ABWP Phase I Decommissioning

Outline Vessel Management Plan

Volume 3, Appendix 3.5



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Project name ABWP Phase I Decommissioning

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Glossary

Term	Meaning
Arklow Bank Wind Park (ABWP) Phase I	Arklow Bank Wind Park (ABWP) Phase I comprises: • Offshore infrastructure seaward of High Water Mark (HWM), including: – Seven Wind Turbine Generators (WTG) with a combined capacity of 25.2 MW; – One meteorological (met) mast; – Inter-array cables connecting the WTGs and met mast; and – One offshore export cable connecting WTG T4 with landfall at HWM; • Onshore infrastructure landward of HWM including: – One onshore cable connecting landfall at HWM with the onshore substation; and – One onshore substation compound, where the onshore substation and ancillary infrastructure are located.
Arklow Energy	Arklow Energy Limited, the entity seeking planning permission for the Proposed Works, i.e. the applicant.
Archaeological Exclusion Zone (AEZ)	Area around a known or suspected archaeological feature within which specified activities or works are prohibited.
Automatic Identification System (AIS)	A system by which vessels automatically broadcast their identity and key statistics including location, destination, length, speed and current status. Most commercial vessels and European Union fishing vessels over 15 metres (m) in length are required to carry AIS.
Commercial Fishing	Any form of fishing activity legally undertaken where the catch is sold for taxable profit.

Term	Meaning
Consent	This shall include any licence, permission, permit, approval or other such authorisation granted by a public authority for any activity, or project where the authority is obliged to have regard to the requirements of the Environmental Impact Assessment (EIA) and/or Habitats Directive(s) (MacCabe Durney Barnes (MDB), 2017).
Decommissioning	The final closing down and putting into a state of safety of a development, project or process when it has come to the end of its useful life (EPA, 2022).
Detailed Lighting and Marking Plan (LMP)	The contractor-developed version of the Outline LMP, to be prepared before Proposed Works Offshore commence and maintained as a live document until completion.
Detailed Offshore Decommissioning Management Plan (DEMP)	The contractor-developed version of the Outline Offshore DEMP, to be prepared before Proposed Works Offshore commence and maintained as a live document until completion.
Detailed Vessel Management Plan (VMP)	The contractor-developed version of this Outline VMP, to be prepared before Proposed Works Offshore commence and maintained as a live document until completion.
Effect	The consequence of an impact on a receptor. For example, in the offshore environment, vessel activity (activity) results in increased levels of underwater noise (impact), with the potential to disturb marine mammals (effect).
Environmental Impact Assessment (EIA)	Process of assessment of the effects of a project or development proposal on the environment. In the planning area, it is undertaken by a planning authority or An Coimisiún Pleanála during the consideration of applications for planning permission, taking account of an Environmental Impact Assessment Report (EIAR). The projects which require EIA are listed in Annex I and Annex II of the EIA Directive, as amended (Office of the Planning Regulator, n.d.).
Environmental Impact Assessment Report (EIAR)	A report or statement of the effects, if any, that Proposed Works, if carried out, would have on the environment. It is prepared by the developer to inform the EIA process (Office of the Planning Regulator, n.d.).
Fisheries liaison	Communication and engagement between Arklow Energy and the fishing industry to exchange information and address fisheries issues.
Fisheries Liaison Officer (FLO)	An individual (or individuals) identified with the responsibility of liaising with the fishing industry to provide communication associated with the Proposed Works Offshore. Liaison duties are undertaken while at sea or from an onshore location.
Fishery	A group of vessel voyages which target the same species or use the same gear.
High Water Mark (HWM)	Level reached by the sea at high tide, measured as the mean of high tides.
Impact	A change brought about by the Proposed Works.
Inter-array cables	Subsea power lines that link individual wind turbine generators (WTGs) together in an offshore wind farm, forming an electrical network. In ABWP Phase I, inter-array cables connect WTGs and the met mast to each other and have an overall length of 7.4 km.
Landfall	The point where the offshore export cable transitions from the offshore marine environment to the onshore terrestrial environment.
Meteorological (Met) mast	A mast with a number of meteorological sensors located at different heights to record meteorological and sea condition data
Monitoring	The periodic or continuous observation of biodiversity indicators and of other parameters that may affect biodiversity for any changes that may occur over time, so as to confirm predictions made with respect to likely effects and identify adverse changes that may require remedial action (Office of the Planning Regulator, n.d.).
Monopile (MPs)	Hollow steel cylinder driven into the seabed typically used to anchor an offshore wind turbine generator (WTG). In ABWP Phase I, MPs support the seven WTGs as well as the meteorological (met) mast.
Nautical mile (nm)	Measurement used for distances at sea. 1 nm equates to 1.852 km.

