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Irish Whale and Dolphin Group

ANIAR ECOLOGY

Natura Impact Statement

Appropriate Assessment

Site Investigations at the Atlantic Marine Energy Test Site (AMETS)

MERC Consultants Ltd, Loughaunbeg, Inverin, Co. Galway.
www.mercenvronmental.ie

Client name	Sustainable Energy Authority of Ireland
Address	Wilton Park House, Wilton Place, Dublin 2

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Contents

1. INTRODUCTION

All EU Member States are obliged to establish a network of sites of conservation importance known as the Natura 2000 network. The network is made up of Special Areas of Conservation (SAC's) established under the EU Habitats Directive (92/43/EEC) and Special Protection Areas (SPA's) established under Directive (2009/147/EC). Under Article 6 (3) of the Habitats Directive, Member States are required to consider the potential effects of any project or plan on the conservation objectives of an SAC or SPA before a decision can be made to allow that project or plan to proceed.

Appropriate Assessment (AA) is the process whereby the potential impacts of a project or plan are assessed in view of the site's conservation objectives. The first step in the process is to conduct Appropriate Assessment Screening to determine, on the basis of a preliminary assessment and objective criteria, whether the project or plan, alone or in combination with other projects or plans could have significant effects on the conservation objectives of a Natura 2000 site. Where significant effects are likely, uncertain or unknown at the screening stage Appropriate Assessment is required.

This report provides an ecological assessment to inform Appropriate Assessment for proposed site investigations and benthic sampling at the Atlantic Marine Energy Test Site (AMETS) off Annagh Head, Co. Mayo.

This report was prepared by Dr. Louise Scally MCIEEM of MERC Consultants Ltd., with the assistance of Dr. Simon Berrow of the Irish Whale and Dolphin Group and Jackie Hunt MCIEEM of Aniar Ecology.

2. STATEMENT OF AUTHORITY

2.1 Louise Scally

Louise Scally is a professional ecologist with a wide range of experience in the field of conservation biology, marine habitat mapping and ecology. She completed a M.Sc. in ecology and taxonomy at the Botany Department Trinity College Dublin in 1989 and a Ph.D. in taxonomy also at the Botany Department Trinity College Dublin in 2001. For the last 15 years she has specialised in the ecology of marine ecosystems.

She has conducted field surveys and assessments for a range of habitats over the last 15 years for private and public sector clients including the National Parks and Wildlife Service, The Marine Institute, Inland Fisheries Ireland, Coillte Teo. Environmental Protection Agency, SEAI and ESB Networks Ltd.

She was the senior ecologist and field survey team member of the 2015-2018 NPWS national monitoring of marine Annex I habitats for compliance under Article 17 of the EU Habitats Directive. In this context she was responsible for the assessment and reporting of marine Annex I habitats and was lead author of all Article 17 reports and the overarching site monitoring reports. She was also a field team member and author of the ecology sections of the EIS and NIS for the AMETS and lead author for the preparation of the Department of Communications, Climate Action and Environment (2018*). Guidance on Marine Baseline Ecological Assessments and Monitoring Activities -Offshore Renewable Energy Projects Part 1 and Part 2.*

In addition to her scientific expertise she has an in-depth knowledge of Irish and European Environmental legislation and policy. In 2011 she prepared the text describing Activities Requiring Consent (ARCs) for inclusion in a handbook detailing the regulatory framework for all developments within designated sites in Ireland on behalf of the National Parks and Wildlife Service. She has also produced numerous Conservation Management Plans for the same department. To-date she has conducted in excess of 70 ecological reports in support of Appropriate Assessment under Article 6(3) of the EU Habitats Directive.

2.2 Simon Berrow

Simon Berrow has been working in the field of marine mammal research for over 25 years. He established the Irish Whale and Dolphin Group in 1991 and still acts as Chief Executive Officer and Consultancy Manager. Simon is also a Lecturer at the Galway-Mayo Institute of Technology contributing to the Applied Freshwater and Marine Biology Honours Degree and Masters programmes as well as supervising PhD students. He has been carrying out environmental consultancy since 1991 and has managed a number of large projects to completion including the WETS and AMETS survey from 2009- 2013. He has recently delivered a major three-year project for the Marine Institute under SeaChange and was PI on the ObSERVE-Acoustic project for the Department of Communications, Climate Action and Energy. He has in-depth knowledge of the distribution and ecology of marine mammals in Irish waters and the impacts that effect their distribution.

Simon has studied the marine mammal community of the AMETS since 2009. He was responsible for the reporting and coordination of all marine mammal surveys for the preparation of the baseline and subsequent monitoring of marine mammals within the area as part of the original consenting process for the foreshore lease for the site.

Simon Berrow was also the author of the marine mammal section of for the preparation of the Department of Communications, Climate Action and Environment (2018*). Guidance on Marine Baseline Ecological Assessments and Monitoring Activities -Offshore Renewable Energy Projects Part 1 and Part 2.*

2.3 Jackie Hunt

Jackie Hunt has worked in the field of ornithological research for the last 15 years. Formerly an employee of BirdWatch Ireland, working on site protection issues, Jackie then moved to County Mayo where she has worked as an ecological consultant for the last 10 years. She has been involved in site designation work for Special Protection Areas and EIA review including provision of expert witness evidence. She has a wide range of bird survey experience including surveys of wintering and breeding seabirds, with specific surveys focusing on Kingfisher, Peregrine, nesting gulls and terns and Storm Petrel.

Jackie has completed an approved training course in seabirds at sea survey methods and has been coordinating bird surveys for the AMETS project since Sept 2009. She herself has completed the land based surveys for this project and has been secondary observer for the at sea surveys. She has been fully responsible for the successful coordination of the bird survey team throughout the 2010 baseline ecological assessment of the AMETS and has also been responsible for report writing.

Jackie Hunt was also the author of the ornithology section of for the preparation of the Department of Communications, Climate Action and Environment (2018*). Guidance on Marine Baseline Ecological Assessments and Monitoring Activities -Offshore Renewable Energy Projects Part 1 and Part 2.*

3. METHODS

This report has been prepared with reference to the following European Directives, national legislation and guidance on the appropriate assessment of projects and plans with regard to the implementation of the provisions of Article 6(3) and (4) of the EU Habitats Directive 92/43/EEC.

- *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild flora and fauna*. Official Journal of the European Communities.
- *Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds* (codified version).
- *European Communities (Birds and Natural Habitats) Regulations 2011*. SI No. 477 of 2011.
- *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission 2018. 7621 final. Office for Official Publications of the European Communities, Luxembourg.
- *Assessment of plans and projects significantly affecting Natura 2000 sites; Methodological Guidance on the provisions of Articles 6(3) and (4) of the Habits Directive 92/43/EEC*. European Commission, 2002;
- *Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities*. DoEHLG, 2009.
- *Guidance on the preparation of Environment Impact Statements (EIS) and Natura Impact Statements (NIS) for offshore renewable energy projects.* Department of Communications, Climate Action and Environment (2018*).*
- *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters.* Department of Arts, Heritage and the Gaeltacht, 2014
- All appropriate case law.

A review of the available literature for the area, potential project related impacts and consultation with the SEAI project team was undertaken.

For the ecological assessment of the project, the literature consulted included the available National Parks and Wildlife Service data sources for all Natura 2000 sites within a 15km radius of the project area. This included the individual site synopsis for each designated area, standard Natura 2000 data forms, conservation objectives and GIS layers (habitats, species and marine community mapping). Relevant literature on the impact of noise on marine mammals was also reviewed.

Field site surveys were not conducted as it was considered they would not have provided any additional relevant information related to the impacts of the proposed site investigations on Natura 2000 sites and the authors of this report already had an in-depth knowledge of the proposed project site (marine and coastal areas and related species) and its environs.

4. DETAILS OF PROPOSED PROJECT OR PLAN

The AMETS is located in an area of open marine water located west of the Mullet Peninsula/Annagh Head, Co. Mayo (see figure 4.1). Following a detailed assessment process conducted by the Marine Institute, the area was identified as being the most suitable location on the western seaboard of Ireland for development as a wave energy test facility. During the planning and development stage of project extensive surveys, including, but not limited to, geophysical, environmental and ecological surveys were undertaken and some of these surveys formed the basis for the subsequent granting of a Foreshore Lease by the Minister for the Environment, Community and Local Government (DECLG) in January 2016. The lease application was accompanied by a full Environmental Impact Statement (EIS) under the Environmental Impact Assessment (EIA) Directive and Appropriate Assessment (AA) under the Habitats Directive.

Since the original Foreshore lease was granted it became obvious that the development of wave energy devices was at a too early a developmental stage for deployment and testing at the AMETS. It is now considered that floating wind technology offers a more realistic technology for deployment and testing and that the AMETS site is suited for this purpose.

SEAI is a partner in the AFLOWT (Accelerating Market Uptake of Floating Offshore Wind Technology) consortium which was recently awarded Interreg North West Europe funding under the Low Carbon theme. One of the main objectives of the project is the demonstration of a high-survivability, cost- competitive Floating Offshore Wind (FOW) technology.

The AFLOWT project proposes the development of AMETS to cater for FOW by developing a subsea electrical cable, the fabrication, deployment and operation of a FOW turbine and platform and connection to the grid. The AFLOWT project plans to deploy an up to 6 MW FOW turbine at the AMETS site.

