ABWP Phase I Decommissioning

Marine Mammal Mitigation Protocol

Volume 3, Appendix 5.3



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Project name ABWP Phase I Decommissioning

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Statement of Authority

Author	Qualifications	Relevant Experience
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Matt Royall	BSc (Hons) Natural Environmental Science (Earth Sciences), University of Sheffield (UK) MSc Environmental Pollution Control, University of Leeds (UK) Chartered Environmentalist (CEnv)	Over 25 years' experience of environmental impact assessment for a wide range of sectors, including windfarms. Experience is across a number of geographies including Ireland, UK, Poland, Lithuania and Romania.

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.
Additional Mitigation	Actions that will be required to reduce the significance of environmental effects of the Proposed Works, which will be dependent on the significance of effects assessed in the EIAR. Also referred to as secondary mitigation in Institute of Environmental Management and Assessment (IEMA) (2024). IEMA is now the Institute of Sustainability and Environmental Professionals (ISEP).
Arklow Energy	Arklow Energy Limited, the entity seeking planning permission for the Proposed Works, i.e. the applicant.
Baseline	A description of the relevant aspects of the current state of the environment (baseline scenario) (EIA Directive 2014/52/EU).
Competent Authority	Are those authorities that are entitled to give authorisation or consent to a plan or project. In the planning system, this means planning

Term	Meaning
	authorities and An Coimisiún Pleanála. There are, however, a wide range of other competent authorities in respect of other consent regimes e.g. EPA (environmental licencing), Minister for Agriculture, Food and the Marine (forestry, aquaculture and foreshore management), and various state bodies that have authority to undertake development under Part 9 of the Planning and Development Regulations (e.g. An Garda Síochána, defence forces, the courts service). The competent authority for this planning application is An Coimisiún Pleanála (ACP).
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).
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).
Embedded Mitigation	Mitigation measures included as part of the Proposed Works. Include modifications arising through the iterative design process; and standard industry practice that would occur even without input from the EIA process, e.g. actions undertaken to meet other existing legislative requirements, or actions that are standard practices used to manage commonly occurring environmental effects. Correspond to primary and tertiary mitigation defined in Institute of Environmental Management and Assessment (IEMA) (now Institute of Sustainability and Environmental Professionals (ISEP)) (2024).
Environmental Impact Assessment (EIA)	The process of examining the anticipated environmental effects of the Proposed Works – from consideration of environmental aspects at design stage, through consultation and preparation of an Environmental Impact Assessment Report (EIAR), evaluation of the EIAR by a competent authority, and the subsequent decision as to whether the Proposed Works should be permitted to proceed, encompassing public response to that decision (EPA, 2022).
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.).
Hertz	Hertz is a unit of frequency that measures how often a sound wave cycles per second. Specifically, 1 hertz means one cycle per second, and in audio, indicates how fast sound waves vibrate. Faster vibrations correspond to higher pitches, while slower vibrations produce lower pitches.
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.
Indirect Impact	Impacts on the environment, which are not a direct result of the Proposed Works, often produced away from (the Offshore / Onshore Site) or as a result of a complex pathway (EPA, 2022).
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.

Term	Meaning
Meteorological (Met) mast	A mast with a number of meteorological sensors located at different heights to record meteorological and sea condition data
Mitigation Measures	Measures to avoid, prevent or reduce impacts (EPA, 2022). Distinction is made between embedded and additional mitigation, see separate definitions for these.
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 (MP)	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.
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.
Non-impulsive sound	Sound that is continuous or occurs intermittently but does not exhibit the distinctive features associated with impulsive sound.
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.
Onshore Site	Part of the site where Proposed Works Onshore are proposed to take place. In this application for planning permission, the Onshore Site comprises the onshore substation compound that hosts the onshore substation building and ancillary facilities; the onshore cable 10 m corridor connecting the landfall point from high water mark (HWM) to the onshore substation, and the area that will temporarily be used for temporary storage of plant, vehicles, machinery, excavated soil and materials.
Pathway	The route by which an effect is conveyed between a source and a receptor (EPA, 2022).
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.
Propagation of underwater sound	The process by which acoustic waves travel through water, influenced by factors such as temperature, salinity, pressure, and the presence of boundaries like the sea surface and. seabed
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).
Receptor	Any element in the environment which is subject to impacts (EPA, 2022).