Term	Meaning
Noise	The terms noise and sound are often used interchangeably. Noise usually refers to unwanted or disturbing sounds that interfere with normal hearing and can be unpleasant or harmful. It is often characterised by irregularities in the sound waves and is considered a form of sound pollution.
Offshore export cable	Subsea power cable that transports the total generated power from an offshore wind farm to the onshore power grid. In ABWP Phase I, the offshore export cable connects the wind turbine generator (WTG) T4 to landfall with an approximate overall length of 15.6 km. At landfall, the offshore export cable transitions to the onshore cable connecting to the onshore substation.
Offshore Site	Part of the Site where Proposed Works Offshore are proposed to take place. In this application for planning permission, the Offshore Site comprises the Sub Lease Area, where the ABWP Phase I wind turbine generators (WTGs), met mast and inter-array cables are located, and the offshore export cable 10 m corridor connecting WTG T4 to the landfall at high water mark (HWM) near Arklow Harbour.
Planning permission	Formal, legal approval required from a local planning authority or An Coimisiún Pleanála (ACP) to carry out development. The Proposed Works require planning permission submitted from ACP under Section 291 of the Planning and Development Act 2000, as amended.
Principal Decommissioning Contractor	In this document, meaning the contractor(s) appointed to undertake the Proposed Works Offshore and to prepare, implement and update the Detailed Vessel Management Plan (VMP) and associated management plans, keeping them as live documents until completion.
Proposed Works	The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).
Scour protection	Engineered barrier typically placed on the seabed around WTG foundations and subsea cables to prevents sediment erosion caused by accelerated water currents and waves, safeguarding the WTG's stability and protecting subsea cables. In ABWP Phase I, scour protection was originally introduced in the form of rock armour, however, this proved ineffective, and was removed in 2005. Since then, scour protection has been introduced through sandbags.
Sound	The terms noise and sound are often used interchangeably. Sound is a broad term that refers to any auditory experience created by vibrations that travel through a medium such as air, water, or solids to the ear.
Source	The activity or place from which an effect originates (EPA, 2022)
Sub Lease Area	Area where the ABWP Phase I WTGs, met mast and inter-array cables are located, as defined in the Sub Lease granted by Sure Partners Limited (SPL) to Arklow Energy Limited (Arklow Energy) to construct and operate ABWP Phase I.
Territorial sea	Belt of sea adjacent to a coastal State's land territory and internal waters, over which the State has sovereignty. A coastal State may claim up to 12 nautical miles from its baseline (usually the low-water line along the coast) (UNCLOS, 1982).
Transition Piece	The steel connection structure between the tower and the monopile (MP) foundation.
Vessel Monitoring System (VMS)	A satellite-based monitoring system used to track the activity of larger fishing vessels and assess spatial fishing effort.
Wind Turbine Generator (WTG)	Structure that converts the kinetic energy of ocean winds into electrical energy. ABWP Phase I includes seven GE Energy 3.6s WTGs with a rated capacity of 3.6 megawatts (MW) per WTG.

Acronyms

Acronym	Meaning
ABWP	Arklow Bank Wind Park
ACP	An Coimisiún Pleanála

Acronym	Meaning
AEZs	Archaeological Exclusion Zones
AIS	Automatic Identification System
AtoN	Aid to Navigation
BHD	Backhoe dredger
COLREGs	Convention on the International Regulations for Preventing Collisions at Sea
CSD	Cutter Suction Dredger
DCEE	Department of Climate, Energy and the Environment
DCMNR	Department of Communications, Marine and Natural Resources
DEMP	Decommissioning Environmental Management Plan
DoT	Department of Transport
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
ERCoP	Emergency Response Cooperation Plan
EU	European Union
FMMS	Fisheries Management and Mitigation Strategy
HWM	High Water Mark
IALA	International Organisation for Marine Aids to Navigation and Lighthouse Authority
IAS	invasive alien species
INNS	invasive and non-native species
IEMA	Institute of Environmental Management and Assessment
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IRCG	Irish Coast Guard
ISEP	Institute of Sustainability and Environmental Professionals
IWDG	Irish Whale and Dolphin Group
JNCC	Joint Nature Conservation Committee
JUB	Jack-up barge
LMP	Lighting and Marking Plan
MCIB	Marine Casualty Investigation Board
MMOb	Marine Mammal Observer
MMMP	Marine Mammal Mitigation Protocol
MP	Monopile
MSO	Marine Survey Office
NAVAREA	Navigation Area
NBAP	National Biodiversity Action Plan
NMPF	National Marine Planning Framework
NPWS	National Parks & Wildlife Service
NtM	Notice to Mariners
RAM	Restricted in their Ability to Manoeuvre
RAMS	Risk Assessment Method Statements

Acronym	Meaning
SAR	Search and Rescue
SOLAS	International Convention for the Safety of Life at Sea
SSC	Suspended Sediment Concentration
TBT	toolbox talks
TP	Transition Piece
UK	United Kingdom
UKHO	UK Hydrographic Office
VHF	Very High Frequency
VMP	Vessel Management Plan
WFD	Water Framework Directive
WGS	World Geodetic System
WTG	Wind Turbine Generators

Units

Unit	Meaning
km	Kilometers
m	Meters
MW	Megawatt
nm	Nautical mile

1 Introduction

1.1.1.1 Arklow Energy Limited (Arklow Energy) is seeking planning permission to decommission Arklow Bank Wind Park (ABWP) Phase I (referred to hereafter as 'the Proposed Works'). The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).