As part of the development of the AMETS to accommodate FOW a need has been identified to obtain more detailed geophysical information. In this regard, site investigations requiring the use of Sub-bottom Profiling (SBP) and Core Penetration Testing (CPT) and bathymetric surveys utilising a Multi Beam Echo Sounder (MBES) and Side Scan Sonar (SSS) are required. In addition, sampling of the benthos to inform Environmental Impact Assessment and Appropriate Assessment will be required. These site investigations and benthic sampling are the focus of this Appropriate Assessment Screening, which also considers in-combination impacts of the currently proposed site investigations with additional future planned development at the AMETS and other relevant projects or plans.

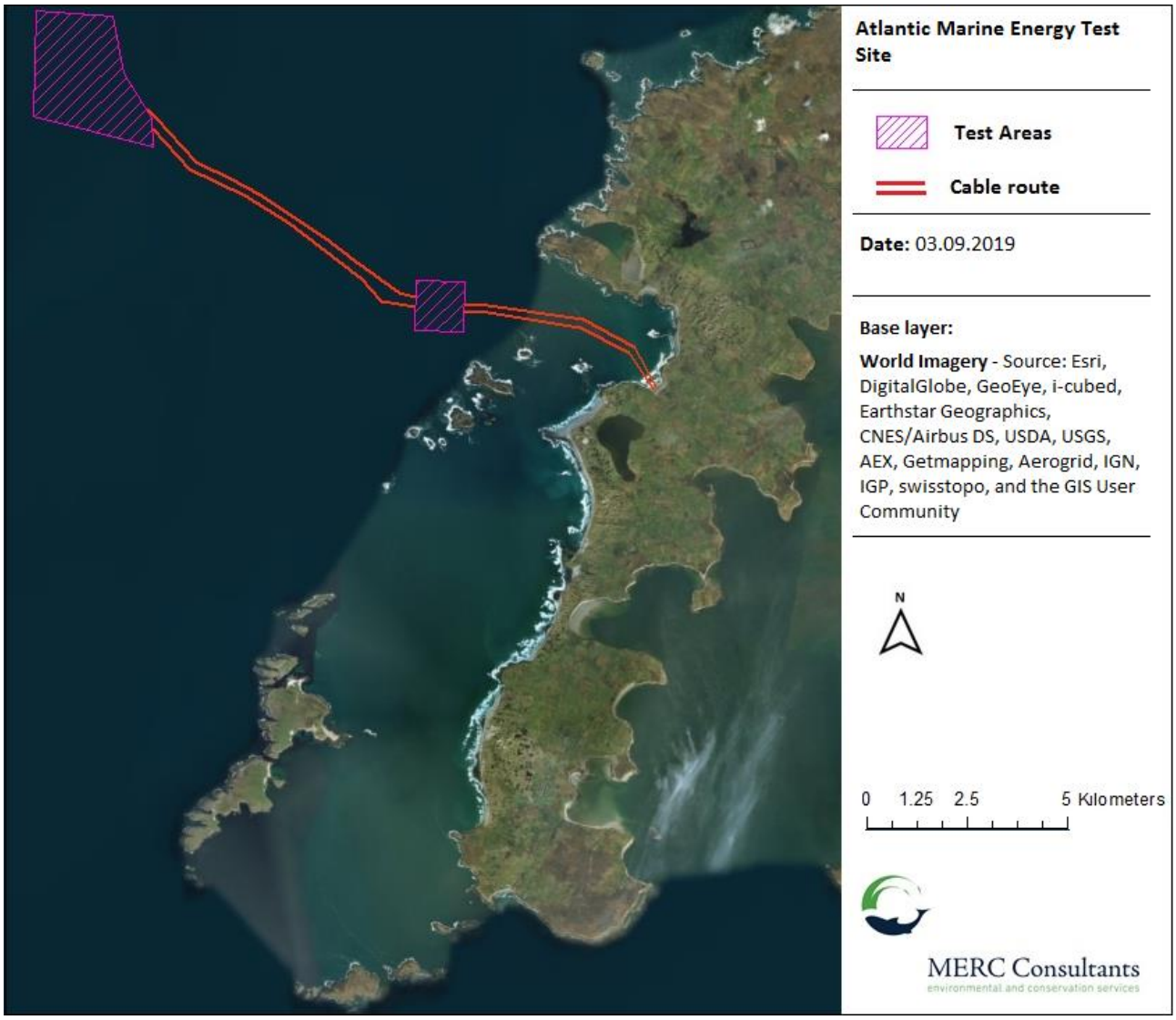

Figure 4.1 Overview of proposed project location.

5. ALTERNATIVE SITES

The AMETS area was originally selected for its suitability for testing full scale wave energy convertors (WEC's). The assessment process considered issues such as wave resource, technical feasibility, water depth, seabed condition, grid accessibility through ports and road networks required to minimise environmental impact. As described in section 4.1, the technology required for WEC's is now considered to be at too early a developmental stage for deployment and testing at the AMETS. However, the majority of the criteria that made the site suitable for the testing of WEC's also apply to the testing of FOW.

Relative to the geographical scale of the area of the West Connacht Coast SAC along the Atlantic seaboard of Ireland and the adjacent additional Natura 2000 sites, it is considered that alternative sites (with the required resources and additional criteria necessary for the development of the AMETS as a wind energy testing environment) in this area would have no less an ecological impact in relation to the qualifying interests of the West Connacht Coast SAC or other adjacent Natura 2000 sites than any other area with the same suitability requirements.

6. SCOPE OF WORKS

The currently proposed project relates to following specific site investigations:

- Sub-bottom Profiling (SBP)
- Core penetration testing (CPT)
- Multi-beam bathymetric survey (MBES)
- Side-Scan Sonar survey (SSS)
- Benthic sampling of the subtidal sediment (Day grab sampling)
- Benthic sampling of the intertidal sediment (Intertidal core sampling)

6.1 Sub-bottom Profiling and Cone penetration testing, Multi-beam and Side-scan sonar

The proposed SBP, CPT, MBES and SSS will take place between May and September 2020 subject to suitable weather windows and vessel availability. Duration is anticipated to be in the order of 1 month, again subject to an appropriate weather window. Deployment and operation of equipment for site investigations will be from either or possibly both (at separate times) of the national research vessels, the *Celtic Explorer* and the *Celtic Voyager*, depending on the particular site investigation being carried out. For example, it may be more appropriate to carry out SBP from the Celtic Voyager and CPT from the Celtic Explorer.

Celtic Explorer is a multi-purpose research vessel with a gross tonnage of 2425t. It is 65.5m in length with a beam of 15m and a draft of 5.8m. The vessel is designed to meet the noise requirements of the review and recommendations for underwater noise for research vessels report (ICES. 1995). It has a maximum speed of 16 knots and a service speed of less than 10 knots. Propulsion is diesel-electric.

Celtic Voyager is a smaller research vessel with a gross tonnage of 340t. It is 31.4m in length with a beam of 8.5m and a draught of 4m. The vessel is designed to meet the noise requirements of the review and recommendations for underwater noise for research vessels report (ICES. 1995). It has a maximum speed of less than 10 knots. Propulsion is diesel-electric.

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 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.

All operations from Celtic Explorer and Celtic Voyager follow the guidelines to manage the risk to marine mammals from man-made sound sources in Irish waters (NPWS, 2014).

6.2 Benthic sampling (Subtidal and intertidal)

As per standard protocols for the characterisation and monitoring of marine biotopes, it is proposed that the subtidal and adjacent intertidal area is sampled to assess the sediment structure and macrofaunal component of the area.

Subtidal benthic sampling

Subtidal benthic sampling using a Day grab is a standard method for assessing the infaunal and associated sediment composition (Particle size and organic content) of subtidal marine habitats. It is the method used to assess marine sediment communities under both the EU Habitats Directive and the EU Water framework Directive in Ireland.

It is proposed that twenty five (25) random stations from test area (A and B and the cable route) and fifteen (15) random stations from appropriate control locations for each test area and the cable route will require to be sampled for macrofauna particle size and organic content. This gives a total of forty (40) subtidal grab stations.

Each sample retrieved will be sieved on deck through 1mm mesh sieve and images of the grab contents before and after sieving will be taken. The remainder of the sample will be preserved in buffered 4% w/v formaldehyde solution for subsequent transport and analysis at an NMBAQC certified laboratory. A subsample of the grab contents (approx. 100g) will be retained for granulometric analysis.

Sampling will be undertaken over 3-4 days between the months of June to August 2020. Sampling of the deeper stations (*circa*. 80-100m depth) may be carried out in conjunction with SBP and CPT from the Celtic Voyager or Celtic Explorer. The remainder of the sampling will be carried out from a smaller licenced survey vessel (8m Rigid Hulled Inflatable).

Intertidal benthic sampling

Intertidal benthic sampling using a 0.01m^2 hand core is a standard method for assessing the infaunal and associated sediment composition (Particle size and organic content) of intertidal marine habitats. It is the method used to assess intertidal marine sediment communities under both the EU Habitats Directive and the EU water framework Directive in Ireland.

It is proposed that six (6) intertidal sediment stations will be required to characterise the marine habitat at Belderra Strand, The proposed landfall location.