Term	Meaning
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.
Significance	The importance of the outcome of the impact (or the consequence of change) for the receiving environment (EPA, 2022).
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.
Special Areas of Conservation (SACs)	Sites designated under the Habitats Directive (92/43/EEC). This requires the conservation of important, rare or threatened habitats and species (not birds, which are protected by Special Protection Areas (SPAs)) across Europe (Office of the Planning Regulator, n.d.).
the Marine Mammals Study Area	Area covered in the characterisation of the baseline environment and considered in the assessment of potential environmental effects relevant to Marine Mammals, defined as 45.5 km buffer from the Offshore Site, see Section 1.4 in this document.
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.
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
CEA	Cumulative Effect Assessment
DCEE	Department of Climate, Energy and the Environment
DEMP	Decommissioning Environmental Management Plan
DP	Dynamic Positioning
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EPS	European Protected Species
EU	European Union
FMMS	Fisheries Management and Mitigation Strategy
FLO	Fisheries Liaison Officer
HWM	High Water Mark
IAMMWG	Inter Agency Marine Mammal Working Group
IEMA	Institute of Environmental Management and Assessment
IMO	International Maritime Organisation
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee

Acronym	Meaning
JUB	Jack-up barge
LMP	Lighting and Marking Plan
MAC	Maritime Area Consents
MARA	Maritime Area Regulatory Authority
MBES	Multibeam echosounder
MMMP	Marine Mammal Mitigation Protocol
MMOb	Marine Mammal Observer
MMMUs	Mammal Management Units
MSFD	Marine Strategy Framework Directive
NPWS	National Parks and Wildlife Service
OSP	Offshore Substation Platform
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
SAC	Special Area of Conservation
SBP	Sub-bottom profile
SCOS	Special Committee on Seals
SSS	Side-scan sonar
USBL	Ultra-short baseline
VMP	Vessel Management Plan
WTG	Wind Turbine Generators

Units

Unit	Meaning
kHz	Kilohertz
km	Kilometre
m	Metres
nm	Nautical mile

EXECUTIVE SUMMARY

This Marine Mammal Mitigation Protocol (MMMP) provides a key mechanism, through which the relevant regulatory authorities can be assured that environmental management required during the decommissioning of ABWP Phase I offshore infrastructure (the Proposed Works Offshore), with particular regard to minimising impacts to marine mammals, will be formally controlled.

This document highlights specific activities of the Proposed Works Offshore that carry a significant potential risk of disturbance or injury to marine mammals in the Irish Sea. The purpose of an MMMP is to specify the overarching principles and detailed measures to minimise as far as reasonably practicable and mitigate the effects of the decommissioning activities associated with the Proposed Works Offshore on marine mammals.

On confirmation of a Principal Decommissioning Contractor, this MMMP will be updated to reflect specific proposed decommissioning methods and will seek approval from the relevant authorities. The MMMP will be a live document which will continue to evolve and is subject to refinement, amendment, and expansion as necessary.

The Final MMMP will be approved by the relevant licensing authority and will be periodically reviewed and updated as required, to ensure environmental risks to marine mammals are managed and mitigated throughout.

1 INTRODUCTION

1.1 Overview

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).

1.1.1.1 This Marine Mammal Mitigation Protocol (MMMP) has been prepared to support the application for planning permission. The MMMP is a key mechanism through which assurance can be provided to regulatory authorities that the environmental management required during the Proposed Works Offshore, particularly with respect to minimising impacts on marine mammals, will be formally controlled.