1.1.1.2 The Proposed Works Offshore will be undertaken within the Offshore Site (see **Volume 2, Chapter 3: Proposed Works Description**), which includes:

- The Sub Lease Area, located on the long narrow Arklow Bank sand bank, situated approximately 10 km off the coast of Arklow, south-east Ireland, where seven wind turbine generators (WTGs) and foundations, associated scour protection, 7.4 km of inter-array cables and one met mast are located; and
- A 10 m wide cable corridor along the 15.6 km offshore export cable route connecting WTG T4 to the landfall point at High Water Mark (HWM).

1.1.1.3 This Outline Vessel Management Plan (VMP) has been developed to define the procedures and controls governing all vessel activities associated with the Proposed Works Offshore. The purpose of this document is to ensure that vessel operations are conducted in a manner that maintains navigational safety, protects third-party marine users, and avoids / minimises potential environmental impacts.

1.1.1.4 It should be noted that the responsibility for coordinating offshore vessel operations and marine activities during Proposed Works Offshore will be shared between Arklow Energy Project Management Team and the Principal Offshore Decommissioning Contractor. Once appointed, the Principal Offshore Decommissioning Contractor will develop the Detailed VMP based on this outline version and be approved by Arklow Energy before Proposed Works Offshore commence. The Detailed VMP will complement the Detailed Decommissioning Environmental Management Plan (DEMP) (see outline version in **Volume 3, Appendix 3.4**).

1.1.1.5 This Outline VMP is informed by:

- **Volume 2, Chapter 1: Introduction;**
- **Volume 2, Chapter 3: Proposed Works Description;**
- **Volume 2, Chapter 5: Marine Biodiversity;**
- **Volume 2, Chapter 6: Commercial Fisheries and Aquaculture;** and
- **Volume 2, Chapter 7: Shipping and Navigation.**

1.1.1.6 This Outline VMP covers the following:

- Vessel Movements;
- Project Vessel Routeing;
- Project vessel anchoring;
- Navigational Safety Measures;
- Ecological Vessel Navigation and Safety Awareness; and
- Promulgation of Information.

2 Vessel Movements

2.1.1.1 Decommissioning vessels to be used during the Proposed Works Offshore cannot be precisely determined at this stage. However, this section provides indicative details of the vessel types and associated vessel movements, as well as the Irish ports that may be utilised to support the Proposed Works Offshore. The Principal Decommissioning Contractor will update this section with additional vessel and port details before Proposed Works Offshore commence. At this stage, it is anticipated that the main decommissioning vessels will be mobilised from a European port, assuming a transit duration to the Offshore Site of up to 15 days.

2.1.1.2 ABWP Phase I decommissioned components will be taken to an available Irish port (Rosslare, Waterford, Dublin and Greenore are potential ports being considered). Considering the closest port (Rosslare) and most distant port (Waterford), transit times between the designated Irish port and the Offshore Site would vary from 9 hours to 22 hours (travelling at 4 – 6 knots). The local ports of Arklow and/or Wicklow may be used to mobilise survey vessels.

2.1.1.3 The number of transits between the Offshore Site and the designated Irish port will depend on the actual decommissioning vessels selected, and their deck space and layout design. However, the decommissioning vessel spread and anticipated maximum number of vessel trips are outlined in **Table 2.1**. These numbers have been defined for assessment purposes within the Environmental Impact Assessment Report (EIAR), and, therefore, are indicative of maximum number of trips only.

2.1.1.4 The Proposed Works Offshore will be scheduled during periods when seabed conditions are suitable for safe vessel access to the Offshore Site, aiming to minimise or avoid dredging. Where necessary, works may be phased across different years. All activities will be planned within favourable weather and sea-state windows (typically May to October) to reduce downtime and risks to personnel, and will generally operate continuously, 24 hours a day, seven days a week, unless otherwise specified. Two main campaigns are anticipated:

- First campaign, focused on the decommissioning of WTGs and met mast; and
- Second campaign, focused on the decommissioning of Transition Pieces (TPs)/Monopiles (MPs), scour protection removal and inter-array and offshore export cable removal; as well as post-decommissioning surveys.

Table 2.1: Anticipated decommissioning Vessel Spread during Proposed Works Offshore

Proposed Works Offshore	Vessel type	Maximum number of vessel trips between Port and the Offshore Site
Pre-decommissioning Surveys	Survey vessel	• 2 vessel trips on any given day • 20 vessel trips considering a single campaign (with a maximum duration of 10 days)
Dredging (if required)	Survey vessel (pre-dredging surveys)	• 2 vessel trips on any given day • 48 vessel trips considering a single campaign
	• Medium-sized Cutter Suction Dredger (CSD) • Small tugboat • Small survey vessel	• 3 vessel trips on any given day (for all three vessel types engaged in dredging works, one way) • 48 vessel trips considering all eight vessel access channels require some level of dredging during a single campaign
	• Medium-sized Backhoe dredger (BHD) • Small tugboat • Small split hopper barge • Small survey vessel	• 4 vessel trips on any given day (for all four vessel types engaged in dredging works, one way) • 64 vessel trips considering all eight vessel access channels require some level of dredging during a single campaign.
	• Barge equipped with a plough • Small survey vessel	• 2 vessel trips on any given day (for both vessel types engaged in dredging works, one way)