At each station 5 replicate samples will be taken using a 0.01m^2 core. Each sample retrieved will be sieved on site through a 1mm mesh sieve. The sample retained on the sieve will be preserved in buffered 4% w/v formaldehyde solution for subsequent transport and analysis at an NMBAQC certified laboratory. A subsample of the sediment (approx. 100g) will be retained for granulometric analysis. All sampling will be carried out when the predicated tidal height is less than 0.6 meters. Sampling will take place between the months of June to August 2020 over a single tidal cycle during daylight hours.

7. ECOLOGY OF THE SITE

7.1 Overview

Surveys carried out between 2010 to 2012, as part of the original consenting process for the foreshore lease for the site, have provided a significant volume of ecological survey data for the AMETS relative to benthic habitats and species, terrestrial habitats and species, birds and marine mammals. A brief description of these is provided below and detailed data and analysis is provided in the Environmental Impact Statement (EIS) and Appropriate Assessment (AA) which formed part of a Foreshore Lease application for the AMETS which was granted by the Minister for the Environment, Community and Local Government (DECLG) in January 2016.

7.2 Ecology of the receiving environment

The marine element of the AMETS is characterised by a large expanse of open water in depths ranging from the Mean Low Water Spring mark at Belderra Strand to 100m BCD at Test Area 'A'. The site is highly exposed and dominated by soft benthic sediments with localised areas of geogenic reef. The benthic sediments (known from grab sampling) are characterised by sand and muddy sand under the European Nature

Information system (EUNIS) Marine Habitat classification system. The macrofaunal component of the sediment is characterised by species typical of infralittoral and circalittoral sands

Subtidal Geogenic reef habitats at the site, surveyed by a combination of drop down video and diver surveys, are found throughout the area and the most common reef morphotype present consists of flat and sloping bedrock with numerous crevices and gullies. The biotopes present are characterised by deep, exposed circalittoral communities. Smaller areas of cobble occur along some sections of the cable route, these areas are relatively species poor, most likely due to the effect of wave action causing mobility of the cobble and a subsequent lack of encrusting species. Shallower inshore, infralittoral reefs occur in the vicinity of Annagh Head and are characterised by vertical rock walls and pinnacles with numerous crevices, gullies and overhangs. The only biotope recorded in this area is *Laminaria hyperborea* on moderately exposed vertical rock.

Areas of the Annex I habitat Mudflats and sandflats not covered by seawater at low tide (EU habitat code: 1140) and Reef (EU Habitat code: 1170) occur along the shoreline at Belderra strand and inner Annagh Head within Mullet/Blacksod Complex SAC. Here, the marine community types *Sand with Angulus tenuis and Pygospio elegans community complex* and *Intertidal reef community complex* dominate the intertidal area.

The marine mammal community at the AMETS is described from a combination of visual and acoustic surveys as well as published, unpublished and historic data. The data indicates a rich marine mammal community in, and adjacent to, the AMETS with common and bottlenose dolphins being the most frequently reported species. In total, seven cetacean species, two seal species and two other marine megafauna species were recorded within the site and another three adjacent to it during surveys of the AMETS and its environs during the period 2010 to 2011 (see table 7.1).

Table 7.1 Summary of marine mammal and megafauna occurrence at or adjacent to the proposed SI's. Data derived from survey of the AMETS during the period 2010/11.

Species	Spring	Summer	Autumn	Winter	Notes
Harbour porpoise					Regular
Common dolphin					Regular/abundant
Bottlenose dolphin					Seasonally resident
Risso's dolphin					Vagrant
While-sided dolphin					Rare
White-beaked dolphin					Rare
Striped dolphin					Rare
Killer whale					Infrequent visitor
Minke whale					Common/seasonal
Humpback whale					Rare
Grey seal					Resident/abundant
Common seal					Resident/abundant
Basking shark					Seasonally frequent
Sunfish					Infrequent visitor

Bottlenose dolphins occur within the West Connacht Coast SAC, which is designated exclusively for bottlenose dolphins. Grey seals use the area within the Duvillaun Islands SAC (which is designated exclusively

for grey seals) and Inishkea Islands SAC and surrounding waters, which are considered to be within the zone of influence of the proposed project.

The avifauna of test areas A and B is known from seabirds at sea surveys which were completed between October 2009 and June 2013 (Scally *et al*, 2013). During 21 successful surveys within this period a total of 15,121 seabirds were observed. Gannets were by far the most common species observed, followed by Manx shearwaters, and fulmars (Table 7.2). Other relatively common species observed included razorbills, kittiwakes, puffins and great shearwaters. Storm petrels, great black-backed gulls, and guillemots were generally less abundant. The number of individuals observed varied between survey and year as did the seasonal composition of the marine bird community. The results suggest that bird use of the study area is complex that the site is used year-round but by different species at different times, and that these species fluctuate in number between years.

Table 7.2 Counts of seabirds as observed over 21 at-sea transect surveys between October 2009 and June 2013, inclusive (See Scally *et al*, 2013 for further detail).

		On Transect				On Transect	
Species	**Total**	**On Water**	**In Flight**	**Species**	**Total**	**On Water**	**In Flight**
gannet	3901	1012	715	common gull	23	10	4
Manx Shearwater	2592	329	627	barnacle goose	14	0	0
fulmar	2087	70	521	arctic skua	10	5	0
razorbill	1234	108	218	black guillemot	10	0	0
kittiwake	1134	101	291	long-tailed duck	8	8	0
puffin	994	343	152	brent goose	7	0	0
great shearwater	869	447	0	oystercatcher	4	0	0
storm petrel	446	1	146	cormorant	3	0	0
guillemot	402	204	34	dunlin	2	0	0
great black-backed gull	391	81	75	great northern diver	2	0	0
razorbill/guillemot	353	2	35	pomarine skua	2	0	0
arctic tern	174	7	90	black-headed gull	1	0	0
unidentified auk	154	1	12	common tern	1	0	0
sooty shearwater	81	0	6	glaucous gull	1	0	0
herring gull	81	6	26	grey phalarope	1	0	0
lesser black-backed gull	65	37	10	little auk	1	0	0
shag	46	0	0	red-necked phalarope	1	0	0
great skua	25	1	2	red-throated diver	1	0	0
				TOTAL	**15,121**	**2,774**	**2,964**

8. EUROPEAN SITES

All SAC's within a 15km radius of the proposed project and SPA's within a 20km radius of the proposed project site are listed in table 8.1 below.

Due to the scale and scope of the proposed project, it is considered that negative impacts on Natura 2000 sites that are considered to be outside the zone of influence of the proposed project (see section 9 for further detail) either alone or in combination with other projects and plans, will not occur. Other than West Connacht Coast SAC, Duvillaun Islands SAC, Iniskea Islands SAC and Mullet/Blacksod Bay Complex SAC no other SAC's are considered to be within the zone of influence of the proposed project and are not considered further in this report. Possible impacts on adjacent SPA's have been considered further by way of the potential range of bird species

The features of interest for those sites under consideration are provided in table 8.2.

Table 8.1. SAC's within 15km and SPA's within 20km of the AMETS

Site name	Site code
West Connacht Coast SAC	002998
Mullet/Blacksod Bay Complex SAC	000470
Erris Head SAC	001501
Broadhaven Bay SAC	000472
Duvillaun Islands SAC	000495
Iniskea Islands SAC	000507
Mullet Peninsula SPA	004227
Blacksod Bay/Broadhaven SPA	004037
Termoncarragh Lake and Annagh Machair SPA	004093
Duvillaun Islands SPA	004111
Iniskea Islands SPA	004004
Inishglora & Inishkeeragh SPA	004084
Illanmaster SPA	004074
Stags of Broad Haven SPA	004072

Table 8.2. Features of interest for which all sites within the zone of influence of the proposed project are selected.

West Connacht Coast SAC Site code: 002998)
Tursiops truncatus (Common Bottlenose Dolphin) [1349]
Mullet/Blacksod Bay Complex SAC (Site code: 000470)
Mudflats and sandflats not covered by seawater at low tide [1140]
Large shallow inlets and bays [1160]
Reefs [1170]
Salicornia and other annuals colonising mud and sand [1310]
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
Atlantic decalcified fixed dunes (Calluno-Ulicetea) [2150]
Machairs (* in Ireland) [21A0]
Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150]
Alkaline fens [7230]
Lutra lutra (Otter) [1355]