1.2 Purpose of the MMMP

1.2.1.1 The purpose of this MMMP is to present the means by which the potentially injurious or disturbing effects of underwater sound on marine mammals, resulting from the Proposed Works Offshore, are to be mitigated. This MMMP is informed by information presented in **Volume 2, Chapter 5: Marine Biodiversity**, which considers potential impacts seaward of the HWM during the Proposed Works Offshore. Impacts with the potential to cause auditory injury or disturbance, and for which specific measures have been proposed, have been included in this MMMP.

1.2.1.2 Specifically, this MMMP:

- Provides an overview of the Proposed Works Offshore, discusses the specific area of effect and decommissioning activities which could affect marine mammals;
- Provides a background on the marine mammal species which are of concern in relation to the Proposed Works Offshore; and
- Ensures compliance with relevant legislation, Government and industry standards, decommissioning industry codes of practice and that best practice standards are in place for the protection of marine mammals.

1.2.1.3 Once a Principal Decommissioning Contractor has been appointed to conduct the Proposed Works Offshore, the MMMP may be updated to reflect the specific methods to be used for the Proposed Works Offshore for approval by the relevant authorities. At this stage, methods outlined in **Volume 2, Chapter 3** have been used to inform this MMMP.

1.2.1.4 This MMMP therefore uses precautionary injury and disturbance ranges for marine mammals outlined in **Volume 2, Chapter 5** and **Volume 3, Appendix 5.2: Underwater Sound Modelling Report**, the parameters of which are based on activities and equipment outlined in **Volume 2, Chapter 3**.

1.2.1.5 Compliance with the mitigation measures presented in this MMMP is intended to provide a systematic approach to environmental management so that environmental risks are identified and managed appropriately throughout the decision process.

1.3 Relevant Legislation

1.3.1.1 The following international legislation, to which Ireland is a signatory, concerns the protection of marine mammal populations during the planning and execution of offshore developments in Irish waters:

EU Habitats Directive (92/43/EEC)

1.3.1.2 The EU Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) is transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended). The Directive provides the principal European legislative framework for the conservation of biodiversity, including the protection of marine mammals. All cetacean species (whales, dolphins, and porpoises) are afforded strict protection under the provisions of the Directive, meaning they have European Protected Species (EPS) status.

1.3.1.3 Annex II of the Habitats Directive lists species whose conservation requires the designation of Special Areas of Conservation (SACs). In Irish waters, species listed on Annex II include the harbour porpoise (*Phocoena phocoena*) and bottlenose dolphin (*Tursiops truncatus*), as well as pinniped species such as the grey seal (*Halichoerus grypus*) and harbour seal (*Phoca vitulina*). The short-beaked common dolphin (*Delphinus delphis*) is not listed on Annex II, however it is still subject to strict protection under Article 12 of the Habitats Directive.

1.3.1.4 Under the Directive and its transposing Irish legislation, it is an offence to deliberately or recklessly:

- Capture, injure, or kill a wild animal of a European protected species;
- Disturb such species in a manner that is likely to significantly affect the local distribution or abundance of the species, or impair its ability to survive, breed, reproduce, or rear young;
- Disturb protected species during breeding, rearing, migration, or resting periods; or
- Damage or destroy breeding sites or resting places of such species.

1.3.1.5 This MMMP has therefore been developed to ensure that auditory injury and/or potential disturbance arising from underwater noise-generating activities is avoided or minimised in accordance with the Habitats Directive and associated guidance issued by the Irish National Parks and Wildlife Service (NPWS).

1.4 Marine Mammal Receptors

1.4.1.1 The Study Area for marine mammals, defined in **Volume 2, Chapter 5,** encompasses the Offshore Site plus a 45.5 km buffer, up to the HWM, to account for the maximum extent of underwater noise disturbance (see **Volume 3, Appendix 5.2**). However, to recognise the highly mobile and transient nature of marine mammal species, consideration is also given to the wider Celtic Seas Ecoregion and the appropriate Marine Mammal Management Units (MMMUs) defined by the Inter Agency Marine Mammal Working Group (IAMMWG, 2022) for cetaceans. For pinnipeds (seals), there are currently no IAMMWG agreed MMMUs, and Seal Management Units defined by the Special Committee on Seals only cover UK waters (SCOS, 2025). Therefore, for seals, OSPAR Region III (Celtic Seas) (OSPAR, 2017) is also considered.