Proposed Works Offshore	Vessel type	Maximum number of vessel trips between Port and the Offshore Site
		• 16 vessel trips considering all eight vessel access channels require some level of dredging during a single campaign
Decommissioning of WTGs / met mast	• Jack-up barge (JUB) supported • Two tugboats • Transport barge	• 4 vessel trips on any given day (for all four vessel types, one way) • 12 vessel trips considering all WTGs and met mast are decommissioned within the same campaign
Decommissioning of (TPs) & (MPs) Foundations	• JUB supported • Two tugboats • Transport barge	• 4 vessel trips on any given day (for all four vessel types, one way) • 10 vessel trips considering all TP/MPs are decommissioned within the same campaign
Scour Protection Removal	• Grab dredger • Small barge	• Maximum number of vessel trips on any given day: 4 (2 for each vessel type, return trips) • Maximum number of vessel trips per campaign: 80
Decommissioning of inter-array cables	• Multicat vessel equipped with a running method	• 2 vessel trips on any given day (one vessel engaged only, two ways) • 16 vessel trips within the same campaign
Decommissioning of the offshore export cable	• Multicat vessel equipped with a running method	• 2 vessel trips on any given day (one vessel engaged only, two ways) • 19 vessel trips within the same campaign
Post-decommissioning Surveys	• Survey vessel	• 2 vessel trips on any given day • 20 vessel trips considering a single campaign (with a maximum duration of 10 days).

** One vessel trip equals one way between the designated port and the Offshore Site or vice versa*

3 Project Vessel Routeing

3.1.1.1 Requirements for decommissioning vessels used for the Proposed Works Offshore to comply with Convention on the International Regulations for Preventing Collisions at Sea (COLREGs) (International Maritime Organization (IMO), 1972) will remain the key navigational priority at all times. All decommissioning vessels will prepare and follow a passage plan, i.e. a detailed voyage plan defining the intended route, navigational procedures and safety considerations, in accordance with the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).

3.1.1.2 While there may be typical routing patterns used by decommissioning vessels, deviations from those routes may arise for a variety of reasons at the discretion of the vessel's Master, for example due to:

- Compliance with COLREGs (IMO, 1972) or SOLAS (IMO, 1974);
- Prevailing weather, tidal or sea state conditions;
- Navigational hazards as indicated on charts or notified through Notice to Mariners (NtM) or other such sources;
- Due to the vessel originating from or being bound for a destination not indicated by the transit routes;
- Advice from responsible persons in charge of coordinating and managing vessel traffic; and
- Such other reasons as the Master of a vessel may deem relevant for the purposes of ensuring the safety of his vessel or another vessel.

4 Project Vessel Anchoring

4.1.1.1 Anchoring is at the discretion of the vessel Master but can be in conjunction with the information provided by the Arklow Energy Project Manager / Principal Offshore Decommissioning Contractor (in charge of marine coordination), or port authorities where relevant. However, standard marine practice requires that when a vessel proceeds to anchor, consideration is given to:

- Water depth;
- Seabed type and charted hazards including cables / pipelines;
- Weather and tidal information including current and predicted weather;
- Avoidance of prohibited anchorage areas;
- Consideration of other anchored vessels;
- Avoidance of known areas of other marine activity such as fishing or recreational boating; and
- Avoidance of main commercial routes, pilot boarding area or other navigational features such as spoil grounds or subsea cables.

4.1.1.2 All decommissioning vessels associated with the Proposed Works Offshore will take the above into consideration prior to anchoring as per standard marine practice. The decommissioning vessels requiring anchorage within the Offshore Site will request permission to do so from Arklow Energy Project Manager / Principal Offshore Decommissioning Contractor (in charge of marine coordination).

4.1.1.3 All vessels engaged for the Proposed Works Offshore will avoid vessel anchoring on any prohibited zones, to be identified based on the final port(s) selected to support Proposed Works Offshore, as well as on Archaeological Exclusion Zones (AEZs) defined during Proposed Works Offshore (to be defined in the Detailed Offshore DEMP) with relevant details, including maps to be provided by the Principal Offshore Decommissioning Contractor.

5 Navigational Safety Measures

5.1 Marine Coordination

5.1.1.1 Arklow Energy Project Manager / Principal Offshore Decommissioning Contractor (in charge of marine coordination) will establish points of contact that will have overarching responsibility for marine coordination, ensuring impacts from decommissioning vessels to third party traffic are minimised. Measures in place on this basis will include as a minimum:

- Permission for decommissioning vessels to enter the Offshore Site, for example using a Permit to Work system;
- Maintain a log of all personnel present in the Offshore Site and in advance on any vessel crew/vessel entering the Offshore site they will be screened by Arklow Energy Project Manager / Principal Offshore Decommissioning Contract (in charge of marine coordination) to ensure all vessels and crew have the appropriate level of certification to operate/work on the Offshore site;
- Liaison with vessels with regards to agreed routeing destinations/berth/anchorage (where applicable, and noting that compliance with the COLREGs (IMO, 1972/77) will remain the navigational priority at all times;
- Monitor decommissioning vessels and personnel via communication with vessels and Automatic Identification System (AIS) for any potential vessel access conflicts;
- Obtain and provide localised weather information for decommissioning vessels to plan the work being undertaken;
- Arklow Energy Project Manager / Principal Offshore Decommissioning Contractor (in charge of marine coordination) to designate central internal contact point for subcontractors in case of an emergency; and
- Issuing of NtM (see **Section 7.1**).