Petalophyllum ralfsii (Petalwort) [1395]
Inishkea Islands SAC (Site code: 00507)
Halichoerus grypus (Grey Seal) [1364]
Machairs (* in Ireland) [21A0]
Petalophyllum ralfsii (Petalwort) [1395]
Duvillaun Islands SAC (Site code: 000495)
Halichoerus grypus (Grey Seal) [1364]
Mullet Peninsula SPA (Site code: 004227)
Corncrake (*Crex crex*) [A122]
Blacksod Bay/Broadhaven SPA (Site code: 004037)
Great Northern Diver (*Gavia immer*) [A003]
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
Common Scoter (*Melanitta nigra*) [A065]
Red-breasted Merganser (*Mergus serrator*) [A069]
Ringed Plover (*Charadrius hiaticula*) [A137]
Sanderling (*Calidris alba*) [A144]
Dunlin (*Calidris alpina*) [A149]
Bar-tailed Godwit (*Limosa lapponica*) [A157]
Curlew (*Numenius arquata*) [A160]
Sandwich Tern (*Sterna sandvicensis*) [A191]
Dunlin (*Calidris alpina schinzii*) [A466]
Wetland and Waterbirds [A999]
Termoncarragh Lake and Annagh Machair SPA (Site code: 004093)
Whooper Swan (*Cygnus cygnus*) [A038]
Barnacle Goose (*Branta leucopsis*) [A045]
Corncrake (*Crex crex*) [A122]
Lapwing (*Vanellus vanellus*) [A142]
Chough (*Pyrrhocorax pyrrhocorax*) [A346]
Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]
Dunlin (*Calidris alpina schinzii*) [A466]
Wetland and Waterbirds [A999]
Duvillaun Islands SPA (Site code: 004111)
Fulmar (*Fulmarus glacialis*) [A009]
Storm Petrel (*Hydrobates pelagicus*) [A014]
Barnacle Goose (*Branta leucopsis*) [A045]
Iniskea Islands SPA (Site code: 004004)
Shag (*Phalacrocorax aristotelis*) [A018]
Barnacle Goose (*Branta leucopsis*) [A045]
Ringed Plover (*Charadrius hiaticula*) [A137]
Sanderling (*Calidris alba*) [A144]
Purple Sandpiper (*Calidris maritima*) [A148]
Turnstone (*Arenaria interpres*) [A169]
Common Gull (*Larus canus*) [A182]
Herring Gull (*Larus argentatus*) [A184]
Arctic Tern (*Sterna paradisaea*) [A194]
Little Tern (*Sterna albifrons*) [A195]
Dunlin (*Calidris alpina schinzii)* [A466]

Inishglora & Inishkeeragh SPA (Site code: 004084)
Storm Petrel (*Hydrobates pelagicus*) [A014]
Cormorant (*Phalacrocorax carbo*) [A017]
Shag (*Phalacrocorax aristotelis*) [A018]
Barnacle Goose (*Branta leucopsis*) [A045]
Lesser Black-backed Gull (*Larus fuscus*) [A183]
Herring Gull (*Larus argentatus*) [A184]
Arctic Tern (*Sterna paradisaea*) [A194]
Illanmaster SPA (Site code: 004074)
Storm Petrel (*Hydrobates pelagicus*) [A014]
Stags of Broad Haven SPA (Site code: 004072)
Storm Petrel (*Hydrobates pelagicus*) [A014]
Leach's Storm-petrel (*Oceanodroma leucorhoa*) [A015]

West Connacht Coast SAC is a large coastal site largely comprised of two dynamic coastal water areas of the west coast of Ireland and a range of associated shallow marine habitats. These include exposed Atlantic continental shelf waters and sheltered coastal bays, diverse seabed structures including sedimentary basins and reefs, prominent headlands, islets and islands. The site borders numerous existing designated sites for Annexed species and habitats, and is adjacent to a wide array of coastal features, e.g., sheltered bays, exposed open bays, estuaries, coastal cliffs and sea caves. The site represents a key habitat for the Annex II species Bottlenose Dolphin within Ireland. Survey data show that Bottlenose Dolphin occurrence within the site compares favourably with another designated site in the Lower River Shannon. The species is known to range widely within the site and it occurs during all seasons, with comparatively high group sizes of up to 50-65 dolphins or more being recorded. The site contains a wide array of habitats and hydrographic features believed to be important for Bottlenose Dolphin, including areas of strong current flow within bays or adjacent to coastal headlands, islands, sandbanks, shoals and reefs. Harbour Porpoise, Short-beaked Common Dolphin, Risso's Dolphin, Killer Whale and Minke Whale are also recorded within the site. The site also contains two Annex II seal species: Harbour Seal and Grey Seal, which carry out breeding, resting, social behaviour and moulting activity at terrestrial or intertidal locations in immediate proximity to the site

Mullet/Blacksod Bay Complex SAC is large coastal site, which comprises much of the Mullet Peninsula, the sheltered waters of Blacksod Bay and the low-lying sandy coastline from Belmullet to Kinrovar. It is a shallow bay, reaching a maximum depth of 19 m and with weak tidal streams. The bay supports a range of important subtidal communities. The eel grass, *Zostera marina*, occurs at several localities and the bay had supported a significant area of subtidal biogenic reef (*Serpula vermicularis*) although this has been severely damaged in recent years through anthropogenic pressures. Significant beds of maërl are also scattered throughout the bay.

The site supports excellent examples of a range of sand dune habitats. 3The machair and fixed dune habitats are particularly well developed and comprise some of the largest areas of these habitats in Ireland. A fine example of decalcified fixed dunes occurs. A fairly extensive area of alkaline fen, which is subject to a strong maritime influence, occurs at Termoncarragh Lough. Cross Lough is a good example of a naturally eutrophic system and receives large inputs of wind-borne ions from the nearby ocean. *Petalophyllum ralfsii* occurs at two machair areas within the site.

Inishkea Islands SAC. The Inishkea Islands are two low-lying, exposed and wind-swept islands separated by a narrow channel. They lie 5km off the Mullet Peninsula. Site includes associated rocks and reefs, as well as the surrounding seas. Inishkea North is a ridge of gneiss, rising to 30m on the western edge where there are cliffs and gullies. This island is dominated by machair and includes a small lake. The south island is higher with machair on the low areas and heath on the higher levels. The main habitat on the islands is machair, which is considered of good quality and one of the best examples in Ireland. *Petalophyllum ralfsii* also occurs here. The Inishkea Islands, together with Inishkeeragh and the Duvillaun islands, hold 33% of the national population of grey seals *Halichoerus grypus*.

Duvillaun Islands SAC comprises a group of uninhabited islands, rocks and reefs, situated at the southern tip of the Mullet Peninsula. Much of Duvillaun More is above the 30m contour and there are cliffs at the north-west, west and south-west sides. About two-thirds of this island is covered by a grassy sward. Duvillaun Beg also has a grassy sward, and an extensive intertidal shoreline. The other islets are mostly rocky knolls. The Duvillaun islands form part of a larger group of islands, together with the Inishkea islands and Inish Keeragh, which hold 33% of the national population of grey seals *Halichoerus grypus*.

Mullet Peninsula SPA The Mullet Peninsula SPA comprises three separate areas situated on the Mullet peninsula in Co. Mayo. It supports a breeding population of Corncrake (5 pairs - five year mean peak between 2003 and 2007, based on records of calling males). The Mullet Peninsula SPA is one of a suite of sites along the western seaboard that is regularly utilised by nationally important numbers of breeding Corncrake.

Blacksod Bay/Broadhaven SPA is situated in the extreme north-west of Co. Mayo. The site comprises a number of bays and inlets including Sruwaddacon Bay, Moyrahan Bay, Traw-Kirtaun, Blind Harbour, Tullaghan Bay, and the various sheltered bays and inlets in Blacksod Bay, including Trawmore Bay, Feorinyeeo Bay, Saleen Harbour, Elly Bay and Elly Harbour. At low tide extensive areas of intertidal sand and mudflats are exposed. These support a well-developed macro-invertebrate fauna which provide an excellent feeding resource for waterfowl. The site supports an excellent diversity of wintering waterfowl species and is one of the most important wetland complexes in the west of Ireland.

Termoncarragh Lake and Annagh Machair SPA. Termoncarragh Lake is a shallow, coastal lake situated on the north-west side of the Mullet peninsula. It is fringed by swamp vegetation and edged in parts by freshwater marsh and fen. The lake habitats merge into a machair plain that is mostly divided into strip fields. The site is of importance for both wintering and breeding birds. It is part of the wintering ground for the largest population of *Branta leucopsis* in the country, and regularly supports a flock of international importance. It also has a range of other wintering species. Part of site is owned by BirdWatch Ireland who have recently commenced a management programme to improve habitat conditions for breeding waders, including *Phalaropus lobatus*, as well as *Crex crex.*

Duvillaun Islands SPA comprises a group of uninhabited marine islands, rocks and reefs, located between 1 and 5 km off the southern tip of the Mullet Peninsula in Co. Mayo. The surrounding seas to a distance of 200 m from the shoreline, where seabirds forage, bathe and socialise, are included in the site. Duvillaun More is the largest of the islands, rising to 63 m, with cliffs on the north-west, west and south-west sides. The site is an important seabird colony, with nationally important populations of *Hydrobates pelagicus*, *Fulmarus*

glacialis and *Larus marinus*. In winter, the Duvillaun islands support *Branta leucopsis* - up to 500 birds can occur; these are part of a much larger population centred on the Mullet Peninsula and Inishkea Islands. The Duvillaun islands form part of a larger group of islands, which hold one of the largest breeding populations of *Halichoerus grypus* in Ireland, a species listed on Annex II of the E.U. Habitats Directive.