1.4.1.2 During the baseline study undertaken in **Volume 2, Chapter 5**, the following marine mammal species have been identified as the most likely to be present in the Study Area for the Offshore Site during the Proposed Works Offshore:

- Harbour porpoise (*Phocoena Phocoena*);
- Bottlenose dolphin (*Tursiops truncatus*);
- Short-beaked common dolphin (*Delphinus delphis*);
- Harbour seal (*Phoca vitulina*); and

- Grey seal (*Halichoeus grypus*).

1.4.1.3 However, as all marine mammal species are protected by legislation in Ireland, all species are covered by the mitigation measures presented in this MMMP. It should be noted that the Offshore Site does not overlap with any European Sites for which marine mammal species are qualifying features. The closest European Site for marine mammals is the Slaney River SAC which is 13.9 km south and designated for harbour seal.

1.5 Proposed Works Offshore Activities and Associated Impacts

1.5.1.1 Activities to be undertaken as part of the Proposed Works Offshore which will produce underwater sound and their associated mitigation measures are provided in **Table 1.1**. Mitigation measures have been developed in accordance with NPWS (2014) guidance, which provides the primary regulatory framework in Ireland. Where NPWS guidance is not explicit for certain activity types, additional measures from the draft Joint Nature Conservation Committee (JNCC) (2025) guidelines for minimising the risk of injury to marine mammals from geophysical surveys were considered.

Table 1.1: Sound source levels associated with the Proposed Works Offshore

Proposed Works Offshore Activity	Within hearing range of marine mammals?	Measures required
Sub-bottom profile (SBP) Chirp	**Yes** – SBP operating frequency is within the hearing range of marine mammals.	NPWS (2014) recommended mitigation measures for geophysical acoustic surveys apply, as detailed in **Section 4**.
Multibeam echosounder (MBES)	**No** – MBES operates at a frequency which is outside of the hearing range of marine mammals and therefore does not pose any risk of injury or disturbance.	No specific mitigation measures prescribed in NPWS (2014), and frequency is outside of the hearing range of marine mammals. Standard environmental good practice is considered sufficient (**Section 2**), and no additional mitigation is required.
Side-scan sonar (SSS)	**No** – SSS operates at a frequency which is outside of the hearing range of marine mammals and therefore does not pose any risk of injury or disturbance.	
Ultra-short baseline (USBL)	**Yes** – USBL operates at a frequency which is within the hearing range for marine mammals.	NPWS (2014) recommended mitigation measures for geophysical acoustic surveys apply, as detailed in **Section 4**.
Support vessels	**Yes** – the operating frequency for support vessels is within the hearing range of marine mammals.	Mitigation requirements are not explicitly listed within NPWS (2014). However, good practice vessel operation measures should be implemented, as outlined in **Section 2**.
Dredging	**Yes** - the operating frequency for dredging is within the hearing range of marine mammals.	NPWS (2014) mitigation measures for dredging activities apply, as detailed in **Section 4**.
Dynamic Positioning (DP)	**Yes** - the operating frequency for DP is within the hearing range of marine mammals.	Mitigation requirements are not explicitly listed within NPWS (2014) or JNCC (2025). However, good practice vessel operation measures should be implemented, as outlined in **Section 2**.
Jet lancing	**Yes** - the operating frequency for jet lancing is within the hearing range of marine mammals.	Mitigation requirements are not explicitly listed within NPWS (2014), but activities are considered analogous to continuous, non-impulsive sound sources such as dredging. Therefore, mitigation measures recommended for decommissioning works apply for these activities, as detailed in **Section 4**.
Underwater mechanical cutting	**Yes** - the operating frequency for underwater mechanical cutting is within the hearing range of marine mammals.	
Vibratory Extraction Tool	**Yes** - the operating frequency for vibratory extraction tools is within the hearing range of marine mammals.	