5.2 Lighting and Marking

5.2.1.1 As outlined in the Outline Lighting and Marking Plan (LMP) (see **Volume 3: Appendix 3.7**), during Proposed Works Offshore, it is proposed to establish a work area around the Sub Lease Area where the decommissioning vessels, engaged in the Proposed Works Offshore, can perform their activities safely.

5.2.1.2 The work area will be marked with 12 buoys, with a distance of 803 m (0.43 nm) along its northern and southern boundaries, and a distance of 1,204 m (0.65 nm) along its eastern and western boundaries. This will provide a buoy layout which is easy to identify in the sea charts, on radar and visually under normal visibility conditions. The work area will have a total width of 1,605 m (0.87 nm) and a total length of 4,817 m (2.60 nm).

5.2.1.3 The work area will be established before commencement of the Proposed Works Offshore, and will be in place whenever the works are ongoing. Whenever marking changes, it will be communicated via NtM.

5.2.1.4 For works along the offshore export cable route, a moving work area of 500 m from the cable decommissioning vessel (500 m radius) will be communicated via NtM and a support vessel will follow the cable decommissioning vessel, monitor approaching traffic and engage in proactive communication to ensure safe passage.

5.2.1.5 This section will be updated, where required, once the Detailed LMP is finalised by the Principal Offshore Decommissioning Contractor.

5.3 Support Vessels

5.3.1.1 Support vessels may be deployed, where required, during Proposed Works Offshore to support safe and effective coordination with other marine users, increasing awareness of offshore activities and assisting in the coordination of interactions with third-party vessels.

5.3.1.2 Where deployed, support vessels will maintain appropriate communication channels (e.g. Very High Frequency (VHF)) and will operate in accordance with relevant maritime safety requirements.

5.4 RAM Operations

5.4.1.1 Restricted in their ability to manoeuvre (RAM) vessels are those considered to be restricted in avoiding an approaching vessel(s), and may apply to some of the decommissioning vessels engaged during Proposed Works Offshore, e.g. JUBs.

5.4.1.2 All RAM vessels engaged in the Proposed Works Offshore, regardless of their nationality, will comply with the COLREGs (IMO, 1972/77), and the rest of decommissioning vessels will be required to comply with the convention, to ensure that they do not interact with RAM vessels. RAM vessels will display lights and shapes to indicate their restrictions. They will transmit safety warnings on VHF to inform other vessels of their actions using the 'Securité' message if the messages contain important information relating to navigation. Communications between RAM vessels and Arklow Energy Project Manager / Principal Offshore Decommissioning Contractor (responsible for marine coordination) will be ongoing throughout the Proposed Works Offshore.

5.4.1.3 RAM vessels will comply with vessel type regulation information transmitted through AIS and show current navigational status at all times to ensure other vessels equipped with AIS can identify that they are RAM.

5.5 Emergency Response Cooperation Planning

5.5.1.1 As further described in the Outline Offshore DEMP (see **Volume 3, Appendix 3.4**), the Principal Offshore Decommissioning Contractor will be required to develop an Emergency Response Cooperation Plan (ERCoP) that will outline procedures for coordinating safety incidents should these occur in relation to the Proposed Works Offshore, including responses for search and rescue (SAR), environmental emergencies, and medical emergencies at sea.

5.5.1.2 The ERCoP will be prepared in coordination with the Irish Coast Guard (IRCG) and will bridge the Proposed Works Offshore emergency response plans and those of the IRCG, ensuring any coordination with IRCG potentially required in an emergency situation is fully agreed and clearly described. The ERCoP for Proposed Works Offshore will be subject to IRCG review and approval.

6 Ecological Vessel Navigation and Safety Awareness

6.1 Marine Wildlife

6.1.1.1 As further described in **Volume 2, Chapter 5: Marine Biodiversity,** marine biodiversity that is / has potential to be present within the Offshore Site includes:

- Intertidal and Subtidal Benthic Ecology (e.g. *Nephtys cirrose*, *Lumbrineris* spp or *Sabellaria spp*);
- Fish and Shellfish (including migratory fish (e.g. Atlantic salmon (*Salmo salar*)), demersal (e.g. lemon sole (*Microstomus kitt*)), pelagic (e.g. mackerel (*Scomber scombrus*)), elasmobranchs (e.g. thornback ray (*Raja clavata*)) or shellfish (e.g. blue mussel (*Mytilus edulis*));
- Marine mammals (e.g. harbour porpoise (*Phocoena phocoena*)); and
- Marine ornithology (e.g. red-throated divers (*Gavia stellata*)).

6.1.1.2 **Table 6.1** summarises the potential impacts on marine biodiversity assessed in more detail in **Volume 2, Chapter 5** of the EIAR.

Table 6.1: Potential environmental impacts on marine biodiversity from Proposed Works Offshore assessed in Volume 2, Chapter 5.