Iniskea Islands SPA is a group of very exposed, low-lying islands, which lie approximately 5 km off the Mullet peninsula in north-west Mayo. In addition to the two main islands, the site includes various smaller islands and islets and associated reefs. The surrounding seas to a distance of 200m from the shoreline, where seabirds forage, bathe and socialise, are included in the site. The site is the main wintering ground for the largest population of *Branta leucopsis* in the country, which is of international importance. A range of wintering waders associated with exposed shorelines occur. A regionally important population of *Pluvialis apricaria* also occurs. The Inishkea islands are a traditional site for breeding terns, with particularly important populations present. A small colony of *Hydrobates pelagicus* occurs on Inishkea North. The islands also hold important concentrations of breeding waders. The Inishkea islands form part of a larger group of islands, which hold one of the largest breeding populations of *Halichoerus grypus* in Ireland

Inishglora & Inishkeeragh SPA comprises two larger islands, Inishglora and Inishkeeragh, and a number of smaller islets and rocks situated between 1.5 and 3.0 km (approximately) off the Mullet Peninsula. The site is one of the most important seabird sites in the region. Long established colonies of *Hydrobates pelagicus* occur on each of the main islands and these comprise the largest concentration in the region. *Sterna paradisaea* nests on each of the main islands in numbers of national importance and *Sterna albifrons* has nested in the past. Other breeding seabirds utilising the islands also have populations of national importance. The main islands regularly support nationally important numbers of wintering *Branta leucopsis*. These are part of the internationally important flock that is centred on the Inishkea Islands. Inishglora and Inishkeeragh, together with the Inishkea islands and the Duvillaun islands, support one of the largest breeding populations of grey seals *Halichoerus grypus* in Ireland.

Illanmaster SPA is a steep rocky island situated just off the north Mayo coast. It is topped with a maritime grassy sward. The surrounding seas to a distance of 500 m are included in the site. The southern part of the site adjoins the mainland shoreline. The site supports an internationally important population of *Hydrobates pelagicus*, which is one of the largest in the region. It also supports a nationally important population of *Frateracula arctica*, and small numbers of a range of other seabirds

Stags of Broad Haven SPA comprises a group of four steep rocky pinnacles located c.2 km north of Benwee Head. Less steep areas are covered with a maritime grassy sward. The surrounding seas to a distance of 500 m are included in the site. The site is a nationally important seabird colony. It is the only site in Ireland where breeding by *Oceanodroma leucorhoa* has been proved in recent times and here the species occurs at the southern margin of its European range. The site also supports nationally important populations of *Hydrobates pelagicus* and *Fratercula arctica* and regionally important numbers of *Fulmarus glacialis* and *Rissa tridactyla*.

9. APPROPRIATE ASSESSMENT SCREENING

This section identifies and considers potential impacts; direct and secondary, on the conservation status of the qualifying interests of the SAC's and SPA's listed in table 8.2. Cumulative impacts are considered under section 14.

The zone of influence of this project is considered to be the species for which West Connacht Coast SAC is designated (Bottlenose dolphin) and the Inishkea Islands SAC and Duvillaun Islands SAC which are designated for grey seal, which are known to utilise the surrounding waters. It includes those bird species listed for the following SPA's: Mullet Peninsula SPA, Blacksod Bay/Broadhaven SPA, Termoncarragh Lake and Annagh Machair SPA, Duvillaun Islands SPA, Iniskea Islands SPA, Inishglora & Inishkeeragh SPA, Illanmaster SPA and Stags of Broad Haven SPA which have the potential to utilise the area of the proposed SI's for foraging or transit. No Annex I Habitats are considered to be within the zone of influence of the proposed project due to the scale and nature of the SI's.

This zone of influence has been decided based on expert judgement relative to the scale and scope of the project including the localised range of the acoustic signal emanating from the instruments used for the SI's, corridors of connectivity and potential cumulative impacts during the proposed site investigations.

9.1 Direct and Indirect impacts

The proposed project is located within the West Connacht Coast SAC. It has no direct spatial overlap with any additional Natura 2000 sites. However, a number of bird species for which adjacent SPA's are designated and SAC's designated for grey seal likely utilise or transit through the area within the site. Impacts can occur as a result of direct or indirect linkages to those habitats within the zone of influence of a proposed project. A review of the potential for impact, relative to the proposed site investigations on those species, **or habitats for those species**, considered to be within the zone of influence of the proposed project, is provided below and summerised in table 9.5.

The SI's are considered a non-destructive sampling method. In the case of Sub-bottom profiling an acoustic signal is used to determine the sediment of the area under consideration. Sub-bottom profiling systems are characterised by a limited acoustic footprint due to the directional, short duration output which is attenuated with distance from source.

Multi beam echo sounders and Side scan sonar are also characterised by a similar limited acoustic footprint and short duration output. Multi beam echo sounders transmit sound energy from directly beneath the vessel hull in a limited zone. Side scan sonar also transmits an acoustic signal from directly below as it is towed behind the vessel.

CPT testing produces no significant acoustic signal as the rods are simply pushed into the seabed using direct hydraulic force.

Ecological sampling of marine sediments using a Day grab and hand core is standard practice within marine Natura 2000 sites. Both techniques remove extremely small samples from the seabed or intertidal habitat. There is no appreciable sound signal produced from either of these techniques and disturbance and/or removal of infaunal communities is considered negligible.

9.1.1 Bottlenose Dolphin

The conservation objectives for the West Connacht Coast SAC are "*To maintain the favourable conservation condition of Common Bottlenose Dolphin in West Connacht Coast SAC*" which is defined by the following list of attributes and targets:

Table 9.1. Attributes and targets for Common Bottlenose Dolphin at West Connaught Coast SAC

Target	**Attribute**
Access to suitable habitat	Species range within the site should not be restricted by artificial barriers to site use.
Disturbance	Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site

Target 1: *Species range within the site should not be restricted by artificial barriers to site use.*

This target may be considered relevant to proposed activities or operations that will result in the permanent exclusion of bottlenose dolphin from part of its range within the site, or will permanently prevent access for the species to suitable habitat therein. It does not refer to short-term or temporary restriction of access or range.

Target 2: Human activities should occur at levels that do not adversely affect the bottlenose dolphin population at the site.

Proposed activities or operations should not introduce man-made energy (e.g. aerial or underwater noise, light or thermal energy) at levels that could result in a significant negative impact on individuals and/or the population of bottlenose dolphin within the site. This refers to the aquatic habitats used by the species in addition to important natural behaviours during the species' annual cycle. This target also relates to proposed activities or operations that may result in the deterioration of key resources (e.g. water quality, feeding, etc.) upon which bottlenose dolphins depend. In the absence of complete knowledge on the species' ecological requirements in this site, such considerations should be assessed where appropriate on a case-by-case basis. Proposed activities or operations should not cause death or injury to individuals to an extent that may ultimately affect the bottlenose dolphin population at the site.

Artificial barriers created by high intensity sound produced during sub-bottom profiling is highly unlikely. The site investigations are very local, with a small footprint and occur for only a short duration. However, it is recognised that if bottlenose dolphins are present in the area, prior to start-up of the equipment, this may lead to limited disturbance causing them to temporarily leave the immediate area. Therefore, it is important that no bottlenose dolphins should be present when the equipment is powered up. Once on full power, any dolphins in the area that can perceive the sound produced can avoid or ignore the activity. Impacts on prey are extremely unlikely and if they did occur are extremely local, very short duration and not significant.

The proposed activities are extremely local and of short duration and are extremely unlikely to cause any significant impacts. However, with due consideration to the precautionary principle, it is recognised that start-up of equipment may lead to temporary disturbance to Bottlenose dolphins. The presence of an additional vessel (Celtic Explorer or Celtic Voyager) during site investigations is also of short duration and is unlikely to cause any effects. Ship traffic occurs within the area, through typically small fishing vessels and recreational craft and previous site investigations (including marine mammal surveys) have not reported any adverse reactions.

9.1.2. Grey seal

Grey seals are widespread and abundant at, and adjacent to, the site. Inishkea Islands (Site Code 000507) is a candidate Special Area of Conservation for this species as it is a very important breeding area and grey seal is also the sole qualifying interest for the Duvillaun Islands SAC (Site Code 000495) which lies to the south of Inishkea.

Artificial barriers created by high intensity sound produced during sub-bottom profiling is highly unlikely. The site investigations are very local, with a small footprint and occur for only a short duration. However, it is recognised that if Grey seals are present in the area, prior to start-up of the equipment, this may lead to limited disturbance causing them to temporarily leave the area. Therefore, it is important that no Grey seals should be present when the equipment is powered up. Once on full power, any Grey seals in the area that can perceive the sound produced can avoid or ignore the activity. Impacts on prey are extremely unlikely and if they did occur are extremely local and not significant.

The proposed activities are extremely local and of short duration and are extremely unlikely to cause any significant impacts. However, with due consideration to the precautionary principle, it is recognised that start-up of equipment may lead to temporary disturbance to Grey seals. The presence of an additional vessel (Celtic Explorer or Voyager) during site investigations is also of short duration and is unlikely to cause any effects. Ship traffic occurs within the area, through typically small fishing vessels and recreational craft and previous site investigations (including marine mammal surveys) have not reported any adverse reactions.

9.1.3 Bird species associated with SPA's

EIS and monitoring surveys were completed at AMETS between 2009 and 2013 (Scally *et al.*, 2013). Results from these surveys show that a number of species which use test areas A and B may be connected to SPA's associated with the Mullet peninsula and, given the foraging ranges of seabirds, the north Mayo coast (Table 9.2). Some seabirds which use Test areas A and B have very large foraging ranges (Table 9.3) and connectivity between these species and distant SPA's is possible but cannot be established without further investigation (e.g. Tagging studies).