Proposed Works Offshore Activity	Within hearing range of marine mammals?	Measures required
Vessel noise from use of jack-up barge (JUB0	**Yes** - the operating frequency for vessel noise from the JUB is within the hearing range of marine mammals.	Mitigation requirements are not explicitly listed within NPWS (2014) or JNCC (2025). However, good practice vessel operation measures should be implemented, as outlined in **Section 2**.

1.5.1.2 The geophysical survey systems to be deployed are SBP, USBL, MBES and SSS systems. Equipment that presents potential risk of injury includes the SBP Chirp and USBL activities. Underwater sound modelling (**Volume 3, Appendix 5.2**) indicates that the USBL systems may result in potential exceedance of the auditory injury threshold for very high-frequency cetaceans (e.g. harbour porpoise) within a distance of up to 400 m. Therefore, USBL is included within the same pre-start monitoring and mitigation zone procedures as SBP. The MBES and SSS operate at high frequencies outside the effective hearing range of marine mammals and therefore do not require additional mitigation measures to be implemented.

1.5.1.3 Decommissioning activities associated with the Proposed Works Offshore are dredging, underwater mechanical cutting, jet lancing and the use of the vibratory extraction tool. These decommissioning activities 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. These activities are not predicted to result in auditory injury but a precautionary mitigation protocol in accordance with NPWS (2014), with supplementary best practice informed by JNCC (2025) has been considered.

2 EMBEDDED CONTROL AND MANAGEMENT MEASURES

2.1 Embedded Measures

2.1.1.1 As set out in **Volume 2, Chapter 1** several embedded mitigation measures have been adopted as part of the Proposed Works Offshore to reduce the potential for impacts on marine mammals.

2.1.1.2 The embedded mitigation measures relevant to marine mammals are outlined in **Table 2.1**.

Table 2.1: Embedded mitigation relevant to marine mammals implemented as part of the Proposed Works.

Description	How will the measure be secured
Development and adherence to the Offshore Decommissioning Environmental Management Plan (DEMP) which will present standard industry practice and legal requirements for environmental management and mitigation that will be implemented as part of the Proposed Works Offshore. The Outline Offshore DEMP will serve as a framework for the future decommissioning contractor(s) to develop in detail before decommissioning works commence.	**Volume 3, Appendix 3.4: Outline Offshore DEMP**
Development and adherence to the Vessel Management Plan (VMP) which will define best-practice vessel management measures, including transit routes, speed restrictions, timing of activities, pollution prevention, and crew environmental awareness, to minimise disturbance, collision risk, and ecological harm.	**Volume 3, Appendix 3.5: VMP**
Development and adherence to the Lighting and Marking Plan (LMP) which identifies required lighting and marking throughout the Proposed Works Offshore in line with relevant standards and legal requirements.	**Volume 3, Appendix 3.7: Outline LMP**

2.2 Vessel Operation Best Practice

2.2.1.1 Vessel operations, including support vessels and the JUB, have the potential to generate continuous underwater noise which may result in short-term behavioural disturbance to marine mammals. All vessels will operate in accordance with standard maritime safety requirements and good navigational practice, including maintaining appropriate speeds, avoiding unnecessary manoeuvring, and adhering to designated operational areas where applicable. Vessel operators shall always maintain a lookout for marine mammals and shall report any sightings to the Marine Mammal Observer (MMOb), where present.

2.3 Control and Management Measures

2.3.1.1 Mitigation measures for the Proposed Works Offshore have been developed in accordance with the Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (NPWS, 2014), with supplemented best practice measures adopted from JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys, where appropriate (JNCC, 2025).

3 ROLES AND RESPONSIBILITIES

3.1.1.1 The relevant roles and responsibilities for the implementation of this MMMP are detailed within **Table 3.1**. It is the responsibility of the Principal Decommissioning Contractor to ensure a suitably qualified MMOb is present on any vessel undertaking any geophysical survey and/or decommissioning activities.