Impact	Subtidal Habitats and Species	Intertidal Habitats and Species	Fish and Shellfish	Marine Mammals	Marine Ornithology
Temporary habitat loss / disturbance	✓	✓	✓		
Increased Suspended Sediment Concentration (SSC) and deposition	✓	✓	✓		
Disturbance / remobilisation of sediment bound contaminants	✓	✓	✓		
Alteration of seabed habitat from changes in physical processes	✓	✓	✓		
Removal of hard offshore infrastructure	✓	✓			
Injury and / or disturbance from underwater noise			✓	✓	
Injury and / or disturbance from vessel activity				✓	
Increased risk of invasive and non-native species (INNS) introduction / spread	✓				
Changes in the fish and shellfish community affecting prey resources				✓	✓
Disturbance and / or displacement of birds					✓

6.2 Vessel Operation Guidelines and Safety Awareness

6.2.1 General Measures

6.2.1.1 Decommissioning vessel operators will be made aware of the potential risks that vessel movements may pose to marine wildlife. Guidance on collision risk awareness and avoidance protocols will be communicated to vessel crews as part of mobilisation briefings. Compliance with activity-specific Risk Assessment Method Statements (RAMS) will be required, including adherence to any constraints on vessel movements set out in applicable consents.

6.2.1.2 To minimise potential risks to marine wildlife, the following Vessel Code of Conduct will be implemented:

- Incorporate vessel movements to and from ports within existing routes where feasible;
- Avoid active and deliberate approaches or pursuits of animals;
- Refrain from touching animals;
- When animals are alongside vessels, maintain a steady speed and avoid course changes; and
- Conduct briefings for vessel crew on the purpose and implications of these vessel management practices, such as through toolbox talks and posters in frequently used personnel areas.

6.2.1.3 The measures outlined above will be applied unless doing so would compromise the safety of the vessel, crew, or other marine users. Safe navigation and compliance with maritime safety requirements will take precedence at all times.

6.2.2 Vessel Good Practice and Collision Avoidance

6.2.2.1 Approaches to minimising the risk of vessel collisions with marine wildlife during the Proposed Works Offshore include, where practicable, the use of established vessel routes, noting that marine mammals and other marine species may be more accustomed to vessel activity along these routes.

6.2.2.2 The Department of Communications, Marine and Natural Resources (DCMNR, now Department of Climate, Energy and the Environment (DCEE)) Marine Notice No. 15 of 2005 provides guidance on appropriate procedures when encountering whales and dolphins in Irish waters. In addition, the Irish Whale and Dolphin Group (IWDG) has published a Code of Conduct for vessels interacting with marine mammals.

6.2.2.3 While these guidelines are primarily intended for smaller vessels (e.g. recreational or whale-watching vessels), their key principles are considered applicable to larger vessels associated with the Proposed Works Offshore. These principles will therefore be applied, where practicable and safe to do so, to minimise the risk of collision with, and disturbance to, marine wildlife within the Offshore Site and associated work areas:

- When an animal(s) is first sighted, decommissioning vessels will maintain a steady course (speed and direction) to allow marine mammals and other marine wildlife to predict the decommissioning vessel's path;
- Where possible, when an animal(s) is in close proximity, decommissioning vessel speed will be gradually reduced and maintained below 7 knots;
- If animals are moving in a consistent direction, decommissioning vessels will maintain a parallel course;
- Decommissioning vessels will not cut off individuals by moving across their path;
- Decommissioning vessels will avoid deliberately approaching marine mammals when sighted;
- Decommissioning vessels will avoid abrupt changes to course or speed should marine mammals or other marine wildlife approach the vessel or bow-ride; and
- Decommissioning vessels will follow indicative transit corridor routes that will be defined in advance of the commencement of the Proposed Works Offshore.

6.2.2.4 While specific guidance for vessel interactions with other marine species in Irish waters is limited, the measures outlined above for marine mammals are considered appropriate and will be applied to these species where encountered, where it is safe to do so.

6.2.2.5 Details of any collision between a vessel and marine mammal, marine turtle and/or basking shark will be reported to the Arklow Energy Environmental Manager by the Principal Offshore Decommissioning Contractor in accordance with the Environmental Incident Procedure (see **Volume 3, Appendix 3.4: Outline Offshore DEMP**), which will detail the procedure, timelines and external notification requirements to be followed in the event of an environmental incident in line with applicable requirements.

6.2.2.6 The measures outlined above will be implemented unless doing so would compromise the safety of the decommissioning vessel, crew, or other marine users. Safe navigation and compliance with maritime safety requirements will take precedence at all times.

6.2.3 Marine Mammal Mitigation Protocol

6.2.3.1 The Marine Mammal Mitigation Protocol (MMMP) (**Volume 3, Appendix 5.3**) will be implemented, where relevant, during Proposed Works Offshore. Decommissioning activities that may have the potential to generate continuous, localised underwater noise which may result in short-term behavioural disturbance to marine mammals in the vicinity of operations are dredging, underwater mechanical cutting, jet lancing and the use of the vibratory extraction tools. These activities are not predicted to result in auditory injury (see **Volume 2, Chapter 5**) but a precautionary mitigation protocol in accordance with National Parks & Wildlife Service (NPWS) (2014), with supplementary best practice informed by Joint Nature Conservation Committee (JNCC) (2025) has been considered.