Table 9.2 Species which have been recorded from test areas A and B and are of Special Conservation Interest for coastal SPA's (within 20 km of the study site). Annex I species are listed in italics. Whether the species is listed as a breeding or wintering bird is shown.

Special Protection Area	**Species of Special Conservation Interest**	
	Wintering	**Breeding**
Blacksod Bay/Broadhaven SPA	*Barnacle geese,* Light-bellied brent geese,	
Termoncarragh Lake and Annagh Machair SPA	*Barnacle geese*	
Dunvillaun Islands SPA	*Barnacle geese*	
Iniskea Islands SPA	*Barnacle geese,*	*Arctic tern,* Shag, Lesser black-backed gull, Herrin gull, Common gull
Inishglora & Inishkeeragh SPA	*Barnacle geese*	*Storm petrel, Arctic tern,* Cormorant Shag, Lesser black-backed gull, Herring gull
Duvillaun Islands SPA	*Barnacle geese*	*Storm petrel,* Fulmar
Illaunmaster SPA		*Storm petrel*, Puffin
Stags of Broadhaven SPA		*Storm petrel,* Puffin

Table 9.3. Migratory species and species which may be linked to distant Irish or UK SPA's and which use the study site.

Species	**Importance**
Gannet	Distant SPA, foraging activity in study site
Skuas	Migratory – occurrence on passage
Manx shearwater	Distant Irish SPA (closest is Cruagh Island SPA in Co. Galway) or UK SPA. Migratory, large numbers in Spring, foraging.
Great & Sooty shearwater	Migratory – occurrence on passage

The proposed activities will take place during the months of May to September. During this period wintering birds will not be present in offshore waters. The potential impacts of the proposed activities are therefore concerned with the following SCI or migratory species (i.e. those recorded during surveys of test areas A and B and of SCI in connected or potentially distant SPA's, or present on passage/during migration):

- Arctic tern
- Shag
- Lesser black-backed gull
- Herring gull,
- Common gull
- Storm petrel,
- Cormorant
- Fulmar
- Puffin
- Gannet
- Great and Pomarine Skua
- Manx Shearwater
- Great and Sooty Shearwater.

Test areas A and B were used by foraging and loafing birds and by birds passing through (on transit). The proposed sub-bottom profiling, cone penetration testing, Side scan sonar and Multi beam surveys will involve the presence of one of two potential research vessels (Explorer or Voyager) which will be present in test areas A and B for a period of no more than 10 days over the summer period. Potential impacts are disturbance to seabirds owing to the presence of the vessels and underwater noise disturbance caused by acoustic signals emitted during sub-bottom profiling, Side scan sonar and Multi beam surveys. The presence of the vessels may displace some birds from test areas A and B whilst operations are underway. Underwater noise disturbance may displace seabirds which plunge or surface dive for their food from test areas A and B. It is possible that any fish moving near test areas A and B will be displaced by the acoustic noise, thus also displacing the food resource for diving seabirds. Given the duration of the proposed operation, the size of test areas A and B and their location in open offshore waters, significant impacts on SCI and/or migratory seabirds, which may be disturbed or displaced from test areas A and B, are not considered likely.

9.1.4 Benthic habitats

The conservation objectives for Mullet/Blacksod Bay Complex SAC are "To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Mullet/Blacksod Bay Complex SAC", which is defined by the following list of attributes and targets:

Table 9.4. Attributes and targets for Mudflats and sandflats not covered by seawater at low tide in Mullet/Blacksod Bay Complex SAC.

Target	Attribute
Conserve the following community types in a natural condition: Mobile sand with *Bathyporeia guilliamsoniana* community; Sand with *Angulus tenuis* and *Pygospio elegans*	Community distribution
The permanent habitat area is stable or increasing, subject to natural processes	Habitat area

***Target 1*:** Community distribution

This target does not have the potential to be impacted by the proposed project. An Insignificant volume of sand which falls within this community complex was be sampled at Belderra Strand. The removal of these samples is within the routine volumes that are collected from the same location for monitoring under the EU Habitats Directive. This is an exposed site and any disturbance caused would undetectable within one or two tidal cycles.

Target 2: Habitat area

The sampling proposed at Belderra Strand does not have the potential to reduce or impact in any way on the habitat area.

Table 9.5 Summary of impact prediction (Direct, indirect and cumulative)

West Connacht Coast SAC (Site code: 002998)			
Feature of interest	**Description of potential impact**	**Assessment of impact**	**Screening assessment**
Tursiops truncatus (Common Bottlenose Dolphin) [1349]	Potential for noise related effects on Common Bottlenose Dolphin, should they be present in the area, prior to start-up of acoustic equipment.	Bottlenose dolphins are wide-ranging. Any disturbance due to sound generated by site investigations, especially sub-bottom profiling, multi beam and side scan sonar, will be very local and temporary. However, with due consideration to the precautionary principle, it is recognised that start-up of acoustic equipment may lead to temporary disturbance to Common Bottlenose Dolphin if present in the area prior to start-up. There will be no impact of Cone Penetration Testing. The presence of an additional vessel at the site will also not be significant as the vessels currently fish or transit the area.	**Potential for likely significant effects.**
Mullet/Blacksod Bay Complex SAC (Site code: 000627)			
Feature of interest	**Potential for impact**	**Assessment of impact**	**Screening assessment**
Mudflats and sandflats not covered by seawater at low tide [1140]	No potential for impact	This habitat is found at Belderra Strand, the location of the proposed landfall of the cable associated with the FOW infrastructure. There is no potential for any impact as a result of the SI's on the intertidal sandflats at this location. The habitat will not be entered into during the SI's and no impact from acoustic sampling is possible. Ecological samples taken by intertidal coring at this location do not have the potential to impact the conservation objectives of the site due to the extremely small sampling volumes proposed. No potential for cumulative impacts is predicted (see section 9.2 for further detail on cumulative impacts).	No Impact predicted
Large shallow inlets and bays [1160]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted

Reefs [1170]	No potential for impact.	Intertidal reef habitat occurs to the north and south of Belderra Strand and the inner (eastern) sections of Annagh Head. There is no potential for any interaction as a result of the SI's or benthic sampling on the intertidal reef at this location. The habitat will not be entered into during the SI's and no impact from acoustic sampling is possible. No potential for cumulative impacts is predicted (see section 9.2 for further detail on cumulative impacts).	No Impact predicted
Salicornia and other annuals colonising mud and sand [1310]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Atlantic decalcified fixed dunes (Calluno-Ulicetea) [2150]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Machairs (* in Ireland) [21A0]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation [3150]	No potential for impact. Species does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Alkaline fens [7230]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Lutra lutra (Otter) [1355]	No potential for impact. Species does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Petalophyllum ralfsii (Petalwort) [1395]	No potential for impact. Habitat does not occur within the zone of influence of the proposed project.	N/A	No Impact predicted
Inishkea Islands SAC (Site code: 00507)			

Halichoerus grypus (Grey Seal) [1364]	Potential for noise related effects on Grey Seal, should they be present in the area, prior to start-up of acoustic equipment.	Grey seals are wide-ranging. Any disturbance due to sound generated by site investigations, especially sub-bottom profiling, side scan sonar and multi beam will be very local and temporary. However, with due consideration to the precautionary principle, it is recognised that start-up of acoustic equipment may lead to temporary disturbance to Grey seals if present in the area prior to start-up. There will be no impact of Cone Penetration Testing. The presence of an additional vessel at the site will also not be significant as the vessels currently fish or transit the area.	**Potential for likely significant effects.**
Inishkea Islands SAC (Site code: 00507)			
Halichoerus grypus (Grey Seal) [1364]	Potential for noise related effects on Grey Seal, should they be present in the area, prior to start-up of acoustic equipment.	Grey seals are wide-ranging. Any disturbance due to sound generated by site investigations, especially sub-bottom profiling, side scan sonar and multi beam will be very local and temporary. However, with due consideration to the precautionary principle, it is recognised that start-up of acoustic equipment may lead to temporary disturbance to Grey seals if present in the area prior to start-up. There will be no impact of Cone Penetration Testing. The presence of an additional vessel at the site will also not be significant as the vessels currently fish or transit the area.	**Potential for likely significant effects.**
Mullet Peninsula SPA (Site code: 004227)			
Corncrake (*Crex crex*) [A122]	No potential for impact. Terrestrial bird.	N/A	No Impact predicted
Blacksod Bay/Broadhaven SPA (Site code: 004037)			
Great Northern Diver (*Gavia immer*) [A003]	No potential for impact. Not recorded from test areas “A” and “B”.	N/A	No Impact predicted
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	No potential for impact. Wintering bird.	N/A	No Impact predicted
Common Scoter (*Melanitta nigra*) [A065]	No potential for impact. Not recorded from test areas “A” and “B”.	N/A	No Impact predicted

