



RISK ASSESSMENT FOR ANNEX IV SPECIES

Site Investigation for Floating Offshore Wind Testing at AMETS Co. Mayo
FS007062

28th February 2022

Introduction

Under Article 12 of the Habitats Directive (92/43/EEC) Member States are required to establish a system of strict protection for species listed in Annex IV of that directive. This protection is afforded to these species at all stages of their life cycle and wherever they occur. This protection includes deliberate disturbance of these species, particularly during periods of breeding, rearing, hibernation and migration. This has been transposed into Irish Law by Regulation 51 of the European Communities (Birds and Natural Habitats) Regulations 2011. Within the Irish marine context the fauna which need to be considered under Annex IV of the Directive are all cetaceans, the European Otter (*Lutra lutra*) and four species of marine turtles (NPWS, 2021).

The Proposed Project

This licence application is for the site investigation work at the Atlantic Marine Energy Test Site (AMETS) to the west of the Mullet Peninsula/Anagh Head, Co. Mayo. These investigations are required to obtain a more detailed geophysical map of the site. They will include the use of Sub-bottom Profiling (SBP), Core Penetration Testing (CPT) and bathymetric surveys utilising a Multi Beam Echo Sounder (MBES) and Side Scan Sonar (SSS). Benthic samples, using a Day grab in the subtidal and hand cores in the intertidal, will also be taken.

Geophysical & Geotechnical surveys

The proposed SBP, CPT, MBES and SSS surveys are subject to suitable weather windows and vessel availability. The duration of these surveys is anticipated to be in the order of one month, subject to an appropriate weather window. One or both of the national research vessels are likely to be the platform for these operations.

Sub-bottom Profiling (SBP) is a method for obtaining high-resolution characterisation of sediments and rock under bodies of water. It provides a method of determining and mapping interfaces between the various sedimentary layers or the overburden/bedrock interface beneath a body of water. The technique is based on the principles of seismic reflection, i.e. the emission of a seismic wave into the subsurface, and the reception of the energy reflected by the various interfaces. Various different types of equipment are commonly used for sub bottom profiling including those utilising boomers, pingers and chirper systems. All of which emit different acoustic signals. For the proposed project a Knudsen Chirp 3260 will be employed. This system operates a chirper system in the 100 to 400 kHz frequency range. But is most likely to be used in the low frequency combination of 3.5/12 kHz.

It is proposed that SBP survey lines will be spaced at a maximum of 230m with such a configuration to allow a 2 x 2m Digital Terrain Model (DTM) within test areas 'A' and 'B' to be created. If geohazards or any other specific area requiring detailed data are encountered the DTM will be reduced to 1 x 1m grid size.

Cone penetration testing (CPT) is a method used to determine the geotechnical engineering properties of soils/sediments and delineating soil/sediment stratigraphy. For the proposed site investigations, a Ronson seabed CPT will be employed. This instrument uses a wheel drive system to push the CPT rods (string) into the seabed. Wheel friction is imposed by hydraulic force. A self-tensioning electric winch with heave compensation feeds the umbilical for power supply and data communication. The system is therefore operated by a single direct force being applied to the rods (string) rather than by a hammering, coring or drilling action. The instrument weighs in the region of 10t and is deployed by lowering it directly onto the seabed from the stern of the vessel using a crane. No significant underwater acoustic signal results from the operation of CPT.

A total of 12 CPT (6 CPT X 2) will be carried out at Test Areas 'A' and 'B' and at each anchor location. CPT will be carried out to a minimum depth of 10m below seabed or rock formation refusal.

Multi beam echo sounder (MBES) is a recommended technique used to assess the bathymetry of the seabed prior to deploy the CPT tool. It is proposed that a high resolution multibeam echo sounder will be used (200-400 KHz). The proposed system consists of a Kongsberg EM2040 or equipment of similar specification (200-400 KHz).