Table 3.1: Key roles and responsibilities

Role	Responsibilities
Arklow Energy Project Manager	• Overall environmental management of the Proposed Works Offshore. • Ensures that works are carried out in accordance with the Outline Offshore DEMP and MMMP. • Ensures adequate resources (personnel, equipment, time) are available to implement mitigation measures.
Arklow Energy Environmental Manager	• Monitoring the Proposed Works Offshore for compliance against any risk assessment and method statement control measures. • Ensures that all site personnel are aware of and comply with MMMP requirements. • Monitoring environmental training, consultation and implementation of contractor procedures. • Accompanying Environment Inspections where required and any environmental authority inspections. • Attending Environmental co-ordination meetings. • Ensures effective communication between the Works Supervisors, MMOb, and vessel crew.
Works Supervisors	• Directly oversee specific work activities (e.g. dredging, cutting, survey operations). • Ensure that activities do not commence or resume without MMOb clearance. • Ensuring that all work is carried out in accordance with project requirements. • Ensure that staff under their supervision are aware of their environmental responsibilities. • Carry out inspections to identify any environmental issues. • Maintain clear and continuous communication with the MMOb and Environmental Manager.
General Operatives	• Carry out works in accordance with instructions from the Works Supervisors. • Comply with all environmental and mitigation requirements set out in the MMMP. • Immediately report any marine mammal sightings or environmental concerns to the Works Supervisor. • Support implementation of mitigation measures where required.
Marine Mammal Observer (MMOb)	• Monitors mitigation zones and conducts searches prior to commencement of activities. • Prepared with appropriate visual aids and visibility for 360° coverage of the 500 m mitigation zone (see **Section 5** of this document). • Records all marine mammal sightings, environmental conditions, and mitigation actions. • Completes all required data forms (see **Section 5** of this document).
Fisheries Liaison Officer (FLO)	• Establish and maintain effective communications between Arklow Energy, Principal Decommissioning Contractor (and subcontractors) and the fishing industry, providing information relating to the safe operation of fishing in the vicinity of the Offshore Site during Proposed Works Offshore.

4 MITIGATION MEASURES TO BE IMPLEMENTED

4.1.1.1 Mitigation measures outlined in **Section 4.2, 4.3** and **4.4** apply to the SBP, USBL, dredging, jet lancing, underwater mechanical cutting, and vibratory extraction tool. Measures outlined in **Section 4.5** apply to SBP activities only.

Pre-Survey Notifications

4.1.1.2 Prior to commencement of works, the Project Manager / FLO shall notify relevant stakeholders of the proposed activities and programme, including the National Parks and Wildlife Service and the Irish Coast Guard, as appropriate. Notices to Mariners will be issued where required. Monitoring records, including MMOb, will be maintained and provided to the competent authority in accordance with consent conditions.

4.2 MMOb

4.2.1.1 A qualified and experienced MMOb (e.g. MMOb training from a JNCC approved course or equivalent) shall be appointed for all geophysical survey and decommissioning activities to monitor for marine mammals and to log all relevant events and complete required data forms (see **Section 5**).

4.2.1.2 A Mitigation Zone of 500 m will be applied for all geophysical survey and decommissioning activities (NPWS, 2014). No activities will commence if marine mammals are detected within this zone during the pre-start monitoring period.

4.3 Pre-Start Procedure:

4.3.1.1 An agreed and clear on-site communication signal must be used between the MMOb and the Works Supervisor as to whether SBP activities may or may not proceed or resume after a break (see below). Activities should only resume upon positive confirmation with the MMOb.

4.3.1.2 Activities shall only commence during daylight hours where effective visual monitoring, as performed and determined by the MMOb, has been achieved.

4.3.1.3 The MMOb shall undertake a continuous pre-start monitoring period of at least **30 minutes** immediately prior to the commencement of any decommissioning activity. Operations shall not commence until no marine mammals have been detected within the relevant mitigation zone during this period.

4.3.1.4 Pre-Start Monitoring shall subsequently be followed by normal geophysical surveys/decommissioning activities. The delay between the end of Pre-Start Monitoring and the subsequent activities must be minimised.