Red-breasted Merganser (*Mergus serrator*) [A069]	No potential for impact. Wintering bird.	N/A	No Impact predicted
Ringed Plover (*Charadrius hiaticula*) [A137]	No potential for impact. Shore bird.	N/A	No Impact predicted
Sanderling (*Calidris alba*) [A144]	No potential for impact. Shore bird.	N/A	No Impact predicted
Dunlin (*Calidris alpina*) [A149]	No potential for impact. Shore bird.	N/A	No Impact predicted
Bar-tailed Godwit (*Limosa lapponica*) [A157]	No potential for impact. Shore bird.	N/A	No Impact predicted
Curlew (*Numenius arquata*) [A160]	No potential for impact. Shore bird.	N/A	No Impact predicted
Sandwich Tern (*Sterna sandvicensis*) [A191]	No potential for impact. Not recorded from test areas "A" and "B".	N/A	No Impact predicted
Dunlin (*Calidris alpina schinzii*) [A466]	No potential for impact. Shore bird.	N/A	No Impact predicted
Wetland and Waterbirds [A999]	No potential for impact.	N/A	No Impact predicted
Termoncarragh Lake and Annagh Machair SPA (Site code: 004093)			
Whooper Swan (*Cygnus cygnus*) [A038]	No potential for impact. Wintering bird.	N/A	No Impact predicted
Barnacle Goose (*Branta leucopsis*) [A045]	No potential for impact. Wintering bird.	N/A	No Impact predicted
Corncrake (*Crex crex*) [A122]	No potential for impact. Terrestrial bird.	N/A	No Impact predicted
Lapwing (*Vanellus vanellus*) [A142]	No potential for impact. Shore bird.	N/A	No Impact predicted
Chough (*Pyrrhocorax pyrrhocorax*) [A346]	No potential for impact. Terrestrial bird.	N/A	No Impact predicted
Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	No potential for impact. Wintering bird.	N/A	No Impact predicted
Dunlin (*Calidris alpina schinzii*) [A466]	No potential for impact. Shore bird.	N/A	No Impact predicted
Wetland and Waterbirds [A999]	No potential for impact.	N/A	No Impact predicted
Duvillaun Islands SPA (Site code: 004111)			
Fulmar (*Fulmarus glacialis*) [A009]	No potential for impact owing to size, scale and location of operations.	N/A	No Impact predicted

Storm Petrel (*Hydrobates pelagicus*) [A014]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Barnacle Goose (*Branta leucopsis*) [A045]	No potential for impact. Wintering bird.	N/A	No Impact predicted
Iniskea Islands SPA (Site code: 004004)			
Shag (*Phalacrocorax aristotelis*) [A018]	No potential for impact owing to type, size, scale and location of operations	N/A	No Impact predicted
Barnacle Goose (*Branta leucopsis*) [A045]	No potential for impact. Wintering bird	N/A	No Impact predicted
Ringed Plover (*Charadrius hiaticula*) [A137]	No potential for impact. Shore bird.	N/A	No Impact predicted
Sanderling (*Calidris alba*) [A144]	No potential for impact. Shore bird.	N/A	No Impact predicted
Purple Sandpiper (*Calidris maritima*) [A148]	No potential for impact. Shore bird.	N/A	No Impact predicted
Turnstone (*Arenaria interpres*) [A169]	No potential for impact. Shore bird.	N/A	No Impact predicted
Common Gull (*Larus canus*) [A182]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Herring Gull (*Larus argentatus*) [A184]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Arctic Tern (*Sterna paradisaea*) [A194]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Little Tern (*Sterna albifrons*) [A195]	No potential from impact. Not recorded from test areas “A” and “B”.	N/A	No Impact predicted
Dunlin (*Calidris alpina schinzii)* [A466]	No potential for impact. Shore bird.	N/A	No Impact predicted
Inishglora & Inishkeeragh SPA (Site code: 004084)			
Storm Petrel (*Hydrobates pelagicus*) [A014]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Cormorant (*Phalacrocorax carbo*) [A017]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Shag (*Phalacrocorax aristotelis*) [A018]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Barnacle Goose (*Branta leucopsis*) [A045]	No potential for impact. Wintering bird	N/A	No Impact predicted

Lesser Black-backed Gull (*Larus fuscus*) [A183]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Herring Gull (*Larus argentatus*) [A184]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Arctic Tern (*Sterna paradisaea*) [A194]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Illanmaster SPA (Site code: 004074)			
Storm Petrel (*Hydrobates pelagicus*) [A014]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Stags of Broad Haven SPA (Site code: 004072)			
Storm Petrel (*Hydrobates pelagicus*) [A014]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted
Leach's Storm-petrel (*Oceanodroma leucorhoa*) [A015]	No potential for impact owing to size, scale and location of operations	N/A	No Impact predicted

10. APPROPRIATE ASSESSMENT SCREENING CONCLUSIONS

Following a review of the proposed project, a Stage 1 Screening for Appropriate Assessment, following the guidelines of Assessment of plans and projects significantly affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, has been conducted.

The conclusion of the Stage 1 Screening assessment is that the proposed project will have no impact on the features of interests or conservation objectives of any Natura 2000 site/s, Annex I habitats or Annex II species and that further Appropriate Assessment is not required.

The proposed project is to be carried out from the Celtic Explorer and Celtic Voyager vessels which, as standard, follow the guidelines to manage the risk to marine mammals from man-made sound sources in Irish waters (NPWS, 2014). The Minister may decide to make the grant of a site investigation foreshore licence subject to a specific condition requiring compliance with the guidelines (NPWS, 2014). Therefore, the Minister may determine that it is appropriate to place reliance on the measures specified in the guidelines (NPWS, 2014) in order to exclude likely significant effects on any European site or Annex I habitat or Annex II species. In those circumstances it would be necessary for the Minister to proceed to Stage 2 Appropriate Assessment on the basis of a Natura Impact Statement submitted on behalf of the applicant.

Accordingly, this NIS has been prepared to provide the Minister with such information and data as is necessary to enable the Minister to determine whether the proposed project will affect the integrity of any European site, having regard to the mitigation of any such risk by the imposition of a condition requiring compliance with the guidance (NPWS, 2014).

As the very low risk of adverse effects on marine mammals as a result of acoustic disturbance is further reduced through the measures described in the guidance (NPWS,2014), the NIS therefore objectively concludes that, provided the mitigation measures described in this document are fully implemented, there will be no significant adverse effects on the features of interest or Conservation Objectives of West Connaught Coast SAC (Site code: 002998), Inishkea Islands SAC (Site code: 00507), Duvillaun Islands SAC (Site code: 000495) or any European Site. On this basis it may be determined by the Minister in accordance with Article 42(16) of the Birds and Habitats Regulations 2001, as amended, that the project shall not adversely affect the integrity of a European site.

11. APPROPRIATE ASSESSMENT

The Appropriate Assessment Screening determined that potential negative impacts, associated with the acoustic survey techniques, were possible to Common bottlenose dolphins for which West Connacht Coast SAC is designated and to Grey seals for which Inishkea Islands SAC and Duvillaun Islands SAC are designated. These potential impacts and mitigation measures to ensure the risks outlined in the Appropriate Assessment Screening are fully mitigated are detailed in section 12.

12. MITIGATION

It is standard practice that a Marine Mammal Observer (MMO) be present during site investigations involving acoustic survey techniques being conducted by the *Celtic Explorer* and/or the *Celtic Voyager*. Notwithstanding this fact, it is recommended that a MMO be present and oversee all of the proposed acoustic survey work described in this document.

DAHG (2014) provides guidance to manage the risk to marine mammals from man-made sound sources in Irish waters. This document provides guidance and mitigation measures to address key potential sources of anthropogenic sound that may impact negatively on marine mammals in Irish waters.

Specifically, in relation to multibeam, single beam, side-scan sonar and sub-bottom profiler surveys, such as proposed in this project, the guidance set out in DAHG (2014) (as stated below) should be fully implemented.

1. A qualified and experienced marine mammal observer (MMO) shall be appointed to monitor for marine mammals and to log all relevant events using standardised data forms (Appendix 6, DAHG, 2014).
2. Unless information specific to the location and/or plan/project is otherwise available to inform the mitigation process (e.g., specific sound propagation and/or attenuation data) and a distance modification has been agreed with the Regulatory Authority, acoustic surveying using the above equipment shall not commence if marine mammals are detected within a 500m radial distance of the sound source intended for use, i.e., within the Monitored Zone.

Pre-Start Monitoring

3. Sound-producing activities shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible the sound-producing activities shall be postponed until effective visual monitoring is possible.
4. An agreed and clear on-site communication signal must be used between the MMO and the Works Superintendent as to whether the relevant activity may or may not proceed, or resume following a break (see below). It shall only proceed on positive confirmation with the MMO.
5. In waters up to 200m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.
6. This prescribed Pre-Start Monitoring shall subsequently be followed by a Ramp-Up Procedure which should include continued monitoring by the MMO.

Ramp-up Procedure

7. In commencing an acoustic survey operation using the above equipment, the following Rampup Procedure (i.e., “soft-start”) must be used, including during any testing of acoustic sources, where the output peak sound pressure level from any source exceeds 170 dB re: 1µPa @1m:
   (a) Where it is possible according to the operational parameters of the equipment concerned, the

device's acoustic energy output shall commence from a lower energy start-up (i.e., a peak sound pressure level not exceeding 170 dB re: 1µPa @1m) and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20 minutes.
(b) This controlled build-up of acoustic energy output shall occur in consistent stages to provide a steady and gradual increase over the ramp-up period.
(c) Where the acoustic output measures outlined in steps (a) and (b) are not possible according to the operational parameters of any such equipment, the device shall be switched "on" and "off" in a consistent sequential manner over a period of 20 minutes prior to commencement of the full necessary output.