6.2.3.2 This mitigation approach will be kept under review and updated, as necessary in the final MMMP, to reflect any relevant new or revised guidance published by NPWS or other applicable regulatory authorities.

6.2.3.3 The MMMP sets out proposed mitigation measures, including the appointment of a Marine Mammal Observer (MMOb) and the implementation of soft-start procedures, to minimise the risk of physical disturbance or permanent auditory injury to marine mammals during geophysical survey activities. The following mitigation measures are outlined below, and further detailed within the MMMP (**Volume 3, Appendix 5.3**):

- **Pre-survey notifications**: Key stakeholders will be informed in advance of activities, with records maintained and submitted as required.
- **MMOb**: A qualified MMOb will monitor activities throughout, applying a 500 m mitigation zone and recording observations.
- **Pre-start procedure**: Works will only begin following a minimum 30-minute monitoring period in daylight, with clear MMOb approval confirming no marine mammals within the mitigation zone.
- **Breaks in sound output**: After interruptions exceeding 30 minutes, pre-start monitoring (and soft-start where relevant) will be repeated before resuming.
- **Soft-start procedure**: Sound-generating equipment will be gradually ramped up to allow marine mammals to move away, minimising disturbance.

6.2.4 Best Practice Protocol for Minimising Disturbance to Seabirds

6.2.4.1 Potential impacts on seabirds, will be mitigated through the following measures:

- Minimise vessel traffic, where possible, during the most sensitive time period for red-throated diver between November and March 1st inclusive;
- Restriction of vessel movements to existing navigation routes and where possible, selection of routes that avoid known areas where seabirds aggregate;
- Avoidance of rafting birds encountered anywhere within the Offshore Site / work areas, where possible, and minimise disturbance in areas with consistently high diver densities;
- Avoid over-revving of engines to minimise noise disturbance;
- Maintaining direct transit routes to minimise distances through areas used by red-throated divers; and
- Vessel operators will be made aware of the importance of this species, and the associated mitigation measures, through toolbox talks and vessel inductions.

6.2.5 Biosecurity Control Measures

6.2.5.1 Biosecurity control measures will be implemented in order to prevent and reduce the risk of possible spread or introduction of Invasive Non-Native Species (INNS) into the waters of the Offshore Site.

6.2.5.2 There are a number of pieces of legislation and guidance relating to INNS at a European Union (EU) and Irish level, these are detailed below:

- The IMO adopted Resolution MEPC 378(80) "2023 Guidelines for the Control and Management of Ships' Biofouling to Minimise the Transfer of Invasive Aquatic Species (IMO,

2023) which provides practical guidance on measures to minimise the risk of transferring INNS which may arise from shipping activities;

- Invasive Alien Species (IAS) Regulation (EU 1143/2014) which came into force in January 2015, requires action plans to control the introduction and spread of Invasive Alien Species (considered equivalent to INNS) (European Parliament, 2014). This regulation indirectly affects the Water Framework Directive (WFD) (Directive 2000/60/EC), as it requires all European member states to aim for good chemical and ecological status (i.e. the presence of INNS can reduce a waterbody classification status) and the Marine Strategy Framework (Directive 2008/56/EC), ensuring compliance and best practice, and aids in the protection of Irish waters;
- The National Marine Planning Framework (NMPF) from the Department of Housing, Local Government and Heritage includes 'Non-indigenous Species Policy 1' which has an objective to reduce the risk of the introduction and/or spread of INNS (NMPF, 2021). To accord with the NMPF Policy, development proposals must demonstrate a risk management approach to prevent the introduction of and/or spread of INNS , particularly when: moving equipment and boats from one water body to another, and/or introducing structures suitable for settlement of non-indigenous species, or the spread of non-indigenous species known to exist within the area of the proposal (NMPF, 2021); and
- Ireland's 4th National Biodiversity Action Plan (NBAP) (NPWS, 2023), for the period 2023-2030 includes Outcome 2G, which aims for INNS to be controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity, and for measures to be implemented to tackle the introduction and spread of new INNS to the environment.

6.2.5.3 The following measures are an integral part of Proposed Works Offshore and will minimise the risk of introducing and/or spreading INNS:

- Any equipment to be used during Proposed Works Offshore of terrestrial origin or used in other marine environments, will be cleaned and allowed to fully dry, and inspected prior to use in the Offshore Site. These measures will be undertaken within the port or on transit vehicles (not sea going vessels).
- All decommissioning vessels to be used during Proposed Works Offshore will be required to follow guidance as directed by the 'Guidelines for the control and management of ships biofouling to minimize the transfer of invasive aquatic species' (IMO, 2023), as including the application and maintenance of appropriate anti-fouling systems, periodic inspection and cleaning of hull and niche areas.
- Where applicable, to comply with the 'International Convention for the Control and Management of Ships' Ballast Water and Sediments' (IMO, 2021), as the use of compliant ballast water management systems or exchange procedures, the maintenance of a Ballast Water Record Book, and adherence to discharge standards and operational controls to prevent the transfer of harmful aquatic organisms and pathogens.