Side scan sonar (SSS) is a method used to detect potential seabed obstructions and identify additional seabed features prior to deploy the CPT. It is proposed that a Edgetech side scan sonar or equipment of similar frequencies will be used (100 -900kHz). This system comprises a cylindrical device with hydrodynamic design provided with fins, which is towed behind the stern of the boat. It operates using two transducers that emit acoustic waves across the water in a frequency range between 100 and 900 kHz.

Benthic Sampling

In order to characterise and monitor the marine biotopes, it is proposed that the subtidal and the adjacent intertidal areas are sampled to assess the sediment structure and its macrofaunal components.

Subtidal benthic sampling will be undertaken using a Day grab. It is proposed to sample twenty five random stations from test area (A and B and the cable route) and fifteen random stations from appropriate control locations for each test area and the cable route. Sampling will be undertaken over 3 to 4 days with sampling of the deeper stations (*circa* 80-100m depth) being carried out in conjunction with SBP and CPT surveys on board one of the Irish research vessels. The remainder of the sampling will be carried out from a smaller licenced survey vessel (8m Rigid Hulled Inflatable).

Intertidal benthic sampling will use a hand core to sample six stations in order to characterise the infaunal community at the proposed landfall location at Belderra Strand. Sampling will take place between the months of June to August over a single tidal cycle during daylight hours.

Risk Assessment

Using the species and habitat information with the NPWS 2021 Article 12 guidance document and the National Biodiversity Data Centre mapping system <https://maps.biodiversity.ie> it was determined that otters may be present at Belderra Strand. During the period 2010/2011 a total of 10 species of cetaceans were recorded from a survey of the AMETS site. The occurrence of these species ranged from regular to abundant for the common dolphin, common to seasonal for Minke whale, and rare for white-sided dolphin, white-beaked dolphin and Humpback whale (MERC 2019).

The presence of two people undertaking intertidal sampling at Belderra Strand is for a short duration and therefore will cause little disturbance to the otters present here. Therefore no mitigation is required.

The risk to marine mammals as a result of acoustic surveys such as those proposed for this project are outlined in NPWS's guidance on sound document (DAHG 2014). Such manmade sound has the potential cause injury to cetacean species which may be in the vicinity of the works area. Therefore mitigation in the form of strict adherence to the protocols for acoustic surveys as outlined in NPWS's guidance is required.

Statement of Authority

Yvonne Leahy is an experienced marine ecologist with a wide range of experience from conservation, developing quality index tool for Water Framework Directive, habitat mapping, aquaculture to deep water reef ecology. She completed a Ph.D. in the polychaete taxonomy and ecology in NUIG. Undertook a Post-Doctoral on shallow water hydrothermal vent ecosystems in the Institute of Marine Biology of Crete. For the last 14 years she has worked with the National Parks and Wildlife Service as a marine ecologist where she developed the Site Specific Conservation objectives for all marine Special Areas of Conservation. In this position she also reviewed Appropriate Assessments for the Aquaculture Licences and drafted Departmental responses as part of the statutory consultations for this process. She has considerable experience in the Habitats Directive and Article 6 Assessments and the case law pertaining to them.

With NPWS she developed and delivered Article 17 monitoring programmes for Annex I habitats and Annex V species. She is on the Natura 2000 Marine Expert Working Group, the OSPAR Benthic Habitats Expert Group and MSFD Integrated Monitoring Programme working group. She has been on a number of research steering groups including the NPWS/EPA co-funded CLEAR project on restoration of coastal lagoons, EcoSystem Services VIBES project and the Ecostructure project [<https://www.ecostructureproject.eu>]. She has been Ireland's representative on the Marine and Coastal Biodiversity expert working group for the UN Convention on Biodiversity.

References

Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters (2014) Department of Arts, Heritage and the Gaeltacht

Natura Impact Statement Appropriate Assessment Site Investigations at the Atlantic Marine Energy Test Site (AMETS) (2019) MERC

Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland (2021) National Parks and Wildlife Service Guidance Series 1