8. In all cases where a Ramp-Up Procedure is employed the delay between the end of ramp-up and the necessary full output must be minimised to prevent unnecessary high-level sound introduction into the environment.
9. Once the Ramp-Up Procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within a 500m radial distance of the sound source, i.e., within the Monitored Zone.

Breaks in sound output

10. 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 and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) must be undertaken.
11. For higher output survey operations which have the potential to produce injurious levels of underwater sound (see sections 2.4, 3.2) as informed by the associated risk assessment, there is likely to be a regulatory requirement to adopt a shorter 5-10 minute break limit after which period all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) shall recommence as for start-up.

Reporting

12. Full reporting on MMO operations and mitigation undertaken must be provided to the Regulatory Authority as outlined in Appendix 6 of DAHG (2014).

13. SUMMARY OF IMPACTS WITH MITIGATION

It is considered that the mitigation measures detailed in this report are appropriate and sufficient to avoid negative impacts to the Conservation Objectives of West Connacht Coast SAC, Inishkea Islands SAC and/or Duvillaun Islands SAC as documented in table 13.1.

Table 13.1 Summary of assessment of impact with mitigation

West Connacht Coast SAC (Site code: 002998)	
Feature of interest	*Tursiops truncatus* (Common Bottlenose Dolphin) [1349]
Description of potential impact	Potential for noise related effects if Common Bottlenose Dolphin are in the immediate area prior to start-up of acoustic equipment.

Mitigation proposed	A trained and experienced Marine Mammal Observer will oversee all of the proposed acoustic survey work described in this document. The presence of the MMO will provide an effective means of detecting Common Bottlenose Dolphin should they be present in the area. The MMO will follow the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014) and specifically the guidance therein in relation to multibeam, single beam, side-scan sonar and sub-bottom profiler surveys. Should the MMO observe Common Bottlenose Dolphin prior to start-up, (i.e. start-up of acoustic surveys) operations will be delayed until no Common Bottlenose Dolphin are recorded in the area.
Assessment of impact with mitigation	No Impact predicted
Inishkea Islands SAC (Site code: 00507)	
Feature of interest	*Halichoerus grypus* (Grey Seal) [1364]
Description of potential impact	Potential for noise related negative effects if Grey Seal are in the immediate area prior to start-up of acoustic equipment.
Mitigation proposed	A trained and experienced Marine Mammal Observer will oversee all of the proposed acoustic survey work described in this document. The presence of the MMO will provide an effective means of detecting Grey Seal should they be present in the area. The MMO will follow the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014) and specifically the guidance therein in relation to multibeam, single beam, side-scan sonar and sub-bottom profiler surveys. Should the MMO observe Grey Seal prior to start-up, (i.e. start-up of acoustic surveys) operations will be delayed until no Grey Seal are recorded in the area.
Assessment of impact with mitigation	No Impact predicted
Duvillaun Islands SAC (Site code: 000495).	
Feature of interest	*Halichoerus grypus* (Grey Seal) [1364]
Description of potential impact	Potential for noise related negative effects if Grey Seal are in the immediate area prior to start-up of acoustic equipment.
Mitigation proposed	A trained and experienced Marine Mammal Observer will oversee all of the proposed acoustic survey work described in this document. The presence of the MMO will provide an effective means of detecting Grey Seal should they be present in the area. The MMO will follow the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014). Should the MMO observe Grey Seal prior to start-up, operations (i.e. start-up of acoustic surveys) will be delayed until no Grey Seal are recorded in the area.
Assessment of impact with mitigation	No Impact predicted

14 CUMULATIVE IMPACTS

While a single development may not in itself cause a significant impact on the conservation objectives of a site, a combination of projects within a localised area may cause a negative impact on a site. Therefore,

the cumulative impacts of a project or plan in association with other projects and plans must be taken into consideration when assessing the possible impacts of a development.

Development of the AMETS

Future development of the AMETS is likely to include the infrastructure described below:

Installation of Floating offshore wind energy devices

The location of the proposed SI's is in the same area as the planned deployment of FOW devices and their associated infrastructure. It is intended that further baseline characterisation of the site relative to its use for FOW will be carried out over the next two years (2020/2021) to facilitate the preparation of an EIS and NIS for the site. The proposed SI's will help to better inform the baseline characterisation of the site. It is considered highly unlikely that the proposed SI's will lead to a significant cumulative impact in combination with planned deployment of FOW devices. Provided the mitigation detailed in section 12 of this document is implemented, no direct or indirect significant effects of the proposed SI's on the conservation objectives of any Natura 2000 site will occur. The SI's are highly localised and of short duration. Therefore, in-combination effects with FOW devices, that may be deployed on the site in the future, are not considered likely.

Sub-sea cable connecting the offshore wind energy devices and associated infrastructure to a cable joint bay located behind Belderra strand.

It is planned that a sub-sea cable will connect the FOW devices to a cable joint bay located behind Belderra strand. Appropriate Assessment Screening for the installation of the sub-sea cable and associated infrastructure was carried out as part of Appropriate Assessment Screening prepared for the AMETS test site (relative to its use for the testing of Wave Energy Devices) in 2016. This assessment concluded that "*the proposed project will have no impact on the features of interests of any Natura 2000 site/s, Annex I habitats or Annex II species and that further Appropriate Assessment is not required*".

As no impact from the proposed SI's are predicted and no impacts from the installation of the sub-sea cable and cable joint bay and associated underground cables were predicted there is no potential for any cumulative impacts.

ESB substation, underground cable and cable joint bay

It is planned that a new substation will be constructed in the area of Cross, just west of the cable landfall at Belderra strand. Appropriate Assessment Screening for the substation was carried out in 2016. This screening assessment assessed the proposed location of the electrical substation, cable joint bay and associated underground cables leading from the cable joint bay to the substation. The screening assessment concluded that "*the proposed project alone or in-combination with other approved or planned projects will have no adverse impact on the features of interests of any Natura 2000 site/s, Annex I habitats or Annex II species and that further Appropriate Assessment is not required*".

As no impact from the proposed SI's are predicted and no impacts from the electrical substation, cable joint bay and associated underground cables were predicted there is not potential for any cumulative impacts.

Connection to the existing grid via the installation of a new 20kV overhead line to Belmullet.

To connect the substation to the national grid a new 20kV is required from the substation at Cross to Belmullet substation, Co. Mayo. Appropriate Assessment Screening for this line was carried out in 2016. This screening assessment included a detailed analysis of the habitats and species for all Natura 2000 sites within a 15km radius of the proposed electricity line. Bird surveys during the period between October and March (2015/2016) and consultation with the NPWS Conservation Ranger and the Corncrake fieldworker for this area were carried out as part of the screening assessment. The screening assessment concluded that "*there is no likelihood of significant adverse effects* [from the proposed 20kv line] *on the identified SPA's or SAC's and their special conservation interests*".

As no impact from the proposed SI's are predicted and no impacts from the 20kV electricity line were predicted there is not potential for any cumulative impacts.

Fishing

Inshore fishing activity within the area, including within test areas 'A' and 'B' largely consists of potting for Brown Crab and Lobster and some gill netting and trawling. Potting is largely confined to or adjacent to geogenic reef habitat and is considered to have a low impact on this habitat. Trawling is known to be damaging to a range of benthic habitats. However, its impacts on the largely sandy substrate of the area within the two test boxes is considered to be insignificant.

Fish (or shellfish) species, in their own right, do not form a conservation objective for any Natura 2000 site within the zone of influence of the proposed SI's. However, they provide a food resource for marine mammals and bird species utilising the surrounding Natura 2000 sites. It is considered that the localised and short duration of SI's will not lead to significant negative impacts on fish or shellfish and therefore no in-combination impacts with fishing are predicted.

Other development

A review of Mayo Co. Co. planning applications on 11th September 2019 did not indicate any additional projects or plans for the area within the vicinity of the proposed SI's that could be considered to have the potential to lead to cumulative impacts in combination with the proposed SI's.

15. RESIDUAL IMPACTS

No residual impacts of the proposed project have been identified or are considered possible.

16. NATURA IMPACT STATEMENT CONCLUSION

This Natura Impact Statement has considered the potential for adverse effects of the proposed site investigations on the *features of interest* and *conservation objectives* of European sites within the zone of influence of the proposed project.

The potential for adverse effects as a result of acoustic disturbance has been mitigated. The NIS therefore objectively concludes that, provided the mitigation measures described in this document are fully implemented, **no significant adverse effects are expected on the *features of interest* or *Conservation Objectives*** of West Connaught Coast SAC (Site code: 002998), Inishkea Islands SAC (Site code: 00507), Duvillaun Islands SAC (Site code: 000495) or any European Site *i.e*. the integrity of the sites will not be adversely affected.

It is further concluded that there is no requirement to proceed to Stage 3 (Assessment of Alternative Solutions).

17. REFERENCES

Assessment of plans and projects significantly affecting Natura 2000 sites; Methodological Guidance on the provisions of Articles 6(3) and (4) of the Habits Directive 92/43/EEC. European Commission, 2002.

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