4.3.1.5 If undertaking SBP activities, pre-Start Monitoring shall subsequently be followed up by a Soft Start (Ramp Up) Procedure which should include the continued monitoring by the MMOb.

4.4 Breaks in Sound Output

4.4.1.1 If there is a break in sound output for a period greater than **30 minutes** (e.g., due to equipment failure, shut-down, survey line or station change), then all Pre-Start Monitoring (for all decommissioning activities) and a subsequent Soft Start (Ramp-up) Procedure (for SBP activities) must be undertaken.

4.4.1.2 Where breaks are shorter than 30 minutes, operations may recommence at full power, subject to MMOb confirmation that no marine mammals are present within the mitigation zone.

4.5 Soft Start (Ramp-up) Procedure:

4.5.1.1 A soft-start procedure must be used when commencing SBP activities only. This will involve initiating the acoustic equipment at the lowest practicable power setting and, where the facility

is available, gradually increasing to operational levels to allow marine mammals to move away from the area.

4.5.1.2 In all cases the delay between the end of ramp-up and the start of a survey line or station must be minimised to prevent unnecessary high-level sound introduction into the environment.

4.5.1.3 Once the soft start commences, there is no requirement to halt or discontinue the procedure if weather or visibility conditions deteriorate, if activities start in daylight hours and continue into darkness, or if marine mammals occur within the Mitigation Zone.

5 REPORTING

5.1 Overview

5.1.1.1 The Operator and MMObs tasked with monitoring an operator's implementation of the technical guidance and with conducting survey effort for marine mammals in accordance with this guidance, must submit a report to the NPWS within 30 days of completion of the works relating to the MMMP. These must include use of the standard data forms provided in NPWS (2014).

5.2 Operations Report

5.2.1.1 An Operations Report shall be prepared by the Principal Decommissioning Contractor and shall include the following information:

- Details of the Principal Decommissioning Contractor involved in the Proposed Works Offshore.
- Details of the Platform/Vessel type(s) participating in the Proposed Works Offshore.
- The works reference number supplied by relevant regulatory authorities or other statutory bodies (where applicable).
- Date and location of the Proposed Works Offshore.
- Latitudes, Longitudes or Grid references for the area of operations.
- Specifications and acoustic characteristics of all sound-producing equipment used (see also **Table 1.1**).
- A daily log of how and when the sound-producing equipment was used including during Soft Start (Ramp-up) procedures, where relevant.
- Information on any technical problems encountered during start-up procedures, ramp-up (soft-start) procedures or during full scale operation/activity.

5.3 MMOb Report

5.3.1.1 An MMOb Report shall be prepared and submitted along with the standard data forms provided in NPWS (2014), which shall include:

- An executive summary outlining:
    - All marine mammal detections made during the programme of works;
    - All detections made prior to the commencement of the operation/activity (e.g., before ramp-up);
    - All operational responses to the presence of animals in the area and the associated outcomes;
    - All occurrences of night-time operation/activity, continuation into poor weather and stoppages;
    - Any and all problems arising during implementation of the prescribed mitigation; and
    - A concluding statement regarding the operational efficacy of the mitigation measures performed.
- Date and location(s) of the Proposed Works Offshore.
- Name, address and qualifications of the MMOb operators on the Platform/Vessel.
- Name of any other Platform/Vessel involved in the operation/activity.
- Latitudes, Longitudes or Grid references for the area(s) of operations monitored by the MMOb.
- Details of the observation platform used for marine mammal monitoring, including its height above sea level.
- Details of all sound-producing operations/activities undertaken during the period of works.
- Details of monitoring watches conducted for marine mammals.

- Details of all marine mammal sightings recorded during monitoring watches.
- Details of all marine mammal sightings recorded outside monitoring watches (e.g., incidental observations), including records from additional personnel on board.
- Details of any problems encountered during marine mammal monitoring, start-up procedures, ramp-up (soft start) procedures or during full scale operation/activity.

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