.eu/#:~:text=In%20CICES%20ecosystem%20services%20are,the%20earlier%20version%20of%20CICES> [Accessed October 2025].

Convention on Biological Diversity (1992). Text and Annexes. Available online at: <https://www.cbd.int/doc/legal/cbd-en.pdf> [Accessed October 2025].

DAHG (2014). Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Available online at: https://www.npws.ie/sites/default/files/general/Underwater%20sound%20guidance_Jan%202014.pdf [Accessed October 2025].

DCMNR (2005). Marine Notice No 15 of 2005 - Guidelines For Correct Procedures When Encountering Whales And Dolphins In Irish Coastal Waters.

Environmental Protection Agency (2022). Draft Guidelines on the Information to be Contained in Environmental Impact Statements. Government Publications Office, Dublin. Available online at: https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf [Accessed October 2025].

FLOWW (Fishing Liaison with Offshore Wind and Wet Renewables Group) (2015). FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds.

IWDG (2005). Code Of Conduct For All Watercraft Encountering Whales And Dolphins.

Marine Institute (2018). Atlas: Commercial fisheries for shellfish around Ireland. Available online at: <https://oar.marine.ie/entities/publication/2ab5ee8e-5c45-47d7-aefd-7349f97c5df0> [Accessed May 2026].

Maritime and Coastguard Agency (2021). MGN 654 (M+F) Offshore Renewable Energy Installations (OREI) safety response. Available online at: <https://www.gov.uk/government/publications/mgn-654-mf-offshore-renewable-energy-installations-orei-safety-response> [Accessed November 2025].

Millennium Ecosystem Assessment (2005). Available online at: <https://www.millenniumassessment.org/en/Index-2.html> [Accessed October 2025].

Natural England (2012). Marine ecosystem services (NECR088). Available online at: <https://publications.naturalengland.org.uk/publication/301112#:~:text=This%20record%20was%20published%20by,Marine%20Conservation%20Zone%20Project%20area> [Accessed November 2025].

National Marine Planning Framework (2021). Available online at: <https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/national-marine-planning-framework/> [Accessed October 2025].

NPWS. 2014. Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. Available online at: https://www.npws.ie/sites/default/files/general/Underwater%20sound%20guidance_Jan%202014.pdf [Accessed November 2025].

Norton, D., Hynes, S., Boyd, J. (2018). Valuing Ireland's Blue Ecosystem Services. Available online at: https://www.universityofgalway.ie/media/researchsites/semru/files/marine_ecosystem_service_non_technical_report_final.pdf
https://www.universityofgalway.ie/media/researchsites/semru/files/marine_ecosystem_service_nontechnical_report_final.pdf [Accessed October 2025].

Seafood/ORE Working Group (2023). Seafood/ORE Engagement in Ireland: A summary guide.

Szostek, C. L., Edwards-Jones, A.E., Beaumont, N. J., Watson, S. C. L. (2022). UKERC Database of Evidence for the Impact of Offshore Wind Farms on Marine Ecosystems Services. Available online at: <https://data.ceda.ac.uk/edc/renewables/wind/Offshore-Marine-EcoSystem-Impact> [Accessed October 2025].

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