6.2.6 Toolbox Talks

6.2.6.1 As described in the Outline Offshore DEMP (**Volume 3, Appendix 3.4**), toolbox talks (TBT) and induction training of all personnel, including subcontractors and individuals external to the Proposed Works Offshore, will be implemented by the Principal Offshore Decommissioning Contractor. This is to ensure that all personnel are aware of the content of the Detailed Offshore DEMP and associated management plans, and their applicability to specific Proposed Works Offshore activities.

7 Promulgation of Information

7.1 Notice to Mariners

7.1.1.1 NtM will be issued in advance of any activity associated with the Proposed Works Offshore which may impact upon navigational safety. Arklow Energy will liaise with the Department of Transport (DoT) who may issue the NtM via their website as Marine Notices (gov.ie - Marine Notices 2026 (www.gov.ie)) as detailed in **Section 7.2**.

7.1.1.2 The responsible person for marine coordination (Arklow Energy Project Management / Principal Offshore Decommissioning Contractor) for any given marine activity will then issue the NtM to a list of relevant and national stakeholders. This marine stakeholder list will be regularly updated to ensure contact details remain up to date and all relevant parties are included.

7.1.1.3 The NtM will be concise, detailing navigational safety information and will include the information set out in **Table 7.1**, which is per the DoT guidance on the Required Information for the Issue of Marine Notices (DoT, 2023).

Table 7.1: Required content of NtM / Marine Notice

Required Information for the Issue of Marine Notices	
1 - Type of Activity	Type of activity being undertaken, e.g. Subsea survey, deployment of buoys, etc.
2 - Duration of Activity	Starting date and approximate finishing date for operations, dependent on weather conditions
3 - Location	Coordinates that follow the conventional method of maritime positions, using WGS 84, where latitude is given before longitude.
4 - Vessel(s) involved	Name of vessel, type of vessel and call sign of vessel
5 - Safety precautions taken	e.g., buoys or markers to highlight area of activity, radio transmissions to notify other seafarers (i.e. VHF channel) etc.
6 - If buoys are used	Information on the type I colour of buoy and the colour and flashing sequence of any lights attached must be included.
7 - Diagrams and/or maps may also be included	Extract from an up-to-date admiralty chart

7.1.1.4 Any decommissioning vessels engaged will be appropriately licensed and have the requisite Certificates, e.g. Irish Load Line Cert, in place beforehand. Issuance of a Marine Notice does not grant permission for activities to commence. The required permissions / licences / certificates will be obtained in advance from the relevant authorities, to be identified in the Detailed Offshore DEMP (see outline version in **Volume 3, Appendix 3.4**).

7.2 Marine Notices

7.2.1.1 Marine Notices are issued by the DoT, and are intended to publicise important safety, regulatory and other information relating to the maritime sector in Ireland.

7.2.1.2 The DoT will be included on the marine stakeholder distribution list (see **Section 7.1**) and will therefore be provided with NtM issued by Arklow Energy Project Management / Principal Offshore Decommissioning Contractor. The DoT may then choose to publish the information provided in the NtM as Marine Notices.

7.3 Fishing Vessels

7.3.1.1 Approach to promulgation of information to fishing vessels is set out in the Fisheries Management and Mitigation Strategy (FMMS) **(see Volume 3, Appendix 3.6)**.

7.3.1.2 The overall aim and objective of the FMMS is to provide details on Arklow Energy's approach to fisheries liaison and mitigation for the Proposed Works Offshore, including proposed measures to facilitate co-existence between the Proposed Works Offshore and commercial fishing and to minimise potential impacts. In line with the requirements of the NMPF, industry standards and good practice, the FMMS has the following key primary functions:

- To ensure that appropriate liaison channels with the fishing industry are established and that effective liaison is maintained throughout the Proposed Works Offshore; and
- To define appropriate management and mitigation measures to minimise potential impacts on fishing activities and facilitate co-existence throughout the Proposed Works Offshore.

7.4 Radio Navigational Warnings

7.4.1.1 Radio navigational warnings may be issued if an activity or incident poses a danger to other marine users. Examples of when radio navigational warnings could be issued are:

- Failures to light signals, fog signals, buoys, or other aid to navigation (AtoN);
- Establishing new AtoN;
- Underwater operations that may constitute potential dangers in or near shipping lanes; and/or
- Vessels not under command or undertaking significant RAM operations.

7.4.1.2 In the context of radio navigational warnings, the UK Hydrographic Office (UKHO) act as the Navigation Area (NAVAREA) 1 (NEW Atlantic) Coordinator of the IMO and International Hydrographic Organization (IHO) Worldwide Navigational Warning Service. However, IRCG are the body responsible for broadcasting the warnings.

7.5 Incident Reporting

7.5.1.1 As required under the Merchant Shipping (Investigation of Marine Casualties) Act, 2000, any marine incidents / casualties will be reported to the Marine Survey Office (MSO) as soon as is practicable following the incident. Following the initial report any relevant details of the incident requested by the Marine Casualty Investigation Board (MCIB) will be provided.

7.6 Port and Harbour Liaison

7.6.1.1 Arklow Energy will request with the relevant harbour masters, Port Authority or marina operator that appropriate information (indicatively the NtM) be displayed at relevant local harbours and / or ports used to support the Proposed Works Offshore, which will be confirmed once the Principal Offshore Decommissioning Contractor is appointed.

8 References

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